



सत्यमेव जयते

RESEARCH COMPENDIUM

VOLUME II

FROM RESEARCH STUDIES UNDERTAKEN BY
STATE AIDS CONTROL SOCIETIES IN FY 2022-2023



National AIDS Control Organisation

India's response to HIV & Sexually Transmitted Infections
Ministry of Health & Family Welfare, Government of India
www.naco.gov.in



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FOREWORD



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राष्ट्रीय एड्स नियंत्रण संगठन
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National AIDS Control Organisation
Ministry of Health & Family Welfare
Government of India

FOREWORD

The National AIDS & STD Control Programme (NACP) has implemented a comprehensive strategy in addressing the HIV epidemic by embedding research, evaluation, and strategic information management into its core framework which has been a cornerstone in India's success in controlling the spread of HIV epidemic.

Operational Research and Evaluation Studies under NACP play a crucial role in identifying gaps and needs within the Programme, offering evidence-based, localised solutions. To adapt to the evolving needs of the Programme and the changing dynamics of the HIV epidemic, NACP established the Network of Indian Institutions for HIV/AIDS Research (NIIHAR) which includes various research institutes and organisations focussed on conducting epidemiological, socio-behavioural, operational, and clinical research, along with programme evaluations.

The National AIDS Control Organisation (NACO) actively compiles key findings and programmatic recommendations from research studies, projects and innovations, building an evidence base for dissemination of the generated results for enhancing programmatic learnings for refining the existing interventions in the Programme. The Research Compendium serves as a significant document for disseminating these findings, enabling data-driven decision-making, and promoting evidence-based policy formulation in India's HIV/AIDS response which reflects a commitment to transparency and knowledge-sharing, ultimately enhancing the well-being of those affected by HIV/AIDS in India.

The Research Compendium Volume II, includes the studies conducted by Research Institutes in financial year 2022-2023. This document will be beneficial to make vital information accessible to a wider audience, including programme managers and policy makers, scientific community, and those working to improve the lives of people living with HIV (PLHIV) and marginalised populations.


(V. Hekali Zhimomi)

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अपनी एचआईवी अवस्था जानें, निकटतम सरकारी अस्पताल में मुफ्त सलाह व जाँच पाएँ
Know your HIV status, go to the nearest Government Hospital for free Voluntary Counselling and Testing

PREFACE

निखिल गजराज, भा.प्र.से.
संयुक्त सचिव

Nikhil Gajraj, IAS
Joint Secretary



75
आज़ादी का
अमृत महोत्सव



PREFACE

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
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Research and Evaluation is one of the important components of Strategic Information within the National AIDS & STD Control Programme (NACP). The main purpose of Research & Evaluation is to translate research findings into programmatic actions and policy development which address the complex challenges posed by the HIV epidemic and to customise existing programmatic strategies based on the identified gaps and needs.

With a focussed research agenda that includes fostering partnerships and networks with stakeholders, building capacity for HIV/AIDS research, studies have been undertaken on key programmatic priorities and issues.

A research consortium, NIIHAR, has also been created to support collaboration, training, and capacity building across research institutions engaged in HIV/AIDS studies. This initiative has bolstered the research ecosystem while promoting nationwide collaboration among multi-disciplinary institutions.

NACO also conducts assessments to evaluate the impact of various HIV/AIDS programmes, enabling identification of problem areas that need refinement and mid-course corrections to improve programme outcomes.

The Research Compendium serves as a consolidated evidence base, sharing insights from various studies, projects, and innovations in HIV/AIDS; with key research findings and programmatic recommendations. The compilation of key findings and recommendations from studies conducted during 2022-23 in the Research Compendium Volume II is expected to benefit a broad audience, providing valuable inputs to policymakers, healthcare professionals and the wider community, ultimately advancing India's efforts in the fight against HIV/AIDS.

Nikhil Gajraj
(Nikhil Gajraj)

ACKNOWLEDGEMENT



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ACKNOWLEDGEMENT

The National AIDS & STD Control Programme (NACP) relies on empirical data to shape policies and implement initiatives aimed at combating HIV/AIDS. NACP adopts a comprehensive approach to research and evaluation, covering epidemiological, socio-behavioural, operational, and clinical studies, ensuring a deep understanding of the HIV epidemic and its impacts.

NACP places a strong focus on consolidating and sharing research findings, ensuring that insights from research are directly integrated into program decisions. This commitment to data-driven decision-making has helped strengthen the national program, while also promoting partnerships with key stakeholders including academia in the HIV/AIDS response.

The research studies conducted by State AIDS Control Societies during FY 2022-2023, with financial support from the National AIDS Control Organization (NACO) have been compiled and summarised with key findings and programmatic recommendations in Research Compendium Vol II. This initiative aims to create a comprehensive evidence repository containing information on a wide range of studies, projects, and innovations related to HIV/AIDS and STI. This will ensure that policies and initiatives are grounded in data and scientific evidence, leading to more effective and targeted interventions.

Recognising that the process of generating evidence and innovation through scientific research requires expertise and collaboration among institutions, NACO extends its sincere appreciation to all State AIDS Control Societies (SACS), researchers, scientists, program managers, and colleagues whose dedication has streamlined research and evaluation activities under NACP. NACO also acknowledges the technical support provided by the members of the Research Abstract Committee- Dr. Tarun Bhatnagar (ICMR-NIE, Chennai), Dr. Ravindra Rao (AIIMS, New Delhi), Dr. Bhawani Singh Kushwaha (Deputy Director, NACO), Dr. Bhawna Rao (Deputy Director, NACO), Dr. Saiprasad Bhavsar (Deputy Director, NACO), Ms. Srabani Datta (Tripura SACS), Ms. Poonam Bakshi (Chandigarh SACS), Mr. Anil Shinde (Mumbai SACS), Dr. Sanjay Patil (Karnataka SAPS) and Dr. Sami Akhtar (Jharkhand SACS).

Additionally, the role of Strategic Information team at NACO- Ms. Vinita Verma, Mr. Rajiv Ranjan Tiwari, Dr. Padum Narayan, Dr. Nupur Mahajan, Ms. Neha Kapoor, Dr. Rehana Bano, Mr Ganesh Kumar and Dr. Nikhil Patil is appreciated.

This commitment has established NACO as a leader in generating and disseminating evidence in a systematic manner for programmatic improvements, decision-making and policy development, setting a benchmark for other public health programmes.

(Dr. Chinmoyee Das)

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LIST OF ABBREVIATIONS

AEP	Adolescence Education Programme	NGO	Non-Government Organisation
AFHS	Adolescent Friendly Health Services	ORW	Out-Reach Worker
AIDS	Acquired Immuno-Deficiency Syndrome	OST	Opioid Substitution Therapy
ANC	Antenatal Clinics	PLHIV	People Living with HIV/AIDS
ART	Anti-Retroviral Treatment	PPP	Public Private Partnership
ARTC	Anti-Retroviral Treatment Centre	PPTCT	Prevention of Parent to Child Transmission
BCC	Behaviour Change Communication	PrEP	Pre-Exposure Prophylaxis
CBO	Community-Based Organisation	PWID	People Who Inject Drugs
CHTC	Couples HIV Testing and Counseling	QoL	Quality of Life
CSC	Common Service Centres	RMCAS	Revised Multidimensional Condom Attitude Scale
DAPCU	District AIDS Prevention and Control Unit	RRC	Red Ribbon Club
FGD	Focused Group Discussion	RSP	Regular Sexual Partner
FIDU	Female Injecting Drug Users	SACS	State AIDS Control Society
FSW	Female Sex Worker	SCERT	State Council for Educational Research and Training
HIV	Human Immunodeficiency Virus	SCM	Syndromic Case Management
HIVST	Human Immunodeficiency Virus Self-Testing	SDG	Sustainable Developmental Goal
HRG	High Risk Group	SDSB	Sustained Desirable Sexual Health Behaviour
HSB	Health-Seeking Behaviour	SHSRC-K	State Health Systems Resource Centre Kerala
ICTC	Integrated Counseling & Testing Center	SMCR	Sender Message Channel Receiver
IDI	In-Depth Interview	SPS	Social Protection Schemes
IDU	Injected Drug User	STI	Sexually Transmitted Infection
IEC	Information, Education and Communication	TG	Transgender
IEC	Institutional Ethics Committee	TI	Targeted Intervention
IPA	Interpretative Phenomenological Analysis	TLD	Tenofovir, Lamivudine, and Dolutegravir
IV	Intra-Venous	TT	Testing Together
KP	Key Population	VHS-CDC	Voluntary Health Services – Centers for Disease Control and Prevention
LFU	Loss to Follow-Up	WLHIV	Women Living with HIV
MSM	Men who have Sex with Men		
NACO	National AIDS Control Organisation		
NACP	National AIDS Control Programme		

OVERVIEW

India's successful response to the HIV/AIDS epidemic can be partially credited to its effective development and use of an evidence-based approach to guide key policy and programme decisions. Over the past three decades, the process of generating evidence and planning programmes has advanced, extending from the national level to include state, district, and even sub-district levels which enabled National AIDS Control Programme (NACP) to concentrate its efforts on the most relevant geographic areas and populations, with a more targeted and adaptable response to the evolving epidemic.

With the rise of new hotspots across the country, it is essential to identify these emerging areas in order to enhance the use of evidence for informed decision-making at the district, state, and national levels.

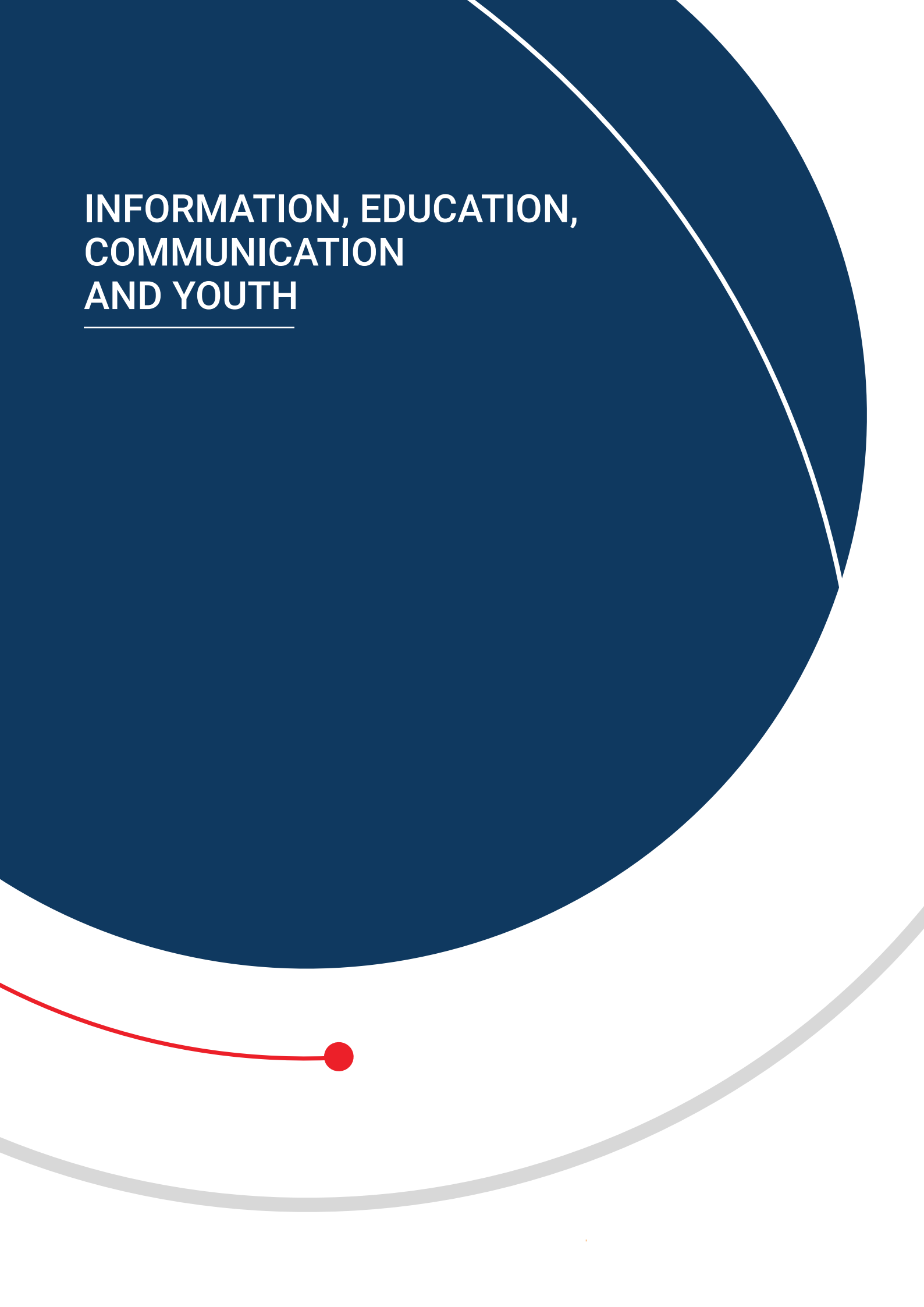
Research & Evaluation plays a pivotal role in Strategic Information within NACP, covering a broad range of areas such as epidemiological, social, behavioural, clinical, and operational research. Each of these areas significantly informs programme strategies and policies, shaping the overall direction of the programme.

NACO has placed a strong emphasis on enhancing research and evaluation activities within the programme, with the goal of establishing itself as the leading national body for promoting and coordinating HIV/AIDS research. This includes developing guidelines, norms, and standards for conducting HIV/AIDS research, fostering partnerships and networks with various stakeholders and respected national academic and research institutions, supporting capacity-building in HIV/AIDS research, and ensuring that research findings are effectively translated into programmatic actions and policy formulation.

To address the programme's evidence and research needs and optimise the use of available data, NACP has developed a structured research plan to identify programmatic gaps and research priorities. A systematic process is followed to identify information gaps and evidence needs in programme planning and implementation, involving programme managers at NACO and SACS, technical experts, civil society and community and development partners. A multi-centric approach is adopted for research, engaging a panel of epidemiologists, bio-statisticians, scientists, researchers, academicians, and public health experts from reputed government institutions. There is a strong ecosystem institutionalised at NACO and SACS to review research priorities, research proposals and related process. In each financial year, NACO has identified research priorities to each State/UT to conduct operational research studies with the support of State AIDS Control Societies across the country.

In 2022-2023, NACO conducted around 80 primary research at SACS level. The evidence generated from these studies has been crucial in identifying gaps in coverage, service utilisation for prevention and testing, and challenges related to linkage loss and treatment adherence - all aimed at improving service delivery under NACP and in response towards achieving the ambitious goal of ending AIDS by 2030. These studies Provided valuable, state-specific insights for programme managers and policymakers. To consolidate the knowledge and evidence gathered from these state-specific studies, NACO has decided to publish a Research Compendium highlighting the key findings and recommendations from the research and evaluation studies it has supported at State level. The Compendium aims to create an evidence base and share these findings with a broader audience, including programme managers, policy makers, civil society and community, and other key stakeholders. It includes insights and recommendations from 65 abstracts based on research studies conducted across States/UTs between 2022 and 2023.

INFORMATION, EDUCATION, COMMUNICATION AND YOUTH

The background features a large, dark blue circle that occupies the upper and middle portions of the frame. A thin white arc is positioned on the right side of this circle. In the lower-left area, a red line curves upwards and ends in a solid red dot. A light gray arc is visible at the bottom of the image, partially overlapping the white background.

HIV/AIDS Awareness and Risk Behaviour among College Students of Central Assam: A Cross-Sectional Study

AUTHORS

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Introduction

Acquired Immunodeficiency Syndrome (AIDS) poses a severe challenge to healthcare and is a significant public health issue worldwide. Young people often engage in sexual activity at an early age, and knowledge is an essential precursor to sexual risk reduction [1]. Sometimes, Sexually Transmitted Infections (STIs) may be viewed as unavoidable or even as an “initiation into adulthood”. Historically, knowledge about STIs has been very low, even in communities with a high prevalence of STIs [1]. As more than one-third of the population in India consists of young adults and adolescents, reaching and educating them is key for prevention programmes and a healthier future [2].

One study on the subject showed that only 13.5% of senior school students had clear knowledge about AIDS, its general aspects, transmission, and prevention. Girls had a higher and clearer understanding than boys [1]. While 86% of the subjects knew that AIDS was transmitted sexually but awareness on transmission routes and effective preventive measures was much lower. The use of condoms as a preventive measure was cited by 41% of the students, with a significantly higher proportion of male respondents than female respondents. Additionally, 64% of all survey participants reported having experienced sexual intercourse [3].

Unfortunately, there is a lack of evidence on what predicts awareness of Human Immunodeficiency Viruses (HIV) among young adults in the north-eastern states of India, particularly Assam. Most of the research in India has focused on beliefs, attitudes, and awareness of HIV. However, this study aims to assess the level of knowledge about HIV/AIDS and associated high-risk sexual behaviours among young students in central Assam, specifically in the districts of Karbi Anglong, Nagaon, and Hojai. The current study also seeks to gather information on existing knowledge about HIV/AIDS, its transmission, and prevention measures.

Objective

The objective of the study was to assess the knowledge of HIV/AIDS among college students and their risk behaviours.

Methodology

This cross-sectional study was conducted in three districts: Nagaon, Hojai, and Karbi-Anglong in central Assam. A total of 1,194 students from seven colleges (three colleges from Nagaon district, and two colleges each from Hojai and Karbi-Anglong districts) were included in the study. Of these, 600 students were from Nagaon, 220 from Hojai, and 374 from Karbi-Anglong. Students aged 18 years or older, pursuing an undergraduate degree, and who provided informed consent were included in the study. Data collection was carried out using a pre-designed and pre-tested questionnaire, and data analysis was done using SPSS version 20.

District and Gender Wise Distribution

It is observed from table 1 that the majority of study participants (56.0%) were females compared to males (44.0%). Additionally, a higher proportion of females from Nagaon (65.8%) participated in the study, while more males from Hojai (55.9%) took part.

Table 1 District and gender wise distribution of respondents

District	Male (%)	Female (%)	Total (%)
Karbi Anglong	197 (52.7%)	177 (47.3%)	374 (100%)
Hojai	123 (55.9%)	97 (44.1%)	220 (100%)
Nagaon	205 (34.2%)	395 (65.8%)	600 (100%)
Total	525 (44.0%)	669 (56.0%)	1194 (100%)

Age and Gender Wise Distribution

It was observed from table 2 that in the district of Karbi-Anglong, approximately 65.8% of the study participants were under 20 years of age, with more females (71.7%) than males (60.4%). In the district of Hojai, approximately 70.9% of the study participants were under 20 years, with more females (83.5%) than males (61%). In the district of Nagaon, approximately 88.9% of the study participants were under 20 years, with more males (88.9%) than females (88.3%).

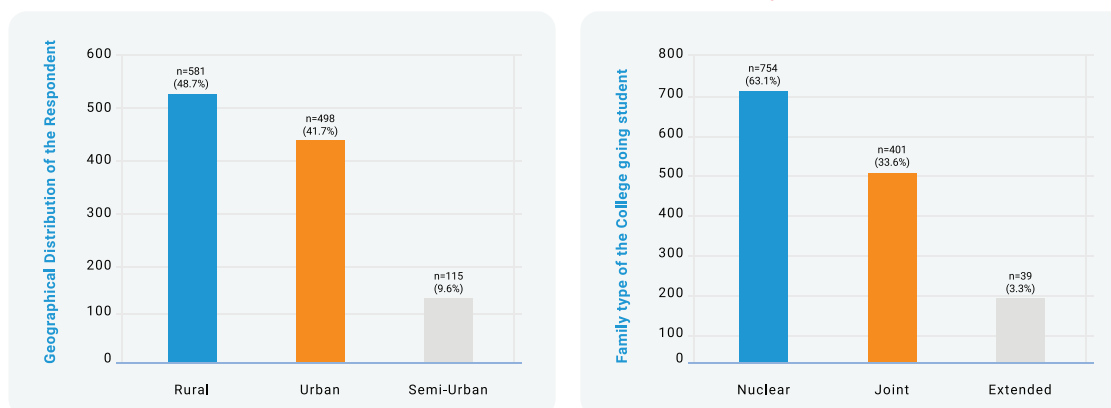
Table 2 Distribution of Study Participants by Age and Gender

KARBI - ANGLONG			
Age (in completed years)	Gender		Total
(%)			
	Male (%)	Female (%)	
19	56 (28.4%)	77 (43.5%)	133 (35.6%)
20	63 (32.0%)	50 (28.2%)	113 (30.2%)
21	48 (24.4%)	33 (18.6%)	81 (21.7%)
22	24 (12.2%)	12 (6.8%)	36 (9.6%)
23	05 (2.5%)	04 (2.3%)	09 (2.4%)
24	01 (0.5%)	01 (0.6%)	02 (0.5%)
25	-	-	-
Total	197 (100%)	177 (100%)	374 (100%)
HOJAI			
19	27 (22.0%)	30 (30.9%)	57 (25.9%)
20	48 (39.0%)	51 (52.6%)	99 (45.0%)
21	26 (21.1%)	13 (13.4%)	39 (17.7%)
22	16 (13.0%)	02 (2.1%)	18 (8.2%)
23	04 (3.3%)	01 (1.0%)	05 (2.3%)
24	01 (0.8%)	-	01 (0.5%)
25	01 (0.8%)	-	01 (0.5%)
Total	123 (100%)	97 (100%)	220 (100%)
NAGAON			
19	68 (33.2%)	176 (44.5%)	244 (40.7%)
20	114 (55.7%)	175 (44.3%)	289 (48.2%)
21	11 (5.3%)	29 (7.3%)	40 (6.7%)
22	09 (4.4%)	09 (2.3%)	18 (3.0%)
23	03 (1.5%)	05 (1.3%)	08 (1.3%)
24	-	01 (0.2%)	01 (0.2%)
25	-	-	-
Total	205 (100%)	395 (100%)	600 (100%)

Socio Demographic Distribution

It was observed in Figure 1, 48.7% of the respondents were residing in rural areas and 63.1% of them belong to nuclear families.

Figure 1 Socio-Demographic Distribution of Study Participants



Current Status of Knowledge on Terminology

In table 3, it was observed that in Karbi-Anglong, 78.1% of participants responded correctly regarding the full form of HIV (M-50.3% & F-49.7%), while 49.5% correctly identified the full form of AIDS (M-53.5% & F-46.5%). In Hojai, 73.2% responded correctly about the full form of HIV (M-51.6% & F-48.4%), while 63.2% correctly identified the full form of AIDS (M-56.1% & F-43.9%). In Nagaon, 81.0% responded correctly about the full form of HIV (M-38.7% & F-61.3%), while 72.2% correctly identified the full form of AIDS (M-38.6% & F-61.4%).

Table 3 Correct terminology of HIV and AIDS by District & Gender

	Karbi Anglong District		Hojai District		Nagaon District	
Correct Terminology of HIV	Correct Responses (n = 292) 78.1% from 374 samples		Correct Responses (n = 161) 73.2% from 220 samples		Correct Responses (n = 486) 81.0% from 600 samples	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
	147 (50.3%)	145 (49.7%)	83 (51.6%)	78 (48.4%)	188 (38.7%)	298 (61.3%)
Correct Terminology of AIDS	Correct Responses (n = 185) 49.5% from 374 samples		Correct Responses (n = 139) 63.2% from 220 samples		Correct Responses (n = 433) 72.2% from 600 samples	
	99 (53.5%)	86 (46.5%)	78 (56.1%)	61 (43.9%)	167 (38.6%)	266 (61.4%)

District Wise Knowledge on Transmission and Prevention

It was observed from table 4 that in Karbi-Anglong, 94.1% of respondents knew that HIV is transmitted by unprotected casual sex, followed by 93.0% in Nagaon and 90.0% in Hojai. However, 37.7% of respondents in Hojai believed that HIV is transmitted by mosquito bites, followed by 28.9% in Karbi-Anglong and 20.0% in Nagaon. Additionally, Table 4 shows that in Hojai, 83.6% of respondents knew that HIV/AIDS can be prevented by using condoms, followed by 78.0% in Nagaon and 71.9% in Karbi-Anglong. However, 47.7% in Hojai believed that vaccination is available to prevent HIV/AIDS, followed by 39.8% in Karbi-Anglong and 36.3% in Nagaon.

Table 4 Current Status of Knowledge on Transmission and Prevention of HIV/AIDS by District

Current Status of Knowledge on HIV/AIDS	Karbi Anglong		Hojai		Nagaon	
	Responses (n = 374)		Responses (n = 220)		Responses (n = 600)	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
Knowledge on HIV Transmission						
HIV transmitted by unprotected casual sex	352 (94.1%)	22 (5.9%)	198 (90.0%)	22 (10.0%)	558 (93.0%)	42 (7.0%)
HIV transmitted from infected mother to child	315 (84.2%)	59 (15.8%)	175 (79.5%)	45 (20.5%)	518 (86.3%)	82 (13.7%)
HIV transmitted through air or water	74 (19.8%)	300 (80.2%)	54 (24.5%)	166 (75.5%)	160 (26.7%)	440 (73.3%)
HIV transmitted by mosquito bite	108 (28.9%)	266 (71.1%)	83 (37.7%)	137 (62.3%)	120 (20.0%)	480 (80.0%)
HIV transmitted by sharing toilets, food or drinks	127 (34.0%)	247 (66.0%)	100 (45.5%)	120 (54.5%)	90 (15.0%)	510 (85.0%)
Knowledge on HIV Prevention						
HIV/AIDS prevented by using condom	269 (71.9%)	105 (28.1%)	184 (83.6%)	36 (16.4%)	468 (78.0%)	132 (22.0%)
HIV/AIDS prevented by using contraceptive pills	133 (35.6%)	241 (64.4%)	54 (24.5%)	166 (75.5%)	174 (29.0%)	426 (71.0%)
HIV/AIDS prevented by avoiding needle sharing	266 (71.1%)	108 (28.9%)	173 (78.6%)	47 (21.4%)	409 (68.2%)	191 (31.8%)
HIV/AIDS prevented by avoiding alcohol/smoking	74 (19.8%)	300 (80.2%)	40 (18.2%)	180 (81.8%)	75 (12.5%)	525 (87.5%)
HIV/AIDS prevented through vaccination	149 (39.8%)	225 (60.2%)	105 (47.7%)	115 (52.3%)	218 (36.3%)	382 (63.7%)
HIV transmitted by sharing toilets, food or drinks	127 (34.0%)	247 (66.0%)	100 (45.5%)	120 (54.5%)	90 (15.0%)	510 (85.0%)

District and Gender Wise Knowledge on Transmission and Prevention

It was observed from Table 5 that in Karbi Anglong, 95.5% of female respondents knew that HIV is transmitted by unprotected casual sex, compared to 92.9% of males. However, 29.4% of females believed that HIV is transmitted by mosquito bites, compared to 28.6% of males.

In Hojai, 87.6% of female respondents knew that HIV is transmitted by unprotected casual sex, compared to 91.9% of males. On the other hand, 27.8% of females thought that HIV is transmitted by mosquito bites, compared to 45.5% of males.

In Nagaon, 91.9% of female respondents knew that HIV is transmitted by unprotected casual sex, compared to 95.1% of males. Additionally, 20.0% of both females and males believed that HIV is transmitted by mosquito bites.

Further, from Table 5, it was observed that in Karbi Anglong, 72.6% of males knew that HIV/AIDS can be prevented by using condoms, compared to 71.2% of females. However, 43.5% of females believed that vaccination is available to prevent HIV/AIDS, compared to 56.5% of males.

In Hojai, 85.4% of males knew that HIV/AIDS can be prevented by using condoms, compared to 81.4% of females. However, 50.5% of females thought that vaccination is available to prevent HIV/AIDS, compared to 45.5% of males.

In Nagaon, 90.7% of males knew that HIV/AIDS can be prevented by using condoms, compared to 71.4% of females. However, 40.5% of females believed that vaccination is available to prevent HIV/AIDS, compared to 28.3% of males.

Table 5 Current Status of Knowledge on the Transmission and Prevention of HIV/AIDS by District and Gender

Gender-wise knowledge on the transmission and prevention of HIV/AIDS (Count % within rows)	Karbi Anglong		Hojai		Nagaon	
	(M = 197; F = 177)		(M = 123; F = 97)		(M = 205; F = 395)	
	Yes (%)	No (%)	Yes (%)	No (%)	Yes (%)	No (%)
HIV transmitted by unprotected casual sex						
Male	183 (92.9%)	14 (7.1%)	113 (91.9%)	10 (8.1%)	195 (95.1%)	10 (4.9%)
Female	169 (95.5%)	08 (4.5%)	85 (87.6%)	12 (12.4%)	363 (91.9%)	32 (8.1%)
HIV transmitted from infected mother to child						
Male	165 (83.8%)	32 (16.2%)	97 (78.9%)	26 (21.1%)	193 (94.1%)	12 (5.9%)

Female	150 (84.7%)	27 (15.3%)	78 (80.4%)	19 (19.6%)	325 (82.3%)	70 (17.7%)
HIV transmitted through air or water						
Male	33 (16.8%)	164 (83.2%)	25 (20.3%)	98 (79.7%)	65 (31.7%)	140 (68.3%)
Female	41 (23.2%)	136 (76.8%)	29 (29.9%)	68 (70.1%)	95 (24.1%)	300 (75.9%)
HIV transmitted by mosquito bite						
Male	56 (28.4%)	141 (71.6%)	56 (45.5%)	67 (54.5%)	41 (20.0%)	164 (80.0%)
Female	52 (29.4%)	125 (70.6%)	27 (27.8%)	70 (72.2%)	79 (20.0%)	316 (80.0%)
HIV transmitted by sharing toilets, food or drinks						
Male	71 (36.0%)	126 (64.0%)	62 (50.4%)	61 (49.6%)	22 (10.7%)	183 (89.3%)
Female	56 (31.6%)	121 (68.4%)	38 (39.2%)	59 (60.8%)	68 (17.2%)	327 (82.8%)
HIV/AIDS prevented by using condom						
Male	143 (72.6%)	54 (27.4%)	105 (85.4%)	18 (14.6%)	186 (90.7%)	19 (9.3%)
Female	126 (71.2%)	51 (28.8%)	79 (81.4%)	18 (18.6%)	282 (71.4%)	113 (28.6%)
HIV/AIDS prevented by using contraceptive pills						
Male	67 (34.0%)	130 (66.0%)	31 (25.2%)	92 (74.8%)	68 (33.2%)	137 (66.8%)
Female	66 (37.3%)	111 (62.7%)	23 (23.7%)	74 (76.3%)	106 (26.8%)	289 (73.2%)
HIV/AIDS prevented by avoiding needle sharing						
Male	137 (69.5%)	60 (30.5%)	95 (77.2%)	28 (22.8%)	160 (78.0%)	45 (22.0%)
Female	129 (72.9%)	48 (27.1%)	78 (80.4%)	19 (19.6%)	249 (63.0%)	146 (37.0%)
HIV/AIDS prevented by avoiding alcohol/smoking						
Male	41 (20.8%)	156 (79.2%)	20 (16.3%)	103 (83.7%)	21 (10.2%)	184 (89.8%)
Female	33 (18.6%)	144 (81.4%)	20 (20.6%)	77 (79.4%)	54 (13.7%)	341 (86.3%)
HIV/AIDS prevented through vaccination						
Male	72 (36.5%)	125 (63.5%)	56 (45.5%)	67 (54.5%)	58 (28.3%)	147 (71.7%)
Female	77 (43.5%)	100 (56.5%)	49 (50.5%)	48 (49.5%)	160 (40.5%)	235 (59.5%)

Sexual Risk Behaviour

In Table 6, it is observed that 5.6% (n=67) of respondents reported having ever had sexual exposure, with participants from Karbi-Anglong leading at 12.0% (n=45), followed by Hojai at 6.8% (n=15) and Nagaon at 1.2% (n=7). It was also observed that males reported sexual exposure more frequently (91.0%, n=61) compared to females (9.0%, n=6).

Table 6 Sexual Exposure of Participants by District & Gender

District	Male (A)	Female (B)	Total Exposure	Total Participants	% of Exposure
Karbi Anglong	41 (91.1%)	04 (8.9%)	45 (100%)	374	12.0%
Hojai	15 (100%)	-	15 (100%)	220	6.8%
Nagaon	05 (71.4%)	02 (28.6%)	07 (100%)	600	1.2%
Total	61 (91.0%)	06 (9.0%)	67 (100%)	1194	5.6%

Condom Usage

It is observed from Table 7 that in Karbi-Anglong, 51.1% of study participants who had ever had sexual exposure reported not using a condom, and another 13.3% could not recall. When asked about condom use during their most recent sexual intercourse in the preceding three months of the study period, 42.2% reported not using a condom.

In Hojai, 20.0% of study participants who had ever had sexual exposure reported not using a condom, and another 26.7% could not recall. During the preceding three months of the study period, 20.0% reported not using a condom during their most recent sexual exposure.

In Nagaon, 100% of study participants who had ever had sexual exposure reported using a condom. However, during the preceding three months of the study period, 42.9% could not recall condom use during their most recent sexual exposure.

Table 7 Condom Use During First and Last Sexual Intercourse

Condom Use During Sexual Intercourse	Karbi-Anglong		Hojai		Nagaon	
	Responses 12.0% (n = 45)		Responses 6.8% (n = 15)		Responses 1.2% (n = 7)	
	First Exposure (%)	Last Exposure (%)	Yes (%)	No (%)	First Exposure (%)	Last Exposure (%)
Yes	16 (35.6%)	15 (33.3%)	08 (53.3%)	09 (60.0%)	07 (100%)	04 (57.1%)
No	23 (51.1%)	19 (42.2%)	03 (20.0%)	03 (20.0%)	-	-
Do not remember	06 (13.3%)	11 (24.4%)	04 (26.7%)	03 (20.0%)	-	03 (42.9%)

Frequency of Sexual Activity

It is observed from Table 8 that only 0.7% (n=8) of the study participants with sexual exposure reported having sexual intercourse more than once a month, followed by 0.9% (n=11) with a once-a-month exposure frequency.

Table 8 Frequency of Sexual Activity

Frequency	No. of Participants	Percentage (%)
Nil	1127	94.4%
Once in 3 months	48	4.0%
Once in a month	11	0.9%
More than once in a month	8	0.7%
Total	1194	100%

Age of first time Sexual Activity

It is observed from Table 9 that 41.8% of the study participants had sexual exposure before the age of 18.

Table 9 Age at First Sex

Frequency	No. of Participants	Percentage (%)
16	02	3.0%
17	02	3.0%
18	24	35.8%
19	19	28.4%
20	13	19.4%
21	07	10.4%
Total	67	100%

Status on Ever Tested for HIV/AIDS

Table 10 shows that 1.7% of the respondents had ever been tested for HIV/AIDS, with Karbi Anglong, leading at 2.4%, followed by Nagaon at 1.7% and Hojai at 0.5%. It is also observed that female respondents were more likely to have undergone HIV testing, with 60% (n=12, N=1194) compared to male respondents at 20% (n=8, N=1194).

Table 10 District and Gender-wise Distribution of Participants Who Ever Tested for HIV/AIDS

District	Male	Female	Total No. of Respondents Who Ever Tested HIV/AIDS	Total Participants	Ever Testing For HIV/AIDS
Karbi Anglong	8 (88.9%)	1 (11.1%)	9 (100%)	374	2.4%
Hojai	-	1 (100%)	1 (100%)	220	0.5%
Nagaon	-	10 (100%)	10 (100%)	600	1.7%
Total	8 (20%)	12 (60%)	20 (100%)	1194	1.7%

Status on Willingness to get Tested for HIV/AIDS

Table 11 shows that 52.2% of the study participants were willing to undergo HIV/AIDS testing, with females leading at 57.9% compared to males at 42.1%. Additionally, the perceived need for HIV/AIDS testing was highest in Nagaon district (57.8%), followed by Karbi-Anglong (50.3%) and Hojai (40.0%).

Table 11 District and Gender-wise Distribution of Participants willing for HIV/AIDS Testing

District	Male	Female	Total No. of Respondents Who Were Willing for HIV/AIDS Testing	Total Participants	Participants Who Were Willing from Overall Participants
Karbi Anglong	96 (25.7%)	92 (24.6%)	188 (100%)	374	50.3%
Hojai	48 (21.8%)	40 (18.2%)	88 (100%)	220	40.0%
Nagaon	118 (34.0%)	229 (66.0%)	347 (100%)	600	57.8%
Total	262 (42.1%)	361 (57.9%)	623 (100%)	1194	52.2%

Conclusion

The majority of study participants (58.4%) knew the full terminology of both HIV and AIDS, while 45.3% of respondents knew all the modes of HIV transmission, and another 30.3% answered correctly regarding the modes of AIDS prevention. In Nagaon district, 81.0% responded correctly about the full form of HIV, followed by Karbi-Anglong at 78.1% and Hojai at 73.2%. A number of respondents believed that vaccination is available for the prevention of HIV/AIDS.

About 5.6% of respondents reported having ever had sexual exposure, with Karbi-Anglong leading at 12.0%, followed by Hojai at 6.8% and Nagaon at 1.2%. Approximately 41.8% of those who had sexual exposure did so before the age of 18. About 0.7% of the participants who have had sexual exposure reported engaging in sexual activity more than once a month, followed by 0.9% who reported having sex once a month. In Karbi-Anglong, 51.1% of participants who had ever had sexual exposure did not use a condom, followed by 20.0% in Hojai. Additionally, 42.9% of respondents in Nagaon could not recall using a condom during their most recent sexual exposure.

Approximately 52.2% of the study participants expressed willingness to undergo HIV/AIDS testing, with females leading at 57.9%, compared to 42.1% of males. Moreover, the perceived need for HIV/AIDS testing was highest in Nagaon district (57.8%), followed by Karbi Anglong (50.3%) and Hojai (40.0%).

Recommendations

- Mitigating measures for high-risk behaviour in this age group should be initiated, such as peer support groups and awareness campaigns on STIs/RTIs in colleges.
- Given the perceived need for HIV/AIDS testing, periodic testing facilities should be arranged to address this need.

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Understanding Awareness and Knowledge Regarding Vertical Transmission of HIV and Syphilis amongst Pregnant Women in Jorhat District, Assam

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Introduction

Vertical transmission refers to the passing of an infection, disease or genetic material from a parent to their offspring [1]. Vertical transmission of infections like Human Immunodeficiency Virus (HIV) and syphilis poses significant public health challenges. The World Health Organisation (WHO) reports that the risk of HIV transmission from an HIV-positive mother to her child ranges from 15% to 45% [2]. Untreated or inadequately treated pregnancy-related syphilis can result in unfavourable birth outcomes in 50-80% of cases [3]. In 2002, the Government of India initiated a programme to prevent vertical transmission of HIV under Phase II of the National AIDS and STD Control Programme (NACP). Despite advancements across four phases of NACP, India's commitment to eliminating HIV/AIDS by 2030 remains critical. Although there is a 48% decrease in new adult HIV infections since 2010, reaching a 90% reduction by 2030 is also critical for the programme. In 2019, syphilis seropositivity among pregnant women in India was 0.10%, with higher rates in North-East India [4].

NACP-V aims to eliminate vertical transmission of HIV and syphilis through awareness generation and promotion of safe practices. However, in 2020-21, HIV and syphilis testing coverage among pregnant women in India was only 76% and 37% respectively, partly due to a lack of awareness among pregnant women [4]. Assessing the level of awareness and knowledge among pregnant women can help evaluate the effectiveness of health programmes aimed at eliminating vertical transmission of these diseases. Hence, present study was conducted to evaluate the awareness and knowledge of HIV and syphilis, their vertical transmission and prevention methods among pregnant women in Jorhat district in Assam.

Methodology

A hospital-based descriptive cross-sectional study was conducted amongst pregnant women attending the Antenatal Outpatient Department (ANOPD), JMCH, Jorhat, Assam. Pregnant women aged 15–49 years, seeking antenatal care (ANC) for the first time in their current pregnancy and willing to participate in the present study, were included. Pregnant women with obstetric emergencies such as active labour, eclampsia, or antepartum haemorrhage, known HIV-positive pregnant women (PPW), and pregnant women with HIV-positive spouses were excluded from the study. After complete information disclosure to the participants, a verbal informed consent/assent was obtained. The sample size was 140 pregnant women. Six study participants were interviewed consecutively on a daily basis until the required sample size of 140 was reached. Trained researchers from the Department of Community Medicine were engaged in the data collection process.

Data entry and statistical analysis were performed using Microsoft Excel 2021. Pearson's chi-square test and Fisher's exact test were applied to compare categorical variables and determine associations.

Findings

Socio-Demographic Characteristics

Out of the 140 study participants, the majority (52.1%) were in the 20-24 years age group, followed by 30% in the 25-29 years age group. Most participants were from rural areas (87%), and all were married. A significant portion (27.1%) had completed up to middle school, followed by 22.9% who had completed secondary school. The majority (91.4%) were Hindus, and 81.4% were homemakers, with their spouses primarily employed as laborers (31.4%) or private job workers (25%). According to the modified BG Prasad classification (2023), most respondents belonged to Class IV

(35.7%) and Class III (26.4%) socio-economic status. Additionally, 78% were married at or before 21 years of age, and nearly 61% of pregnant women were in their second trimester (Table 1).

Table 1 Socio-demographic characteristics for study participants

Variables	Number (n=140)	Percentage (%)
Age (Years)		
15-19	8	5.7
20-24	73	52.1
25-29	42	30.0
30-34	10	7.1
≥ 35	7	5.0
Residence		
Urban	18	13
Rural	122	87
Marital status		
Single	0	0
Married	100	100
Separated	0	0
Widowed	0	0
Divorced	0	0
Educational status		
Illiterate	14	10
Primary school	26	18.6
Middle school	38	27.1
Secondary school	32	22.9
Higher school	21	15
Undergraduate	6	4.3
Postgraduate	3	2.1
Religion		
Hindu	128	91.4
Muslim	11	7.9
Christian	1	0.7
Occupation		
Homemaker	114	81.4
Government job	0	0
Private job	4	2.9
Business	2	1.4
Labourer	4	2.9
Tea garden worker	14	10
Student	2	1.4
Agriculture	0	0
Occupation of partner		
Agriculture	4	2.9
Government job	9	6.4
Private job	35	25
Business	20	14.3
Labourer	44	31.4
Tea garden worker	27	19.3
Others	1	0.7
Socio-economic status		
Class I - Upper class (9098 and above)	6	4.3
Class II - Upper middle class (4549-9097)	24	17.1
Class III - Middle class (2729-4550)	37	26.4
Class IV - Lower middle class (1365-2728)	50	35.7
Class V - Lower class (Below 1365)	23	16.4
Type of family		
Nuclear family	44	31.4
Joint family	96	68.6

Awareness and Knowledge on HIV/AIDS

Only 30% (42) of the pregnant women had heard about HIV/AIDS, with 62% (26/42) of them learning about it within the last five years. The sources of information included health workers (47.6%, 20/42), television (28.6%, 12/42), acquaintances (21.4%, 9/42), and schools (16.7%, 7/42).

Over half (54.7%, 23/42) were unaware of the modes of transmission of HIV/AIDS. Among those informed, 28.6% knew sexual activity as a mode of transmission, while 14.3% cited sharing sharp objects, 14.3% mentioned blood transfusions, and another 14.3% identified mother-to-child transmission (MTCT) as a mode of transmission of HIV. However, when specifically asked, "Can an HIV-positive mother pass the infection to her child?", 50% (21/42) of pregnant women believed that MTCT was possible. Among these women, 52.4% (11/21) identified pregnancy, 23.8% (5/21) identified breastfeeding, and 4.8% (1/21) identified vaginal delivery as potential MTCT routes.

Half of the participants did not perceive themselves as vulnerable to HIV, and 47.7% (20/42) were unsure (Table 2).

Table 2 Awareness and Knowledge on HIV/AIDS

Sl. No	n=140			
	Awareness and knowledge	Patient response	Number	Percentage (%)
1	Have you heard of HIV/AIDS?	Yes	42	30
		No	98	70
n=42				
2	What is the duration of awareness?	<5years	26	61.9
		≥ 5years	16	38.1
3	What is the source of your information about HIV/AIDS? *	Friends, relatives, neighbours	9	21.4
		Health workers	20	47.6
		Radio	4	9.5
		Television	12	28.6
		Newspapers	4	9.5
		Posters	1	2.4
		School	7	16.7
		Others	5	11.9
4	How is HIV transmitted from one person to another? *	Through sexual intercourse with infected partner	12	28.6
		Through sharing sharp object with infected person	6	14.3
		Through transfusion with infected blood	6	14.3
		Through mother to child transmission	6	14.3
		Don't know	23	54.7
		Other	5	11.9
5	Can HIV be prevented?	Yes	17	40.5
		No	1	2.3
		Don't know	24	57.2
6	Are you at risk of HIV infection?	Yes	1	2.3
		No	21	50
		Don't know	20	47.7
7	Are the pregnant women at risk of HIV infection?	Yes	14	33.3
		No	3	7.1
		Don't know	25	59.5
8	Can an infected mother transmit HIV infection to her child?	Yes	21	50
		No	2	4.7
		Don't know	19	45.2
n=21				
8 (a)	How can an infected mother transmit HIV infection to her child? *	During pregnancy	11	52.4
		Through vaginal delivery	1	4.8
		Through caesarean section	0	0
		Through breastfeeding	5	23.8
		Other:	1	4.8
		Don't know	7	33.3
8 (b)	How can mother to child transmission of infection be prevented? *	Antiretroviral therapy during pregnancy	2	9.5
		Delivery by caesarean section	1	4.8
		Giving antiretroviral drugs to the newborn of an infected mother	0	0
		Avoid breastfeeding	1	4.8
		Others	3	14.3
		Don't know	15	71.4
n=42				
9	Is HIV test mandatory for pregnant women?	Yes	27	64.4
		No	2	4.7
		Don't know	13	30.9
10	Are you willing to do HIV test?	Yes	33	78.6
		No	1	2.3
		Don't know	8	19.04

*Multiple responses

Awareness and Knowledge on Syphilis

98% participants had never heard about syphilis and 100% were unaware of maternal transmission, its consequences during pregnancy or its cure.

Knowledge about Preventive Methods of MTCT

The majority of respondents (85.7%) did not know how to prevent MTCT of HIV. Only a small percentage were aware that antiretroviral therapy during pregnancy (9.5%, 2/21), avoiding breastfeeding (4.8%, 1/21), and caesarean section (4.8%, 1/21) could prevent MTCT. Nevertheless, 64.4% (27/42) understood that HIV testing during pregnancy is mandatory, and 78.6% (33/42) were willing to undergo testing. No participants had knowledge about syphilis or its prevention.

Association of Socio-Demographic Variables with Knowledge on MTCT of HIV

The association between socio-demographic variables and knowledge of MTCT of HIV among pregnant women having HIV was assessed. Women with middle school or higher education had significantly more knowledge about MTCT compared to those with primary education or none. Additionally, knowledge was more prevalent among women from middle and upper socioeconomic classes than those from lower and lower-middle classes. However, the setting of residence (rural or urban), age at marriage, and parity (nullipara vs. multipara) were not statistically associated with knowledge of MTCT of HIV (Table 3)

Table 3: Association of Socio-demographic Variables with Knowledge & Awareness on Mother-to-Child Transmission of HIV

	Knowledge on MTCT of HIV (n=140)				
	Yes (%)	No (%)	χ ²	P value	Inference
Setting					
Rural	18 (14.8)	104 (85.2)	----	0.735 [#]	NS
Urban	3 (16.7)	15 (83.3)			
Level of education					
None/Primary school	2 (5)	38 (95)	4.39	0.036 ^{##}	S
Middle school & above	19 (19)	81 (81)			
Age at marriage					
≤ 21 years	14 (12.8)	95 (87.2)	1.79	0.180 ^{##}	NS
>21 years	7 (22.6)	24 (77.4)			
Socio-economic status					
Lower class/ lower middle class	6 (8.2)	67(91.8)	5.50	0.019 ^{##}	S
Middle class and above	15 (22.4)	52 (77.6)			
Parity					
Nullipara	10 (14.7)	58 (85.3)	0.009	0.925 ^{##}	NS
Multipara	11 (15.3)	61 (84.7)			

S= Significant, NS= Not significant, P value<0.05 is statistically significant

#= Fishers exact test, ##= Pearsons chi square test

Conclusion

The study highlights a substantial lack of awareness and knowledge among pregnant women regarding HIV/AIDS and syphilis. A limited number of women were aware of MTCT of HIV/AIDS and syphilis, as well as their prevention. Health care workers, television, close acquaintances, and schools were the major sources of information, while radio, newspapers, and posters played minimal roles in educating pregnant women. Additionally, the study revealed that knowledge about syphilis and its consequences was the least among the pregnant women.

Recommendations

It is recommended to intensify health education campaigns in antenatal care settings, particularly targeting less educated and lower socioeconomic groups to address the disparities in knowledge. Inter-Personal Communication (IPC) through community health workers, along with the use of television, close acquaintances, and schools, should be prioritized to spread awareness about HIV/AIDS and syphilis. Additionally, further in-depth research studies at a multi-district level will provide more insights into this issue, helping to develop more effective interventions and strategies.

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Awareness of HIV/AIDS and Contraceptive Practices among College Students in Raipur, Chhattisgarh

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Introduction

An estimated 0.7% (0.6-0.8%) of adults aged 15-49 years worldwide are living with HIV [1]. In India, individuals in the age group of 15-29 years comprise nearly 25% of the country's population, yet they account for 31% of the AIDS burden [1]. This highlights the heightened risk of HIV infection among young people. Unintended pregnancies and sexually transmitted diseases (STDs) have long been significant concerns regarding college students' sexual activity. The reported prevalence of HIV infection among college students across various demographic sites is 0.2%, and without abstinence or the consistent use of an effective barrier method, college students will continue to be at risk [2]. As the rising generation, youth hold the future in their hands, making it essential to educate them about HIV and contraceptives to empower them with the knowledge and choices necessary for protecting their health. The objective of this study was to assess the awareness of HIV/AIDS and prevailing contraceptive practices among the college students in Raipur, Chhattisgarh.

Methodology

A cross-sectional study design was used in this study. The colleges were selected through a simple random sampling method. The selected colleges included Amity University, Columbia Group of Institutes, Disha Group of Colleges, and Government College of Engineering. Students aged 18 years or above and gave consent were recruited using a consecutive sampling technique. A pre-tested, self-administered questionnaire was provided to each study participant. A total of 554 students were included in the study; 215 from Amity University Raipur, 167 from Government College of Engineering, 97 from Columbia Group of Institutes, and 75 from Disha Group of Colleges.

To assess awareness regarding HIV/AIDS, the HIV KQ 18 scale was used. Each correct answer was scored as 1, while incorrect answers and "don't know" responses were scored as 0. Based on the total scores, the level of HIV awareness was categorized as poor, average, or good. A score below 5 was considered poor, a score between 6 and 12 was considered average, and a score between 13 and 18 was considered good awareness.

To assess awareness regarding contraceptive practices, a semi-structured questionnaire was used. Each correct answer was scored as 1, while incorrect answers and "I don't know" responses were scored as 0. A score between 0 and 5 was considered poor awareness, a score between 6 and 10 was considered average awareness, and a score between 11 and 15 was considered good awareness.

Data collected were entered into a Microsoft Excel spreadsheet 2010, checked for completeness and correctness, and then subjected to appropriate statistical analysis. Categorical variables were presented in terms of frequency and percentage.

Findings

The study revealed that a higher proportion of participants, 73.8%, were aged between 18 and 20 years, with the majority (58.5%) being male. A significant 92% of the participants identified as Hindus, and a higher proportion, 41.3%, belonged to the general category. Additionally, 45.5% of the participants' fathers and 35.7% of their mothers were graduates. The majority of fathers were employed, while most mothers were unemployed. Most participants lived in joint families, with a higher proportion residing with their parents.

The overall awareness about HIV among college-going students was found to be average, with 63.4% demonstrating this level of awareness. Similarly, the overall awareness regarding contraceptive practices was also average, with 50.9% of the study participants showing this level of knowledge.

The study further indicated that certain groups had lower levels of awareness regarding contraceptive practices. These included students in junior classes (96.5%), females (96.1%), students aged 20 years or younger (96.1%), those whose mothers had education up to the 12th grade or below (96.6%), whose fathers were employed (95.4%), mothers were unemployed (95.7%), students with more than three siblings, and those living with parents or relatives (94.9%). These groups exhibited poor levels of awareness regarding contraceptive practices.

Conclusion

This study reveals the level of awareness regarding HIV/AIDS and contraceptive practices among college-going students. The overall awareness about both HIV/AIDS and contraceptive practices was found to be average. The participants not only lacked basic information on these topics but also held many misconceptions about contraceptive methods and HIV/AIDS. A significant number of students were unfamiliar with the very meaning of contraception. Additionally, females exhibited lower awareness compared to males regarding contraceptive practices.

Recommendations

The college management should organise regular awareness programmes to provide information about contraception methods, their uses and practices, as well as preventive measures for HIV/AIDS. It is important to continuously evaluate the effectiveness of these programmes through surveys, focus groups, and feedback mechanisms. The data collected should be used to refine strategies, target specific populations, and address emerging challenges in HIV/AIDS prevention and contraceptive practices. Since the study was conducted on a small scale, including only four colleges, further research could be expanded to include all colleges in Raipur to achieve more comprehensive results.

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Knowledge, Attitudes and Practices of Family Planning Methods and HIV Prevention among Antenatal Women in a Tertiary Care Hospital in Goa

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Introduction

According to HIV Estimation 2023 report, India, ranked 2nd globally in HIV burden with 2.47 million cases, adult HIV prevalence in Goa is estimated to be 0.29% as against to 0.20% national average [1]. Integrating services educates women on contraception and HIV prevention, fostering a cost-effective approach for healthier populations. Integrating antenatal care (ANC) and HIV care may improve uptake and retention in services among the prevention of mother-to-child transmission (PMTCT) cascade. This study aimed to explore antenatal women's knowledge, attitudes, and practices regarding HIV prevention and Family Planning (FP), recognising the importance of informed choice in meeting contraceptive needs.

Objectives

- To study Knowledge, Attitudes and Practice of HIV prevention among antenatal women in a tertiary care hospital in Goa
- To study Knowledge, Attitudes and Practice of FP methods among antenatal women in a tertiary care hospital in Goa

Methodology

The study involved face-to-face interviews with 340 antenatal women using questionnaires and in-depth interviews (IDIs) with 15 antenatal women at the ANC clinic at Goa Medical College. Additionally, key informant interviews (KIIs) were conducted with 15 healthcare providers, including 2 ART Counsellors, 2 Medical Officers, 5 OBG residents, 5 nurses, and 1 family planning counsellor. Antenatal women aged 15–49 years with a confirmed pregnancy, attending the clinic during the study period, and consented to participate were included in the study and Pregnant women aged ≤ 15 or ≥ 50 years, seriously ill, unable to see or hear, or unmarried were excluded from the study. Written informed consent was obtained from all participants. A pilot study with 30 antenatal women was conducted to refine the questionnaire, which was then translated into local languages. Quantitative data were analysed using IBM SPSS Statistics (version 22), and qualitative data were analysed manually through content analysis of transcripts.

Findings

Findings in table 1 showed that majority of study participants (44.1%) were in the age group of 25 to 29 years, identified as Hindu (62.9%) by religion, and were unemployed (77.9%). They had completed higher secondary level education (46.5%) and belonged to nuclear families (98.8%), and 53.8% resided in urban settings (table 1). For the IDIs, majority of study participants (40%) were in the age group of 30-34 years, belonged to Hindu by religion (53.3%), were unemployed was (93.4%). They had completed Higher Secondary School (53.3%), and, belonged to nuclear families (98.8%), and resided in urban settings (86.6%) (table 1). For the KIIs, majority of the participants (46.7%) were in the age group of 30- 34 years, belonged to Hindu (60%) by religion, were employed (100%). They had achieved a graduate level and above (100%), belonged to nuclear families (98.8%), and resided in urban settings (100%) (Table 1).

Table 1 Socio-Demographic Characteristics of Antenatal Women and Healthcare Providers participating in Study

Background Characteristics	Quantitative	Qualitative	
		In-depth interviews	Key informant interview
	Total N= 340 (%)	Total N=15 (%)	Total N= 15 (%)
Age (years)			
15-19	5 (1.5)	-	-
20-24	85 (25)	4 (26.7)	-
25-29	150 (44.1)	5 (33.3)	5 (33.3)
30-34	67 (19.7)	6 (40)	7 (46.7)
35-39	27 (7.9)	-	2 (13.4)
40-44	5 (1.5)	-	1 (6.6)
45-49	1 (0.3)	-	-
Religion			
Hindu	214 (62.9)	8 (53.3)	9 (60)
Christian	57 (16.8)	2 (13.4)	6 (40)
Muslim	69 (20.3)	5 (33.3)	-
Education			
Illiterate	3 (0.9)	-	-
Primary school	39 (11.5)	2 (13.4)	-
Middle school	14 (4.1)	-	-
Secondary school	70 (20.6)	4 (26.7)	-
Higher secondary school	158 (46.5)	8 (53.3)	-
Graduate and above	56 (16.5)	1 (6.6)	15 (100)
Occupation			
Unemployed	265 (77.9)	14 (93.4)	-
Working	75 (22.1)	1 (6.6)	15 (100)
Socio economic class			
Upper class	166 (48.8)	-	15 (100)
Upper middle class	155 (45.6)	15 (100)	-
Middle class	15 (4.4)	-	-
Lower middle class	3 (0.9)	-	-
Lower class	1 (0.3)	-	-
Residence			
Rural	157 (46.2)	2 (13.4)	-
Urban	183 (53.8)	13 (86.6)	15 (100)

Findings in Table 2 showed a high level of awareness of FP methods (89.7%) among participants, but a lower level of knowledge that FP methods are available at free of cost at Govt. Hospitals and Health centres (64.1%). The low knowledge of side effects (16.8%) raises concerns about informed decision-making, while 32.9% are aware about the importance of spacing pregnancies (Table 2). When knowledge of FP was explored during IDIs amongst antenatal women, they revealed they are not aware that FP methods are available at free of cost in Government hospital and centres.

"I was not aware that they are available at free of cost in my nearby hospital, we usually buy it from the medical shop nearby."

The HCPs also shared that some patients were unaware that family planning methods are available at free of cost in Government Hospital and centres.

"Some time patients are unaware that govt hospitals provide free family planning methods."

Findings in Table 2 also show that 50.3% of women were comfortable about discussing the Family Planning with partners; however, 29.4% were hesitant to ask their partners to use condoms for prevention of HIV. A minority (10.6 %) of participants acknowledge societal and cultural influences on family planning, while a significant portion (30%) recognises its importance for maternal health. Additionally, 27.4% advocate for at least a 3-year gap between pregnancies. The majority (61.2%) expresses satisfaction with the current array of family planning methods (table 2). While exploring the religious and socio-cultural attitudes among the pregnant women belonging to minority religious communities, religious concerns inhibiting the use of family planning methods emerged as below:

"It is haram according to our religion because we are preventing a living baby coming to the world"

"I believe that I should give birth to the number of children the god has given to me"

The HCPs also shared their views regarding the religious belief followed among the participants which is emerged as below:

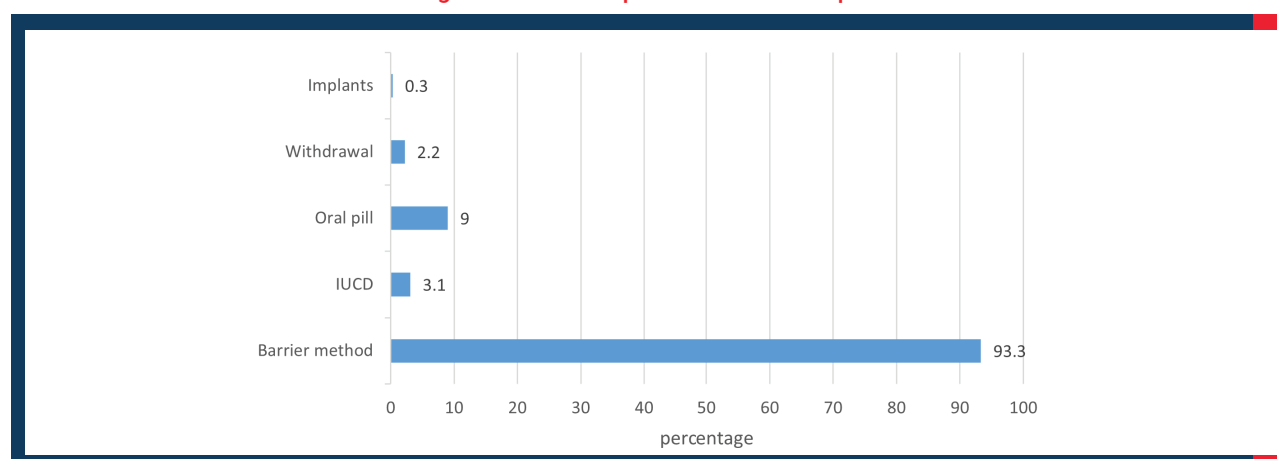
"I think religion plays an important role in most of the families, despite multiple counselling sessions, a considerable number of mothers still remain hesitant or unwilling to adopt any family planning measures"

Among antenatal women, 65.6% (223) have used family planning method in the past. Around 93.3% (208) have used barrier method (condoms) followed by 9% (20) oral contraceptives pills (Figure 1). Notably, 15% (51) discontinued family planning methods due to perceived side effects (Table 2).

Table 2 Knowledge, Attitude and Practice about the Family Planning among Study Participants

Knowledge	Correctness of the response N = 340 (%)
Awareness of various family planning methods	305 (89.7)
Knows about the free availability of family planning methods at Govt. Health centres & Hospitals	218 (64.1)
Knows potential side effects or risks associated with family planning methods	57 (16.8)
Knows the importance of spacing of pregnancy	112 (32.9)
Attitude	Agreement of the responses N= 340 (%)
Comfortable discussing about Family Planning method with partner	171 (50.3%)
There must be minimum 3 years spacing between consecutive pregnancies	93 (27.4)
Believes family planning is important for personal and family well-being	102 (30)
Religious and Socio-cultural factors influence the decisions in Family planning	36 (10.6)
Satisfied with current family planning options available	208 (61.2)
Reported Practice	
Used contraceptive to prevent unplanned pregnancy	223 (65.6)
Stopped using family planning methods due to side effects	51 (15)

Figure 1 Contraceptives Used in the past



Findings in Table 3 revealed a high level of HIV knowledge among participants; around 93.5% participants had awareness of HIV, and 88.5% were aware of person-to-person transmission of HIV, and 88.2% exhibited knowledge regarding the prevention of HIV during sexual intercourse. Moreover, 91.2% are informed about the availability of blood tests for HIV (Table 3).

HIV Transmission modes including misperceptions were further explored during in-depth interviews (IDIs), and are outlined below;

"I heard that HIV could be transmitted through tears or sweat, so I won't allow my children to play sports or even hug someone who is HIV positive"

"Yeah, my husband told me that HIV could be transmitted through mosquito bites, since the mosquito might drink blood from HIV positive person and bite us"

The HCPs also shared that they were aware of the misperceptions regarding the HIV transmission among pregnant women as below:

"I had a patient who believed that HIV can be transmitted through casual contact, like shaking hands or touching surfaces"

Most of the study participants supported the need for the PLWHA to reveal their HIV status in society (89.7 %), to continue working or studying (85%), to live with their family /friends (61.8%) and supported the need for sex education programmes in schools (91.2%). However, the study recorded lower levels of support for buying of condoms (32.4%) and requesting high risk partner /casual partner to use condoms (29.4 %) (Table 3).

The reluctance to purchase condoms and encourage their use with partners was also revealed during IDIs and elucidated the responses as below:

"I feel uneasy to request my partners to buy and use condoms"

"I am unable to speak about sex with my partner, leave alone asking him to use a condom"

The health care providers (HCPs) also confirmed the stigmatising attitude toward PLWHA among antenatal women.

"Women seem unable to have open communication about the safe sex with their partners. We need to address this fear and stigma"

The study revealed low condom usage rates during sexual encounters with casual partners (2.6%) and minimal dual use of condoms with other family planning methods for HIV and pregnancy prevention (0.9%). Additionally, 2.6% of the participants reported engaging in high-risk sexual behaviours (Table 3).

Table 3 Knowledge, Attitude and Practice about HIV/AIDS among Study Participants

Knowledge	Correctness of responses N=340 (%)
Awareness of HIV	318 (93.5)
HIV can be transmitted from one person to another	301 (88.5)
HIV can be prevented by using condoms during sexual intercourse	300 (88.2)
There is blood test to detect HIV	310 (91.2)
Attitude	Agreement with responses n=340 (%)
People living with HIV could reveal themselves to society	305 (89.7)
People living with HIV should not be separated/isolated from their families/friends	210 (61.8)
People living with HIV should be allowed to continue working or studying	289 (85)
Sex education is not shameful and should be included in school health programmes	310 (91.2)
Buying condoms from pharmacy is not embarrassing	110 (32.4)
It is necessary to request a high-risk partner to use a condom	100 (29.4)
Used contraceptive to prevent unplanned pregnancy	223 (65.6)
Stopped using family planning methods due to side effects	51 (15)
Reported practices	
Used contraceptive to prevent unplanned pregnancy	223 (65.6)
Stopped using family planning methods due to side effects	51 (15)

Conclusion

Findings indicated a substantial FP awareness (89.7%) and existed gaps in birth spacing (32.9%). A complex interplay of communication, religion, and knowledge influences women's choices. The notable 65.6% contraceptive prevalence indicates significant adoption, with barrier methods (93.3%) dominating. However, 15% discontinued due to side effects, emphasising the need to address concerns and promote informed choices for effective family planning. The study highlights a substantial 93.5% HIV knowledge among participants, with gaps in awareness, particularly regarding needle/syringe sharing (28.8%), blood transfusion (13.5%), and mother-to-child transmission (0.6%). Only 0.6% of pregnant women are aware of mother-to-child transmission risks, underscoring the need for targeted education. Low knowledge of family planning side effects (16.7%) may impact condom use for HIV prevention. Positive attitudes towards PLHIV coexist with lingering stigma affecting condom buying (32.4%) and partner negotiations (29.4%). Women's reluctance is influenced by religious and communication barriers, requiring destigmatisation efforts. Low condom uses with casual partners (2.6%) and minimal dual use (0.9%) highlight gaps in HIV prevention. Addressing this necessitates emphasising safer sex practices and improving condom accessibility through tailored interventions.

Recommendations

The study recommends increased awareness, education, and destigmatisation with the special focus on the awareness generation on route of transmission and source of contraceptive methods. There is need for strong advocacy with Faith-Based Organisations about HIV/AIDS and STI and risk behaviour and safe sexual methods with the emphasis on partner counselling on family planning methods.

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Assessment of Awareness regarding importance of HIV Testing within First Trimester among ANC women

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Introduction

HIV/AIDS infection is an important cause of maternal and perinatal morbidity/mortality. Anaemia, preterm labour, intrauterine growth retardation (IUGR), foetal deaths, stillbirths, low birth weight are some of the known complications associated with HIV in pregnancy [1]. In India, women account for around one million out of 2.5 million estimated number of people living with HIV/AIDS, with an estimated prevalence of 0.26% among adults aged 15-49 years [2]. The overall awareness about the disease, its various routes of administration, timely diagnosis and treatment at the earliest in case of seropositive is desired. Also, the risk of HIV/AIDS transmission from mother to child is approximately 45% if no safety measures have been taken, however, with early HIV testing and special precautions during delivery, risk can be minimised. As the transmission of HIV from mother to child is the second most common route of transmission of HIV [3], it was realised that Individuals are required to be explained about the importance of preventive measures against HIV as currently there is no effective vaccine or medication available which can ensure absolute protection against this disease and may cure it [4]. Further, the aim of present study was to analyse the current knowledge regarding HIV/AIDS among first trimester females in Rohtak district.

The study was based upon following objectives:

- Assessment of awareness regarding importance of HIV testing within first trimester among pregnant females
- To develop awareness activities as preventive measures towards the risk of HIV/ AIDS
- To understand the attitude of women in first trimester towards HIV/AIDS and to minimise the risk & improve knowledge about the disease by assessing them post-awareness sessions

Methodology

A cross-sectional quantitative study was conducted among 100 pregnant women aged between 18 to 37 years at an antenatal clinic in Pandit Bhagwat Dayal Sharma PGIMS, Rohtak, Haryana to determine the prevalence of HIV among pregnant women in their 1st trimester.

Comprehensive information on meaning of an HIV-positive and an HIV-negative diagnosis, its epidemiology, the services available in the case of an HIV-positive diagnosis, description of prevention options, the potential risk of transmitting HIV to the infant, measures that can be taken to reduce mother-to-child transmission, including the provision of antiretroviral therapy to benefit the mother and prevent HIV transmission to the infant, the benefits of early HIV diagnosis for mothers and infants etc. was given to the subjects. Group information sessions were conducted in this regard by the counsellors through media such as posters, websites and short video clips in a separate dedicated room.

Data was analysed to assess the level of knowledge of participants. The results were evaluated using two-way ANOVA followed by Tukey's post-hoc analysis to determine how significantly the awareness program helped the subject to improve their knowledge on HIV/AIDS. The pre-awareness test through questionnaire was carried out after taking due consent from the subject, and afterwards they were provided sessions on HIV/AIDS awareness by team of counsellors. After the counselling session, the same questionnaires were given to the participants for post-awareness assessment. The pamphlets as a part of IEC material were also distributed to them in order to ensure awareness among subjects.

Findings

Women in their first trimester involved in the study were from age group ranging 18 to 37 years, out of which 53.1% were from urban background while 46.9% were from rural areas. Majority of participants i.e., 53.1% were from urban background while 46.9% were from rural areas. Only 8.6% women were post graduate while 32.1% among them were graduate and the same proportion of subjects were matric passed. The partners of more than 65% of subjects were employed, 3.7% were unemployed, 8.6% were still studying, 7.4% were working as labour, 6.2% were farmers, 3.7% were engaged in their businesses & self-employed. Further, 66.7% women belong to joint family while 33.3% were from nuclear family.

Table 1 reported observations from the study that even though every pregnant woman was tested for HIV, many did not know their status, and many were not aware on the measures to protect their children and themselves.

Since the women answered the pre-awareness questions after they had met health care personnel during their routine ANC visits, the study indicated that antenatal care and awareness given in these rounds improved their knowledge about HIV/AIDS. Despite the widespread knowledge about the virus, it was reported that many women had difficulties distinguishing the difference between HIV and AIDS. The study findings indicated that the women were well aware of the routes of HIV transmission.

In the present study, it was analysed that how the knowledge of subjects about a content question is significantly related to each other. A significant increase in the subject's knowledge about HIV/AIDS have been recorded in this study. Similarly, a significant improvement has been also recorded in subject's awareness about the family planning perception and safe-sex or use of condoms. Further, a similar significant improvement was also observed on the awareness about HIV testing, HIV/AIDS treatment from the pre-awareness to post-awareness sessions. Moreover, subjects were found to be significantly more aware about the knowledge on the preventive measure of this disease as well as its infection risk.

Table 1 Level of Knowledge among First Trimester ANC women on prior & post awareness on HIV/AIDS

S No.	Questions	Pre-Test			Post Test			*Pre-Test Analysis	*Post Test Analysis
		YES (%)	NO (%)	Can't Say (%)	YES (%)	NO (%)	Can't Say (%)		
1	Do you know about AIDS?	67	33	0	93	7	0	67 ^{def}	93 ^a
2	Do you know the route of transmission and causative agent of AIDS?	40	60	0	88	12	0	40 ^{hij}	88 ^{abc}
3	Are you ready to permit a relative with HIV/AIDS to stay at home and seek medical care?	15	74	11	63	30	7	15 ^{mn}	63 ^{efg}
4	Are you willing to discuss HIV/AIDS with your family, friends and neighbour?	17	70	13	68	24	8	17 ^{mn}	68 ^{cdef}
5	Do you know about Condom or Safe sex?	63	37	0	90	10	0	63 ^{efg}	90 ^{ab}
6	Do your partner use Condom for Family planning purpose?	34	66	0	38	60	2	34 ^{hijklm}	38 ^{hijkl}
7	Are you aware of the main source of HIV/AIDS?	23	76	1	87	13	0	23 ^{klmn}	87 ^{abcd}
8	Do you know about the tests for HIV/AIDS?	45	55	0	87	13	0	45 ^{ghi}	87 ^{abcd}
9	Are you willing to do your HIV testing?	49	38	13	87	12	1	49 ^{fgh}	87 ^{abcd}
10	Have you heard about the antiretroviral therapy?	19	78	3	86	13	1	19 ^{klmn}	86 ^{abcd}
11	Do you know about the steps involved in VCT (Voluntary Counselling and Testing)?	18	82	0	87	12	1	18 ^{lmn}	87 ^{abcd}
12	Do you know about MTCT (Mother to Child Transfer) transmission?	28	69	3	89	11	0	28 ^{ijklmn}	89 ^{ab}
13	Do you want counselling if you are not aware much about HIV/AIDS?	70	29	1	86	14	0	70 ^{bcde}	86 ^{abcd}

14	Is Govt. or Panchayat is organising any awareness campaigns or drives from time to time?	39	53	8	62	33	5	39 ^{hijk}	62 ^{efg}
15	Are you aware of the free distribution of condoms in health centres?	46	53	1	89	11	0	46 ^{ghi}	89 ^{ab}
16	Does your partner and family support you in your decisions?	63	34	3	64	33	3	63 ^{efg}	64 ^{efg}
17	Are you aware about the risk of infection to child during pregnancy or birth?	38	61	1	88	12	0	38 ^{hijkl}	88 ^{abc}
18	Do you know the correct preventive measures for HIV/AIDS?	21	76	3	86	13	1	21 ^{ijklmn}	86 ^{abcd}
19	Why rural women are not able to say openly about related issues	11	77	12	10	84	6	11 ⁿ	10 ⁿ

*Two-way ANOVA followed by Tukey's post-hoc analysis

**Superscripts given for the values in pre- and post-test analysis indicate that if the superscripts for a single question matched the result is non-significant

As per statistical analysis, significant increase in the subject's knowledge about HIV/AIDS has been recorded. Also, to reveal the concern on difference in knowledge of pregnant women in rural & urban areas, the responses from rural and urban areas have also been compared on the basis of statistical analysis (using two-way ANOVA followed by Tukey's post-hoc analysis) as given in Table 2.

Table 2 Difference in Knowledge on HIV/AIDS among Pregnant women by Residence

S.N.	Questions	Rural Women		Urban Women		Difference	
		Pre-Test	Post Test	Post Test	Pre-Test	Pre-Test	Post Test
1	Do you know about AIDS?	57.7	100	70.9	100.0	13.1	0.00
2	Do you know the route of transmission and causative agent of AIDS?	20.0	100	58.1	100.0	38.2	0.00
3	Are you ready to permit a relative with HIV/AIDS to stay at home and seek medical care?	15.6	66.7	16.4	87.3	0.80	20.6
4	Are you willing to discuss HIV/AIDS with your family, friends and neighbour?	4.4	66.7	31.0	94.6	26.5	27.9
5	Do you know about Condom or Safe sex?	53.3	100	81.8	98.2	28.5	-1.81
6	Do your partner use Condom for Family planning purpose?	13.3	22.2	45.6	56.4	32.1	34.1
7	Are you aware of the main source of HIV/AIDS?	15.6	100	25.5	100	9.9	0.00
8	Do you know about the tests for HIV/AIDS?	35.5	100	56.4	100	20.8	0.00
9	Are you willing to do your HIV testing?	37.8	100	60	100	22.2	0.00
10	Have you heard about the antiretroviral therapy?	2.2	97.8	20	100	17.8	2.2
11	Do you know about the steps involved in VCT (Voluntary Counselling and Testing)?	13.3	100	12.7	100	-0.6	0.00
12	Do you know about MTCT (Mother to Child Transfer) transmission?	15.6	100	30.9	100	15.4	0.00
13	Do you want counselling if you are not aware much about HIV/AIDS?	82.2	97.8	74.6	96.4	-7.7	-1.4
14	Is Govt. or Panchayat is organising any awareness campaigns or drives from time to time?	17.8	62.2	50.9	69.1	33.1	6.9
15	Are you aware of the free distribution of condoms in health centres?	33.3	100	52.7	100	19.4	0.00
16	Does your partner and family support you in your decisions?	48.8	53.3	81.8	92.7	32.9	39.3
17	Are you aware about the risk of infection to child during pregnancy or birth?	17.8	97.8	52.7	100	34.9	2.2

18	Do you know the correct preventive measures for HIV/AIDS?	6.7	100	23.6	100	16.9	0.00
19	Why rural women are not able to say openly about related issues	2.2	6.7	3.6	3.6	1.4	-3.03

Conclusion

The current study examined how participants' understanding of one issue was substantially related to another. Notably, there has been a significant improvement in participants' awareness of HIV/AIDS, safe sexual practices, condom use, and family planning perceptions. The study utilised an innovative and effective methodology, which will be valuable in raising awareness about the importance of HIV testing during the first trimester among pregnant females.

Recommendations

This study provides valuable insights into enhancing HIV/AIDS awareness through media-led prevention campaigns. Findings suggest that such campaigns could significantly benefit from increased community involvement and ownership. To effectively reach high-risk and vulnerable populations, tailored outreach strategies are essential. Addressing gaps in rural intervention coverage and management is also crucial, as this will ensure sustained prevention efforts and enable comprehensive care, support, and treatment for eligible people living with HIV (PLHIV). Moreover, targeted prevention messages are particularly needed for widely dispersed populations, especially young women, including those who are pregnant. Improved knowledge and awareness, as facilitated by these campaigns, are expected to enhance decision-making abilities within communities, supporting both the prevention and effective management of HIV/AIDS.

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Assessment of Awareness Levels of Sexually Transmitted Diseases/ Reproductive Tract Infections (STI/RTI) among Individuals visiting District STI/RTI Clinic in Chamba, Himachal Pradesh

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Introduction

Sexually Transmitted Infections (STI) constitute a significant health burden and increase the risks of transmission of HIV [1]. Reproductive Tract Infection (RTI) is a global health problem among women, living in South-East Asian Region (SEAR) countries [2]. Studies have found the prevalence of RTI in India, Bangladesh, Egypt, and Kenya is in the range of 52–90% [3]. To prevent these adverse outcomes, the community needs to be aware of these problems along with the knowledge to take necessary actions in the direction that can protect them against such problems.

The problem of RTI/STI morbidity among people is largely due to ignorance, low level of awareness regarding sexual and reproductive health, and other social factors like low literacy, cultural factors, and taboos which cumulatively withhold the patients from seeking health care for RTI/STDs. Tribal communities have always been distinct with their unique culture, traditions, beliefs, and practices. This tertiary care facility at Chamba receives patients from the tribal area of Chamba. However, there is not much information available that can give us an idea about what is the baseline level of awareness among people living in district Chamba, HP. Therefore, this study focussed on assessment of awareness and practices regarding STI/RTI among people attending the District STI/RTI clinic, Chamba, Himachal Pradesh in India.

Methodology

A hospital-based observational study was conducted among STI/RTI patients visiting the District STI/RTI clinic in Chamba district of Himachal Pradesh. A total of 147 participants were enrolled in the study using a universal sampling after obtaining their informed consent to be enrolled in the study.

In the beginning of study, a focussed group discussion was conducted in the STI/RTI clinic with nine participants, including doctors, STI counsellors, technicians, health educators and social workers. Analysis of the discussion in the FGD was done to understand the STI/RTI related problems. This information was also utilised in the development of a questionnaire for collecting data on STI/RTI from study participants.

The research employed a one-on-one interview technique in which patients visiting the RTI/STI clinic at a tertiary care facility, representing a diverse demographic range. The interviews aimed to gather information on socio-demographic profiles, educational backgrounds, knowledge of causes and symptoms, preventive measures, and perceptions related to STI/RTI.

The collected quantitative data was entered into Microsoft excel spreadsheet and was analysed using the Epi info version 7.2.1.0 software. Descriptive statistics were used to summarise the demographic Frequencies and percentages were used to describe the categorical variables. For qualitative data, FGD audio recordings were transcribed and translated into English. The data was then coded and categorised into the key themes.

Findings

The socio-demographic profiling of 147 participants enrolled in this study indicated that 92% were female, the mean age of the participants was 32 years, and it was found that 25% were in the age group of 18-25 years 46% of the study participants were in the age group of 26-35 years and the remaining 29% were 36 years or older. The findings were in favour of prioritising the preventive intervention regarding STI/RTI among young age groups less than 35

years. Ninety-four percent of participants were from rural areas. Forty-six percent of the subjects were either illiterate or educated only up to middle school level and most (83%) of the participants were married. Lower educational attainment has been linked to limited access to health information, including sexual health education.

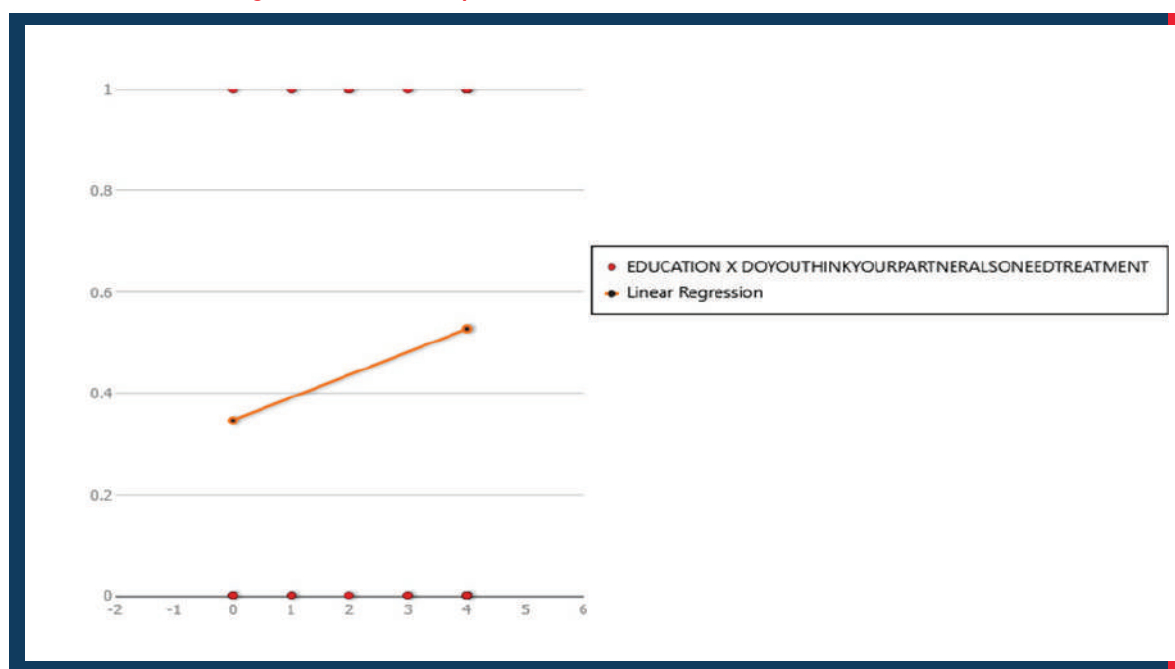
Nine members participated in the focus group discussion (FGD), and the analysis of their detailed responses revealed several key findings. One participant observed that individuals with STI/RTI symptoms often consider it *“unnecessary to seek treatment at distant health facilities”*. Another participant noted that patients frequently *“feel hesitant discussing STI/RTI-related health concerns with healthcare providers of the opposite gender”*. Additionally, a participant emphasised the need for *“a designated consultation room at the district STI/RTI”* clinic to better ensure patient privacy. Lastly, one participant suggested that *“providing treatment for these conditions at peripheral health facilities”* would significantly benefit affected patients.

Knowledge regarding STI/RTI

The study indicated that 82% of study participants were aware of the symptoms of STI/RTI and there was also high awareness (78%) about unprotected sexual intercourse with an infected person as a cause of STI/RTI infections. All participants were aware that having multiple sexual partners increases the risk of STI/RTI. Similarly, almost all participants were aware that condom use protect from STI and agreed that sex education has a role in preventing STI/RTI. This authenticates that condom promotion campaigns have been effective in disseminating information on preventive measures.

However, this study also reveals gaps in knowledge, such as only 46% of study participants were aware that their partner also needs treatment. This underscored the importance of targeted educational intervention. As shown in Figure 1, there is a direct linear relationship between levels of education and level of awareness i.e., need for treatment of a partner. The study findings highlight the need for comprehensive education on the importance of partner involvement in STI/RTI prevention and treatment.

Figure 1 Relationship between Education level and Awareness



In this study also, the recognition of symptoms such as abnormal vaginal discharge (82%) and itching (47%) while only 19 % of the subjects were aware of foul-smelling discharge to be a symptom of STI/RTI, further only 16% knew swelling in pelvic region could indicate STI/RTI related problem. Only 9% were aware of the genital ulcer to be related to STI/RTI infection, this variation in awareness emphasises the importance of tailoring educational programs to address specific symptoms and their significance.

Knowledge regarding HIV

In this study, 95% of people reported sexual route to be the mode of transmission of HIV, followed by infected blood (71%), pregnant mother to child (51%), sharing of infected needles (41%), through organ transplant (22%) and needle stick injury as a mode of transmission by 14%. The study's findings regarding knowledge on modes of HIV transmission (95% identifying sexual route, 71% identifying blood) are positive but the relatively lower awareness of blood transmission suggests a specific area for targeted education emphasising the importance of understanding the different modes of HIV transmission. It was worth mentioning that in this study, most (95%) participants were aware that in case of having any symptom of RTI/STI, one has to go to the nearby health centre.

Conclusion

In this study, participants demonstrated adequate knowledge of HIV transmission through sexual contact and infected blood, as well as the importance of seeking medical attention for RTI/STI symptoms. However, most participants were unaware of the various symptoms of STI/RTI, which hindered them from seeking timely medical care. Additionally, more than half of the patients lacked awareness of other transmission modes such as needle-stick injuries, sharing infected needles, and organ transplantation. Furthermore, many participants were unaware that, in certain cases, treating a partner may also be necessary. During the focus group discussions (FGDs), other challenges were identified, including limited accessibility to STI/RTI treatment facilities at the peripheral level, privacy concerns, stigma, and gender-related hesitancy.

Recommendations

There is a need for policymakers to further strengthen community awareness programmes and IEC activities targeting STI/RTI, including HIV, to educate people about different symptoms, various modes of transmission, and the need for treatment. STIs/RTIs treatment services need to be made accessible at the peripheral level to prevent patients from wasting time and money on travel. To address gender-related hesitancy, a team of service providers, comprising both genders, including doctors, nurses, pharmacists, and healthcare workers, may be trained so that clients can choose the gender of the healthcare provider they feel comfortable with. Additionally, care must be taken to safeguard the privacy of patients, ensuring they can freely explain their problems without hesitation.

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Assessment of Level of Understanding on Sexual Minorities among Medical Practitioners in Government Hospitals in Tamil Nadu

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Introduction

In recent years, there has been a growing recognition of the importance of understanding and addressing the healthcare needs of sexual minorities, including lesbian, gay, bisexual, transgender, queer, intersex, and asexual (LGBTQIA+) individuals [1]. In India, despite legal advancements such as the decriminalisation of consensual same-sex relations, societal attitudes towards sexual minorities remain complex and varied across different regions [2]. Tamil Nadu, known for its progressive social policies, provides an interesting context to explore the level of understanding and acceptance of sexual minorities within the healthcare sector, particularly in government hospitals that cater to a significant portion of the population, including marginalised communities.

The aim of this study is to assess the level of understanding and attitudes towards sexual minorities among medical practitioners in government hospitals in Tamil Nadu, India, with the goal of informing interventions that will enhance the provision of equitable healthcare services for these communities. The study was conducted with the following objectives:

1. To evaluate the knowledge and awareness of medical practitioners regarding sexual orientation, gender identity, and the specific health needs and challenges faced by sexual minorities.
2. To assess the attitudes, beliefs, and perceptions of medical practitioners towards sexual minorities, including their level of acceptance, empathy, and willingness to provide non-discriminatory healthcare services.

Methodology

This cross-sectional study assessed the understanding and attitudes of medical practitioners in government hospitals across Tamil Nadu toward sexual minorities, including Female Sex Workers (FSWs), Men who have Sex with Men (MSM), and Transgender individuals. The study included registered medical practitioners with an MBBS degree employed in the Tamil Nadu health department who provided informed consent, excluding those without an MBBS degree, not employed within the department, or unwilling to participate. Conducted across government hospitals statewide, the study used simple random sampling to select 100 doctors from the state government's database, ensuring geographical representation. Data were collected through face-to-face interviews using a semi-structured, peer-reviewed questionnaire covering knowledge, attitudes, perceptions, and experiences related to sexual minorities in healthcare settings. The data were managed in Microsoft Excel and analyzed using SPSS version 16 to derive meaningful insights.

Findings

Out of the 100 participants, 20 (20%) were in the age group of 21 to 30 years, 25 (25%) were in the age group of 31 to 40 years, 21 (21%) were aged 41 to 50 years, and 34 (34%) were in the 51 to 60 years age group. Of the participants, 57 (57%) were male and 43 (43%) were female. Regarding education, 68 (68%) participants had no undergraduate knowledge about sexual minorities, whereas 32 (32%) did. Furthermore, 57 (57%) had postgraduate knowledge, and 43 (43%) had no such knowledge. Regarding practice knowledge, 43% had knowledge in practice, while 57% did not possess such knowledge. In terms of experience with the NACO programme, 24% of participants had worked under the NACO programme, while 76% had not. Only 27% reported having knowledge of the Transgender Act, while 73% did not. Geographically, 62 (62%) respondents practiced medicine in urban areas, while 38 (38%) practiced in rural areas. Regarding years of experience, 27% had 1 to 5 years of experience, 10 (10%) had 6 to 10 years of experience, 22 (22%) had 11 to 15 years of experience, 21 (21%) had 16 to 20 years of experience, 6 (6%) had 21 to 25 years of experience, 10 (10%) had 26 to 30 years of experience, and 4 (4%) had 30 or more years of experience.

Table 1 Distribution of Age, Gender & Knowledge of Medical Practitioners

Variables		Frequency	Percent
Age	21 to 30 years	20	20
	31 to 40 years	25	25
	41 to 50 years	21	21
	51 to 60 years	34	34
Gender	Female	43	43
	Male	57	57
Have Knowledge about Sexual Minorities in UG (MBBS)	Yes	32	32
	No	68	68
Have Knowledge about Sexual Minorities in PG (MD)	Yes	57	57
	No	43	43
Have Knowledge about Sexual Minorities by Practice	Yes	43	43
	No	57	57
Have Knowledge about Sexual Minorities by Practice	Yes	24	24
	No	76	76
Worked under NACP	Yes	27	27
	No	73	73
Knowledge on Transgender Act	1 to 5	27	27
	6 to 10	10	10
	11 to 15	22	22
	16 to 20	21	21
	21 to 25	6	6
	26 to 30	10	10
	30 and above	4	4

The perception of medical practitioners towards sexual minorities was as follows: 63% perceived that people belonging to sexual minorities were overweight or obese. 65% of medical practitioners felt that these minorities engaged in sexual behaviours. 75% of medical practitioners perceived that sexual minorities did not have mental health issues. 40% felt that these minorities had some injuries or experienced violence, while 60% did not share this view. Additionally, 88% of medical practitioners believed that sexual minorities were not immunised. Finally, 82% of medical practitioners felt that their patients from sexual minorities were involved in substance use.

Table 2 Perception of health practitioners on sexual minorities

Variables		Frequency	Percent
Overweight/Obese	Yes	63	63
	No	37	37
Sexual behaviour	Yes	35	35
	No	65	65
Mental health	Yes	25	25
	No	75	75
Injury/violence	Yes	40	40
	No	60	60
Immunisation	Yes	12	12
	No	88	88
Substance Use	Yes	82	82
	No	18	18

There is a statistically significant correlation between age and years of practice, age and total years of experience and years of practice and total years of experience with Pearson Correlation of 0.903, 0.903 and 0.999 respectively. This indicates when the medical practitioners' years or experience increase, the knowledge among sexual minorities also increases.

Table 3 Positive Correlation among various variables in the Study

Variables	Pearson Correlation	Significance
Knowledge on Sexual Minorities with years of practice	0.903	0.00
Knowledge on Sexual Minorities with Total years of experience	0.903	0.00
Years of practice and Total years of experience	0.999	0.00

A statistically significant association was found between knowledge of the Transgender Act and the practice knowledge of the medical practitioners. It was observed that 50% of those with no practice knowledge also lacked knowledge of the Transgender Act. Additionally, a statistically significant association was found between knowledge of the Transgender Act and the place of practice. Notably, 51% of participants practicing in urban areas had no knowledge of the Transgender Act. Furthermore, a statistically significant association was found between undergraduate (UG) knowledge and the perception of participants regarding injury or violence experienced by sexual minorities. It was also noted that 46% of participants with no UG knowledge did not perceive that sexual minority patients had experienced injury or violence.

Table 4 Experience & Practice of Medical Practitioners

Variables		Knowledge on Transgender Act			
		Yes	No	Chi Square Value	Asymptotic Significance
Practice Knowledge	Yes	20(20%)	23(23%)	14.571	0
	No	7(7%)	50(50%)		
Total		27(27%)	73(73%)		
		Knowledge on Transgender act			
Variables		Yes	No	Chi Square Value	Asymptotic Significance
Place of Practice	Rural	16(16%)	22(22%)	7.095	0.01
	Urban	11(11%)	51(51%)		
Total		27(27%)	73(73%)		

Conclusion

This cross-sectional study evaluates the knowledge of medical professionals regarding sexual minorities. The majority of medical professionals in this study were male, with most having never worked under the NACO programme and being unaware of the Transgender Act. The age distribution of the participants revealed that most were between the ages of 51 and 60 years, while a similar number were between the ages of 21 and 50 years. A small percentage of the medical professionals reported having undergraduate and graduate knowledge about sexual minorities. Based on their professional experience, the medical practitioners perceived sexual minorities as psychologically stable, but they also held misconceptions, such as viewing them as overweight or obese, and assumed they had not been vaccinated or engaged in sexual activity. Additionally, there was a belief among some that sexual minorities were more likely to use drugs.

Recommendations

This cross-sectional study suggests that in order to provide optimal care to sexual minorities, medical professionals must educate themselves about their unique needs and challenges. It is recommended to organise medical awareness camps and sensitisation meetings for healthcare providers to better understand the specific healthcare requirements of sexual minorities and ensure they receive equitable, non-discriminatory care.

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Awareness Levels of Family Planning Methods among Married PLHIV Couples/Clients in Selected ART Centres in Telangana

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Introduction

The four-pronged UN strategy for prevention of mother-to-child transmission (PMTCT) of HIV includes the prevention of unwanted pregnancies among women with HIV and AIDS [1]. Good access to reproductive health services for people living with HIV (PLHIV) is a key goal of the strategy. Unplanned pregnancies in women with HIV can be prevented through regular counselling and the provision of contraception [2-3]. Couples who choose to have children can wait until the HIV-positive woman is healthy and her viral load is low, planned pregnancies significantly reduce the risk of mother-to-child transmission [4-5]. By avoiding unintended pregnancies, the number of infants exposed to HIV in utero is decreased.

A successful strategy for HIV prevention is addressing the family planning (FP) needs of individuals living with HIV. Regardless of a woman's HIV status, healthy pregnancy timing and spacing are essential for ensuring the health and wellbeing of both mothers and children [5]. Preventing unintended pregnancies is also a critical approach in the fight against HIV transmission from mother to child [6].

The primary goal of this study was to assess participants' awareness of family planning methods. The study aimed to explore the knowledge of family planning techniques among married PLHIV couples and identify factors influencing the utilisation of FP services. Additionally, it sought to evaluate awareness of fertility status, partner infection status, and current contraceptive methods used by people living with HIV.

Methodology

A hospital-based prospective, observational study was conducted among the PLHIV visiting the ART Centre at Gandhi Hospital, Hyderabad, Telangana. A total of 350 patients were selected for the study using simple random sampling. Only married PLHIV on ART from last 6 months (from the start of enrolment in the study) and aged more than 18 years including pregnant women were included in the study. Patients with known infertility, STDs/STIs, mental illness, widowed, widower, or unmarried PLHIVs were excluded from the study.

Data collected was conducted by using a pre-designed, semi-structured validated questionnaire consisting of socio-demographic variables, behavioural patterns and awareness levels on various family planning methods and clinical and laboratory investigation markers. Appropriate which took place from November 2023 to March 2024. Information was extracted from eligible subjects using a structured questionnaire.

Findings

The study included 350 patients, of which 186 were male and 164 were female, corresponding to 53% and 47%, respectively. The majority of respondents were in the age group of 30-40 years (65.4%), with a mean age of 39.16 ± 6.969 years. Majority of the respondents (84.3%) were Hindus. Eight-two percent PLHIV in this study were literate, and around 83.4% reported that their spouses were also literate. It was reported that 81.1% respondents were involved in non-professional or technical or managerial work. Additionally, 54% of respondents hailed from rural areas, and 73.4% belonged to the upper-middle socio-economic class.

Table 1 reported the findings related to the reproductive history, sexual behaviour, fertility, desire and intention to initiate pregnancy among the study participants. Most of the respondents (40.6%) had one child and about 13.7% had 2 children at the time of the study. Among the participants with children (82%), the HIV status of the child was negative in 99.3% cases and around 0.7% were positive. About 18% participants reported to have no child at the time of study.

It was also reported that the use of any family planning methods before HIV diagnosis among study participants was 88.9%, while about 11.1% participants have not used any family planning methods. It was also recorded that 13.7% of the respondents were sexually active in the last 6 months.

With reference to HIV status disclosure, around 94% parents have not disclosed their HIV status to their child, while 6% parents have only disclosed their HIV status to their children. Additionally, 33.7% patients reported that they are planning to have children, while 66.3% are not planning to have children.

Table 1 Reproductive History and Intention to Initiate Pregnancy (N=350)

Characteristics	Number	Number
Number of Children		
0	63	18
1	142	40.6
2	111	31.7
3	27	7.7
4	6	1.7
5	1	0.3
HIV Status of the Child		
Positive	2	0.7
Negative	285	99.3
HIV Status of the Parent is Known to the Child		
Known	21	6
Unknown	329	94
Utilisation of Family Planning Methods before HIV Diagnosis		
Yes	311	88.9
No	39	11.1
Sexual Intercourse in last 6 months		
Yes	48	13.7
No	302	86.3
Planning for Children		
Yes	118	33.7
No	232	66.3
Intention of Childbearing in coming 6 Months		
Yes	70	20
No	280	80

Figure 1 illustrates the knowledge of family planning methods among the study participants. It was observed that 98.9% are aware of family planning, and 87.9% are familiar with various family planning methods. It was reported that 87.2% participants had utilised one of the family planning methods, while only 12.8% reported to have not used any family planning method.

The findings reported that the family planning methods were either used by the respondent or their spouse. The male respondents have reported the use of female family planning methods by their spouse such as implants, pills, IUCD, and female sterilisation. The female respondents reported that the use of condoms and male sterilisation by their partners were also common family planning methods other than oral medication used by them.

Figure 1 Knowledge of Family Planning Methods among Study Participants (N=350)

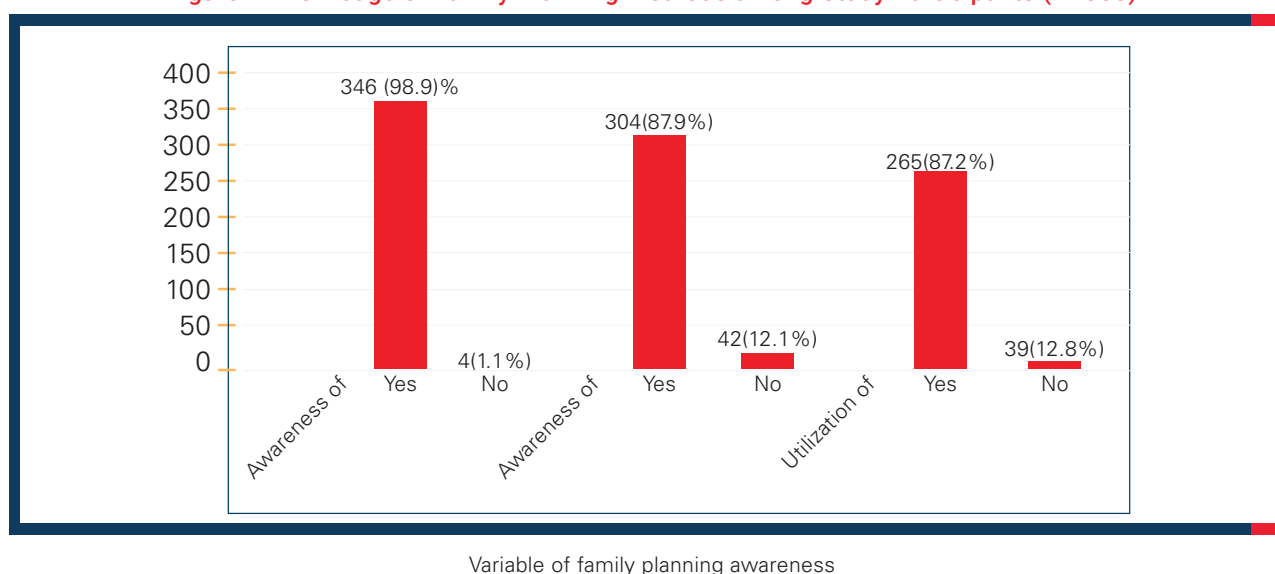


Table 2 indicated that overall, the usage of family planning methods has increased after diagnosis of HIV among the study participants. The surgical method of undergoing tubectomy increased by 20% among participants before to after HIV diagnosis, additionally the usage of condoms among the males increased by 14.2%. The increase in oral contraceptives among female also saw an increase from 2% to 10.6% before and after HIV diagnosis, respectively.

Table 2 Use of Specific Family Planning Methods Before and After HIV Diagnosis among Study Participants (N=350)

Characteristics	Before Diagnosis n (%)	After Diagnosis n (%)
Utilisation of FP Methods		
Condom	89 (25.4)	139 (39.7)
Tubectomy	17 (4.9)	87 (24.9)
Vasectomy	3 (0.9)	6 (1.7)
Copper-t	12 (3.4)	18 (5.14)
Chaya, anthra	8 (2.3)	24 (6.9)
Oral contraceptives	7 (2.0)	37 (10.6)

Conclusion

The study findings indicate that most of the PLHIV in the study group belonged to reproductive age groups, had proper knowledge about family planning and utilisation of various family planning methods which brought an impact on reduction of new cases and mother-to-child transmission of HIV. This study helped to gain a better understanding of patterns of contraceptive usage among PLHIV's married couples and their reproductive health status. The study helped in understanding the importance of organising educational campaigns on awareness of family planning services by emphasising the benefits of the family planning services to reduce unintended pregnancies and increase accessibility to family planning services. It was concluded from the study that proper sensitisation among Women PLHIV will help them in making decisions about spacing of their children to prevent pregnancies and STI.

Recommendations

- The study can be replicated with a larger sample size in different parts of the country to assess the level of awareness of various family planning methods and their implications.
- A study can be conducted to determine the effectiveness of counselling in reducing Mother-to-Child Transmission (MTCT) and unintended pregnancies among PLHIV.
- An evaluative study can be done to analyse the hidden barriers to implementing family planning norms and accessing health services at various levels.
- A comparative study can be conducted to evaluate the availability of family planning services and their implications at different levels of society.

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SEXUALLY TRANSMITTED INFECTIONS



Sero-positivity Rate and Treatment Seeking Behaviour among Patients Attending Sexually Transmitted Infection Clinics in Chandigarh

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Introduction

Ensuring reproductive and sexual health is pivotal for achieving Sustainable Development Goals (SDGs) [1]. Sexually Transmitted Infections (STI) are a public health problem. Millions of people around the world acquire STIs daily [2]. In India approximately 6% of the adult population is estimated to be affected by one or more STIs at any given time, translating to about 30-35 million episodes of STIs annually across the country [3]. In Chandigarh the seropositivity of HIV and syphilis infection for the year 2021-22 was 0.2% and 3.4%, respectively [4, 5]. Further, a nationwide survey namely National Family Health Survey-5 (NFHS-5) reported that only a few people (25.8%) had comprehensive knowledge about HIV. Therefore, understanding the treatment-seeking behaviours among STI patients is crucial in identifying barriers in seeking timely treatment and improve healthcare access. Hence, the present study aims to assess seropositivity rate of Syphilis and HIV among symptomatic STI clinic attendees.

The objectives of the study are as follows: a) To study the socio-demographic profile of symptomatic STI clinic attendees, b) To study the treatment-seeking behaviour of symptomatic STI clinic attendees, c) To study the past 3-year trend of Syphilis and HIV seropositive rates with which patients attend STI clinics.

Methodology

A cross-sectional study was conducted among STI clinic attendees to assess the seropositivity rates for syphilis and HIV and to examine treatment-seeking behaviour. A total of 1200 STI clinic attendees in Chandigarh were interviewed to collect socio-demographic data, symptoms of STI experienced and diagnosed STI, after obtaining their written informed consent. Out of 1200 patients, treatment seeking behaviour was assessed among the 360 STI clinic attendees. Additionally, 69 participants from key population, including female sex workers (FSW) (n=46) and men who have sex with men (MSM) (n=23), diagnosed with STIs and registered with TI-NGO clinics, were also interviewed regarding their treatment-seeking behaviour. For the present study, delayed treatment-seeking behaviour was defined as waiting seven days or more to seek treatment from a physician after the onset of symptoms. The cut off period of 7 days for deciding delay in seeking treatment was based on the previous studies conducted on this topic (6). Trend analysis for seropositivity rate of HIV and syphilis was conducted using data obtained from the Chandigarh State AIDS Control Society over the past three years.

Findings

Socio-Demographic Profiling of STI Clinic Attendees

The mean age of STI clinic attendees was 33.2 years (SD = ± 8.3 years). There were 1,051 females (87.6%), most of whom were literate (89.7%) and homemakers (68.1%). The majority were married (86.3%) and lived in a nuclear family setup (61%). The most common symptoms reported for seeking care at the STI clinics were genital discharge (63.1%), followed by lower abdominal pain (49.3%). Burning pain during micturition was also reported by 24.7% of the study participants.

The mean age of HIV-reactive individuals was 34.9 years (SD = 10.6). The seropositivity rate for HIV and syphilis among STI clinic attendees was 1.3% and 2.8%, respectively. HIV seropositivity was comparatively higher among males (6.8%) than females (0.5%), and higher among unmarried individuals (3.6%) compared to married individuals (1.0%). HIV seropositivity showed no correlation with age, education, occupation, type of family, or place of residence. The mean age of syphilis patients was 29.5 years (SD = 9.7). Syphilis seropositivity was higher among males (18.2%) than females (0.6%) and more prevalent in the 18-30 years age group (4.5%) and among unmarried individuals (11.4%). No correlation was found with other socio-demographic variables such as literacy, occupation, type of family, or area of residence (Table 1).

Table 1 Socio-Demographic Correlates of HIV infection among STI clinic attendees

	HIV reactive N=15	HIV non-reactive N= 1185	Total (N=1200)	Chi-square and p value*
Gender				
Male	10 (6.8%)	138 (93.2%)	148	41.5 ; <0.01
Female	5 (0.5%)	1046 (99.5%)	1051	
Transgender	0 (0%)	1 (100%)	1	
Age Group				
18-30	6 (1.2%)	503 (98.8%)	503	1.4 ; 0.49
31-44	6 (1.1%)	557 (98.9%)	563	
>45	3 (2.3%)	125 (97.7%)	128	
Education				
Illiterate	1 (0.8%)	123 (99.2%)	124	0.22 ; 1.0
Literate	14 (1.3%)	1062 (98.7%)	1076	
Occupation				
Employed	14 (1.2%)	1171 (98.8%)	1185	3.6 ; 0.17
Unemployed	1 (6.7%)	14 (93.3%)	15	
Marital Status				
Unmarried	5 (3.6%)	135 (96.4%)	140	7.1 ; 0.03
Married	10 (1%)	1025 (99%)	1035	
Widowed/ Divorcee	0 (0%)	25 (100%)	25	
Area				
Urban	6 (0.9%)	634 (99.1%)	640	1.1 ; 0.29
Rural	9 (1.6%)	551 (98.4%)	560	
Type of Family				
Nuclear	10 (1.4%)	722 (98.6%)	732	0.21 ; 0.65
Joint	5 (1.1%)	463 (98.9%)	468	

*Level of significance $p < 0.05$

Table 2 Symptoms among Study Participants attending STI clinics

Symptoms	N=1200	%
Lower Abdominal Pain	592	49.3
Genital Discharge	757	63.1
Burning Pain during Micturition	296	24.7
Genital Ulcers/Sores	103	8.6
Swelling in the groin area	30	2.5
Itching/Reddening	447	37.3
Warts	67	5.6
Skin rash	61	5.0
Others	3	0.3

Trend Analysis: The trend analysis from the year 2021 to 2023 shows that there is decreasing trend of HIV and syphilis among STI clinic attendees (Table 3&4).

Table 3 Gender-wise HIV Sero-positivity

	N	%
Year 2021-2022		
Male	4/1041	0.4
Female	3/3473	0.1
Year 2022-2023		
Male	15/1570	1.0
Female	5/6385	0.1

Table 4 Gender-wise Syphilis Infection

	N	%
Year 2021-2022		
Male	112/1069	10.4
Female	37/3490	1.1
Year 2022-2023		
Male	124/1621	7.6
Female	40/6446	0.6

Regarding the treatment-seeking behaviour of STI clinic attendees, 73.9% (266/360) delayed seeking treatment. The most common reason reported was the perception that the symptoms would disappear on their own (43.2%), followed by the symptoms not being a priority (18.8%), searching for the right doctor (16.5%), self-medication from chemist shops (16.2%), not thinking the symptoms were serious (11.7%), not knowing where to go (7.1%), not having time from work (5.2%), and others. It was observed that treatment-seeking behaviour was comparatively better among younger individuals (33.3%), literate individuals (27.8%), and unmarried individuals (45.7%).

Table 5 Correlates of Treatment seeking behaviour among the STI Clinic attendees

	Delayed Treatment N=266	Early Treatment N=94	Total N=360	Chi-square and p value
Gender				
Male	21 (60%)	14 (40%)	35	4.2 ; 0.12
Female	244 (75.3%)	80 (24.7%)	324	
Third gender	1 (100%)	0 (0%)	1	
Age Group				
18-30	96 (66.7%)	48 (33.3%)	144	6.9 ; 0.03
31-44	137 (77.8%)	39 (22.2%)	176	
>45 years	33 (82.5%)	7 (17.5%)	40	
Education				
Illiterate	30 (90.9%)	3 (9.1%)	33	5.5 ; 0.02
Literate	236 (72.2%)	91 (27.8%)	327	
Occupation				
Employed	264 (73.7%)	94 (26.3%)	358	0.71 ; 0.39
Unemployed	2 (100%)	0 (0%)	2	
Marital Status				
Unmarried	25 (54.3%)	21 (45.7%)	46	10.6 ; <0.01
Married	236 (76.6%)	72 (23.4%)	308	
Widowed/ Divorcee	5 (83.3%)	1 (16.7%)	6	
Area				
Urban	129 (76.8%)	39 (23.2%)	168	1.4 ; 0.24
Rural	137 (71.4%)	55 (28.6%)	192	
Type of Family				
Nuclear	148 (72.5%)	56 (27.5%)	204	0.44 ; 0.51
Joint	118 (75.6%)	38 (24.4%)	156	

*Level of significance $p < 0.05$

Socio-Demographic Profile of High-risk group patients

The mean age of High-Risk Group (HRG) study participants was 30.5 years (SD=6.3). There were 20 (29%) males, 45 females (65.2%) and 4 belonged to third gender (5.8%). The most common symptom was genital discharge (91.3%) followed by lower abdominal pain (53.6%). Burning pain while micturition was present in 34.8% of the study participants. Anorectal discharge was present in 8.7%.

Table 6 Symptoms of the High-Risk Group patients

Symptoms	N=69	%
Lower Abdominal Pain	37	53.6
Genital Discharge	56	91.3
Burning Pain during Micturition	24	34.8
Genital Ulcers/Sores	9	13
Swelling in the groin area	4	5.8
Itching/Reddening	49	71
Warts	3	4.3
Skin rash	23	33.3
Anorectal disease	6	8.7

Regarding the treatment-seeking behaviour of STI clinic attendees, 73.9% (266/360) delayed seeking treatment. The most common reason reported was the perception that the symptoms would disappear on their own (43.2%), followed by the symptoms not being a priority (18.8%), searching for the right doctor (16.5%), self-medication from chemist shops (16.2%), not thinking the symptoms were serious (11.7%), not knowing where to go (7.1%), not having time from work (5.2%), and others. It was observed that treatment-seeking behaviour was comparatively better among younger individuals (33.3%), literate individuals (27.8%), and unmarried individuals (45.7%).

Table 7 Correlates of Treatment seeking Behaviour among the HRG Participants

	Early Treatment (N=26)	Delayed Treatment (N=43)	Chi-square & p value
Gender			
Male	10(50)	10(50)	2.4;0.30
Female	14(31.1)	31(68.9)	
Transgender	2(50)	2(50)	
Age Group			
18-30	17(43.6)	22(56.4)	1.3;0.25
31-45	9(30)	21(70)	
Education			
Illiterate	2(28.60)	5(71.4)	0.28;0.70
Literate	24(38.7)	38(61.3)	
Occupation			
Employed	17(39.5)	26(60.5)	0.17;0.68
Unemployed	9(34.60)	17(65.4)	
Marital Status			
Unmarried	9(56.3)	7(43.8)	4.6;0.10
Married	16(35.6)	29(64.4)	
Widowed/ Divorcee	1(12.5)	7(87.5)	
Type of Family			
Nuclear	18(37.5)	30(62.5)	0.002;0.96
Joint	8(38.1)	13(61.9)	

*Level of significance $p < 0.05$

Conclusion

The study findings indicate a low seropositivity rate for HIV and syphilis among STI clinic attendees in Chandigarh. However, the gender breakdown shows a higher sero-positivity rate among males compared to females, and it was also higher among unmarried individuals compared to married ones. Similarly, the syphilis seropositivity rate was low but higher among males, younger individuals, and unmarried persons compared to their counterparts. Additionally, STI patients tended to delay seeking healthcare for symptoms. The treatment-seeking behaviour was better among younger, literate, and unmarried individuals.

Recommendations

It is recommended that healthcare staff regularly create awareness about STIs in the community through various health education tools. Workshops and seminars may be conducted regularly in schools, colleges, and workplaces, emphasising the importance of early diagnosis and treatment of STIs. Additionally, physicians, health workers, STI clinic counsellors, and TI-NGO counsellors may stress the importance of timely treatment for STIs and the potential complications if left untreated. This will strengthen the effectiveness of the National AIDS & STD Control Programme in Chandigarh and help reduce the incidence of STIs.

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Study to understand Reasons of High STI Positivity among Female Sex Workers in Surat City: A Mixed Method Study

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Introduction

Sexually transmitted infections (STI) rank among the top five conditions for which sexually active adults seek health care in developing countries. The risk of HIV and other STIs is high among persons who engage in sexual activities with more than one partner, mostly strangers for monetary benefits. Due to various target and effective interventions under NACP, HIV positivity has reduced to less than 0.08% among Female Sex Workers (FSWs) in the state of Gujarat, however, over the period with the changing dynamics, various newer pockets and typologies (Beauty parlours, cafe and spa based) of FSWs have emerged in Surat city. Programme data from Suraksha clinic of New Civil Hospital, Surat showed on average 5-6 syphilis cases every month are being newly detected.

Due to changes of typologies and more involvement of newer FSWs, the risk of STIs among this high-risk group may increase if remain undetected. Therefore, the present study has been conducted to identify the reasons for high STI positivity among FSWs in Surat city.

Methodology

A case control mixed method sequential study was conducted among FSWs registered at five targeted interventions (TIs) in Surat city namely, PARAS PSM Unit II, PARAS PSM Unit III, Lok Vikas Sanstha and CBOs (SAHYOG, Ekta Mahila Mandal). For the quantitative component, 250 cases who had STIs within the last 6 months and 250 controls who did not have STIs within the last six months were selected using the simple random sampling method from the selected TI-NGOs. Under qualitative components, 10 FSW from cases and controls were selected in-to the study to conduct six Focus Group Discussions (FGDs), three for each group and one further FGD from Departmental PARAS unit III. Descriptive statistics was performed to summarise and describe the characteristics of the study population and bivariate analysis was conducted for comparing cases and controls across key variables of interest. Chi-square test (for categorical data) and t-tests (for continuous data) were employed to identify significant associations between risk factors and STI status. Odds ratios (ORs) with 95% confidence intervals (CIs) were calculated to assess the strength of these associations.

Findings

Quantitative

As per existing programme data, around 1,427 FSWs actively availing services from the targeted interventions NGOs in the Surat city. On an average, three to four visits to STI/RTI clinics were made by each FSW (under TI-NGOs) in a year. Colour coded kit treatments were given to 2-3% FSWs, among total females who visited STI clinics in Surat. Average test positivity rate of syphilis was reported around 0.02% while mean HIV positivity rate were reported around 0.05% among FSWs. Out of total 500 participants, 61.8% FSWs migrated from other states. Majority of participants were in the age group 19-40 years (85%), with mean age of 33.37 years (SD: ± 7.73 years). Around one fourth of FSWs (25%) were illiterate. Majority of FSWs (77.2%) were married, and 35% FSWs had a history of debt in the family.

The average age of first sexual intercourse was 18 years among FSWs, while, categorically, it was observed to be 17.8 years among cases and 18.5 years among controls. Around 85% FSWs reported to use different birth spacing methods, amongst which the most common method was condom use (71.4%). Most common reason for not using condom was refusal by clients, which was reported more in cases compared to controls. Other reasons for not using birth control methods included, forced sex, discomfort, unavailability of condom, offer more money for unprotected sexual intercourse by clients and sexual intercourse with trusted partners of FSWs. Among cases, most sexual activities were conducted at a rented room or lodge (68.4%) compared to controls where maximum activities were done at home (64.8%). Majority of FSWs (60.8%) had on average 1-4 number of clients per day. Most of FSWs (89%) used male condoms during the sexual

intercourse which were given by peer educators. Among cases, 11.6% FSWs did not use condom and among controls 6.4% FSWs did not use condom. Findings show that while having intercourse with a trusted partner whom they termed as “lover”, usage of condoms was only 13.3% among cases compared to controls (52.4%). However, 14.4% cases and 7.6% controls reported forced sexual intercourse.

Among cases, the most common reported symptoms of STI were foul smelling vaginal discharge (80.4%), lower abdomen pain (52%) and itching in genital area (33.2%). The findings also showed that most of FSWs washed their genital area with soap and water after sexual intercourse.

Table 1 shows that early sexual activities, unavailability of condom, voluntary non-usage of condom, forceful sex, non-usage of condom during relationship with trusted partner and lovers, denial by client for use of condom were statistically significantly factors influencing the high risk of STIs among cases as compared to controls.

Table 1 Comparison of Risk Factors for STIs among Cases and Control

Variables	Cases (250)	Controls (250)	Test	p-value	OR	CI
Average age for initiation of sexual activities	17.8	18.5	t-test 2.32	0.02	-	-
Easily availability of condom	24.8%	12.8%	χ^2 10.11	0.001		
Use of condom during last sexual activity with clients	72%	83%	χ^2 9.02	0.02	0.51	0.33-0.79
Forceful sex	14.4%	7.6%	χ^2 5.9	0.01	2.04	1.13-3.67
Use of condom during relationship with trusted partner and lovers	13.2%	52.4%	χ^2 12.7	<0.05	0.25	0.11-0.55
Denial by client for use of condom	11.6%	6.4%	χ^2 4.12	0.02	1.9	1.01-3.63

*Level of significance $p < 0.05$

Qualitative

Belief for Prevention of STIs - cleaning of vaginal area immediately after work

“Ma’am, we wash immediately after doing the work with Hot water and Dettol or with soap.”

[FSW Surat]

“Washing immediately after the work is good.”

[FSW Surat]

“I wash vaginal part with tissue and soap.”

[FSW Surat]

“I use shampoo.”

[FSW Surat]

“I use V wash With Dettol or Dettol soap.”

[FSW Surat]

Condomless Sexual Activity with Trusted Partners

“It feels good. Having sex without condom, with both, my husband and lover.”

[FSW Surat]

“Yes, we do not use condom at home, not use it with husband, lover or who are regular partners.”

[FSW Surat]

“Doing sex with my husband is spending quality time with him, so, I don’t use condom.”

[FSW Surat]

Condomless Sexual Activity with Clients

“What will be the benefit of lying, madam? I accept extra money that is offered for doing condom less sex.”

[FSW Surat]

“Sometime due to customer’s request, I do it without condom.”

[FSW Surat]

Conclusion

The study identified several significant factors influencing the risk of sexually transmitted infections (STIs) among FSWs. Early sexual activity, unavailability or voluntary non-use of condoms, forced sex, and condom refusal by clients were all associated with a higher risk of STIs. Additionally, non-use of condoms with trusted partners or “lovers” further increased the risk. Many individuals prioritise personal hygiene practices, believing these practices to be effective in preventing STIs. However, while post-activity washing may support general cleanliness, it does not provide adequate protection against STIs. Condoms are sometimes perceived as unnecessary due to established trust, despite the potential health risks. Similarly, in commercial sex work, financial incentives and client requests sometimes lead individuals to agree to condom less sex, highlighting how economic factors can undermine safer sex practices.

Recommendations

FSWs may be provided comprehensive sexual education and training for negotiation skills to persuade clients towards condom usage. The availability of condoms at low cost or free in places of business used by FSWs may be undertaken by clinics, drop-in centres, outreach centres and lodge/ rented rooms. Provision of financial support and alternative livelihood options for FSWs may reduce the pressure to engage in risky behaviours due to economic constraints. The younger FSWs need to be provided sexual and reproductive health education for better health outcomes. Strengthening of support systems and hotlines for FSWs who undergo forceful sex or violence by providing immediate assistance and counselling at TI Centres and CBOs may be undertaken.

Acknowledgements

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Improving Linkages to Increase Footfall in Designated STI/RTI Clinics in Gujarat: A Mixed Methods Study

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Introduction

Monitoring the cascade or continuum of STI/RTI/HIV services- ranging from outreach services to anti-retroviral treatment is important. Footfall in Designated Sexually Transmitted Infections (STIs) /Reproductive Tract Infections (RTI) - DSRC (STI clinics) are directly related to the universal access to quality STI/RTI services available to High-Risk Groups (HRGs) and vulnerable population. However, stigma is an important social consequence that often leads to poor health seeking behaviour, denial or minimising of STI symptoms and consequently delayed treatment, low contact reporting, and further transmission. It further worsens when patients with STIs perceive healthcare providers (HCPs) to have a negative attitude toward individuals with STIs. In this study, we aimed to assess the reasons to improve linkage of services and footfall at the DSRC using the Donabedian model of structure (material and human resources), process (care seeking and linkage pathway) and outcome (degree of client and provider's satisfaction or challenges faced).

Objectives

- To estimate the trends in DSRC footfall and evaluate the current linkage process across Gujarat State
- To understand the clients' perspective on uptake of services at the DSRC (related to Quality of Care and Satisfaction associated with Sexual and Reproductive Healthcare)
- To understand the determinants of health care/ treatment seeking pathway by shadowing of the clients visiting the DSRC
- To explore the clients' and healthcare providers' perspectives on the challenges and solutions to improve DSRC Footfall, challenges associated with visiting DSRCs and its solutions

Methodology

This cross-sectional study, observational exploratory in nature, used mixed method approach to recruit the study participants from DSRC in SSG hospital, Vadodara. For feasibility and maintaining quality, the number of interviews was limited to 15 clients utilising services, 15 clients lost to follow up, six healthcare workers and 15 PLHIV for shadowing while ensuring representativeness and maximum variability sampling. The saturation of themes was achieved in the set number of interviews. In-depth interviews (IDIs) were conducted after taking written informed consent, using semi structured interview guide. Clients who were shadowed were administered a pre-designed and pre-validated Likert Patient Satisfaction scale with scores from 1 representing 'Very Unsatisfied' to 5 representing 'Very Satisfied'. Interviews were transcribed and translated to English on the same day. Key notes were taken verbatim, and any nonverbal communication was documented. Notes were back translated to regional language for accuracy. Manual content analysis was done, and the emerging themes were discussed amongst the investigators.

For trend analysis, secondary data for the six Regional Deputy Director (RDD) zones in Gujarat, namely Ahmedabad, Bhavnagar, Gandhinagar, Rajkot, Surat, and Vadodara were retrieved from GSACS newsletter and respective zone DAPCUs for the financial years 2019-20, 2020-21, 2021-22 and 2022-23.

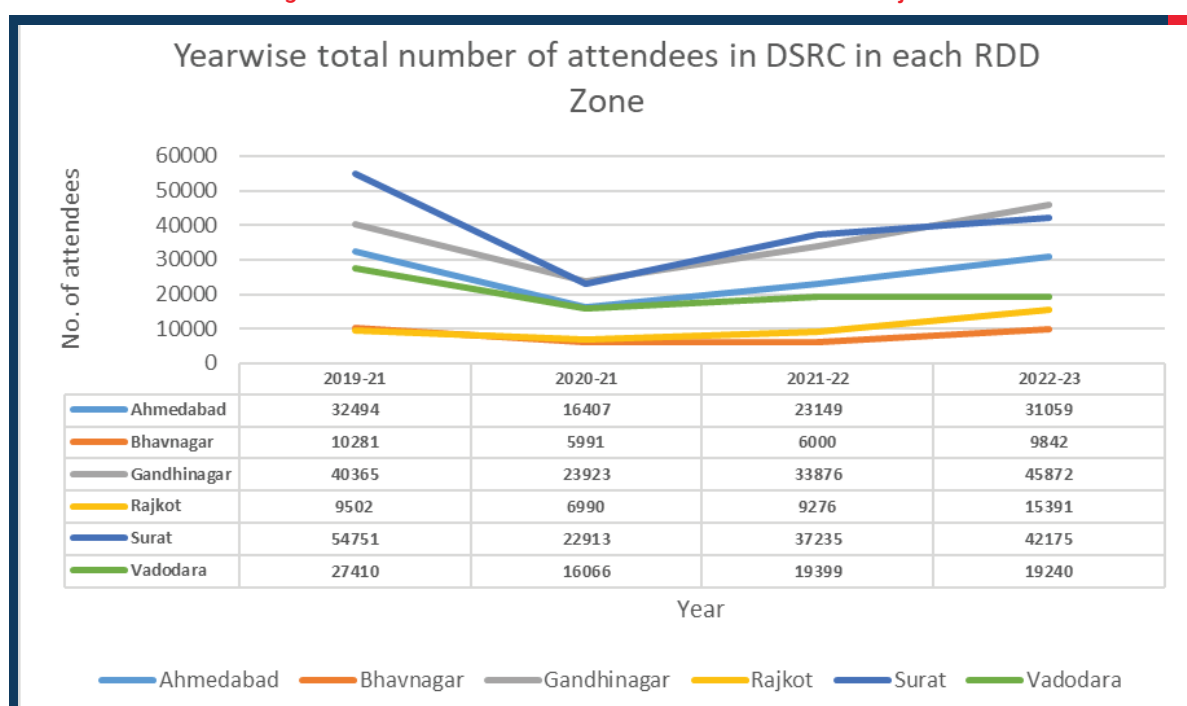
Findings

Results from Secondary Data Analysis

Trends in Footfall in DSRC

In 2019-20, the highest footfall was recorded in Surat and the lowest in Rajkot and Bhavnagar. A drastic decline in footfall was observed across all zones in the year 2020-2021, which may be attributed to the enforcement of nationwide lockdown in the wake of COVID 19 pandemic. The footfall increased gradually over 2021-22 and 2022-23 in all zones, although only Rajkot and Surat have crossed the pre COVID numbers (Figure 1).

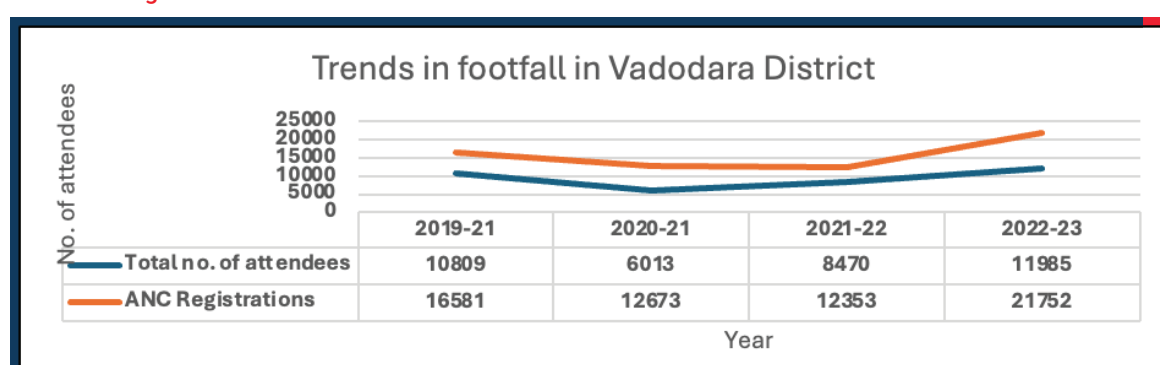
Figure 1 Trends in footfall in DSRC of RDD Zones of Gujarat



Trend in footfall and Utilization of services in DSRC of Vadodara District

There was a notable decline in the number of persons attending DSRC clinics in Vadodara district in the year 2020-2021 as compared to the preceding year but since then gradually increased and recorded the highest footfall in the year 2022-23. A similar trend was observed with the number of ANC registrations (Figure 2).

Figure 2 Trend in footfall and Utilisation of Services in DSRC of Vadodara District



All the patients attending the DSRC in Vadodara District, over the years were counselled at the clinic. Out of total attendees, the proportion of clients referred to ICTC centres saw a decline from 66.5% in 2019-20 to 55% in 2022-23. Of those beneficiaries who underwent HIV testing, a higher proportion tested positive in 2022-23 as compared to the preceding years. RPR test was conducted in greater than 80% of the total attendees throughout 2019 to 2023. Similar to HIV reactivity, there was an increase in the proportion of patients who were RPR reactive in the year 2022-23. Of total ANC registrations, the proportion screened by RPR increased to 100% in 2022-23.

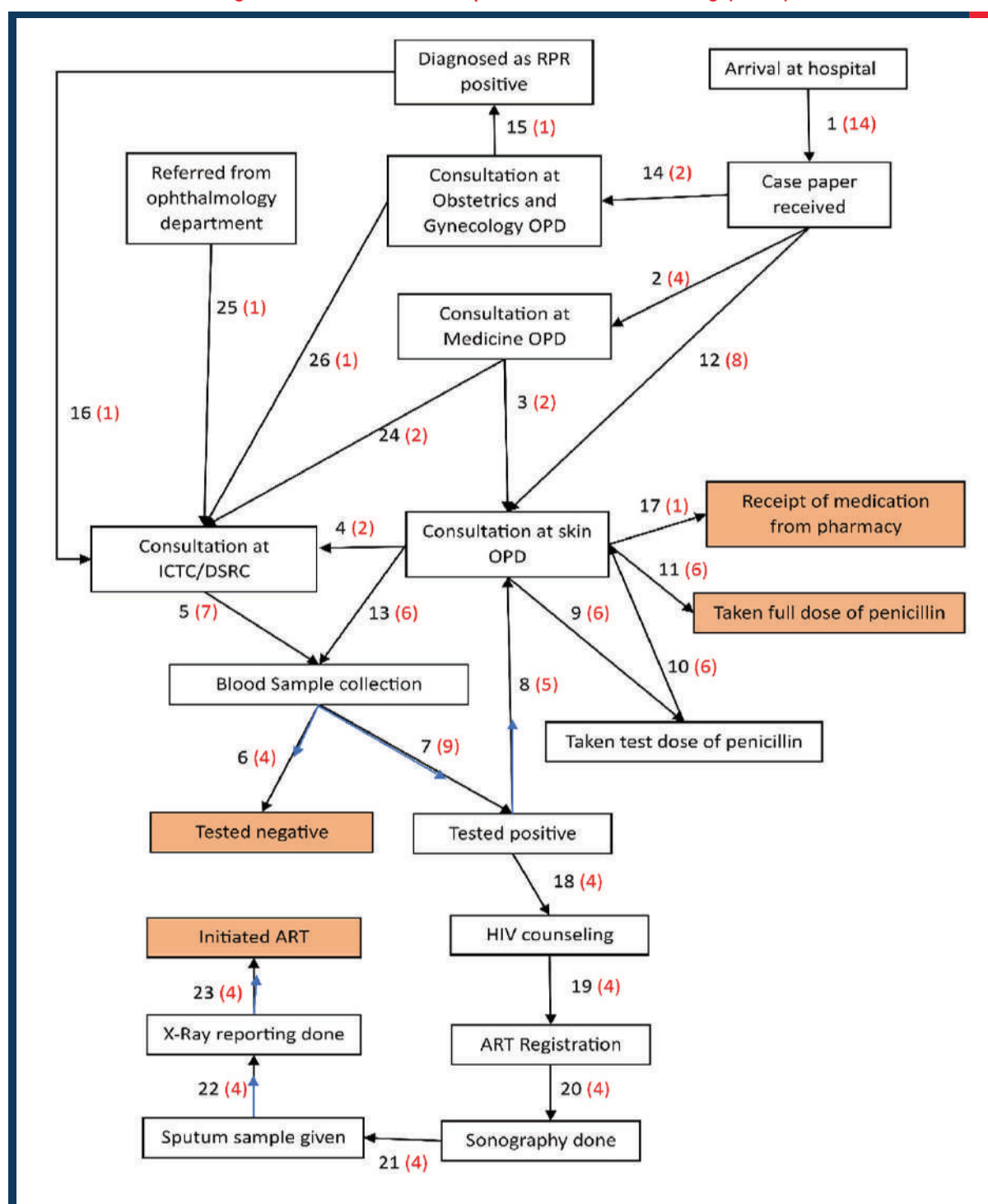
Client Satisfaction

The average score for client satisfaction based on the client satisfaction questionnaire was 86 out of 100 and ranged from 58 to 100 which implies that all the clients were mostly satisfied with the services provided at the DSRC. Dissatisfaction for items pertaining to information regarding side effects, dose schedule and drug interactions was reported by two, three and four clients respectively. There seems to be an overall satisfaction regarding services availed at the DSRC.

Shadowing of Clients

Shadowing of 15 patients was carried out from their arrival at the hospital, where DSRC is located till their exit. There were 26 different directions patients followed, as depicted in the Figure 5. The maximum time was from blood collection to testing negative (median (IQR) of 1305 (967-1430) minutes), from testing positive to referral to skin department (median (IQR) of 1090 (1035-1400) minutes), and collection of sputum to chest X-Ray testing (median (IQR) of 502 (487-746) minutes), because the patients had to wait a day for the results (Figure 3).

Figure 3 Client Flow in Hospital based on Shadowing (N=15)



N (N) = Pathway number (number of clients who followed this pathway), = end point of pathways, = direction of pathway, = rollover of clients to the next day

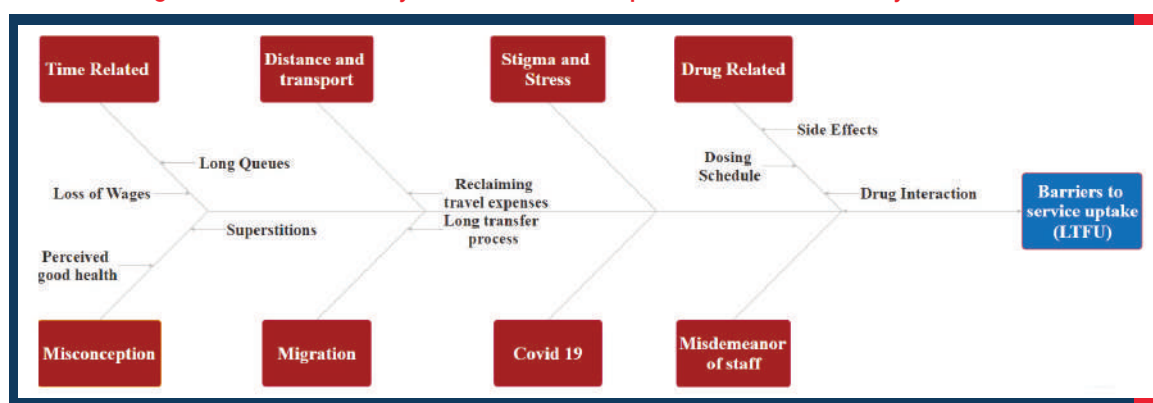
Qualitative

Barriers and Facilitators to Seek Care for Loss to follow up (LFU) Patients

The major barriers in seeking health care and continuing treatment at DSRC were categorised under patient related factors (fear of disease, unwillingness to take medications, financial constraints, transport problem and change of treatment facility) and health care service-related factors (timing issues and rude behaviour of staff).

Fear of disease was due to the medication being a 'reminder' to the client of their disease status/illness, reluctance to take medications evolved from client's belief that it was 'unnecessary' and did not perceive the need for it. Loss of wages, unavailability of transport, change of treatment facility due to migration to other places and fear of disclosure of identity were other reasons for LFU (Figure 4).

Figure 4 Fishbone Analysis of Barriers to Uptake DSRC Services by LFU Clients



Health care system related factors included the time cost of standing in long queues or waiting long periods at the hospital especially due to high patient load in the mornings. Another reason was rude behaviour of staff and fear of being scolded for stopping treatment or for delaying collection of medicines.

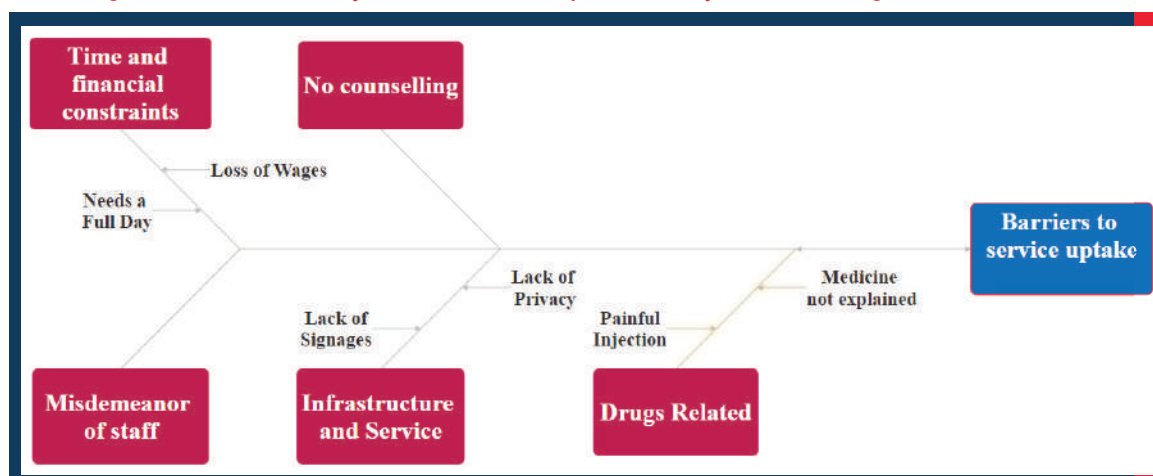
It was observed that on persuasion and counselling by outreach workers (ORW), most of the patients restarted the treatment, albeit for a short duration of time.

Challenges and Facilitators in Continuing Treatment as perceived by DSRC Clients

As evident from the Likert scoring of the Client satisfaction Questionnaire, they were overall satisfied by the services availed at the DSRC. A probable reason for this could be free services and low expectations of the clients.

However, the challenges were rudeness of staff, lack of privacy during consultation and discomfiture during physical examinations (experience of a transgender). Inadequate communication of information during counselling was mentioned by one of the clients as a reason for resorting to social media for getting information. The painful nature of penicillin injection for syphilis was presumed by clients to be due to improper technique. This can be solved through adequate counselling. PLHIVs, while taking treatment from ART centre fear identity disclosure as the centre is in the midst of the hospital. There was a felt need for centres which are isolated, especially in case of transgender (TG) clients. Similar need was echoed by the service providers (Figure 5).

Figure 5 Fishbone Analysis of Barriers as perceived by Clients taking Services at DSRC



Suggestions from the clients (both lost to follow up and clients taking care at DSRC) were to improve infrastructure-location should be isolated, separate space during consultation to ensure confidentiality, all services in a single closed area and improving direction signages in the hospital; staff related-change in behaviour and staff availability; program related-home supply of medication, refilling of medications for a longer duration.

Challenges and Facilitators as perceived by Healthcare Staff

One of the major issues highlighted by the social workers was the behaviour of healthcare staff towards the clients, especially the TG clients. Shortage of staff may have led to long waiting lines, inadequate counselling, and compromised care. Facilitators as perceived by the staff were prior positive experiences of clients at the hospital/DSRC, follow up of patients by the counsellors and NGO personnel.

Conclusion

There was an overall increase in the footfall of clients attending the DSRC in 2022-23 as compared to 2019-2020, although only Rajkot zone and Surat zone have crossed the pre COVID numbers. There was an overall satisfaction regarding services availed at the DSRC. Few clients reported dissatisfaction about information regarding side effects, dose schedule and drug interactions. The maximum time required was as the level of blood collection to reporting as test negative, from being reporting positive to referral to skin department and collection of sputum to chest X-Ray testing. There were several patient and provider related challenges in the uptake of services at the DSRC which included infrastructure, staff, and programme related issues.

Recommendations

Timing issues and high patient load can be dealt with, by increasing the number of available treatment facilities by expanding the geographical network through geographical mapping of the patients on ART. This could be done by integrating the drug distribution responsibility within the ambit of the existing healthcare facilities. The need for additional manpower/ resources may be availed through advocacy with the nearby industries as a part of their corporate social responsibilities

Definite communication linkages like complete and accurate referral cards and telephonic communication needs to be established to ease the process of migration

Yearly training, retraining of health care providers to enhance their counselling/ communication skills and Lesbian, Gay, Bisexual, Transgender, Queer and Intersex (LGBTQI) sensitisation may make them more approachable and acceptable to the patients

The need identified for increasing the timing of the counselling sessions necessitates a greater number of counsellors which can be addressed either through merging the services of the counsellors to make it more efficient or recruitment of counsellors under Corporate Social Responsibility or Rogi Kalyan Samiti.

Clients who are compliant to medications may be given medications for three months instead of one. Telephonic communication channel may be established both ways between pharmacist/ counsellor and patient to address any concerns.

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We are grateful to NACO, Government of India and Gujarat State AIDS Control Society for permitting this study. We thank all the Project Staffs who enriched the study findings with their inputs.

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Understanding Factors Associated with Recent Sexually Transmitted Diseases among Migrant Population in Ballari, Vijayanagara, and Koppal Districts of Karnataka

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Introduction

Prevention of new infections is a major thrust under the National AIDS Control Programme [1]. Traditionally, a migrant worker has been defined as a person who is to be or is or has been engaged in a remunerated activity in a state of which he or she is not a national. Many studies have tried to understand the socio-economic and health status of the migrant workers [2, 3].

The Economic Survey of India-2017 estimates that inter-state migration in India was close to 9 million annually between 2011 and 2016, while the census 2011 pegs the total number of internal migrants at a staggering 139 million. Uttar Pradesh and Bihar are the biggest source states and the major destination states are Delhi, Maharashtra, and Karnataka [3]. The current migration rate in India is 0.342 per 1000 population, a decline from 2020. According to the Government of India's Report of the Working Group on Migration (2017), migrants are exposed to health risks including communicable diseases like malaria and tuberculosis. They are also exposed to sexually transmitted diseases like HIV, and occupational health hazards such as respiratory problems, lung diseases, allergies, kidney and bladder infections, back problems, and malnutrition [4].

This study primarily focused on the syndromic approach to sexually transmitted diseases among the migrant working population in Ballari, Vijayanagara, and Koppal districts. These districts are known for their industrial and mining activities. Given the lack of data on the migrant population in these areas, this study aims to provide a morbidity profile of the migrant workers, with a particular emphasis on sexually transmitted infections.

Methodology

This cross-sectional study was conducted in the industrial areas where the migrant working population resides, specifically in the districts of Ballari, Vijayanagara, and Koppal, over a period of two months. The sample size was 600 migrant workers (200 per district). A conventional camp approach was adopted to collect the required information. 4 STI camps held in each district (totalling 12 camps) across the three districts to achieve the desired sample size.

Migrant workers who have been working in the industrial areas for at least 6 months and are aged 14 years or older and willing to participate in the study were included in the sample.

Data collection was done using a pre-tested semi-structured questionnaire and included interview and clinical examination at the worksite. Each participant was interviewed privately about their socio-demographic and reproductive history, current and past symptoms affecting the reproductive tract, and sexual behaviour. HIV testing was conducted with pre- and post-test counselling. To ensure confidentiality, the names of participants were not recorded and were not linked to the data.

Findings

A total of 628 migrant workers were approached through camps in the districts of Ballari, Hosapet, and Koppal for the present study, with 600 completing the interview and clinical examination.

The overall prevalence of STD syndromes was 2.99% (18 out of 600), and the prevalence of HIV infection was 0.2% (1 out of 600). The district-wise prevalence of STDs was 4.5% in Ballari, 2.5% in Hosapet, and 2% in Koppal. One case of HIV was diagnosed in Ballari district. The prevalence of STDs was notably higher among participants from Jharkhand (12.9%), followed by West Bengal (8.5%), Orissa (4.8%), Bihar (4.2%), Andhra Pradesh (1.5%), and Karnataka (0.9%).

Table 1 District-wise Prevalence of STD Syndrome

District	STD syndromes	
	Yes	No
	N (%)	N (%)
Ballari (n=200)	9 (4.5)	191 (95.5)
Hospet (n=200)	5 (2.5)	195 (97.5)
Koppal (n=200)	4 (2)	196 (98)
Total (n=600)	18 (3)	582 (97)
X2 test - 2.41, p value - 0.3		

Table 2 Prevalence of STD Syndromes based on State of Origin

Native State	Total Participants (N)	Prevalence of STD Syndromes
Jharkhand	62	8 (12.9%)
West Bengal	47	4 (8.5%)
Orissa	21	1 (4.8%)
Bihar	24	1 (4.2%)
Andhra Pradesh	67	1 (1.5%)
Karnataka	339	3 (0.9%)
Tamil Nadu	3	0 (0%)
Telangana	5	0 (0%)
Assam	6	0 (0%)
Kerala	2	0 (0%)
Maharashtra	2	0 (0%)
Rajasthan	2	0 (0%)
Uttar Pradesh	20	0 (0%)
Total	600	18 (3%)

Socio-Demographic Profile and HIV Risk Behaviour

The mean (SD) age of the participants was 34.06 ± 11.16 years. A total of 95% (570) were males, and 71% (426) were married. The majority (88.7%) were in the age group of 18-49 years, and 88.5% belonged to Hindu religion. The literacy rate was 81% among the participants, with 246 having college education and 240 having school education. Three-fourth of the study participants (450) hailed from rural areas, and nearly one-third lived in joint families. Approximately 36.5% of workers were employed in unskilled jobs like housekeeping and as helpers. Awareness of HIV/AIDS symptoms and transmission was present among 44.1% of the participants. Tobacco consumption, both in smoking and chewable forms, was reported by 51% of the participants, and 36% were regular alcohol consumers. Additionally, 8.4% of the participants were diagnosed with other comorbidities such as hypertension, diabetes, and asthma.

Table 3 Socio-Demographic Profile of Migrant Workers

Variable		Frequency	Percentage
Age	<25 years	134	22.3
	25-49 years	397	66.2
	>49 years	69	11.5
	(Mean ± SD)	34 ± 11.2	
Gender	Female	49	8.2
	Male	551	91.8
Religion	Hindu	530	88.3
	Muslim	67	11.2
	Christian	3	0.5
Residence	Rural	440	73.3
	Urban	160	26.7
Occupation	Skilled	140	23.3
	Semi & unskilled	460	76.7

Type of Family	Nuclear	384	64
	Joint	216	36
Migration Reason	Unemployment	172	28.7
	Poor/Poverty	265	44.2
	Better opportunity	163	27.1
Marital Status	Married	426	71
	Unmarried	171	28.5
	Widow	3	0.5

Table 4 Personal Behaviour among Migrant Population

Variable		Frequency	Percentage
Tobacco Smoking	Current smoker	98	16.3
	Non-smoker	492	82
	Past smoker	10	1.7
	Current chewer	182	30.3
Tobacco Chewing	Non chewer	410	68.3
	Past chewer	8	1.3
Alcohol Consumption	Current alcoholic	187	31.2
	Non alcoholic	391	65.2
	Past alcoholic	22	3.7

Conclusion

It can be stated that migrant workers in the study area had a lower prevalence of STDs compared to the national average among high-risk groups. Higher prevalence was observed in Ballari district and among participants migrating from Jharkhand and other states. The study participants demonstrated good knowledge regarding STDs & AIDS and utilised the services provided at the nearest healthcare centres. Most participants with STD symptoms had habits of smoking, alcohol consumption, and staying away from their families.

Recommendations

It is recommended that there is a need for conducting similar studies that cover a larger population of migrant workers. Since the prevalence of STDs was found to be higher among migrants from Jharkhand, targeted interventions should be introduced at the entry points to the state. Additionally, STI services should be made more accessible across migrant areas by strengthening existing targeted interventions.

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Barriers for Patients and Facilitators in Uptake of Services in Designated STI/RTI Clinics (DSRC) of North Karnataka

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Introduction

Sexually transmitted infections (STIs) cause significant morbidity worldwide. Globally, 376 million curable STIs were recorded in 2016 among people aged 15–49 years [1]. Although the concerted focus on HIV infection has led to a substantial decline in HIV incidence in many countries, STI programmes have not been effective and the prevalence of STIs globally is increasing [2]. Low-income countries have the highest prevalence of gonorrhoea, trichomoniasis, and syphilis.

The contributing factors include poor access to healthcare, a lack of affordable diagnostics and sociocultural barriers. Further, time, cost, and infrastructural barriers may be particularly stark for patients accessing healthcare [3]. Over the past three decades, syndromic management of STIs has been implemented in resource-limited settings due to lack of laboratory capacity. However, syndromic management has consistently been shown to have very poor sensitivity and specificity, leading to considerable levels of both under diagnosis and overtreatment [4].

Young people experience multiple barriers to accessing sexual and reproductive health (SRH) services. In addition to a lack of availability or knowledge of services, costs and long waiting times as a barrier to access, perceived judgmental attitudes of health-care providers, and concerns surrounding confidentiality result in low uptake of services [5].

There are very few studies conducted in India on barriers to utilise the service uptake at DSRC's with this background we conducted a study to determine the barriers to utilise the services at DSRC STI division through Focus Group Discussions (FGDs) among patients and facilitators of selected north Karnataka districts.

Methodology

Patients visiting the DSRC of district hospital of Gadag, Raichur, Belagavi and Bagalkot and healthcare facilitators working in these facilities were included for the study using non-probability purposive sampling. Data was collected through qualitative study tool i.e., focussed group discussions (FGD) to understand the barriers and facilitators for service uptake in selected DSRCs in Karnataka.

A total of 31 Patients with STIs and 41 facilitators along with link workers visiting the district hospital were interviewed after taking the written consent. FGDs were also conducted among 2 group of 6-12 Patients with STIs and facilitators along with link workers. A total of 8 FGD was conducted, and were audio recorded after obtaining consent of the group members. The socio demographic details of the study subjects collected during the visit to DSRC centre. During conducting the sessions privacy and confidentiality were considered strictly. Patients and facilitators not willing to participate in the study were excluded from the study.

Data was analysed using thematic content analysis for identification of barriers and facilitators in service uptake from selected DSRC in Karnataka.

Table 1 Distribution of Patients and Service Facilitators who participated in FGD

Place	Patients	Service Facilitators	Total
Gadag	12	12	24
Raichur	08	10	18
Belagavi (savadatti)	10	12	22
Bagalkot	7	7	14
Total	37	41	78

Findings

In the present qualitative study, the following barriers were identified (Table 2) by both patients and service providers are discussed below.

Table 2 Lists of Barriers Identified by Patients and Service Facilitators

Barriers Identified from Patients	Barriers Identified from Service Facilitators
• Stigma and discrimination	• Availability of drugs and diagnostic kits
• Financial problems	• Training
• Delayed approach of patients	• Intersectoral coordination
• Accessibility of services	• Mobile apps
• Family support	• Drop in centres
• Partners treatment	• Infrastructure
• Gender preference	

Barriers Identified from Patients

Stigma and Discrimination

In all the four centres identified barriers from utilisers side were patients being scared and experiencing discrimination by service providers including doctors. One of the patients at Raichur said,

"When getting treatment for syphilis along with general population, the staff nurse treated normally but once she sent me to doctor for follow up and doctor wrote PLHIV, her approach immediately changed and started treating differently."

Another patient shared his experience as

"When we go for OPD registration and say ART centre, the person giving OPD sheets will immediately give a suspicious look and start discussing with other."

Another female patient said

"When we go to ART to get the treatment, they will send us to check for Hypertension and diabetes. But once we go there, they look down upon us and which they are not supposed to do. So, we want the services to be provided from where we get the tablets. Once we carry the green book and go to them, they look disgustingly which makes us feel like not take the treatment at all. If we go to pharmacy for drugs they throw them at us. They know it doesn't spread by touching but still medical staffs do discrimination."

Especially PLHIV, MSM and FSW workers at Gadag and Raichur insisted on speculum examination for females and proctoscopy for males as screening which was done previously at clinic set up provided by NGO by doctors but now it has stopped. They also suggested monthly camps has to be conducted for screening these population.

Financial Problems

Patients complained of loss of their daily wages on hospital visit because investigations take almost a day or else they ask to come tomorrow. They have also shared about inconvenience of multiple visits if non availability of services. One of the patients at Gadag expressed his experience as

"in government hospital there was stock out of an ointment, and they asked to come after 8 days and even when I went after a week they still said its stock out which lead to Rs. 120 charge each time I visit the hospital this happened a lot so 2 months back I took treatment from private hospital and now cured."

Delayed Approach of Patients

According to service providers at all the centres patients report when the symptoms become severe. As per their experience majority of patients unaware of the symptoms and even if they are aware most people would not approach because of hesitation to discuss about private things.

One of the MSM patients said

"I had a small swelling near my private part but was very hesitant to show it to the doctor. I discussed this with other MSM and applied Vaseline and eye ointment to the swelling. During a camp counsellor convinced me to go to doctor and once I took Penicillin injection I was cured and when another person discussed the same thing to me, I took him to the hospital."

Accessibility of Services

The DSRC centres present at district level only except few districts having multiple centres but not available at all Taluks. In all the centres patients and service providers identified barrier is travelling and time consumption. The patient has to travel a long distance to get treatment. Currently the patients have to go from one department to

another for investigations then take it back to the centre. It takes almost a whole day and loss of daily wage for that day. Patients have to visit the hospital for multiple times and there are high chances they won't show up for follow up for these reasons. One of the link workers at Gadag said

"If Treatment is provided at nearer PHC/Subcentre, it is very useful instead to travel a long distance to Gadag."

and similar thing was reported in Raichur, Bagalkot and Savadatti. In Gadag, patients requested mobile clinic hours preferably during evening hours as people will go for work during morning hours.

Lack of Family Support

Males and females have hesitation to discuss this with family members and if they discuss also elders in the family do not support to travel long distance as DSRC Centre present at district level. Especially PLHIV, MSM and FSW lack family support in all the aspect including reaching for treatment to follow up and completion of treatment. Service providers noticed lacking family support to PLHIV patients and community stigma towards these patients. The earlier Drop-in-centres were much useful, and it would be better to restart it. According to one of the MSM at Raichur

"People like us will be thrown out of the family, earlier drop-in centres used to support such people and if any FSW becomes pregnant we used to do baby shower and all, if anybody had STI/RTI, they used to come and discuss but now along with general population it is not possible."

Partners Treatment

Majority of female with STI complained of not able to bring their partners for treatment. At savadattione of the patients said

"Bringing partner is difficult, they question why should I go nothing has happened to me, You only go and show to the doctor" and another patient said "If I drink alcohol everything will be reduced."

One of the services providers at Savadatti reported in their area DEVADASI ritual is more and, these people will not be able to get their partner as these partners will be scared of confidentiality breach. In Bagalkot centre also, patients threaten health care provider not to inform family members and avoid testing family members.

Gender Preference

In Gadag, Bagalkot and Raichur patients prefer male doctor for male and female doctor for female patients. One of the patients said

"ladies have problems and to open up that with gents doctor feel embarrassed."

Barriers Identified by Service Facilitators

Availability of Drugs and Diagnostic Kits

Patients have also faced problems like non-availability of medicines and have to do multiple visits for the same which needs their time, patience as well as money. Especially penicillin injections stock out was faced by multiple MSM patients at Gadag and Raichur. In savadatti service providers reported scarcity of diagnostic kits for months together and it will hamper in diagnosis of patients and multiple visits to the centre. It becomes a burden for the patient. Community Based Screening Kits are being offered only to the hard-to-reach population. Like earlier, at Gadag and Raichur service providers suggested these should be offered to MSM and FSW communities.

Inter-sectoral Coordination

At Savadatti, according to service providers lacking the knowledge among general population about STI/ RTI is lesser involvement of ASHAs. In Gadag district also they suggested ASHA involvement in this aspect as people will be closer to the ASHA and they better open up to them compared to service providers. One more important aspect was if specific service provider visits the house repeatedly patient will have to face the stigma by society.

If an individual from their community tests positive especially for HIV, a quick counselling over the phone can be given if the service provider has been informed immediately.

Training

The link workers at Gadag asked for training on regular cycles as they are not able to answer all the queries asked by patients. So, they feel the need for more training and retraining for testing STI/RTI to link workers. Non-availability of testing kits and medicines faced by service providers. In Raichur patients asked proper training for doctors to do proctoscopy and speculum examination.

In Gadag, one of the MSM told his experience as

"when we ask for internal examination (proctoscopy) by doctors they will not know" and another NGO volunteer said "especially about transgenders interns and paramedics will not know the changes."

So, training of these people is important according to them. In Savadatti, health care providers suggested doctor's sensitisation.

Mobile Applications

One of the volunteers from Raichur shared that,

"the Social media apps for LGBTQ Community; Apps like Grindr, Planet Romeo etc. makes identification of the high-risk individuals difficult."

MSM and FSW communities need to go directly to the centres as the community-based activities are being done only for hard-to-reach population currently.

Infrastructural Barriers

In Gadag, Savadatti, and Bagalkot, there is no dedicated room for the Designated STI/RTI Clinic (DSRC) due to space constraints. However, in Savadatti and Bagalkot, STI services are provided by the counselor operating from the Integrated Counselling and Testing Centre (ICTC). In contrast, the DSRC in Raichur is equipped with proper infrastructure and has a dedicated counselor to deliver services effectively.

Conclusion

Majority of the DSRC centres do not have proper infrastructure and manpower. Social stigma and discrimination faced by patients is the major barrier reported in all centres, non-availability of drugs and doctors need to be addressed. Separate clinic with all the necessary trained staffs for PLHIV patients. To reduce the patients, travel and transportation, time and money services can be segregated to subcentre / PHC level. Preferably monthly based camp or at least 3 months once camp-based approach for the patients especially MSM and FSW communities including speculum examination and spectroscopy. Educate hospital staffs and health service providers regarding maintaining patient confidentiality and have empathy towards patients. Training of link workers, peer educators for better services.

Recommendations

Proper infrastructure and manpower to be provided at DSRC centres, non-availability of drugs and doctors need to be addressed. Separate clinic with all the necessary trained staffs for PLHIV patients. To prevent social stigma and discrimination to PLHIV, MSM and FSW, health education could be a solution. To reduce the patients, travel and transportation, time and money, if possible, services can be disseminated to sub-centre / PHC level or at least to Taluk level. A camp based approach once every 3 months for the patients especially MSM and FSW communities including speculum examination and spectroscopy. Educate hospital staffs and health service providers regarding maintaining patient confidentiality and have empathy towards patients. Training of link workers, peer educators for better services.

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Factors of High Syphilis Positivity among General Client in Selected Districts in Madhya Pradesh

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Introduction

Syphilis, a sexually transmitted infection (STI) caused by the bacterium *Treponema pallidum*, remains a significant public health concern in India. The continued prevalence and incidence of syphilis present substantial challenges to healthcare systems, highlighting the need for a deeper understanding of the factors contributing to its persistence. Recent epidemiological data underscores the ongoing burden of syphilis in India, shedding light on the multifactorial nature of its determinants [1]. The National Family Health Survey (NFHS-5), conducted between 2019 and 2021, indicated that syphilis prevalence among adults in India continues to be a critical issue. Despite concerted efforts to reduce sexually transmitted infections (STIs), including syphilis, infection rates remain resilient in certain demographic segments. The survey revealed regional and population-specific variations in syphilis prevalence, suggesting the need for targeted interventions that address the unique needs of these groups.

Syphilis is a curable and preventable STI. Although its incidence and prevalence initially declined following the introduction of HIV prevention programs, the infection has seen an uptick in many developing and western countries, especially among certain subgroups, since 2000 [2]. There is a paucity of data on the epidemiological factors contributing to the increasing incidence of syphilis in Madhya Pradesh. This study aimed to investigate the epidemiological trends of syphilis among patients attending the District STI/RTI Clinic in Jabalpur District, Madhya Pradesh, in order to better understand the underlying factors contributing to its rising prevalence in the region. The objectives of the study are as follows:

1. To estimate prevalence of syphilis among patients attended DSRC in the selected districts between January 2019 to December 2021.
2. To understand the trends of syphilis positivity in last three years among the attendees of DSRCs of three districts.
3. To understand the factors associated with Syphilis among patients attended in DSRC.

Methodology

In this study, an explanatory sequential mixed-method approach was used to recruit study participants from the District STI/RTI Clinics (DSRC) at Netaji Subhash Chandra Bose Medical College, Jabalpur, Dindori, and Vidisha Districts. The study included both symptomatic and asymptomatic patients who sought care and treatment at the DSRCs between January 1, 2019, and December 2021.

The sample was drawn from a list of all reactive patients (general clients) who attended the selected DSRCs during the study period. A total of 40 study participants were recruited from Jabalpur, 87 from Dindori, and 13 from Vidisha. Study variables included socio-demographic profile, referral status, sexual and personal history, partner management and notification history, symptomatic status, duration of illness, screening and diagnostic methods (such as RPR, VDRL, or TPHA tests), counselling status, and HIV status. These data were extracted from the OPD and counselling registers of the DSRCs for the study period. If any case was found to have missing or incomplete information, the next eligible case was selected. Key Informant Interviews (KIIs) were conducted with the Clinic In-Charges (6 doctors) and counsellors (3 counsellors) at these three DSRCs, as well as two randomly selected patients from each of the three DSRCs (12 patients total). The interviews were carried out until information saturation was reached, aiming to better understand the factors responsible for the prevalence and spread of syphilis.

Quantitative data were entered into Microsoft Excel, coded, and validated. Descriptive statistics were generated using Microsoft Excel and SPSS version 20. For the qualitative data, transcripts were written, transcribed, and subjected to thematic analysis. Verbatim quotes were extracted to highlight key themes.

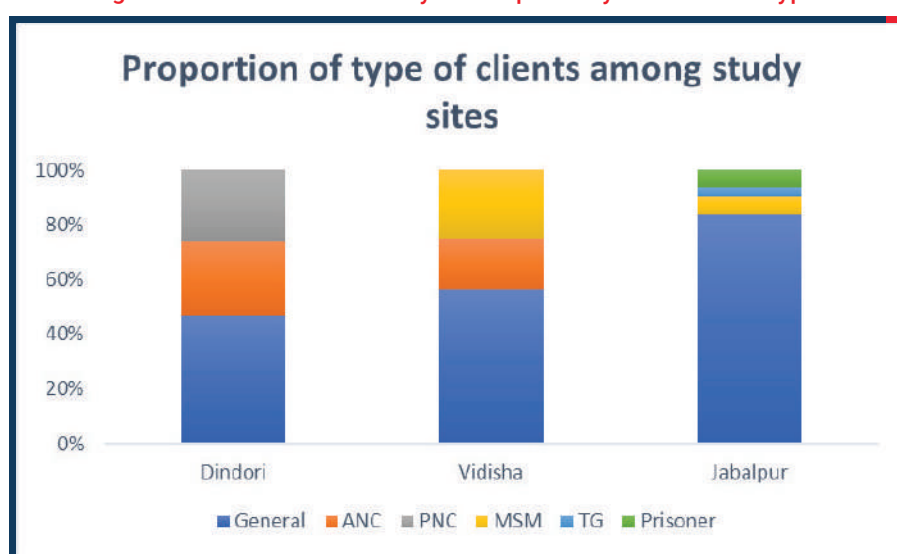
Findings

Quantitative

Most of the patients in this study belonged to the young age group of 16-30 years. Males were more prevalent in Jabalpur district, whereas in Dindori and Vidisha, females were significantly higher than males. In terms of marital status, most clients in Vidisha and Dindori were married, whereas in Jabalpur, a higher proportion of clients were single. The predominant sexual preference among the patients was heterosexual, followed by homosexual and bisexual. The primary mode of transmission of syphilis was sexual contact, with vaginal sex being the predominant route of transmission. However, among homosexual men, anal sex was the most common mode of transmission. Referral patterns varied across the districts; most patients in Jabalpur and Vidisha were referred from other OPDs, while in Dindori, the majority of patients directly visited the DSRC. Partner notification was conducted in all three DSRCs, with rates of 80.68% in Dindori, 95.23% in Jabalpur, and 76.92% in Vidisha. However, the management of notified partners differed, with only 37.5% of partners managed in Jabalpur, compared to 70% in Vidisha and 66.19% in Dindori. Condom use counselling was provided to 100% of clients in Vidisha, 60.72% in Dindori, and 97.61% in Jabalpur.

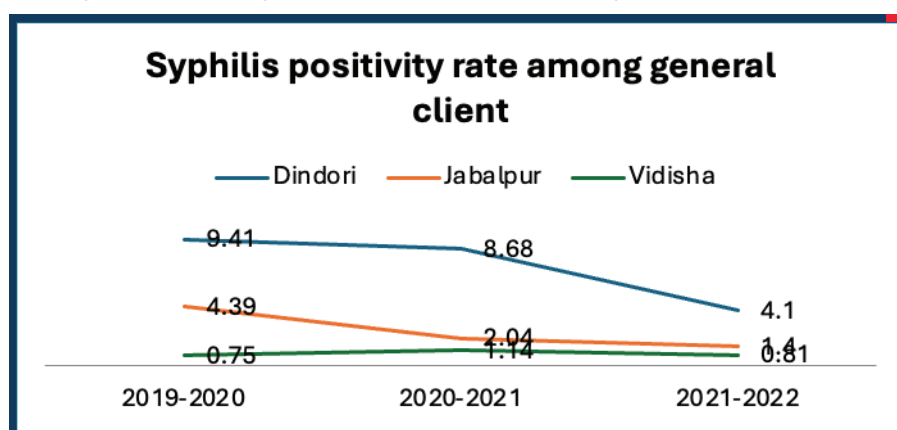
Among female patients, most cases were asymptomatic and diagnosed through routine screening during pregnancy. Other females presented with symptoms such as vaginal discharge or lower abdominal pain. In all three DSRCs, the majority of clients were from the general population, followed by ANC (Antenatal Care) clients and high-risk groups (HRGs).

Figure 1 Distribution of Study Participants by District and Types



Syphilis positivity rate was found highest in Dindori, followed by Jabalpur and Vidisha (Figure 2).

Figure 2 Syphilis Positivity Rate among General Client by District between 2019-2022



Qualitative

Theme-wise triangulation of quantitative and qualitative findings is as follows:

Syphilis Positivity Rate

The positivity rate of syphilis has notably increased among general clients, particularly in Dindori, where the prevalence is driven by multiple marriages within the tribal community and the migration of individuals for work. In Vidisha and Jabalpur, the rising rates are attributed to factors such as increased internet use among adolescents, the ease of finding sexual partners, and the high proportion of students living in hostels or as paying guests. Working men and women who live outside their native areas are also at higher risk. Stakeholders have pointed out that young adolescents, particularly those involved in men who have sex with men (MSM) practices, are often coerced or trapped by older individuals.

As one dermatologist from Jabalpur stated, *"Here in dermatology, mostly the general population are landing."*

A counsellor from Jabalpur added, *"Mostly the youngsters from the general population, aged 23-26, educated individuals, engaged in private sector jobs. The internet is one of the main reasons for the easy accessibility to such material. However, some heterosexual individuals are also involved in paid sex. Nowadays, elderly men (50 years and above) are also engaging in extramarital affairs."*

Disease Transmission among General Population

The most common sexual route for syphilis transmission among the general population is the peno-vaginal route. It is crucial to inquire about the sexual history of clients, as many cases in Jabalpur were found to have incomplete or missing sexual histories. Transmission patterns vary, with heterosexual transmission being predominant among the general population (primarily through vaginal sex), while anal and oral sex are more common routes of transmission among homosexual individuals. In Vidisha, the spread of syphilis is also linked to red-light areas, including Ganj Basoda, Gyaspur, Pipal Kheda, railway stations, bus stands, and washrooms, where homosexual activity is occurring. One client stated, *"Adolescent age groups under 18 involved in homosexual acts are a source of spread in the general population."* This suggests that young individuals engaging in such behaviours are contributing significantly to the wider transmission of syphilis.

Vulnerable Population

The sexually active age group of 16-45 years, regardless of gender, is the most vulnerable population for syphilis transmission. In Dindori, females are more significantly affected compared to Jabalpur and Vidisha, where males constitute a larger proportion of cases. In Jabalpur, the male population is more at risk, particularly among high-risk groups such as men who have sex with men (MSM), injecting drug users (IDUs), prisoners, sexually active adolescent boys, and students or workers living outside their homes. Middle-aged men (20-28 years and 20-45 years) and educated youngsters working in private sectors, especially in marketing roles, are also more susceptible to syphilis.

In Vidisha, the male-to-female ratio for syphilis cases is 1:1, but males are at higher risk. Students in Jabalpur, particularly those living in hostels or rented accommodations, were found to be at high risk (3-4%). In Vidisha, young individuals in live-in relationships are more vulnerable, while casual partners in the general population and long-distance truck drivers were also identified as at high risk.

One counsellor shared the case of a 16-year-old girl who had been sexually active with multiple partners since the age of 14 and was diagnosed with herpes, later testing positive for shingles. A 17-year-old girl, who was unmarried and had a male partner, presented with lower abdominal pain and was found to be syphilis-positive after screening. This suggests that younger females, especially those with multiple sexual partners, are at heightened risk for syphilis.

Enablers for Disease Spread and High Positivity Rates

Direct Causes

In Jabalpur:

- Untreated sexual partners: Casual sexual relationships with untreated partners contribute to the spread of syphilis
- Multiple sexual partners: Engaging in sexual activity with multiple partners increases the risk of transmission
- Incorrect use or failure of barrier methods: Among married couples, improper or inconsistent use of condoms has been identified as a contributing factor to the high prevalence

In Dindori:

- Multiple marriages: High rates of multiple marriages, particularly within tribal communities, are linked to increased syphilis transmission
- Extramarital relationships: Unprotected sex in extramarital affairs is a significant factor in the spread of syphilis
- Promiscuous behaviour: Engaging in multiple sexual relationships without protection is common, leading to a higher risk of infection
- Migration: Migration for work exposes individuals to higher risk environments and casual sexual encounters, contributing to increased infection rates

In Vidisha:

- Visiting commercial sex workers: Commercial sex work is a significant factor in the spread of syphilis, particularly among male clients
- Unsafe sexual practices: Engaging in unprotected sex and not using barrier methods exacerbates the problem
- Multiple sexual partners: Having multiple sexual partners without consistent protection increases the risk of syphilis transmission

Indirect Causes

- Rampant internet use among youngsters: Easy access to online content, including pornographic material, leads to unsafe sexual practices and increases vulnerability among adolescents and young adults
- Interrupted supply of condoms in DSRC Jabalpur: Inconsistent availability of condoms at the district centres hampers efforts to promote safe sex practices
- Lack of awareness: Many young and vulnerable individuals are unaware of the risks associated with unsafe sexual practices, contributing to the rising rates of syphilis in these populations

Enabling Factors towards Sexual Acts

The most common reason for engaging in sexual activities among general clients is the pursuit of momentary pleasure through casual sex. Several factors contribute to this behaviour, including peer pressure, loneliness, and ignorance, despite being aware of the risks associated with sexually transmitted infections (STIs). Additionally, the unrestricted access to provocative and obscene content on the internet acts as a significant enabler, encouraging individuals to engage in risky sexual behaviour. These factors combined create a conducive environment for unprotected and impulsive sexual acts, which contribute to the spread of syphilis and other STIs.

"One boy, aged 22 years, went to a hotel and had sexual contact with unknown girl then had some symptoms, which was screened for syphilis and found positive."

[Counsellor]

"Abhi kuch dino pehle ek 16 year ka ladka aaya jab poocha gaya to usne bataya ki use pados ka bhaiya bulata tha aur jabarjasti karke sexual act karta tha" (Few days back, a 16 year old who had come to the facility was asked about the risk. He informed that an older boy in the neighbourhood used to call him and used to force him for sex)."

[Counsellor]

Gender

Disease manifestation is much higher in males compared to females due to the distinct anatomy of the genitalia, which makes symptoms more easily visible. This highlights the importance of partner management and routine, mandatory screening for both genders, ensuring early detection and treatment of syphilis and other sexually transmitted infections (STIs).

Stigma

Stigma surrounding syphilis and other STIs prevents patients from seeking timely healthcare, leading to disease progression and an increased risk of transmission. The fear of judgment or discrimination often results in delayed diagnosis and treatment, contributing to the continued spread of the infection.

Treatment Adherence

Treatment adherence is generally good among both general clients and their partners when partner notification is implemented in all three districts. Clients who are notified and counselled about the importance of treatment tend to follow through with their prescribed regimens, contributing to better health outcomes and reduced transmission risk.

Enablers and Barriers for Partner Management

Although partner notification was carried out in all three DSRCs, managing partners was particularly challenging in cases involving casual partners, unmarried clients, widows (as observed in Vidisha), young homosexual males, and separated partners (as noted in Dindori). Partner management efforts require additional time and resources, and extra efforts are necessary to ensure successful notification and treatment. However, partner management was more feasible among married couples, where there was a greater willingness to cooperate.

Risk Reduction Practices

There is a critical need for awareness programs targeting the general population, educating them about syphilis and its prevention. Access to condoms must be increased by making them available at multiple outlets and in easily accessible spaces. Promoting safe sexual practices, such as condom use, will help reduce the spread of syphilis and other sexually transmitted infections within the community.

Conclusion

The study showed a declining trend in syphilis cases over the last three years among DSRC attendees, but the proportion of general clients is rising. The prevalence of syphilis was highest in Dindori (0.9%), followed by Jabalpur (0.47%) and Vidisha (0.31%). Male preponderance was seen in all districts. Key factors driving the spread of syphilis include unsafe sexual activity. In Jabalpur, casual sexual engagement and homosexual activity are on the rise. In Dindori, married women, often infected by migrant husbands and multiple marriages, are notably affected. In Vidisha, red light areas and commercial sex workers (primarily homosexuals) are key drivers of infection.

Recommendations

Awareness about syphilis should be raised among the general population, with targeted interventions for high-risk groups. Access to comprehensive sexual health education and counselling on safe sex practices, condom use, STI prevention, and responsible relationships must be prioritised. Awareness campaigns should aim to reduce the stigma surrounding STIs, seeking healthcare, and condom use, while encouraging open communication about sexual health within communities. Additionally, syphilis-related surveillance and data collection should be strengthened to better monitor trends and inform public health strategies.

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Assessing and Determining Causes and Factors for Low Turnout of Notified Spouses for STI/RTI services at Designated STI/RTI Clinics (DSRCs) in Meghalaya

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Introduction

Sexually Transmitted Infections (STIs) are a public health concern due to their significant global prevalence as well as their potential to have serious and long-lasting effects on those who contract them if they are not treated promptly and effectively, and also STIs, a public health issue globally, especially in developing countries, despite comparatively easy prevention and treatment [1]. Additionally, STIs have a reputation for making HIV/AIDS more likely to occur [2]. The 2030 agenda for SDGs outlines strategies for countries to achieve healthy lives, in which STI is one of the major concerns [3]. While various interventions such as prevention, diagnosis, treatment, and cure have been implemented, certain populations continue to be left behind. These groups include men, adolescents, men who have sex with men (MSM), sex workers, people who inject drugs (PWID), and transgender individuals.

The utilisation of screening for Sexually Transmitted Disease (STD) is disappointingly low due to factors such as psychological, social, religious and cultural barriers; and people fear learning that they are infected with a disease that is fatal and stigmatising [4]. In addition, conducting studies on the low turnout for STI treatment will help achieve the goals of expanding and improving STI services and prevention efforts. Low and Broutet (2017) suggested that research is one of the solutions that can secure a future of effective STI prevention, diagnosis, and treatment [5]. Additionally, to boost the utilisation of STI clinic services, information, education, and communication (IEC) strategies must be used more effectively by addressing the gaps related to health seeking behaviour. Studies focusing on the attendance of spouses at STI/RTI clinics for testing or treatment are limited. Therefore, the objective of this study is to identify the reasons for the low turnout of notified spouses at STI/RTI services in designated STI/RTI Clinics (DSRCs) in Meghalaya, and to assess the factors contributing to this low attendance.

Methodology

The study design was a descriptive cross-sectional research design with mixed method approach. Three-districts, namely East Khasi Hills, East Jaintia Hills and West Jaintia Hills in Meghalaya, were included into the study. In quantitative data, 118 notified spouses (100-spouses of general clients and 18-spouses of pregnant women) were selected. In qualitative data, 17 in-depth interviews were conducted with Notified Spouses who turned up at the DSRCs, Medical Practitioners, Traditional Healers and Faith based health facilities, and Counsellors of DSRCs. A purposive sampling design under non-probability was used to recruit the followings research participants in the study:

- Notified spouses of both general clients and of pregnant women who did not turn up at the DSRC including their spouses
- Notified spouses who turned up at the DSRCs
- Medical practitioners and counselors of DSRCs
- Traditional healers, faith-based health facilities

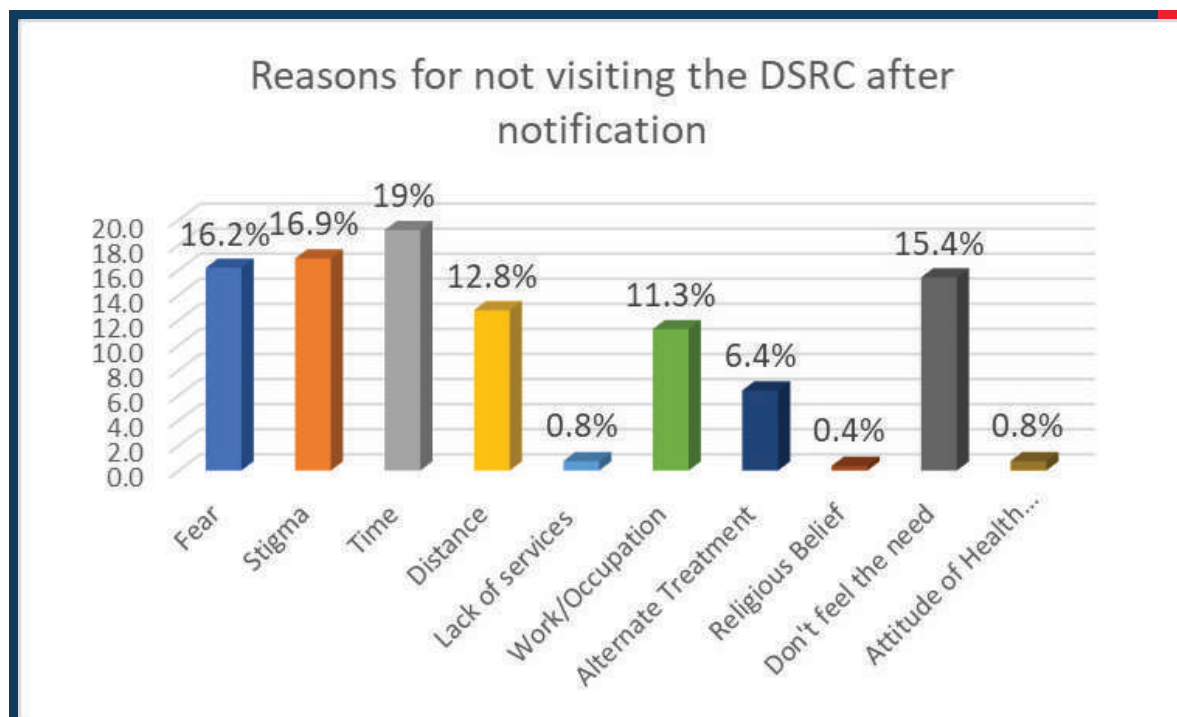
Findings

Quantitative

A total of 118 study participants were interviewed. Of these, 25% (n=29) of the participants contacted by the research assistants reported that they had not been notified by the DSRC Counsellor, despite their contact details being provided

by the DSRC counsellors as notified individuals. Among these non-notified participants, the reasons for not being notified included a lack of awareness about the notification or their spouse not informing them about the testing. The majority of participants who were notified had been informed by their spouses, particularly those whose spouses were ANC clients. However, only 3% of the 89 notified participants visited the DSRC, while 97% did not seek services, even after being notified. The median age of the study participants was 32 years. The majority of notified spouses (n=89) were in the age group of 26-31 years, and all were male. A significant proportion (94.4%) of the participants were from the tribal community. Regarding marital status, 66.3% were legally married, 13.5% were separated, and 16.9% were living together through cohabitation with mutual family consent. The majority (68.6%) of participants were Christians, while 24.7% followed the Khasi/Jaintia Indigenous religion, and a smaller proportion (6.7%) identified as Hindu or Muslim. Nearly 54% of the participants were daily wage laborers, with 27% working as drivers. Only 3.4% were employed in government jobs. Most participants (58.4%) earned less than Rs 10,000 per month. The reasons for not visiting the DSRC included time constraints, work commitments, and distance. Time and work were the primary factors, followed by fear, lack of services, negative attitudes from healthcare workers, and religious beliefs.

Figure 1 Reasons for not visiting DSRC after notification



Qualitative

The study explores the fear and stigma surrounding STIs particularly among men. Some participants fear social valuation and do not believe in the illness and felt, testing was not necessary as they felt healthy.

"I am afraid of doing the test but if any sign and symptom appear surely, I will go for testing." (RP26, 21, Male, DSRC 1)

"Fear what if the report is positive." (RP104,43, Male, DSRC3, and RP113,27, Male, DSRC3)

Participants mentioned lack of procrastination, lack of concern about the disease, time constraints, distance, and felt that treatment was necessary, only for their spouse.

"I am not taking this seriously because I do not believe in such disease" (RP17,30, Male, DSRC1)

"Time constraint, distance and procrastination" (RP88, 25, Male, DSRC2) and few are *"Not so concerned about it."*

(RP102, 48, Male, DSRC3)

A counsellor explained that the low turnout is primarily due to a lack of support, stigmatisation, and discrimination from families, friends, and the community.

"Notified spouses may not even know that their partner has been tested or diagnosed with STI. In some cases, the partner who received the diagnosis maybe hesitant to disclose this information due to fear or the stigma associated with STIs.... and lack of support."

(Counsellor, DSRC 3, 6years of experience)

A health professional noted that stigmatisation, fear of isolation, and lack of support from family members and the community can lead to the deterioration of relationships.

"Most of the people are unaware about the effects of STI and they feel shy to come for testing due to stigmatisation and lack of support and acceptance from family members and the community when they discover someone has contracted this disease. As a result, relationships deteriorate, and the affected individual's self-esteem is negatively impacted."

(MHO, Govt hospital, 5 years of experience)

According to the counsellor, factors such as separation and divorce also make it difficult for spouses to come for testing, hindering screening efforts.

"Couples might decide to undergo testing separately, especially if there are suspicions of infidelity. In such cases, both partners might not be aware of each other's test results or the need to visit the DSRC together. In certain situations, a lack of trust between partners can make it challenging for the notified spouse to believe or act on the notification. Trust issues can undermine the willingness to seek medical care."

(Counsellor, DSRC3, years of experience-6 Years)

According to traditional and faith healers, patients choose their services due to personal preference, as they believe it complements allopathic treatment. Additionally, they may seek traditional healing when they feel not fully cured by allopathy treatment, or because it is perceived as less costly and time-consuming.

"Firstly, they go to the doctors to test and then after testing they come to me. The reason for coming and getting treatment from me is their own choice, it could also be that since I have been providing treatment for many years many know about me, I have been part of national and international forums of traditional healing and it is through these experiences and information that patients visit me and have trust in me maybe and I never say no when patients come day or night."

(Traditional Healer, Jowai, Private, 35 years of experience)

"The reason for them coming is because for many when they go to hospitals especially government hospitals, they do not get complete services. They tell patients to come tomorrow, come day after, do this- do that so it makes the patients scared and apprehensive to go for treatment and there is waste of money and time, it is because of these reasons they come to Khasi healers."

(Faith Healer, Shella, Private, 20 years of experience)

Conclusion

Effective management of STIs requires the notification of spouses or partners, yet the study shows that while 75% of participants were notified about STI/RTI testing, only 3% of them visited the DSRC. The majority (97%) did not seek services despite being notified. Participants cited various reasons for not visiting, including time constraints, work commitments, distance, stigma, and shame. Additionally, a significant association was found between age and the likelihood of visiting the DSRC after notification, with participants above the age of 31 more likely to visit. The results also revealed that 65% of the notified participants were substance users.

Recommendations

Providing travel allowances for testing and maintaining records of the contact details of spouses who need to undergo testing could support those from low socio-economic backgrounds. Understanding the dynamics of the relationship between spouses can also serve as a motivation for testing. Frequent follow-ups by DSRCs, along with collaborative initiatives with traditional healers, can enhance testing participation. Additionally, organizing community outreach programs focused on STI awareness can help reduce stigma and shift societal perceptions of STIs.

Acknowledgements

We are grateful to Martin Luther Christian University, School of Social Work, Meghalaya AIDS Control Society, Shillong and Strategic Information-Research & Evaluation Division, National AIDS Control Organisation, New Delhi, the Counsellors of all the DSRCs, Research Assistants as well as the participants who generously sacrificed their time and were patient during these interviews.

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Challenges faced in Treatment of STI among Female Sex Workers (FSW) in Puducherry

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Introduction

The healthcare needs and human rights of Female Sex Workers (FSWs) are largely unmet [1]. Due to the stigma surrounding their profession, FSWs face numerous barriers to accessing healthcare services [1]. FSWs are at heightened risk for acquiring HIV and other sexually transmitted infections (STIs). HIV remains a significant global public health challenge, having claimed an estimated 40.1 million [33.6–48.6 million] lives to date, with ongoing transmission in all countries [1]. In 2021, 650,000 [510,000–860,000] people died from HIV-related causes, and 1.5 million [1.1–2.0 million] individuals acquired HIV globally [1].

The risk of HIV and other STIs is particularly high among individuals who exchange sex for money or non-monetary goods, as they are more likely to engage in risky sexual behaviours (e.g., unprotected sex, multiple sexual partners) and substance use [2]. This group includes escorts, workers in massage parlours, brothels, and the adult film industry, exotic dancers, state-regulated prostitutes, and individuals participating in survival sex, where sex is exchanged for basic needs. Several social and structural factors complicate efforts to prevent and treat HIV among these populations [2]. The study aimed to identify key challenges faced in providing STI treatment to female sex workers and to explore potential solutions to address them.

Methodology

This is a qualitative study that utilised triangulation of qualitative methods, including In-depth Interviews (IDI), Focus Group Discussions (FGD), and the Nominal Group Technique (NGT). FGDs (n=42) and IDIs (n=7) were conducted with Female Sex Workers (FSWs) until data saturation was reached. The Nominal Group Technique was applied with stakeholders (medical officers, counsellors, dermatologists, obstetricians, and PACS officials) involved in providing STI services (n=9). Purposive sampling was used to select both participants and stakeholders.

The study was conducted in two phases:

Phase 1

The study began with Focus Group Discussions to identify the health-seeking behaviours of the participants. FGDs were held at the State STI Control Office (Odiyansalai), Villiyannur PHC, and Karikalampakkam CHC. From the FGD participants who were actively engaged in the discussion, a subset was selected for In-depth Interviews to explore the core challenges faced by the community in accessing STI treatment. The FGDs and IDIs were conducted by a female investigator, who is trained in qualitative research methods, using the native Tamil language and a semi-structured interview guide with broad, open-ended questions. After obtaining informed consent, the interviews were audio-recorded, and key points were noted in a diary.

To ensure participant validation, debriefing was conducted before the conclusion of each interview. Participants were asked if they wished to add any further information. The interviews continued until data saturation was achieved, meaning no new information was emerging from the discussions.

Phase 2

In the second phase, the Nominal Group Technique (NGT) was used to develop consensus among stakeholders. The NGT process involved three steps:

1. Step 1 (Developing consensus): The facilitator described the purpose of the study, the process, and the challenges faced by FSWs in accessing STI treatment services. Participants were given a piece of paper to write down potential solutions. No discussion was allowed during this phase, and the papers were collected at the end.
2. Step 2 (Discussion and idea-sharing): The facilitator wrote the solutions provided by the participants on a board, grouping similar ideas together. This process continued until saturation was reached.

- Step 3 (Voting and discussion): The solutions generated in Step 2 were ranked according to their frequency. Participants were encouraged to share their opinions, and they had the opportunity to reconsider their initial rankings based on the group discussion. No participant was pressured to alter their ranking, and consensus was not necessarily required. The facilitator ensured that all participants were given the chance to contribute.
- For the Nominal Group Technique, purposive sampling was used to select stakeholders such as dermatologists, obstetricians, PACS officials, medical officers, counsellors, and NGO representatives involved in STI service provision (n=15-20).

For the FGDs and IDIs, manual content thematic analysis was performed. Codes were initially derived through content analysis, and common codes were grouped into categories. These categories were later merged to form broader themes. Any discrepancies between the two investigators were resolved through mutual consensus. For the Nominal Group Technique, ranking was done after achieving consensus among participants.

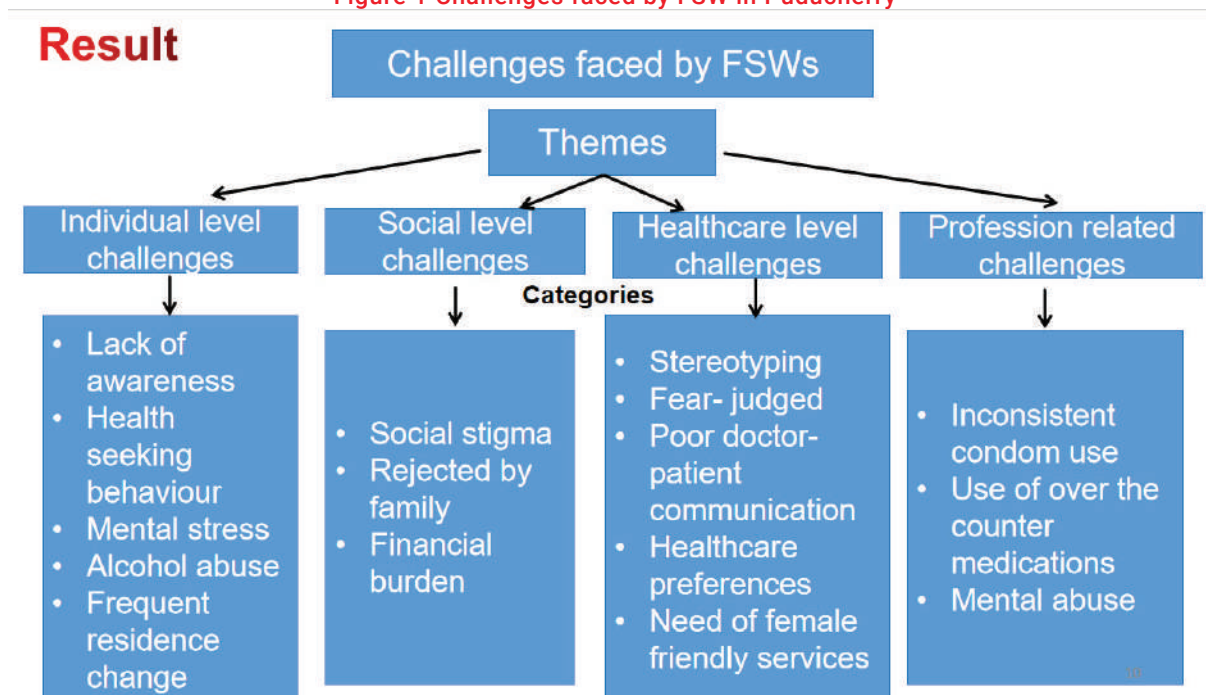
Findings

Among the FGD and IDI data, 19 categories emerged, which were subsequently grouped into four broad themes: Individual-Level Challenges, Social-Level Challenges, Healthcare-Level Challenges, and Profession-Related Challenges. The details of challenges faced by FSW is given in figure 1.

At individual levels, there were lack of awareness among the participants regarding the signs and symptoms of STI. They believe that white discharge is women's thing and most of the time, they confuse it with Urinary Tract Infection. They also believe that home remedies like warm water with dettol or turmeric can prevent and treat STI.

"Most of us use warm salt water/turmeric water to wash our private parts and we believe that will prevent HIV and protects their family members from spread of the disease" (33 years old participants)

Figure 1 Challenges faced by FSW in Puducherry



Most of the participants believe that, their home remedies are enough to be first aid in preventing STI.

"In case of condom rupture, we use warm salt water/turmeric water to wash our private parts. Sometimes we also use warm water with Dettol."

(FSW)

FSW faced mental stress from various people in the community like their family members, transgenders being competitive. All these things cause mental stress among the participants.

"Apart from community people the transgenders they feel that we are their competitors and they scold us very badly."

(FSW)

Most of the participants were found to be alcohol addict as per their history and the reasons for consuming alcohol were found to be, to get relief from symptoms like myalgia and for recreational purposes.

"In order to get relieved from body pain, I started to drink alcohol little then after taking daily I became an addict. I started to take alcohol before having sex, so I don't know if I had pain or any symptoms."

(33 years old)

At social levels, most of FSW faced stigma, abandoned by family, and financial burden.

"We are scared going to STI clinic because we will be seen by friends, relatives and other family members."

(FSW)

"As my husband left me and my daughter alone, to raise her I went into this job. But now I am not able to get her married as people think my daughter will also be like me, while walking in the street people talk bad about me."

(FSW)

"when my family members came to know about my work I was kicked out of the house."

(FSW)

"Because of my situation, I had to agree with one client for not wearing condom since I needed the money that day because I had to pay that to someone, and it was the last day."

(FSW)

At healthcare levels, most of FSW prefer Government set up to avail STI related treatment.

"I preferred to get treatment in government hospital than private as the doctors in government hospital will treat them without judgement and it is free of cost."

(32 years old FSW)

The solutions obtained from stakeholders through the Nominal Group Technique (NGT) were as follows:

- Regular awareness campaigns on STI/HIV symptoms
- Community awareness through mass media (e.g., TV, cinema)
- Increased awareness during routine check-ups
- Awareness about the consequences of condom rupture
- Functional helpline numbers, with increased awareness about their availability, to allow individuals to clarify their doubts at any time
- Reinforcement of condom usage
- Alternative names for STI clinics, such as "Genital Health Clinic" or "Reproductive Health Clinic"
- Provision of regular de-addiction counselling
- Establishment of a comprehensive Genital Health Clinic at the CHC, with a specialist, counsellor, and staff nurse
- Prioritisation of rehabilitation for FSWs from day one, through self-help groups, doctors, and NGOs

Conclusion

Most FSWs do not seek medical care due to several reasons, including lack of awareness about STI symptoms, hesitancy to disclose their occupation (which involves high-risk behaviour), reliance on home remedies, and confusion between STI symptoms and Urinary Tract Infections (UTIs). Additionally, fear of exposing their profession to family members, societal stigma, and the influence of alcohol—often leading to high-risk behaviours—further discourage them from seeking proper healthcare. These challenges can be addressed by adopting targeted interventions. By implementing such strategies, the quality of life for FSWs can be improved, along with increased awareness of STIs and better health-seeking behaviour.

Recommendations

Regular awareness about STI/HIV symptoms through NGO and Field staffs, and health care professionals, should be provided to FSWs. Efforts should also be made to rehabilitate FSW through support of self-help groups/ Doctor/ NGO.

Acknowledgements

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Burden of Sexually Transmitted Infections (STIs) among People Living with HIV (PLHIV) in Puducherry: A Descriptive Study

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Introduction

HIV remains a major global public health issue, with 38.4 million people living with HIV (PLHIV) at the end of 2021 and it has claimed 40.1 million lives so far. In 2021, 650 000 people died from HIV-related causes and 1.5 million people acquired HIV [1]. HIV and STIs share common behavioural determinants, such as not using condoms, multiple partners, anonymous partners, and drug abuse. STIs act as cofactors and facilitators for HIV transmission, creating epidemiological synergy [2]. HIV alters the clinical presentation, natural history, and relative prevalence of STIs. It also causes a rapid depletion of immune cells in semen, which may make HIV-positive men more vulnerable to STIs, further increasing the risk of onward HIV transmission [3].

In a study by Kalichman et al, it was reported that the prevalence of STIs in HIV infected individuals was 16.3%, with the most common being syphilis, followed by gonorrhoea, chlamydial infection and trichomoniasis [4]. Moreover, it was found that presence of STIs in HIV infected individuals affected their quality of life, stigma, and survival. An Indian study by Thappa et al reported the prevalence of HIV in patients presenting with ulcerative STI was as high as 17.1% [5]. The prevalence of STIs among PLHIV was 25.4% in a study from Andhra Pradesh, while it was 34.4% in another study from Gujarat [6, 7]. STIs and HIV affect the genital mucosa, altering the immune response, thus predisposing to other similar infections. In a recent systematic review by Saleem et al, it was found that only 35.3% of patients who had diagnosis of STI was tested for HIV, emphasising the need for further testing in this vulnerable group [8].

The incidence of various sexually transmitted infections (STIs) has fluctuated globally over the past several decades. However, limited data exists regarding the current trend of STIs among HIV patients in this region and how their epidemiological and clinical profiles are modified. This study aimed to investigate the prevalence of STIs among patients living with HIV who are attending the Antiretroviral Therapy (ART) Centre in Puducherry. The study focused on describing the burden of STIs and associated risk factors within this population. The findings are expected to enhance understanding of the co-occurrence of HIV and STIs and assist in developing targeted interventions for their prevention and management.

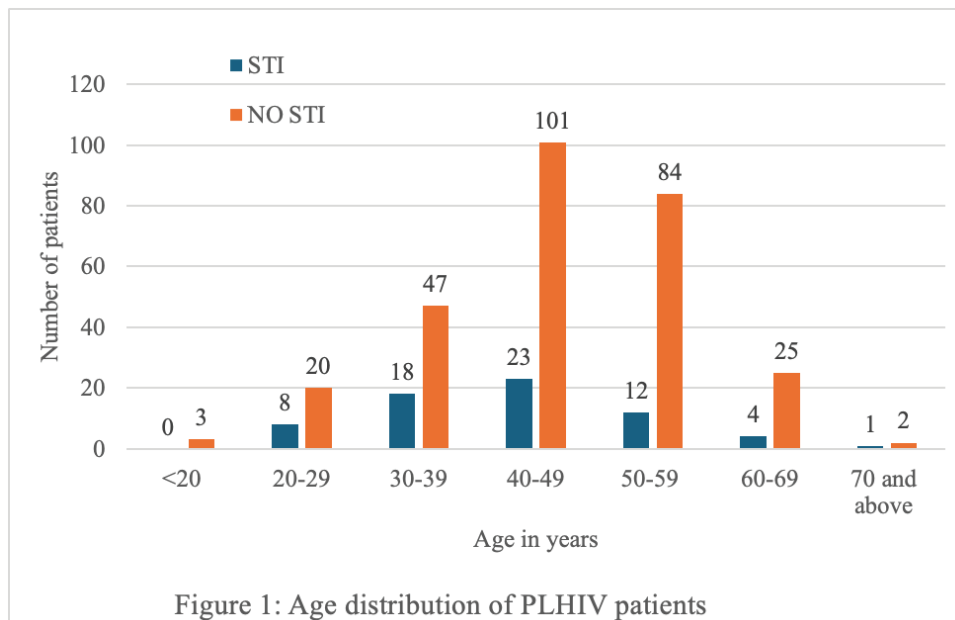
Methodology

This cross-sectional descriptive study was conducted at the ART centre of IGMCR&RI Puducherry. All consenting PLHIV patients above 18 years of age attending the ART centre were included in the study, using a consecutive sampling method. Terminally ill patients on ART who were unable to answer questions in the proforma were excluded. A total of 348 patients were recruited in-to the study.

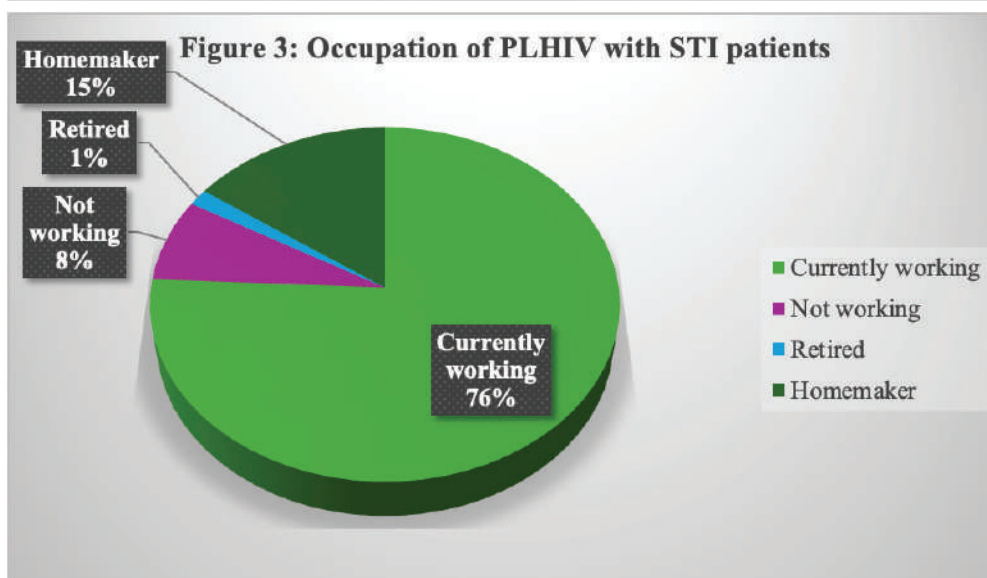
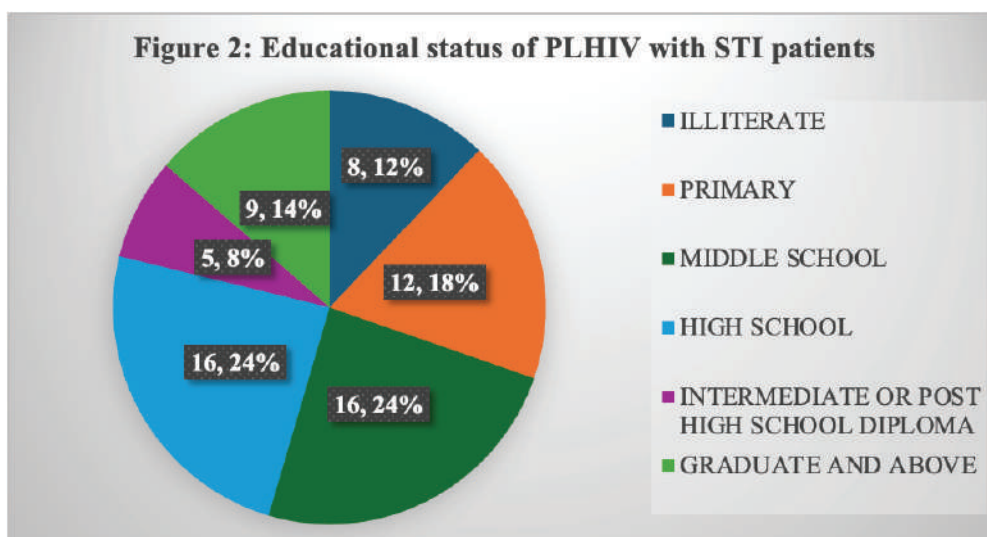
The data collection was done using a predesigned proforma, which included details on socio-demographic characteristics, sexual behaviour, HIV-related clinical parameters, and STI symptoms. CD4 count, HIV viral load, RPR, HBsAg, HCV, and other investigation reports were also collected. Data was analysed using the Statistical Package for the Social Sciences (SPSS) Version 20. Descriptive statistics were used to calculate the prevalence of STIs and describe sociodemographic characteristics and risk factors. Chi-square or Fisher's exact test was employed to assess associations.

Findings

Of the total 348 PLHIV, 66 (10.2%) were diagnosed with an STI. The majority of those diagnosed with an STI were in the age group of 40-49 years, accounting for 35% (Figure 1).



Seventy-four percent (49 patients) of those diagnosed with an STI were in the sexually active age group, which is also the economically productive group. Of those with STI, 48.5% were males, 50% were females, and 1.5% were transgender. The majority had received middle school or high school education (Figure 2). Seventy-six percent of the patients are currently employed (Figure 3).



Forty-seven percent (31 patients) of those diagnosed with an STI were married. The majority (55 patients) of those with an STI reported heterosexual behaviour, while 6 patients had bisexual and 5 had homosexual behaviour. Twenty patients with an STI had one sexual partner, 5 had more than one partner, and the remaining 41 patients had no sexual partner in the last year. The average duration of HIV disease was 7.9 years, with the shortest duration being 3 weeks and the longest 20 years. The average duration of ART was 6.7 years, with the shortest being 1 day and the longest 20 years. Only 38% (25 patients) of those with an STI always used condoms, while 11% (7 patients) used them occasionally (Table 1). In comparison, 32% of patients without an STI always used condoms, and 10% used them occasionally. However, condom use was not found to be a statistically significant risk factor for STI ($p > 0.05$). The correlation between HIV stage and STI was also not statistically significant, as most patients in both the STI (91%) and non-STI groups were at stage 1 of HIV (Table 2).

Table 1 Condom Use among PLHIV Patients with and without other STI

Condom use	PLHIV with STI	PLHIV without STI	Total PLHIV
Never	33 (50%)	142 (50.35 %)	175 (50.29%)
Always	25 (37.88 %)	90 (31.91%)	115 (33.05 %)
Occasionally	7 (10.61%)	29 (10.28 %)	36 (10.34 %)
Not applicable	1 (1.52%)	21 (7.45 %)	22 (6.32%)
Total	66	282	348

Table 2 HIV Staging in Patients with and without STI

HIV Stage	With STI	Without STI	Total
1	55 (83.33%)	257 (91.13%)	312 (89.66%)
2	5 (7.58%)	14 (4.96%)	19 (5.46%)
3	3 (4.55%)	8 (2.84%)	11 (3.16%)
4	3 (4.55%)	3 (1.06%)	6 (1.72%)

Eighty percent (53 patients) of those with STI had a history of previous STI complaints. Among them, 51% (27 patients) had prior genital discharge alone, 26% (14 patients) had genital ulcer alone (such as primary syphilis and herpes), 21% (11 patients) had other prior STIs (such as latent syphilis and scrotal swelling), and 2% (1 patient) had both genital ulcer and discharge. Most common current STI symptoms were itching followed by discharge and ulcer (Table 3).

Table 3 Presenting Complaints in PLHIV patients with Current STI

Presenting STI symptoms	Number of patients	Percentage
Itching	10	40
Discharge	8	32
Swelling	1	4
Ulcer	3	12
Burning sensation	1	4
Vesicle	1	4
Growth	1	4
Total	25	100

The most common current STI diagnosed was latent syphilis, followed by vulvovaginal candidiasis, primary syphilis, and candidal balanoposthitis (Table 4).

Table 4 Current STI diagnosed among PLHIV patients

Current STI diagnosed	Number of patients	Percentage
Latent syphilis	13	39.4
Primary syphilis	3	9.09
Herpes genitalis	2	6.06
Anogenital warts	2	6.06
Vulvovaginal candidiasis	9	27.3
Bacterial vaginosis	1	3.03
Candidal balanoposthitis	3	9.09
Total	33	100

Around 14.37% (50 patients) of all 348 screened had cutaneous or mucosal findings (other than genital mucosa). The most common findings were dermatophytosis, followed by papular pruritic eruption, seborrheic dermatitis, and candidal intertrigo. The most common mucosal finding was oral candidiasis (Table 5).

Table 5 Dermatological Manifestations in All Screened PLHIV patients

Dermatological Manifestations	Number	Percentage
Dermatophytosis	9	18
Pityriasis versicolor	1	2
Pitted keratolysis	1	2
Facial cellulitis	1	2
Cutaneous wart	2	4
Onychomycosis	1	2
Oral candidiasis	3	6
Recurrent oral ulcers	2	4
Candidal intertrigo	3	6
Nonhealing leg ulcer	1	2
Eczema	2	4
Acneiform eruption	1	2
Papular pruritic eruption	8	16
Perianal pruritus	1	2
Pruritus	2	4
Acute urticaria	2	4
Chronic urticaria	1	2
Scarring alopecia	1	2
Seborrheic dermatitis	3	6
Scalp psoriasis	1	2
Hypertrophic lichen planus	1	2
Fissure feet	1	2
Nevus sebaceous	1	2
Acanthosis nigricans with trichodysplasia spinulosa	1	2
Total	50	100

165 patients (47.4%) of all the patients screened had co-morbidity. The most common co-morbidities were dyslipidemia (56 patients), diabetes (44 patients), previous history of pulmonary tuberculosis (PTB) (28 patients), followed by anaemia (20 patients) and hypertension (18 patients). Other co-morbidities included previous extrapulmonary tuberculosis (EPTB) (9 patients), hypothyroidism, PTB, and EPTB (6 patients each), and asthma (4 patients). Additionally, 1 patient each had nevirapine allergy, nevirapine-induced hepatotoxicity, squamous cell cervical cancer, cryptogenic organising pneumonia, allergic bronchitis, prior stroke, prior heart disease, neuropathy, rheumatoid arthritis, immune recovery uveitis, prolonged unexplained fever with oral ulcers, gastroesophageal reflux disease, acute appendicitis, haemorrhoid, uterine prolapse, hydrocele, inguinal hernia, medical renal disease, and renal calculi. 9 patients had concomitant Hepatitis B and 2 had Hepatitis C.

Conclusion

In our study, 10.2% of patients were diagnosed with STI. The most common STI diagnosed was syphilis, followed by vulvovaginal candidiasis, candidal balanoposthitis, bacterial vaginosis, herpes genitalis, and anogenital warts. The majority of the patients were in the economically productive age group of 20-50 years, were married, and currently working. There was no association between gender, condom use, or HIV stage with the prevalence of STI. The most common comorbidities were dyslipidemia (likely due to ART), diabetes, and pulmonary tuberculosis. The most common cutaneous findings were dermatophytosis and papular pruritic eruption, while the most common mucosal finding was oral candidiasis. A few patients had concomitant hepatitis B and C infections.

Recommendations

All PLHIV should be periodically screened and promptly started on treatment, including screening and treatment of partners. RPR/VDRL, anti-HBsAg, and anti-HCV tests should be done every 6 months. In remote areas, syndromic management of STIs should be implemented. Long-term strategies to reduce incidence include syndromic management in remote areas, awareness campaigns about STIs, policies, and targeted interventions. Further local prevalence studies of STIs in PLHIV should be conducted, targeting larger populations.

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Factors affecting Self-Initiated Client Footfall in Suraksha Clinics: A Cross Sectional study of a tertiary care Hospital in Punjab

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Introduction

Sexually Transmitted infections (STIs) rank among the top five conditions for which sexually active adults seek health care in the developing countries. As per the community based STI/RTI prevalence study (2003), over 6% of the adult population in India suffers from one or the other STI/RTI episode annually.

RTI affects both individual as well as the family level by its impact over the economic status in the developing countries [1]. In spite of increased complications and consequences of the disease, the condition is still neglected leading to chronic infections. Though it can be cured with early diagnosis, it still remains undiagnosed and untreated [2]. Presence of a STI/RTI in the sexual partner increases the risk of acquisition of HIV from an infected partner by 8 to 10-fold.

Unprotected sexual intercourse with an infected partner is by far the major risk factor for STI transmission [3].

Most of the women in the community have a negligent attitude toward the symptoms in the early phase till the appearance of complications, sometimes even till the morbid circumstances [2]. This is due to the stigma toward the RTI [4]. Effective control of STI/RTI is a strong and most cost-effective strategy for reducing/preventing transmission of HIV. Integrated services such as peer education, empowerment, condom promotion, and effective treatment for STIs along with structural interventions have demonstrated reductions in STI and HIV prevalence [5-7]. Services at designated STI/RTI Clinics are provided through outpatient department of Skin & Venereal Diseases and Obstetrics & Gynaecology in District Hospitals and Medical Colleges. Confidentiality of client is maintained at every level. These clinics have been branded as "Suraksha Clinics" and provide sexual and reproductive health services. This study aimed to find out the factors affecting self-initiated client footfall in Suraksha clinics.

Methodology

The present study was a quantitative study conducted among the clients attending two Suraksha clinics located in Skin and Obstetrics & Gynaecology departments of Guru Gobind Singh Medical College, Faridkot between the period of September 2022 to February 2023. On the day of the visit every consecutive 15 participants were interviewed till the completion of 400 study participants who gave their consent for participation in the study.

The data was collected using a pre-tested semi structured questionnaire which consisted of following sections - Section I: Socio-demographic information of the patient, Section II: Clinical profile of the patient and Section III: Reasons for low self-initiated client footfall in STI/RTI Clinics.

The data pertaining to socio-demographic and other variables was entered in the form of a data matrix in Microsoft Excel and analysed using IBM SPSS v 20.0. The descriptive statistics were presented as frequencies and percentages. Chi-square/Fisher's exact test was used to assess the association among categorical variables. A two-sided P value of < 0.05 was considered statistically significant.

Ethical approval from the institutional ethical committee was taken prior to the commencement of the study. Informed consent was taken from every patient. Anonymity and privacy were maintained at every step as no personal identifiers were used or recorded at any time of the study.

Findings

Out of the 400 clients enrolled from STI/RTI clinics of Guru Gobind Singh Medical College and Hospital, Faridkot, 137 (65.8%) were males and 263 (34.2 %) were females. Majority of them, 69.5% of them were in the age group of 21-40 yrs. Majority (22.5%) were educated up to Matric followed by 22.3% senior secondary pass and 16% graduates. More than 3/5th of them

(63.3%) belonged to Upper lower class according to Modified Kuppuswamy scale of Socio-economic status followed by 21.5% of them in the lower middle class. More than 2/3rd (67.8%) were unemployed followed by 13.8% skilled workers.

Among the 263 female clients, 137 females (52.1%) had 'vaginal discharge only' followed by 73 female clients (27.8%) who had 'vaginal discharge and lower abdominal pain' followed by 36 female clients (13.7%) with 'lower abdominal pain only'.

Among the 137 male clients, majority 64 (46.7%) had 'painful/burning micturition' followed by 37 male clients (27.1%) who had 'discharge from urethra' followed by 25 male clients (18.2%) who had 'genital ulcers'.

Social barriers were found to be most common among the clients. About 92% clients had fear of spoilage of reputation. Among psychological barriers, about 96% were afraid of the testing procedure and about 93% were afraid of being diagnosed of STI/RTI. Among knowledge barriers, more than 3/5th of the clients (61.5%) was not aware about free testing services. About 73% thought that STIs were not serious infections. Among economic implications, about 84% of clients reported difficulty to reach the clinic as a barrier in reporting to Suraksha Clinics. Excessive documentation was reported as one of the barriers by 87.5% of clients.

On assessing the factors affecting the client footfall, department ($p=0.000$) and gender ($p=0.001$) were the two factors which were found to be significantly associated with mode of entry of client into STI/RTI Clinics (Table 1).

Table 1 Factors affecting Self-initiated Client Footfall in Suraksha Clinics

Factors Affecting Client Footfall	Type of Client			
		Self-initiated (N=123) n (%)	Hospital-initiated (N=277) n (%)	p-value
Department	Skin (N=400)	78 (30.8%)	122 (69.2%)	0.000
	Gynaecology (N=400)	45 (22.5%)	155 (77.5%)	
Age	≤ 20 (n=45)	16 (35.6%)	29 (64.4%)	0.376
	21-40 (n=278)	80 (28.9%)	197 (71.1%)	
	41-60 (n=72)	24 (32.9%)	49 (67.1%)	
	61-80 (n=5)	3 (60%)	2 (40%)	
Gender	Male (n=137)	57 (41.6%)	80 (58.4%)	0.001
	Female (n=263)	66 (25.1%)	197 (74.9%)	
SES	Lower (n=25)	9 (36%)	16 (64%)	0.183
	Upper Lower (n=253)	71 (28.1%)	182 (71.9%)	
	Lower Middle (n=86)	34 (39.5%)	52 (60.5%)	
	Upper Middle (n=36)	9 (25%)	27 (75%)	
Occupation	Skilled (n=55)	18 (32.7%)	37 (67.3%)	0.555
	Semi-skilled (n=51)	19 (37.3%)	32 (62.7%)	
	Unskilled (n=23)	5 (21.7%)	18 (78.3%)	
	Unemployed (n=271)	81 (29.9%)	190 (70.1%)	

On applying binary logistic regression analysis, the only variable found to be independently influencing the self-initiated client footfall was gender ($p=0.034$) (Table 2).

Table 2 Binary Logistic Regression Analysis of Self-initiated Client Footfall

Predictors (Factors)	Self-initiated footfall (%)	Odd's Ratio	95% CI	p-value
Age (years)				
≤20	35.6%	1		
21-40	28.9%	1.037	0.126-8.530	0.973
41-60	32.9%	1.597	0.224-11.394	0.641
61-80	60%	1.949	0.263-14.466	0.514
Gender				
Male	41.6%	1		
Female	25.1%	0.423	0.191-0.937	0.034
Socio-economic Status				
Lower	36%	1		
Upper Lower	28.1%	1.050	0.264-4.187	0.944
Lower Middle	39.5%	0.861	0.321-2.309	0.766
Upper Middle	25%	0.439	0.165-1.171	0.100

Education				
Illiterate	14.8%	1		
Up to Primary school	7.5%	0.327	0.072-1.496	0.150
Up to Middle school	12.8%	0.615	0.126-2.996	0.547
Matric pass	22.5%	0.710	0.163-3.094	0.648
Senior secondary pass	22.3%	0.865	0.216-3.467	0.838
Graduate	16%	1.224	0.306-4.905	0.775
Postgraduate	4.3%	0.968	0.257-3.648	0.962
Occupation				
Skilled	32.7%	1		
Semi-skilled	37.3%	1.252	0.541-2.894	0.600
Unskilled	21.7%	1.051	0.472-2.342	0.903
Unemployed	29.9%	2.442	0.734-8.123	0.145

Conclusion

'Vaginal discharge only' was the main symptom of STI/RTI among the female clients followed by 'vaginal discharge and lower abdominal pain'. 'Painful/burning micturition' was the main symptom of STI/RTI among males followed by 'discharge from urethra'. Social Barriers were found to be most common among the clients. Among the knowledge barriers, lack of awareness about free testing services was the main reason for not reporting to Suraksha clinics. Gender was found to be independently influencing the self-initiated client footfall in the Suraksha Clinics.

Recommendations

There is a need to increase information education and communication activities, advertisement in mass media, and integration of the service in all health institutions to overcome the social and knowledge barriers and to increase the self-initiated client footfall. Reproductive health related communication needs to be a two-way process, where listening to the perceptions and opinions of the community may be as important as providing information through SBCC approach.

Acknowledgements

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Identifying Factors affecting Self-Initiated Client Footfall in Suraksha Clinics: A Qualitative study among Clients attending Suraksha Clinics at Tertiary Care Hospitals in Punjab

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Introduction

Reproductive Tract Infection (RTI) is the infection of the reproductive tract, including three types of infection stated as follows: (a) Sexually transmitted infections such as Chlamydia, gonorrhoea, chancroid, and human immunodeficiency virus, (b) Endogenous infection because of the overgrowth of the normal flora of the reproductive tract, and (c) Iatrogenic infection, mainly because of the improper procedures like unsafe abortion, unhygienic delivery practices, etc [1].

RTI affects both individual as well as the family level by its impact over the economic status in the developing countries [2]. In spite of increased complications and consequences of the disease, the condition is still neglected leading to chronic infections. Though it can be cured with early diagnosis, it remains undiagnosed and untreated [3]. Till date, STIs remain a major public health problem for both developing and developed countries. Unprotected sexual intercourse with an infected partner is by far the major risk factor for STI transmission [4].

Most of the women in the community have a negligent attitude toward the symptoms in the early phase till the appearance of complications, sometimes even till the morbid circumstances [3]. This is due to the stigma toward the RTI [5]. The national programme has established designated STI/RTI clinics to provide services through outpatient department of Skin and Venereal Diseases and Obstetrics and Gynaecology in District Hospitals and Medical Colleges. For maintenance of confidentiality of client at every level, "Suraksha Clinics" are set up under the programme to provide sexual and reproductive health services. This study was planned to find out the factors affecting self-initiated client footfall in selected Suraksha clinics in Punjab.

Methodology

The present study was qualitative research conducted at two Suraksha clinics located in the Skin and Obstetrics and Gynaecology departments of Guru Gobind Singh Medical College, Faridkot. All clients reporting to the Suraksha clinics of Guru Gobind Singh Medical College, Faridkot, between September and February 2023, who provided consent to participate, were included in the study. Ethical approval was obtained from the institutional ethical committee prior to the commencement of the study.

Informed consent was obtained from every patient, and anonymity and privacy were maintained throughout the study, as no personal identifiers were used or recorded.

Data was collected through one-on-one interviews with the selected registered patients. In-depth interviews (IDIs) were conducted alternately with one client per Suraksha clinic (one day at the Skin Department and the next day at the Obstetrics and Gynaecology Department), totalling to a total of 24 IDIs. Each IDI was audio-recorded, and key points were noted during the interview. Each interview lasted for at least 30 minutes. At the end of the interview, a summary was presented to the client for validation of the data collected. The audio recordings were transcribed verbatim within 24 hours to ensure no loss of information.

For qualitative analysis, the "Thematic Analysis" technique was used to identify themes, and sub-themes were derived using deductive iterative coding. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was followed as a guideline for separating the various domains of health affected and identified during the study, as well as for the presentation of the results.

Findings

A total of 24 IDIs were conducted among the clients attending Suraksha clinics at the study sites to identify the various enablers and barriers to testing and treatment of STIs.

Enablers to Testing and Treatment of STI among Clients visiting Study Sites

- **Health Care Provider Related**

It was observed that good counselling techniques used by the healthcare providers in the Suraksha clinics came out to be one of the reasons for the clients reaching these clinics in large number. One of the female clients said

"I was taking treatment from a private practitioner. One of my friends who is working in the Medical Hospital insisted me to come and visit the Suraksha clinic as the counsellors here are very nice and treatment is also effective."

- **Positive impact of social media**

Social media came out to be an important factor in increasing the knowledge of individuals especially younger population about the STIs and also the free testing and treatment services available at the Suraksha clinics. Through this, clients were also getting information on free-testing camps and treatment services as well. One of the participants said,

"I searched about my symptoms on google and discovered about the Suraksha clinic located nearby in the Medical College. Also, I was amazed at the fact that the treatment on which I had spent money from last 2 months as I was taking medicine from a local private practitioner was being provided free of cost there along with the testing services."

Another said,

"Had I known that the testing and treatment services at the Suraksha Clinics are free, I would have never visited any private practitioner for the same."

Thus, it was observed that availability of free testing and treatment services at the Suraksha clinics was one of the key driving forces among the clients to visit the Suraksha clinics.

- **Changing attitude of individuals towards reproductive health**

This was found to be an important factor in self-initiated visits of clients for their check-ups. It was observed that younger age groups were more inclined to discuss reproductive health

issues, but the social stigma surrounding these topics prevented them from talking about their concerns with their parents. Therefore, the establishment of clinics like these, which are seen as safe spaces, enabled younger participants to utilise the services more effectively. One of the young male participants said,

"I wanted to ask someone about the pimples on my private parts but didn't know whom to ask. I thought If I ask my parents' they will consider me as disrespectful and ill-mannered."

Another female participant said,

"I was having foul smelling whitish vaginal discharge since few days. I was too afraid to ask my mom as I feared that she may take me wrong and start scolding me."

It was also reported one of the counsellors that

"if the youth want to open up about their reproductive health problems, we need to counsel the parents and family members to lend a listening ear and encourage friendly environment at home so that the health of adolescents should not suffer."

Barriers to Testing and Treatment of STI among Clients visiting Study Sites

- **Social Barriers**

Fear of Damage of Reputation

Many clients were concerned that discussing their reproductive health issues could negatively affect their reputation. As a result, they hesitated to seek help from healthcare providers. This concern was particularly prominent among females. One of the female participants said,

"I came here for gynae consultation as my periods were irregular but the moment I told the doctor about vaginal discharge, she started insisting me to go to the Suraksha clinic. Why am I sent here? If my husband or any of my family members know I came here, what will they think?"

Another female participant said,

"I didn't want to go the Suraksha Clinic as many of my relatives work in this hospital. If any of them sees me, they will tell my husband and knowing this that I am having some reproductive health issue, he would not let me live peacefully."

Though the education status in our country has improved, still the social taboo associated with reproductive and sexual health needs to be addressed so that every individual may come up fearlessly for their reproductive and sexual health issues.

Fear of Breach of Confidentiality

Some participants were initially afraid of a breach of confidentiality. They shared their personal information with the counsellors but were hesitant at first. It was only when they were assured that the information would remain private, between just the two of them, that they felt comfortable opening up. One of the participants said,

"Why do I tell you about my personal life. What if you spread it in a negative manner and it reaches my family. They would not let me go out of the house again."

Another said,

"I don't know you. Why do I share my personal information with you? What if you use it against me."

Therefore, it was indicated through these study findings that trust building between the client and counsellor is very important for helping the clients to come to the clinic without any social prejudice or fear.

- **Psychological Barriers**

Fear of being Diagnosed

Majority of the participants did not want to get tested thinking that they will come positive for STIs and then they will have to undergo treatment and visit the Suraksha clinics again and again.

- **Knowledge Barriers**

Lack of Accurate Sexual and Reproductive Health Knowledge

One of the female clients who herself gave history of genital ulcers in her husband said,

"Condom is means to prevent pregnancy, but I want to conceive, they why should we use it."

Misconceptions about Barrier Contraceptives

Only three patients had misconceptions regarding use of barrier contraceptives.

One of the female participants said

"My husband doesn't want to use condom as he gets infection again and again because of it."

Another said,

"It is my 2nd marriage and reason for my divorce was I couldn't conceive for last 5 years. Now I don't want to take any risk by using such things. You give me medicine for my pain and discharge, but I don't want to use any contraception."

Lack of accurate knowledge about sexual and reproductive health and also misconceptions about barrier contraceptives came out to be an important factor associated with reluctance of clients to attend to clinical examinations or services for testing and treatment.

Conclusion

The present study was conducted at two STI/RTI clinics located in the Skin and Obstetrics & Gynaecology departments of Guru Gobind Singh Medical College, Faridkot. From the 24 IDI conducted, various enablers and barriers to testing and treatment of STIs were identified. Among the enablers, "free testing and treatment services" were reported by the majority of clients, followed by "good counselling techniques" as another significant factor.

Regarding barriers, "fear of being diagnosed" was the most commonly reported, followed by concerns about "reputation being spoilt" Additionally, "lack of accurate sexual and reproductive health knowledge" was identified as a major barrier, along with "misconceptions about barrier contraceptive methods."

Recommendations

There is a need to adopt a targeted approach to address the youth population, separating males and females, in order to tackle the social stigma associated with reproductive health. Additionally, strengthening the capabilities of counsellors by training them on maintaining privacy and confidentiality for adolescents is crucial. It is important to target young males and females separately to address their individual beliefs and misconceptions. The focus needs to be on increasing the visibility of Suraksha clinics and fostering dialogue within the community to highlight the need for and benefits of using these clinics

Acknowledgements

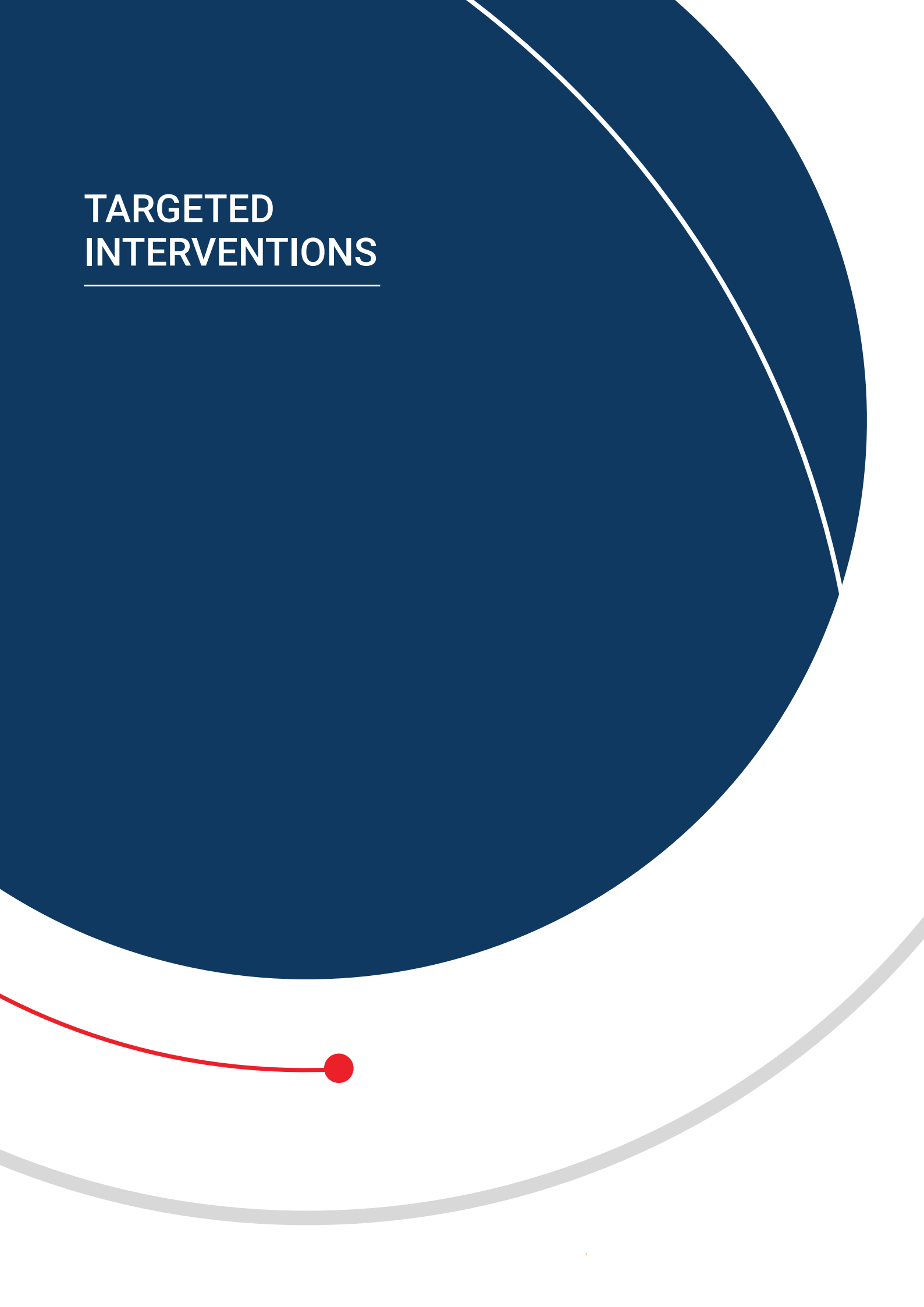
We would like to thank the staff of Suraksha Clinics of Skin and Obstetrics and Gynaecology Departments, the study participants and PSACS for their support and cooperation.

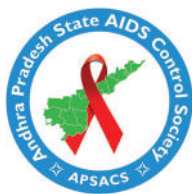
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TARGETED INTERVENTIONS





Accessibility and Utilisation of Services at Opioid Substitution Therapy Centre of Visakhapatnam District - A Mixed Method Study

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Introduction

Globally, approximately 11 million people inject drugs, and it is estimated that there are 1,77,000 Injectable Drug Users (IDUs) in India. HIV Prevalence among IDUs was found to be 3.01% in India and this population group is also vulnerable for viral hepatitis B and C (HBV and HCV), Tuberculosis as well as the risk of death due to drug overdose. Around 1 in 8 of these individuals (about 1.4 million) are living with HIV, according to the UNODC World Drug Report 2020 [1]. In India, the 2023 HIV estimates report indicates that around 25.44 lakh people are living with HIV/AIDS (PLHIV), with Andhra Pradesh accounting for 3.20 lakh of these cases [2]. Opioid substitution therapy (OST) is an evidence-based harm reduction intervention effective for opiate-dependent persons that replaces illicit drug use with medically prescribed, orally administered opiates such as buprenorphine and methadone thereby improving the quality of life and health of IDUs. However, only 8 percent of injecting drug users receive opioid substitution therapy [3-4]. Hence the present study was taken up to explore the factors associated with the non-adherence and non-compliance of IDUs to OST services, so that course correction (if any) measures may be initiated and addressed.

A mixed method study design was executed with the following objectives:

- To assess the utilisation of services at OST centres
- To assess the high-risk behaviours among IDUs
- To explore the accessibility challenges faced by IDUs.
- To explore factors for non-adherence and non-compliance to OST & HIV Medication

Methodology

The study was conducted in OST centre and SAMIDA Target Intervention (TI) for IDUs of Visakhapatnam district involving all registered IDUs and service providers. There were around 1,050 IDUs registered in TI Visakhapatnam District of which 240 IDUs were randomly selected. The inclusion criteria for enrolling the IDUs in the study was that they must be between the age of 18-60 years registered in TI, with clear mental state at the time of the interview. IDUs who had severe cognitive impairments and were too aggressive to approach were excluded.

A predesigned structured questionnaire including information on socio-demographic characteristics, variety of psychoactive substances used for injection, treatment adherence, frequency of drug used in injection, HIV risk behaviours, reasons for non-compliance were used to assess the high-risk behaviour and utilisation of services at OST centre by IDUs. After obtaining the informed consent and ensuring confidentiality, 240 face to-face interviews were conducted. Those IDUs who were not attending TI were contacted with the help of Outreach workers (ORWs) and motivated to attend TI for collecting the data.

Qualitative information was collected through two Focus group discussions among ORWs, Peer group educators (PGE), and three Key Informant Interviews among service providers i.e. Medical Officer, Staff Nurse, counsellors of OST centre to explore the opinion of service providers regarding challenges faced by IDUs in seeking treatment at OST.

The information was audio recorded, subsequently transcribed and translated into English for compilation of qualitative data. The codes and themes were generated from the verbatim.

Findings

About 44.97% of IDUs know about OST from friends and 42.7% from Peer educators. Among 214 IDUs who were enrolled at OST centre, 103 were utilising services.

Table 1 Distribution of Study Participants Enrolled in OST Centre based on their Source of Knowledge (n=214)

Source of Knowledge about OST	Frequency	Percentage
Peer Educators	90	42.0
Friends	96	44.9
Family	9	4.2
Self	10	4.7
Healthcare Providers	9	4.2
Total	214	100

A total of 240 IDUs were interviewed, among them 89% were enrolled for OST Centre and only 42% of them were utilising the services at the OST Centre. The age of the participants ranges between 18 and 60 years with a mean age ($\pm$ SD) of 31 ± 8.3 years. Thirty-five percent of the study population were graduates. Majority (94.8%) of the participants were initiated into injection drug use by using Pentazocine either singly or in combination. Forty-six percent of them are using injectable drugs for more than 5 years with almost one fifth (19%) of the being IDUs for more than 10 years. The majority (72.8%) of IDUs utilising OST services lived within 10 km of the OST centre. The reasons for not utilising OST services were mostly due to stigma (41.9%), long distance (20.6%) and unwillingness to quit the injectables (8.8%). After attending OST Centre, 38.6% were still using injectable drugs and of them 88% were using more than 15 times a week. The prevalence was around 40% for most of the high-risk behaviours like sharing needles and unsafe sexual practices.

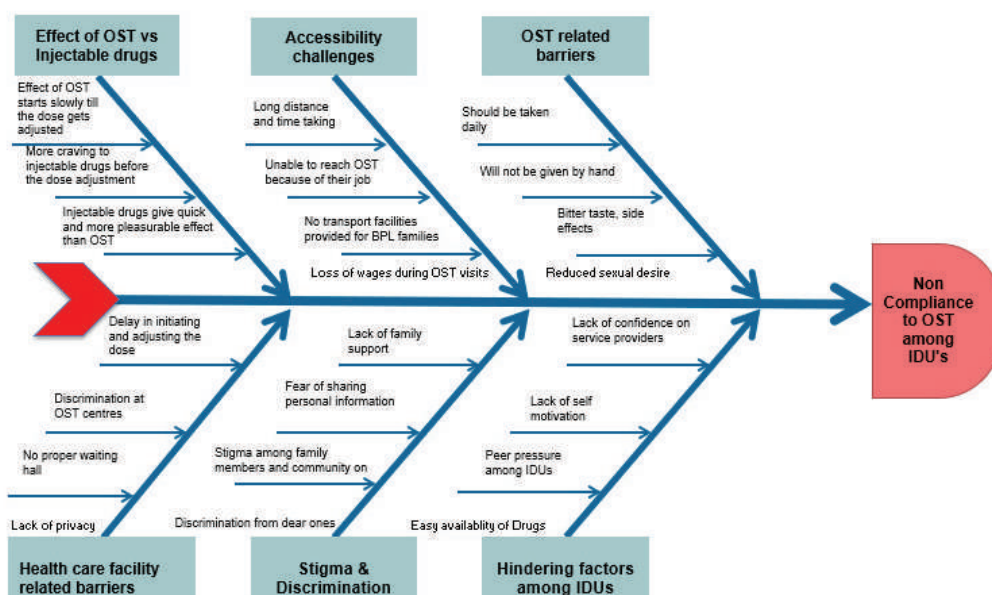
Table 2 Association between various High-risk Behaviours with Utilisation of OST Services

High Risk Behaviour	Utilisation of OST Services (N= 240)			
		Yes n (%)	No n (%)	Total n (%)
Have you ever shared a needle for injecting drugs for at least once in your lifetime?	Yes	37 (35.9)	60 (43.8)	97 (40.4)
	No	66 (64.1)	77 (56.2)	143 (59.6)
Have you ever had unsafe sexual intercourse?	Yes	51 (49.5)	62 (45.3)	113 (47.1)
	No	52 (50.5)	75 (54.7)	127 (52.9)
Have you ever had sex with multiple partners?	Yes	37 (35.9)	52 (38)	89 (37.1)
	No	66 (64.1)	85 (62)	151 (62.9)
Have you ever had sex under the influence of drugs?	Yes	43 (41.7)	55 (40.1)	98 (40.8)
	No	60 (58.3)	82 (59.9)	142 (59.2)

For qualitative component of the study, thematic analysis of the transcripts of three KIIs and two FGDs were done by generating codes, subthemes and themes. The major themes identified through qualitative research were:

- **OST related Barriers** related to dispensing of sublingual medication and its side effects. A respondent indicated that *"The medicine provided in OST is simply packed in local paper without any label or name on it is creating some doubt on the medicine."*
- **Difference in Effect of OST vs Injectable Drugs** like persisting craving till the OST drug is adjusted compared with quick relief with the injectable drug.
- **Hindering Factors among IDUs** in overcoming drug abuse like lack of trust on the service providers
- **Accessibility Challenges** related to conveyance and balance their work with attending OST. A respondent said that *"Main barrier for seeking OST is transport for people. Daily labourers who goes to work in mornings cannot reach OST station for medicine on time". Another one said that "It was reported in a verbatim that "There is need to establish satellite centres and delivering services need to be extended in PHC's also."*
- **Stigma and Discrimination** both at family and community level and also at the health facility.
- **Healthcare Facility related Barriers** like lack privacy, confidentiality and delay in receiving the right treatment as per protocol. A client highlighted that *"There should be comfortable room for counselling and confidentiality need to be ensured as users are experiencing more stigma in treatment seeking area."*

Figure 1 Fish bone Diagrammatic representation of Barriers related to Accessibility & Utilisation of OST Services



Conclusion

In the current study, although the majority of IDUs were enrolled in OST, nearly half are actively utilising services at the OST Centre. The most commonly identified barriers to access were stigma to attend OST Centre, as Centre is located in Psychiatric hospital, long distance and transportation issues. Additionally, some reported reverting to injectable drug use due to side effects from OST medication. However, those who are availing of OST services expressed satisfaction, noting that they are relieved from their addiction and able to resume their daily activities.

Recommendations

Setting up satellite centres closer to IDU hotspots and flexible timings of OST centre would improve access to OST services and many IDUs are unaware of OST services, highlighting the need for increased mass/social media campaign. Availability of comfortable waiting areas and private counselling rooms at OST centres are essential in maintaining confidentiality and reducing stigma, encouraging more IDUs to seek treatment. A consistent treatment protocol with enhanced coordination between service providers ensures smooth and effective service delivery.

Acknowledgements

We sincerely acknowledge the financial support provided by NACO for funding the project. Our appreciation goes to the staff of SAMIDA TI (IDU) and the OST centre for their dedicated assistance during the study. We also extend our gratitude for the support rendered by the Faculty and Post Graduate students of the Department of Community Medicine, Andhra Medical College, Visakhapatnam. Finally, we are deeply grateful to all the study participants for their cooperation and trust in sharing valuable information.

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Relationship of Female Sex Workers and their SPA Managers and its Implications for HIV/STI Prevention

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Introduction

Reproductive Tract Infection (RTI) is the infection of the reproductive tract, including three types of infection stated as follows: (a) Sexually transmitted infections such as Chlamydia, gonorrhoea, chancroid, and human immunodeficiency virus, (b) Endogenous infection because of the overgrowth of the normal flora of the reproductive tract, and (c) Iatrogenic infection, mainly because of the improper procedures like unsafe abortion, unhygienic delivery practices, etc [1].

RTI affects both individual as well as the family level by its impact over the economic status in the developing countries [2]. In spite of increased complications and consequences of the disease, the condition is still neglected leading to chronic infections. Though it can be cured with early diagnosis, it remains undiagnosed and untreated [3]. Till date, STIs remain a major public health problem for both developing and developed countries. Unprotected sexual intercourse with an infected partner is by far the major risk factor for STI transmission [4].

Most of the women in the community have a negligent attitude toward the symptoms in the early phase till the appearance of complications, sometimes even till the morbid circumstances [3]. This is due to the stigma toward the RTI [5]. The national programme has established designated STI/RTI clinics to provide services through outpatient department of Skin and Venereal Diseases and Obstetrics and Gynaecology in District Hospitals and Medical Colleges. For maintenance of confidentiality of client at every level, "Suraksha Clinics" are set up under the programme to provide sexual and reproductive health services. This study was planned to find out the factors affecting self-initiated client footfall in selected Suraksha clinics in Punjab.

Methodology

The present study was qualitative research conducted at two Suraksha clinics located in the Skin and Obstetrics and Gynaecology departments of Guru Gobind Singh Medical College, Faridkot. All clients reporting to the Suraksha clinics of Guru Gobind Singh Medical College, Faridkot, between September and February 2023, who provided consent to participate, were included in the study. Ethical approval was obtained from the institutional ethical committee prior to the commencement of the study.

Informed consent was obtained from every patient, and anonymity and privacy were maintained throughout the study, as no personal identifiers were used or recorded.

Data was collected through one-on-one interviews with the selected registered patients. In-depth interviews (IDIs) were conducted alternately with one client per Suraksha clinic (one day at the Skin Department and the next day at the Obstetrics and Gynaecology Department), totalling to a total of 24 IDIs. Each IDI was audio-recorded, and key points were noted during the interview. Each interview lasted for at least 30 minutes. At the end of the interview, a summary was presented to the client for validation of the data collected. The audio recordings were transcribed verbatim within 24 hours to ensure no loss of information.

For qualitative analysis, the "Thematic Analysis" technique was used to identify themes, and sub-themes were derived using deductive iterative coding. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was followed as a guideline for separating the various domains of health affected and identified during the study, as well as for the presentation of the results.

Findings

A total of 24 IDIs were conducted among the clients attending Suraksha clinics at the study sites to identify the various enablers and barriers to testing and treatment of STIs.

“

I have been betrayed by my lover, who used to come to the SPA and made me pregnant on the pretext of marriage. Now I have to raise the child alone. I feel like ending my life, but no one can understand my pain. My fellow workers at the spa make fun of my situation,

shared the FSW from Paharganj Area

”

In the study, an attempt has been made to understand the interdependent relationship between FSWs and their gatekeepers based on three aspects:

- Financial and legal aspects
- Health aspects
- Personal affiliation

Recruitment primarily occurs through personal networks or referrals, and FSWs are compensated in various ways, including direct payments from customers and basic salaries with tips. SMPOs manage the legal aspects of running the spas and massage centres, often shielding FSWs from legal troubles, but sometimes imposing extra charges, such as for condoms. While many SMPOs emphasise condom use, there is no consistent policy, and male customers often negotiate for unprotected sex by offering more money.

“

Sometimes I don't even know whether they are using protection or not, or what they negotiate with customers. If they use protection every time, why do they need I-PILLS or pregnancy test kits?

They do it to earn more money,

”

Condom availability also varies by location, with some SMPs sourcing them from external stores and others relying on targeted interventions (TIs). Additionally, most SMPOs (90% of the respondents) showed negative attitudes towards FSWs with HIV and showed limited involvement in HIV/STI prevention programmes, citing fear of business disruption.

“

How can I keep an HIV -positive girl in my SPA? It will pose I huge risk to my business. I cannot compromise on my customers' well-being. What if someone gets infected? What reputation will I have in the market?

A SPA owner from Tagore Garden, West Delhi

”

On a personal level, SMPOs tend to maintain formal relationships with FSWs, with male managers often uncomfortable discussing intimate health issues.

“

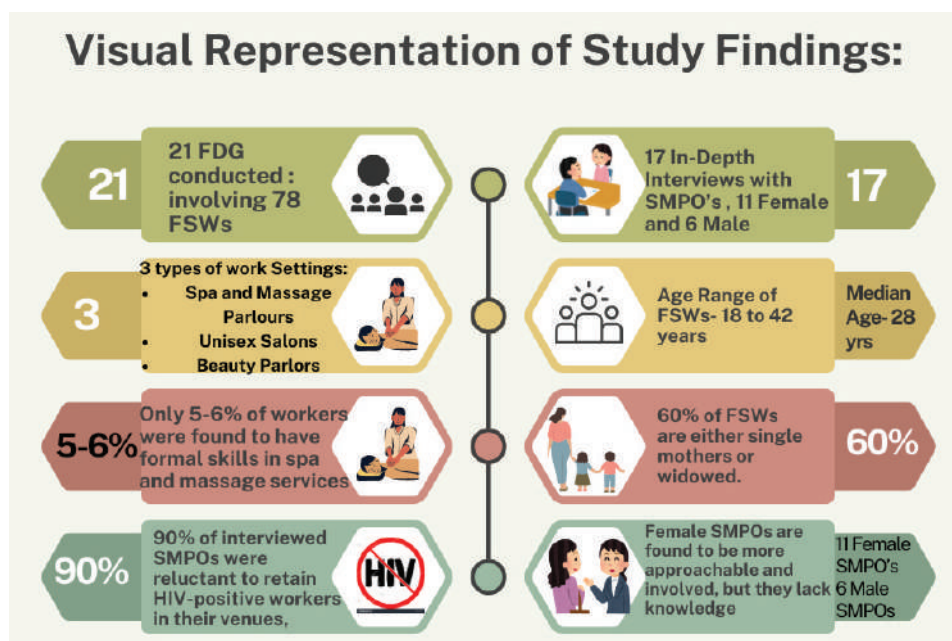
If they have any problem, they talk amongst themselves or go to the doctor. What should I discuss with them about such matters? I don't understand these things and I feel embarrassed talking about such topics

A SPA manager in Palam, West Delhi Area, in response to a question about the intimate health issues faced by FSWs, like STIs

”

In spas with female managers, FSWs are more open to sharing their challenges, but resolution usually requires external intervention from spa owners or TI staff.

Figure 1 Snapshot of Study & Findings



Conclusion

The study reveals a complex, interdependent relationship between FSWs and SMPOs, with financial, legal, and health-related aspects forming the core of their association. While SMPOs play a crucial role in recruitment, compensation, and legal protection, they often prioritise financial interests over the well-being of FSWs, exposing them to health risks. Challenges persist in ensuring the consistent use of condoms and addressing unsafe sex practices, partly due to SMPOs' reluctance to engage in HIV prevention efforts. The lack of open communication between male SMPOs and FSWs regarding intimate health further exacerbates the issues, while female SMPOs, though more approachable, still lack the awareness and sensitisation needed to address the health risks faced by FSWs. Overall, SMPOs hold significant influence over FSWs' occupational conditions, which affects the effectiveness of HIV prevention interventions and the overall safety and well-being of FSWs.

Recommendations

- The study highlights the critical need to organise distinct counselling sessions for SMPOs on FSW health, safety, and legal responsibilities, and to integrate them into the design and implementation of HIV prevention strategies for FSWs in venue-based settings
- Establish confidential communication channels for FSWs to discuss health concerns with spa managers
- Create incentive structures for spa managers to promote adherence to safe sex practices and ensure the availability of condoms
- Engage in policy advocacy to protect FSW rights and health, ensuring inclusivity for HIV-positive individuals
- Design tailored interventions that leverage collaborative efforts among stakeholders to mitigate structural health risks and enhance occupational safety in commercial sex settings
- Acknowledgments
- The Department of Continuing Education and Extension (DCEE), School of Social Sciences, University of Delhi would like to express its gratitude to the TI staff, including project directors, coordinators, fieldworkers, and counsellors in the South-East, West, North-East, Central, and North districts of Delhi, for their unwavering support throughout the field study. Additionally, DCEE acknowledges the invaluable inputs and guidance provided by the Delhi State AIDS Control Society (DSACS) throughout the course of the study.

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Understanding Enablers and Barriers in Opioid Substitution Therapy Delivery at Public Health Facilities and Community Centres in Delhi

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Introduction

Opioid Substitution Therapy (OST) is a critical component in the management and treatment of opioid dependence, offering a pathway towards recovery and rehabilitation for individuals grappling with addiction [1,2]. Based on the recent estimates provided by the National AIDS Control Organisation (NACO), there are approximately 200,000 persons who inject drugs (PWIDs) in India. PWIDs in Delhi are a crucial demographic that is severely underserved by OST program, and as a result, they seldom ever use therapies that may save their lives [3]. Therefore, the study aimed to assess the gaps and barriers in OST, to explore patients' and providers' experiences and perspectives and to provide suggestions for improving the uptake and efficiency of these services among PWID. The objectives of the study are as follows: a) to understand the enablers in OST delivery at public health facilities, b) to understand the barriers to OST delivery at public health facilities. c) to understand the acceptable method to overcome these barriers in OST delivery.

Methodology

The study was conducted using a cross-sectional observational and mixed method multicentric approach. Phase I of the study involved conducting in-depth interviews with a total of 30 participants including stakeholders, patients attending OST clinics, their caregivers, residents, local officials, and medical staff.

In Phase II, a total of 150 adults over the age of 18, currently engaged in OST or tobacco cessation clinic (TCC) were recruited voluntarily for quantitative data collection administered through semi-structured questionnaires. The 150 adults included 50 individuals each who were OST users into three treatment centres i.e., Primary Health Centres (PHC), Community Health Centres (CHC), and TCC. The themes that emerged in Phase I were arranged in a list form, and then these themes were tested out with the help of a semi-structured questionnaire.

Findings

Phase I: Qualitative Findings

In Phase I, interviews with 30 participants, including OST users, medical staff, caregivers, and a counsellor from Primary Health Centres (PHC), Community Health Centres (CHC), and Tertiary Health Centres (TCC clinics), revealed significant barriers to OST service access. A recurrent issue was the attitudes of healthcare providers, which often discouraged OST users. One participant stated,

"This is their behaviour: many times, we are in a hurry, but these people still don't give the medicine quickly; they give the medicine according to their convenience."

This response highlights a perceived lack of empathy among healthcare staff, exacerbating access challenges for OST users. Other barriers included peer pressure and societal stigma. A participant reflected,

"Most of the addictive behaviours are developed because of the peer influence at a very young age."

This suggests that peer influences and the environment play a considerable role in addiction, creating obstacles to effective OST delivery.

Phase II: Quantitative Findings

The findings from Phase II of the study reveal significant variations in the challenges and enablers faced by OST users across different treatment centres. At CHC, where struggles appeared to be more pronounced, 60% of respondents identified

healthcare workers' attitudes as a key barrier, compared to 36% at PHC and only 6% at TCC. Additionally, 83% of respondents at CHC reported experiencing homelessness due to societal rejection, a stark contrast to 54% at PHC and 16% at TCC. This highlights the substantial impact that stigma has on access to OST services.

While accessibility was an issue across all centres, it was particularly acute at TCC, where 60% of respondents cited long travel distances as a barrier to accessing services. Communication gaps and a lack of counselling were also prevalent, with 94% and 86% of CHC respondents reporting these issues, compared to much lower rates at PHC (28% and 24%) and TCC (68% and 70%). One participant's comment captured the essence of these concerns:

"Many times, they don't even talk to us properly. We need support, but they act like we are not important."

This underscores the pressing need for more empathetic communication and support in OST service settings.

Financial instability, societal stigma, and feelings of worthlessness were recurring themes, with high levels of shame and isolation reported, particularly among CHC respondents. A striking 86% of CHC participants expressed feelings of shame and isolation, compared to 48% at PHC and 66% at TCC, further emphasising the emotional and social barriers faced by individuals in these centres.

One user shared,

"We feel we are forgotten and unwanted by society, and it is hard to find hope."

Such statements underscore the emotional and psychological burdens on OST users that, if unaddressed, can become formidable barriers to successful treatment.

Overall, these findings underscore the necessity of addressing healthcare worker attitudes, expanding access to counselling, and fostering societal support to make OST services more accessible and effective across diverse settings.

Table 1 Comparative Analysis of responses of different Treatment centres for Factors affecting Delivery of OST Services

Theme	Statements	Primary Health Centre	Community Health Centre	Tertiary Health Centre (TCC Clinic)
Barriers	Attitudes of health workers	36% Agreed	60% Agreed	6% Agreed
	Modify the timing of OST centres	42% Agreed	36 % Agreed	34 % Agreed
	Challenges related to accessibility, such as transportation, reaching remote areas, etc	16 % Agreed	38 % Agreed	60 % Agreed
	Shortage of healthcare workers	16% Agreed	54% Agreed	32% Agreed
	Cultural practices and superstitions influence attitudes toward seeking medical help	6% Agreed	14% Agreed	4% Agreed
	Homelessness due to family and societal rejection	54 % Agreed	83 % Agreed	16% Agreed
	Illegal employment	58% Agreed	88% Agreed	42 % Agreed
	Lack of awareness and literacy barriers	48% Agreed	66 % Agreed	94 % Agreed
	Difficulty in maintaining a job	68 % Agreed	96 % Agreed	62 % Agreed
	Stigma that affects employment opportunity	36 % Agreed	80 % Agreed	58 % Agreed
Enablers	Lack of counselling	24% Agreed	86% Agreed	70% Agreed
	Communication gap between healthcare workers	28% Agreed	94% Agreed	68% Agreed
Attitudes and Beliefs	Financial instability	36% Agreed	64% Agreed	24% Agreed
	Stigma from family and friends	28% Agreed	72% Agreed	52% Agreed
	Feeling of worthlessness, ashamed	48% Agreed	86% Agreed	66% Agreed
	Low self-esteem and self-confidence	54% Agreed	88% Agreed	48% Agreed
Patient and Caregiver Related Factors	Lack of support from society	22% Agreed	86% Agreed	64% Agreed
	Toxic environment	72% Agreed	88% Agreed	74% Agreed
Experience and Opinions	Family and peer pressure	8% Agreed	76% Agreed	22% Agreed

Conclusion

The study systematically explored the enablers and barriers to opioid substitution therapy (OST) in public health facilities and community centres, based on the experiences of 150 study participants. It identified key challenges such as service accessibility, stigma, and discrimination. The study emphasised on the need for a multifaceted approach to enhance OST services, including extending operational hours, improving geographic access, and addressing healthcare worker shortages. Additionally, it highlighted the importance of societal support, community engagement, peer-led interventions, and family involvement in treatment. Addressing these issues through policy reform, education campaigns, and innovative practices may improve OST uptake and effectiveness, ultimately aiding public health.

Recommendations

Based on the study, several recommendations will emerge to improve OST services. These include regular training for healthcare workers, flexible hours at OST centres, and improved infrastructure and transportation. Addressing staffing shortages, integrating cultural competency training, and expanding peer involvement will be crucial. Supportive workplace policies, financial counselling, and family education to reduce stigma are essential. Finally, enhancing emotional and psychological support within OST programmes will be vital to improving patient outcomes.

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Factors Influencing Access to Offline Services of Targeted Interventions amongst Virtually Active MSM in Delhi

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Introduction

The HIV epidemic continues to be a significant public health challenge in India, particularly among high-risk groups such as men who have sex with men (MSM) [1]. According to the National AIDS Control Organisation (NACO) report of 2017, the HIV prevalence among MSM in the National Capital Territory of Delhi (Delhi NCT) stands at a disproportionately high rate, well above the national adult general population prevalence of 0.3% [2]. The high proportion of MSM who have never used a healthcare facility highlights the necessity for research to better understand why many are not accessing or seeking provision. Key insights from understanding barriers and facilitators to accessing healthcare services are likely important factors in designing the best interventions for HIV among transgender people [3]. Furthermore, it noted that MSM are more likely to avoid offline services if they perceive a lack of sensitivity or confidentiality in healthcare settings. This disparity highlights the urgent need to explore the factors influencing access to healthcare services among MSM, particularly in urban settings like Delhi [4,5]. Therefore, the study was conducted to understand the factors influencing access to offline services of targeted interventions among MSM who were virtually active in Delhi region.

Methodology

This study employed a cross-sectional observational design with a mixed method multicentric approach. The study was conducted in 2 phases, in which, in the Phase 1, a qualitative research design was employed to gain in-depth insights into experiences of men who have sex with men (MSM) towards healthcare access. In-depth interviews (IDIs) with 30 MSM participants, complemented by 10 key informant interviews with the health care professionals (psychiatrist, psychologist, counsellor, and health worker) knowledgeable about the MSM community were conducted. Additionally, 5 focus group discussions (FGDs) were organised, each consisting of four participants, to explore collective challenges faced by MSM participants. A purposive sampling method was utilised to ensure the inclusion of MSM who actively engaged with virtual platforms and had varying levels of interaction with offline services in Delhi. Eligible participants were required to be MSM aged 18 or older, using virtual platforms like social media or dating apps, and have attempted to access healthcare services in the past year. Exclusion criteria included individuals under 18, non-MSM individuals, and those without experience using virtual platforms or healthcare services. Data collection involved recording, translating, and transcribing interviews, which were then manually coded for thematic analysis, with the process continuing until thematic saturation was achieved. A grounded theory approach facilitated constant comparison between datasets and themes, and to enhance reliability, two additional investigators reviewed the coding process, resolving any discrepancies through discussion.

In Phase II (Quantitative Phase), a structured questionnaire was developed based on the themes identified in Phase I to quantitatively assess the barriers and challenges faced by men who have sex with men (MSM). A total of 150 MSM adults aged 18 and older were voluntarily recruited, with participants divided into online and offline groups to ensure equal representation from both categories. A combination of snowball sampling was employed, where MSM engaged on virtual platforms were recruited through online networks, while those frequenting physical venues, such as community centres and healthcare clinics, were recruited through in-person outreach. The sample was stratified to ensure diversity across age and healthcare experiences. Inclusion criteria mandated participants to be MSM aged 18 and older, either from Phase 1 or with similar characteristics as virtually active MSM, and willing to complete the structured questionnaire. Exclusion criteria included individuals not identifying as MSM, those under 18, and individuals unwilling to participate. Data were collected using the structured questionnaire, measuring barriers such as stigma, healthcare accessibility, and social support through Likert scales and categorical variables. The quantitative data were analysed using descriptive statistics, including means, standard deviations, frequencies, and percentages.

Findings

The themes generated in Phase I identified barriers faced by MSM individuals in accessing HIV testing and healthcare services, including bureaucratic hurdles, societal discrimination, and structural inequalities. For instance, participants reported,

“The gap in the confirmation report, which is not received on time, is a big problem in getting it linked”, and “For people who are not educated, it takes some time to understand how the OPD card is made or which place we have to go.”

Additionally, one participant highlighted,

“I faced rejection and discrimination, leading to job insecurity.”

The second phase of the study focused on identifying both the enablers and barriers in accessing offline healthcare services for virtually active MSM (Men who have Sex with Men) in Delhi. Through a comparative analysis of responses from 150 participants aged over 18, divided equally into online and offline groups, the findings illuminate critical factors influencing healthcare access.

The study identified several enablers that facilitate access to offline healthcare services for MSM (Men who have Sex with Men). Notably, 81% of participants recognised that increased awareness efforts specifically targeting MSM could bridge the gap in understanding and acceptance of available healthcare services, with 84% of online and 92% of offline participants emphasising the role of awareness programmes in improving HIV testing and treatment. Additionally, community support emerged as a critical factor, with 75% of online and 89% of offline participants agreeing that confidence-building measures, such as community-specific counselling, encourage more MSM to seek healthcare. Furthermore, both groups acknowledged the accessibility and welcoming environment of Antiretroviral Therapy (ART) centres, highlighting their importance as supportive facilities for MSM individuals.

The study uncovered several barriers that hinder MSM (Men who have Sex with Men) from accessing offline healthcare services. Commute-related challenges were a major issue, impacting 79% of online participants and 73% of offline participants, primarily due to overcrowded public transportation and societal teasing. Concerns regarding acceptance from the medical community were also significant, with 57% of online participants and 64% of offline participants indicating that this lack of acceptance greatly affects their willingness to seek healthcare. Moreover, both groups reported challenges in finding safe spaces for open dialogue and socialising, with 68% of online participants and 65% of offline participants acknowledging this issue. Cultural influences, including prevailing practices and superstitions, further complicated healthcare-seeking behaviour, as noted by 59% of online and 52% of offline participants. Additionally, apprehensions about testing kits and the requirement for repeated sample submissions were recognised as significant obstacles, with 61% of online participants and 60% of offline participants agreeing that these factors discourage them from getting tested for HIV.

To overcome these barriers, participants proposed several effective strategies. A substantial majority, comprising 79% of online participants and 92% of offline participants, stressed the need for comprehensive sexual health education that encompasses diverse sexual orientations and identities. Furthermore, family support and acceptance were highlighted as essential factors for well-being, with 75% of online participants and 91% of offline participants agreeing on their importance. The study also revealed that experiences of worthlessness, hopelessness, and discrimination during healthcare interactions significantly affect the self-esteem and confidence of MSM, with 63% of online participants and 61% of offline participants acknowledging this reality. Consequently, efforts to educate healthcare providers about inclusivity and sensitivity were deemed crucial for enhancing healthcare experiences for MSM individuals.

Table 1 Comparative Analysis of Online and Offline Responses of MSM for identified factors affecting Healthcare access

Themes	Statements	Online	Offline
Barriers	Commute-related challenges, such as overcrowded public transport and societal teasing, impact my decision to access healthcare services	79% Agreed	73% Agreed
	Acceptance from the medical fraternity is a significant challenge for MSM seeking healthcare	57% Agreed	64% Agreed
	MSM face challenges in finding safe spaces for open communication and socialising	68% Agreed	65% Agreed
	Cultural practices and superstitions influence my approach to seeking medical help	59% Agreed	52% Agreed
	Obstacles like issues with testing kits and concerns about repeated sample submissions affect the willingness of MSM in Delhi to get tested for HIV	61% Agreed	60% Agreed

Themes	Statements	Online	Offline
Enablers	ART centres are easily accessible and provide a welcoming environment	51% Agreed	51% Agreed
	Increased awareness efforts of MSM can bridge the gap in understanding and acceptance	81% Agreed	81% Agreed
	Confidence-building measures, such as community-specific counselling, would encourage more MSM to access healthcare services	75% Agreed	89% Agreed
	Awareness programmes regarding MSM issues and rights play a crucial role in improving HIV testing and treatment for MSM	84% Agreed	92% Agreed
Attitudes and Beliefs	MSM often experience feelings of worthlessness, hopelessness, and helplessness	63% Agreed	61% Agreed
	Discrimination experienced during healthcare interactions affects my self-esteem and confidence	65% Agreed	61% Agreed
	Fear of disclosing one's HIV status negatively impacts social relationships	65% Agreed	76% Agreed
	Prejudiced mindsets in society make it difficult for me to openly discuss my health issues in non-community spaces	75% Agreed	87% Agreed
	Fear of disclosure often leads to avoiding healthcare services among MSM individuals	69% Agreed	81% Agreed
Patient and Caregiver related Factors	MSM often face homelessness and poverty due to family rejection	67% Agreed	68% Agreed
	Some MSM may resort to illegal employment due to lack of support	71% Agreed	73% Agreed
	Limited access to healthcare services contributes to mental trauma and hinders overall well-being	67% Agreed	59% Agreed
	There is a need for comprehensive sexual health education that includes diverse sexual orientations and identities	79% Agreed	92% Agreed
	Family acceptance plays a crucial role in the overall well-being of MSM individuals	75% Agreed	91% Agreed
	There is no lack of treatment available for MSM seeking healthcare	79% Agreed	73% Agreed

Conclusion

The findings from this study reveal significant insights into the challenges faced by men who have sex with men (MSM) in both online and offline contexts in Delhi. Notably, offline participants exhibited higher percentages of agreement regarding the barriers they encountered, suggesting that they may experience more pronounced obstacles to accessing healthcare compared to their online counterparts.

In summary, the research emphasises the critical importance of addressing the specific barriers to healthcare access faced by MSM. By implementing comprehensive support services and fostering inclusive healthcare practices, stakeholders can enhance the overall well-being of this marginalised population, ensuring they receive the care and support they need.

Recommendations

The study results indicate a pressing need for comprehensive interventions and support services tailored specifically for this community. The findings underscored the necessity for targeted awareness campaigns and inclusive sexual health education that specifically address the unique needs of MSM individuals. There is a need to have initiatives to raise awareness about available healthcare resources, reduce stigma, and promote safe practices within the community. Additionally, the findings call for the development of targeted interventions that consider the diverse experiences and challenges faced by MSM, particularly those who engage more frequently with offline services. There is a need for advocating and training healthcare providers on MSM issues, implementing non-discriminatory practices, and ensuring that healthcare facilities are welcoming and accessible to MSM. By prioritising these areas, policymakers can help mitigate the barriers identified in this study and promote better health outcomes for MSM in Delhi.

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Assessment of Risk of HIV Infections among Drug Users vulnerable to Injecting and Shadow Users at risk of becoming Injecting Drug Users in Two High-Burden Districts of Himachal Pradesh

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Introduction

Acquired Immunodeficiency Syndrome (AIDS) is a chronic, potentially life-threatening condition caused by the Human Immunodeficiency Virus (HIV). Today, with an estimated 2.4 million infections India is home to the second largest population of People Living with HIV and AIDS (PLHIV) [1]. In Himachal Pradesh there are 4,606 PLHIV who are alive and taking Anti-retroviral treatment (ART) [2]. HIV can be transmitted through the exchange of various body fluids from an infected person, including blood, breast milk, semen, and vaginal secretions. It can also be transmitted from mother to child during pregnancy and childbirth. Certain behaviours and conditions increase the risk of acquiring HIV, such as engaging in unprotected anal or vaginal sex, the harmful use of alcohol and drugs in sexual contexts, sharing contaminated needles, syringes, and other injecting equipment, receiving unsafe injections, blood transfusions, tissue transplants, or undergoing medical procedures that involve unsterile practices [3]. Worldwide, more than 55 million people use opiates, cocaine, and amphetamine-type stimulants, with an estimated 13.2 million individuals injecting these substances. The majority (78%) of injecting drug users reside in developing and transitional countries [4]. While the relationship between injecting drug use and HIV/AIDS is well-researched, there is limited systematic epidemiological data on the extent and patterns of HIV transmission related to non-injecting drug use. This gap is significant, as emerging evidence suggests that the use of cocaine, crack, and amphetamine-type stimulants increases sexual risk-taking behaviours associated with HIV transmission. Injecting drug users, in particular, remain highly vulnerable to HIV and other blood-borne infections, such as hepatitis B and C, due to the sharing of contaminated injecting equipment [5, 6]. Present study was undertaken to assess the risk of HIV infection among drug users which include Non-Injecting Drug Users (NIDU), Injecting Drug Users (IDU) and shadow drug users and also, to estimate percentage of shadow users converting to intravenous drug users.

Methodology

A mixed method observational study was conducted to assess the risk of HIV infection among drug users, across de-addiction centres, Opioid Substitution Therapy (OST) centres and Integrated Counselling and Testing Centres (ICTC) in the districts of Hamirpur and Una in Himachal Pradesh. This study was conducted for a duration of 12 months from 1st June 2023 through 31st May 2024.

The drug users included in the study were categorised as:

- NIDU: Persons who do not inject drugs and are recognised to use substances with or without dependence or/and have entered any drug or rehabilitation programme and/or have any medical, legal or social problems due to drug or heavy alcohol use
- IDU: Current IDU are defined as those who use any drugs through injecting routes in last 12 months
- Shadow users: When injectable drugs, such as opioids, are unavailable, some injecting drug users (IDU) switch to oral or inhaled drugs, or vice versa. Conversely, when oral or inhaled drugs are not available, some users temporarily shift to injectables. Drug users who have made this transition in the past 6 months are referred to as “shadow users”

The sample size was 550 drug users attending de-addiction centres, OST centres, and ICTC centres in Hamirpur and Una districts during the study period, who met the inclusion criteria. A purposive sampling method was used to select participants for exploring the factors responsible for transitioning to injectable drug use. A self-structured, pretested interview schedule was used to gather information from the participants.

Qualitative component included open ended questions and quantitative component included close-ended questions.

Before any data retrieval, written informed consent was obtained from all study participants, and confidentiality regarding personal identities and sensitive information was ensured. Data were collected from non-intravenous drug users, intravenous drug users, shadow drug users (defined as those who shift between non-injectable and injectable routes), District AIDS Program Officers, opioid substitution therapy counsellors, antiretroviral therapy medical officers, psychiatrists, and targeted intervention counsellors.

To estimate the conversion of shadow users to injectable drug users, two Focused Group Discussions (FGDs), one in each district, along with 26 Key Informant Interviews (KIIs), were conducted.

Quantitative data was entered into a Microsoft Excel spreadsheet for cleaning, processing, and analysis. Categorical variables (e.g., gender, socio-economic status, type of drug, route of drug use) were expressed as frequency proportions. The Odds Ratio was calculated to assess the risk across different groups. The qualitative data were analysed using descriptive verbatim and content analysis methods to estimate the percentage of shadow users converting to intravenous drug use.

Findings

A total of 574 drug users were recruited for the study, out of which, 565 (98.4%) were males, 7 were females and 2 did not disclose their gender. The mean age of participants was 24.52 ± 6.33 years.

At the de-addiction centre in Una, HIV positivity among non-IDUs was very low, with only 1 out of 156 testing positive, and none of the 125 shadow users were HIV positive. Among the 241 current IDUs, 4 tested positive for HIV.

At the OST RH Una, HIV positivity among non-IDUs was 1 out of 32 tested, and 1 out of 14 shadow users was HIV positive. Among the 19 current IDUs, 2 tested positive for HIV.

At the ICTC Una, HIV positivity among non-IDUs was 1 out of 34 tested, and 1 out of 14 shadow users was HIV positive. Among the 21 current IDUs, 2 tested positive for HIV.

Table 1 Details of Drug Users recruited for Study and HIV Status

Themes	Statements	Drug user					
		Non-IDU		Current IDU		Shadow users	
		Total	HIV +ve	Total	HIV +ve	Total	HIV +ve
Una	De-addiction centres in Una	156	1	241	1	125	0
	OST RH Una	32	1	19	2	14	1
	ICTC Una	34	1	21	2	14	1
Hamirpur	ICTC Hamirpur	27	0	12	1	8	1
	De-addiction centres Hamirpur	24	0	8	1	6	0
	Total	273	3	301	7	167	3

In district Hamirpur, the HIV rates are somewhat higher: 1 out of 12 current IDUs and 1 out of 8 shadow users tested positive for HIV, with no HIV-positive cases among non-IDUs at the ICTC Hamirpur. Overall, 7 out of 301 current IDUs and 3 out of 167 shadow users are HIV positive, reflecting a higher HIV prevalence of 2.3% among current IDUs compared to non-IDUs and shadow users. This highlights an association between being a current IDU and increased HIV risk.

The prevalence of HIV among shadow users, IDUs, and non-IDUs were found to be 1.80% (3/167), 2.33% (7/301), and 1.10% (3/273), respectively. Shadow users and IDUs both exhibit higher odds of HIV infection compared to non-IDUs. The results suggest that engagement in riskier behaviours (as seen in shadow and IDU users) is associated with a higher likelihood of HIV infection. However, the wide confidence intervals indicate that these findings may be interpreted with caution due to potential statistical uncertainty, likely resulting from small sample sizes.

FGDs were conducted until saturation of answers was achieved. It was observed that the conversion of shadow users to injectable drug users was 50% in district Hamirpur and 60% in district Una. Study participants in district Hamirpur had a notably higher percentage (70%) of IDUs with a history of being shadow users compared to district Una (54.4%), suggesting that shadow drug use is more prevalent among IDUs in district Hamirpur.

Under the qualitative findings from the FGDs, saturation of answers was achieved with a conversion rate of 50% in Hamirpur and 60% in Una. A total of 26 key informants were interviewed until saturation was reached, with a conversion rate ranging from 60% to 80%, which was then averaged to a 70% conversion rate of shadow users to injecting drug users.

As per the content analysis of the FGD and KII, a consensus was reached that 50% to 70% of shadow users typically convert to the injecting route when injectable forms of drugs are available to them.

Conclusion

The majority of drug users were male, with Chitta being the most commonly used drug. The most prevalent infections among these drug users were Hepatitis C (HCV) at 10.28% (59 cases), followed by Hepatitis B (HBV) at 3.65% (21 cases). The prevalence of HIV among shadow users, IDUs, and non-IDUs was found to be 1.80% (3/167), 2.33% (7/301), and 1.10% (3/273), respectively. Both shadow users and IDUs exhibited higher odds of HIV infection compared to non-IDUs. According to the content analysis of key informant interviews and focus group discussions, a consensus was reached that 50% to 70% of shadow users typically convert to the injecting route whenever injectable forms of the drug are available to them.

Recommendations

To reduce HIV transmission among IDUs, it is essential to implement and expand needle exchange programs, encourage safer drug-use practices, and introduce routine HIV testing for drug users, especially those who inject, in high-risk areas like Una and Hamirpur. Mental health screenings need to be conducted in schools to identify early signs of substance abuse and provide support for at-risk youth. Additionally, the government need to prioritise drug control efforts in high-prevalence areas such as Himachal Pradesh and Punjab, focusing on prevention, rehabilitation, and reducing substance abuse in border regions.

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Facilitators and Barriers to Linking Injecting Drug Users with Opioid Substitution Therapy Services at Dhanbad and East Singhbhum Districts of Jharkhand

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Introduction

Epidemiological data suggests that the prevalence of HIV among people aged 15-49 years in India is approximately 0.2%. Between 2010 and 2021, the estimated number of new HIV infections in India decreased by 46%. In Jharkhand, the HIV incidence rate is 0.04 per 1,000 uninfected individuals [1]. High-risk behaviours, such as engaging in condomless anal or vaginal sex, having another sexually transmitted infection (STI) like syphilis, herpes, chlamydia, gonorrhoea, or bacterial vaginosis, the harmful use of alcohol and drugs in the context of sexual behaviour, and sharing contaminated needles and syringes when injecting drugs, all increase the risk of contracting HIV [2]. Injecting drug use (IDU) is one of the most common routes of HIV transmission, with the risk of HIV acquisition among people who inject drugs (PWID) being 24 times higher than among adults aged 15 years and older in the general population [3, 4]. HIV prevalence among injecting drug users in India is 9%.

Opioid Substitution Therapy (OST) involves the use of oral opiates like buprenorphine and methadone to replace illegal drugs, and is a medical intervention aimed at reducing the harm associated with injecting drug use. Adequate dosing and long-term retention in OST are key determinants of positive outcomes. Despite the benefits, OST coverage remains low globally, particularly in Southeast Asia [5]. In India, only 23.4% of injecting drug users are on OST, indicating significant room for improvement in its coverage to achieve better health outcomes [3]. Scientific evidence has highlighted multiple challenges faced by IDUs in accessing OST, including institutional, financial, and logistical barriers, as well as stigma and misconceptions among patients [5]. Against this backdrop, this operational research was conducted to document the facilitators and barriers to linking IDUs with OST in the East Singhbhum and Dhanbad districts of Jharkhand.

Methodology

A qualitative study was conducted in Opioid Substitution Therapy (OST) centres in East Singhbhum and Dhanbad districts, as well as at one Targeted Intervention (TI) site in East Singhbhum, Jharkhand. The study participants included clients (i.e., injecting drug users [IDUs] aged 18 years and above) registered under the TI programme, as well as service providers engaged in the OST centres and TI sites in the selected districts. Active IDUs were defined as those who had availed of at least one service from the TI programme within the six-month period prior to the study.

A total of 26 OST clients were enrolled in Focus Group Discussions (FGDs), while 24 IDUs participated in FGDs. In total, eight FGDs were conducted with 50 participants. Key informant interviews (KIIs) were held with doctors, nurses, and counsellors at the OST centres, as well as with doctors, counsellors, and outreach workers at the NGO TI centre in East Singhbhum.

The study was initiated after obtaining approval from the Institutional Ethics Committee (IEC) of MGM Medical College, Jamshedpur, Jharkhand. Written informed consent was obtained from all participants in the FGDs. The list of registered OST clients was obtained from the respective OST centres, and FGDs were conducted among these clients. Similarly, FGDs were conducted with IDUs. All qualitative interviews were audio-recorded. The interviews probed individual, healthcare system, and structural barriers. The interview data were transcribed, coded, and manually analysed using thematic analysis.

Findings

All participants were male, except for one female, making a total of 50 study participants. The majority of participants (28%) belonged to the 26-35 years age group, while only one participant was aged over 65 years. The mean age of study participants was 43.65 years ($\pm$ 14.17 years). A significant portion of participants (36%) had completed education up to the higher secondary level, while 16% were illiterate. Regarding marital status, 82% of participants were currently married, 7% were never married, and 2% were widowers or separated. Most participants (72%) lived with their spouse.

The majority (82%) of participants were from Jharkhand, while 18% hailed from other states, such as Bihar and Punjab. Mobility among the participants was low, with only 10% reporting travel outside the state in the last three months. Despite knowing the risks of sharing needles and syringes, 26% of participants admitted to exchanging needles.

Regarding drug use, 66% of participants were not currently using injectable drugs, while 20% admitted to injecting substances such as Brown Sugar, Diazepam, or Calmpose. Additionally, 14% reported using Avil, Phenergan, or Pethidine, with Diazepam, Calmpose, Avil, and Phenergan being the most commonly used drugs. When asked whether they felt treated differently in health facilities or hospitals, 50% of the participants answered affirmatively.

In terms of facilitators of Opioid Substitution Therapy (OST) services uptake, most participants agreed that improved health, social acceptance, better family finances, and enhanced family support were key motivators.

On probing barriers to OST service access, the major individual-level barriers identified were inadequate information about the availability of services and the distance to the nearest OST centre. At the healthcare system level, barriers included a shortage of drugs, the insistence on identity proof, and the high documentation time required during the initial enrolment process.

Table 1 Perceived Barriers to OST (Results from FGDs)

Individual Level Barriers
Inadequate information about availability of services
Distance of OST centre from residence
Habitual drug injecting
Healthcare System Level Barriers
Shortage of drugs
High documentation time during first enrollment
Insistence on identity proof
Structural Barriers
The cost of traveling to the OST Centre on a weekly basis.
Loss of income if the OST centre is far
Insistence on identity proof

As reported by key informants, facilitators for the uptake of OST services include improvements in health due to minimal withdrawal symptoms resulting from the buprenorphine and naloxone combination, enhanced social acceptance, better financial stability for families, improved focus on work, and better sleep quality. Regarding barriers to OST services, major individual level challenges include habitual drug injecting, lack of sincerity among IDUs, poor follow-up, lack of partner support among female IDUs, and misconceptions about the long-term use of OST, as highlighted in the key informant interviews.

Table 2 Perceived Barriers to OST (Results from KIIs)

Individual Level Barriers
Habitual Drug injecting
Insincerity in IDUs, including poor follow-up
Lack of partner support among female IDUs
Misconceptions about long-term use of OST
Healthcare System Level Barriers
Lack of dedicated full-time doctor
Lack of linkage between ART centre, NGO, TI-IDU and OST centre for sharing data
Interruption in supply chain of drugs
Lack of regular training of healthcare personnel

Structural Barriers
Stigma of being identified as IDU
Cost of weekly travel to OST centre
Lack of involvement of Panchayati Raj Institution members and local leaders

Some of the qualitative findings reflect the barriers perceived by the OST clients:

"For 15-20 days, I have to come there daily. After that, we make a weekly routine." (Study participant from Dhanbad)

"We do not have any information about where to get it, who will give it." (Study participant from East Singhbhum)

Another respondent added that

"Our family is in trouble. We can't work because of the drugs. Our body is in a lot of pain."

One of the key informants also mentioned that

"They have a misconception that if they take this medicine for a long time, they may have sexual problems"

Conclusion

The positive effects of OST, such as improved health, better family life, enhanced financial stability, improved work-life, and overall quality of life, are the biggest facilitators to accessing OST services. However, there are several barriers at the individual, health system, and structural levels. These include lack of adequate knowledge about OST services, stock-outs of medicines, the requirement for identification documents during enrolment, financial loss due to travel expenses for obtaining medication, delays in receiving services including doctor consultations, and habitual reliance on injecting drugs.

Recommendations

To improve access and retention in OST services, it is essential to ensure a continuous supply of OST drugs to patients, as well as better coordination between ART Centres, NGO TI programmes, and OST centres for data sharing and counselling. Regular training for healthcare staff is crucial to update their skills and knowledge, while the engagement of a full-time doctor dedicated to OST services will enhance the quality of care. Additionally, establishing a common Enrolment/Registration ID valid across all states in India would simplify access for IDUs and improve service delivery.

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Gaps and Challenges in HIV Services Uptake among Transgender under Targeted Interventions in Bhopal and Indore Districts in Madhya Pradesh

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Introduction

In the current global context, the term “transgender” is used as an umbrella term for individuals whose gender identity or expression (whether masculine, feminine, or other) differs from the sex they were assigned at birth. According to the IBBS (2014-2015), HIV prevalence among transgender women was reported to be 7.5%. The prevalence of HIV was notably higher among transgender individuals who were illiterate (11.2%) and among transgender sex workers or those working as masseurs (10%). A mapping exercise conducted by NACO in 2012-13 estimated that approximately 70,000 transgender individuals reside across 17 states in India. Madhya Pradesh, which borders two states with higher concentrations of the transgender population—Maharashtra and Uttar Pradesh—along with Gujarat, also has a significant presence of this community. Transgender people are considered a high-risk group for HIV, facing challenges in accessing health services due to factors such as discrimination, stigma, and a lack of clarity on their specific needs. These barriers often result in underutilization of services under targeted interventions (TI).

Methodology

A mixed-method study was conducted involving 100 transgender individuals registered in the Bhopal and Indore districts of Madhya Pradesh. The sample for the quantitative arm included 55 transgender individuals from Indore and 45 from Bhopal, selected through convenience sampling. The qualitative component involved 21 participants for In-Depth Interviews (IDIs), which included major gharana gurus, outreach workers, peer educators, program coordinators, counsellors, and medical officers. For the quantitative data collection, a pre-designed and pre-tested semi-structured questionnaire was used, which addressed variables such as the uptake of targeted services, reasons for usage or non-usage, and other health-related needs. For the IDIs, an interview guide was prepared, which, in addition to the same variables, included prompts regarding challenges faced in the field and facility and suggestions for improvement.

A list of TG TI- NGOs, along with their programme managers, care providers, and counsellors, was provided by MP SACS Bhopal, which facilitated participant contact. Only transgender individuals aged 18 years or above and who provided informed consent were included in the study. For quality assurance and control, 5% of the records were randomly extracted and double-checked, and a re-survey was conducted with 5% of participants during the same visit. Quantitative data were analysed using MS Excel, while the IDIs were audiotaped, transcribed, and analysed through thematic content analysis. Unique perceptions and insights from the interviews were identified, listed, and regrouped according to related themes.

Findings

Quantitative

Socio-Demographic Profile

The mean age of the study participants was 29.5 ± 3.8 years, with an age range spanning from 20 to 53 years. Four percent of the participants were illiterate, while 55% had completed education beyond higher secondary, including one participant who was a computer engineer and a few others with professional qualifications in various fields. Twenty-two percent of the participants had ever been married. All respondents had received two doses of the COVID-19 vaccination. Only one participant reported having private health insurance, while 34% confirmed being registered under the Ayushman Bharat Scheme.

Table 1 Socio-Demographic Profile of Transgender Community in Bhopal and Indore

Profile		Bhopal N=45	Indore N =55	Total %
Age (years)	≤20	0	1	1
	21-40	36	44	80
	41-60	09	10	19
Transgender	Female undergone gender affirming surgery *	30	17	43
	Female not undergone gender affirming surgery	30	17	47
Marital Status	Ever Married	12	10	22
	Unmarried	33	45	78
Religion by Birth	Hindu	34	46	80
	Muslim	11	09	20
Education	Illiterate	03	01	04
	Primary	03	04	07
	Secondary	15	19	34
	Graduate or above	24	31	55
Main Occupation	Badhai collection	37	35	72
	others	08	20	28
Residence	Gharana/Dera	38	26	64
	Individual	03	22	25
	With family	04	07	11
Insurance Coverage	Ayushman Bharat	16	18	34
	Any other health insurance	0	1	1
Addiction	Alcohol	23	35	58
	Smokeless tobacco	11	16	27
	Others	01	03	4

All study participants were trans-female. Alcohol was the most commonly used psychotropic substance (58%), followed by smokeless tobacco (27%), which included products like Vimal, Rajshree, Khaini-Zarda, and Snuff. The mean age for the first sexual encounter was 17.5 years, with both forced and wilful encounters reported. Fifty-five percent of the participants were sexually active, and among them, 60% had multiple sexual partners.

TI Services Uptake

- Ninety percent of participants had been tested for HIV within the last year (Table 2)
- Thirty-four percent of the study participants identified as HIV-positive, and all of these individuals were linked to antiretroviral therapy (ART)
- None reported having Hepatitis B or C

Health Needs and Treatment Seeking

- Thirty-nine percent of the trans-female participants reported suffering from ulcers, sores, warts, or other STI-related symptoms in the last 12 months. However, only 25% used the syndromic case management kits available through the District Integrated Counselling and Testing Centres (DIC) or government facilities under the Targeted Interventions programme
- A further 14% sought treatment either from private providers or used traditional remedies
- Eight percent confirmed having received treatment for syphilis under the TI programme in the past year

Other Health Needs

- The primary health needs that participants sought help for in the past 12 months (excluding STI-related issues) included skin-related problems (29%) such as dermatitis and laser treatments, hormone replacement therapy (9%), and gender-affirming surgeries (16%) such as breast implants or vaginoplasty
- Other common health concerns included fever, cough, and cold (6%), and 6% reported being diabetic

Table 2 Service Uptake by Study Participants under Targeted Interventions in the past 1 year in Bhopal and Indore

Services under Targeted Interventions		Uptake of TI services in Bhopal	Indore N =55	Total %
HIV Testing	Yes	40	55	95
HIV Status	Positive	08	26	34
ART linked	Yes	08	26	34
STI related symptoms	Yes	15	24	39
SCM* from DIC	Yes	11	14	25
SCM from Private/over the counter	Yes	03	08	11
No SCM/Traditional method	Yes	01	02	03
Syphilis tested	Yes	03	18	21
	No	22	12	34
	No Response /don't know	34	11	45
Syphilis Positive	Yes	03	05	08
Monthly Peer Contact (Previous month)	Yes	-	44	80
	No	-	11	20
Quarterly Clinic Visit (Previous Quarter)	Yes	--	26	47
	No	--	29	53

***SCM- Syndromic care management**

Outreach Services and Condom Usage

In Indore district, 44 participants (80%) reported interacting with a peer educator in the past month, while 11 participants (20%) were unavailable for such interactions (table 2). However, only 47% of participants had visited the District Integrated Counselling (DIC) in the last quarter. All participants reported the availability of condoms and lubricants, but only 45% were consistent condom users. Among them, the majority (51%) sourced their barrier methods from TI-DIC. The remaining 55%, who were either non-users or inconsistent users, cited dissatisfaction with condom quality (40%) and partner preferences (33%) as reasons for non-use. The main complaints about condom usage were lack of lubrication and rupture. Participants also expressed a preference for the Lov brand over the brand distributed by TI-DIC at the time of the interviews.

Qualitative

The qualitative component included in-depth interviews with Gharana Gurus, Outreach Workers (ORWs), Peer Educators (PEs), Programme Managers (PMs), and Counsellors. The participants' ages ranged from 23 years to 80 years (Guru), and their literacy levels varied from illiterate to professionally qualified.

Barriers and Facilitating Factors for Service Uptake

Several barriers to utilising targeted intervention (TI) services were identified:

- Transphobia (35%) and the fear of gender recognition were significant barriers
- Economic loss (33%) and inter-Gharana rivalry (29%) also hindered access to services
- Participants reported violence by family and community, fear of in-community discrimination if found HIV-positive, time constraints, and the need for interstate travel for service access
- Additionally, HIV prevention was not perceived as a priority health need

Facilitating Factors for Health Care Access

Several factors helped facilitate access to health care:

- Meeting loved ones for mood upliftment (23%) was a motivating factor
- Doorstep delivery of ART (29%) and social benefits (19%) contributed to increased access to health services
- Availability of condoms and lubes and easy access to health services when accompanied by Outreach Workers (ORWs) were also facilitating factors

Several key barriers to service uptake among the transgender community were identified. Personal, social, and familial factors, including stigma, discrimination, and violence, were the most commonly cited reasons. Many respondents reported that their gender identity was kept hidden from their families and communities, leading to emotional and social

stress when they sought targeted intervention (TI) services. The gharana parampara (traditional customs) exerted strong control, often punishing those who sought sexual health services. Economic constraints, lack of social and economic security, and the absence of coverage for their perceived needs further hindered the uptake of TI services.

Additionally, inconvenient facility timings and the availability of private doctors at their doorstep or on call contributed to the low uptake of TI services. Moreover, healthcare needs beyond HIV and STI management, such as gender-affirming surgeries and skin treatments, were prioritised by many participants over the services offered under TI.

Demand for Targeted Intervention and Health Care Services

TI-related Demands:

- Participants requested better-quality condoms (especially the Lov brand) and the availability of PrEP (which was previously provided by NGOs)
- They also called for evening facility timings for health services
- Non-TI Health Demands:
- There was a demand for gender-affirming surgeries with hormone replacement therapy (HRT) at concessional rates or covered under the Ayushman Bharat Scheme
- Participants also expressed a desire for a comprehensive health services package that addressed not only STI and HIV-related issues but other health concerns as well

Qualitative Analysis for Barriers in Uptake of Services with Themes & Sub-themes

Thematic wise details are given below:

Community dynamics and belief

- ✓ Social and familial challenges
- ✓ Gharana Parampara

Personal factors

- ✓ Lack of health concerns
- ✓ Monetary loss
- ✓ Myths and belief
- ✓ Time constraints



Government and policy issues

- ✓ Lack of advocacy
- ✓ Lack of social security
- ✓ Lack of coverage under Ayushman Bharat

TI healthcare facility services and intervention

- ✓ Providing services beyond HIV and STIs
- ✓ Facility timings
- ✓ Easy availability of private doctors

Thematic wise verbatim

Community Dynamics and Beliefs: Personal Factors		Government and Policy Issues	Healthcare Services and Interventions
Social and familial challenges, including familial violence about revealing one's trans status "For their family they are male and many are married..... they dress up as male, share their responsibilities as male member of the family but stay away from village..... go once in a year because if their community comes to know of their Trans the family will be outcast." "Many in their twenties are forced to behave like their birth gender, family uses violence.....goes for forced marriage but refuse to accept their trans phase." Gharana Paramparas They have to lie to come here for service utilizationideally the gharana does not permits for sexual relationships.... but that is a natural need and also a monetary source.... since there is no relationship then why to go to for targeted interventions that's what we are asked and if anyone come to knows about our visit stringent punishments both monetarily as well tortured mentally are put upon"	Lack of Health Concerns "There is no one behind me to cry so why should I get tested and bear the tag of HIV positivity....Will enjoy till I am alive" Why every 3 or 6 monthly I should get tested if once I am negative Monetary loss: " my one-day loss means a lot...If at the end of the day I don't take anything my guru scolds me" They don't have any fixed source of income.... coming here a day may means a loss of more than 10,000/. They have duties towards their family as well as gharana Myths and Belief: "I am not positive as I don't have any symptoms but they labelled be positive"	Lack of Advocacy "Unke guru padhe..likhe nehi hain....jab tak unme awareness nehi aayegi... kuch nehi ho sakta,because if any chela comes out HIV positive they are either thrown out of Gharana or given low profile jobs within and mistreated" Lack of Social Security: "you people talk only on HIV and condom why not like laadli behna Yojna, Vridhavasta pension... we get some monthly incentive or pension. it's there in Gujarat and Maharashtra". Lack of Coverage under Ayushman Bharat: "the gender affirming surgeries which provide us emotional support are not covered under it and we spend our life gathering money to pay for these surgeries."	Providing services beyond HIV and STIs: addressing skin-related issues and facilitating gender-affirming procedures "their need is dermal treatments and surgery for breast upliftment / vaginoplasty" -Facility Timings: For us daily collection is more important and we go for it during day time. Only after 5 or 6 pm we are free to come here. -Easy availability of Private Doctors: If we go in private, they take it as responsibility and we can call them back even in odd hours as compared to a Government Doctor where no one takes it as their responsibility once the timings are over.
"Some educated ones live individually on rent. In case the Gharana trans sees them roaming in day time it is thought that they are covering their collection areas and a van comes (from Gharana and a lot of violence is done against them.... last month only a crisis occurred."	Time Constraint: "their routine is very busy...festival time, marriage season and so on.... reach home not before 5 pm" Interstate Travel: "those staying here go for collection to Maharashtra or Gujarat and this is for 3-4 months"		

Conclusion

The study identified critical gaps in service uptake among transgender individuals under targeted interventions (TI) in Bhopal and Indore, primarily due to a mismatch between the health priorities of the transgender community and the services offered under TI. While the transgender community prioritised gender-affirming surgeries, hormone replacement therapy (HRT), and skin treatments, TI services remained focused on HIV/STI care, which limited their relevance to the community's broader health needs. Issues such as inconsistent condom quality, the lack of PrEP, and restrictive clinic hours further discouraged engagement with TI facilities. Barriers like social stigma, transphobia, and conflicts within Gharana networks compounded the challenges. Additionally, fear of disclosure, economic loss from missed work, and limited social security deterred service uptake. Many individuals preferred private healthcare due to its flexibility and personalised care, which further reduced reliance on TI services. The study underscores the need for the integration of sexual health with broader health services, flexible service timings, improved essential supplies, and economic incentives to ensure sustained participation in TI programmes.

Recommendations

Advocacy efforts should focus on changing the perceptions of Gharana Gurus, encouraging a more supportive stance towards transgender individuals seeking health services. A multi-disciplinary approach to healthcare service delivery is essential, including both STI/HIV-related services and other clinical care needs not currently addressed at DICs. HIV-related services should be framed as enablers, not barriers, ensuring that transgender individuals can access a full spectrum of care. Additionally, the provision of social security or incentives for the transgender community is critical, especially considering that sex work is often a primary occupation. Incentives could be provided when they support peer educators for HIV testing or visit DICs for counselling, as this can help offset the economic loss faced during service uptake. Moreover, the provision

of higher-quality condoms and adjusting healthcare facility timings to accommodate the transgender community's needs is essential. Finally, addressing gender-based violence through community awareness initiatives will further support the health and well-being of transgender individuals.

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Female sex workers (FSWs) and their spouses/partners with reference to Familial, Social, Economic, and Health Status in West Jaintia Hills District, Meghalaya

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Introduction

According to India HIV estimate 2023, the annual new Human Immunodeficiency Virus (HIV) infection was 68.45(in thousand), whereby women accounted for 39.5%. While the adult (15-49 years) HIV prevalence in India was 0.20%, Meghalaya is with 0.43% which is higher than the national level and also rank in fifth position. Whereas the adult HIV prevalence amongst the north-eastern state, Meghalaya rank in the fourth position just after Mizoram, Nagaland and Manipur (2.73%, 1.37% and 0.87% respectively) [1].

In Meghalaya, commercial sex work was common among young girls who resided at the international border and on national highways. Destitution is a common factor that forces young girls and women into the profession. The fear of stigma, discrimination, criminalisation, and abuse creates a culture of silence around sex work [2].

Additionally, there is a dearth of literature on the testing of HIV among spouses of Female Sex Workers (FSWs) and thus, this study focuses on the experiences and relationships of the FSWs with their spouses/regular clients, the socio-economic and cultural practices surrounding the lives of FSWs and its influence on the healthcare practices.

Methodology

A mixed method exploratory, descriptive, and cross-sectional research design was adopted as it highlights and exhibits the status of the FSWs and their spouses/partners/clients in relation to her familial, socio-economic, and health status. Also, it highlights the contributing factors of low testing among the spouses/partners/clients of the FSWs with having an empirical understanding of the other variables of family, socio-economic, and accessibility to health care.

Snowball and purposive sampling method was adopted to recruit the study population- FSWs, their spouses or partners, and regular clients of the FSWs.

In quantitative study, around 222-study participants (111-FSWs and 111-spouses/partners/clients of FSWs) were included in the study, and in qualitative, 7-FSWs and 12-spouses/partners/clients of FSWs were interviewed. A structured interview schedule and Interview guide were adopted as a tool for data collection. The data was analysed using thematic analysis by Braun and Clarke (2006) for qualitative data.

Findings

The mean present age of the spouses/partners/clients was 34 years. Majority of them have no formal education, are Christians and belong to the pnar community. They have a low-income occupation in the informal sector. They come from a family of poverty or single mother's household. The absence of cordial relationships with their first wife leads to seeking solace through marital affairs or seeking the service of sex work whereby, they fathered children with different women through multiple sexual partners.

"I have around 7 or eight wives, I don't remember. However, I do have children from my first two wives, apart from that I do not have any children."

(R8, Age 37, Spouse/partner/client, IDI)

The data collected highlights that 82% of the spouses/partners/clients have been tested for HIV/AIDS and 18% have never got themselves tested. Among those who were tested, 95% got it tested from the health care centre of the Target

Interventions (TIs) NGO. Many of them prefer not to go to the hospital for testing as they have a feeling of embarrassment. Out of the total number of 91 spouses/partners/clients who responded to yes have tested, 25 were found positive in Sexually Transmitted Infection/Sexually Transmitted Disease (STI/STD) - Syphilis and only 1 preferred not to disclose his status. Out of these, 21 responded that they have had it treated and cured whereas 4 of them prefer not to disclose their treatment status.

Fifty-three percent (53%) of the spouses/partners/clients responded that they are regular clients of a single sex worker, 41% responded that they are not and 5% did not respond.

"Three times in a month and I usually went to six women and among them, three are like permanent."

(R4, Age 23, Spouse/partner/client)

Among the FSW respondents, 71% responded that they have regular clients and only 29% said that they do not have regular clients. By regular in this context, it means permanent clients.

It was also found that many of the spouses/partners/clients refer to the woman whom they are in a sexual relationship as their wives, although they knew that they are sex workers. The reason of this concept is perhaps because of the cultural practices of cohabitation or live-in relationships which is very common among the Khasi-Jaintia people whereby two people living together without the formality of a wedding ceremony and can pick their partners based on their compatibility and feelings for each other.

"I don't even remember how many wives I have as there were too many."

(R1/Age 38/Spouse/partner/client, IDI)

Also, the occupation of the spouses/partners/clients was not associated with the testing status. Further, 88% of the spouses/partners/clients were practicing safe sex practices and condoms was mostly used whereby they either carry one or get it from their client or from the TI drop-in centre. Only 11% responded that they do not practice any safe sex. Among those who practice, 76% do practice safe sex in all their sexual relationships other than the sex worker, 3% responded that they do not practice safe sex and 10% responded that sometimes they do. Among those who do not use any contraceptives, it is because they do not carry one or because they are permanent clients or when they are drunk. There are also those who responded that they would also prefer not using any condoms.

"I am her permanent client, so I don't need to use any. Also, when I am drunk, I forgot to use it."

(Age 42, R10, Survey, Spouse/Partner/client)

The low acceptance of the society in relation to sex work makes the spouses/partners/clients to keep their visit to a sex worker as confidential.

"No one knows, my family members might think, but am not sure, they don't know much about it."

(R1, Age 38, Spouse/partner/client, IDI).

"Since long time I've known, but then I never went to test, I am not worried about that, since I am fit and fine."

(R2, Age 27, Spouse/partner/client)

Seventy-five percent (75%) of the spouses/partners/clients are aware of the free-of-cost counselling and testing facilities and 25% are not aware of the existing facilities. Among the 75% who are aware, 70% have gone for testing and 5% did not go for testing. On the other hand, among the 25% who are not aware on the free of cost counselling and testing facilities, 12% have gone for testing on their own and 14% have never gone for testing. This highlight that the public awareness on availability of the free of cost counselling and testing facilities is well disseminated.

Among the 62% of research participants who do inquire on the health status of the FSWs, 58% have gone for testing. Among the FSWs, 45% do ask their clients on their testing status before sexual intercourse and 43% do advise their clients to follow precautionary measures. Around 55% of the FSWs say that they never ask the clients on the importance of testing and 41% said that their clients are aware about the need for testing. However, they are not aware if they have gone for testing or not.

"He says he doesn't care, and he does not want to go for testing, although he is aware of the need for testing."

(R54/38 years/FSW)

The mean age of the FSWs participants was 29 years. The highest qualification completed was secondary level (37%), followed by primary level (31%) and no formal education (30%). The average number of marriages of an FSW was 3 times, the number of children was 2 and the number of years of working as an FSW was 5 years. Thirty four percent of the FSW respondents, highlighted that their children were from different biological father and only 28% said that their children belong to the same biological father, remaining 38% did not have any children.

Fifty-nine percent (59%) of the FSWs responded. that sex work was not their main occupation. They were also involved in other types of occupations mainly shopkeeper, a domestic worker and daily wage labourer, however, 41% main occupation was sex work. Among 41% whose main occupation was sex work, 28% belong to single-mother households and 11%

belong to a nuclear type of household. Majority of the FSWs did not have any land of their own (64%), 74% did have a bank account, however, only 33% could have some savings in their bank. The rest did not have any savings at all. Forty-nine percent (49%) of the FSWs responded that they were able to provide the basic needs at home with their income earned, and 23% responded that they somehow managed to provide for the family.

Regarding the sexual experience of the FSWs before getting into sex work, it was found that majority of 95% said that they have experienced it with their previous husbands or boyfriends before getting into sex work. This means that many of these women who turned to sex work were due to single motherhood and many of them come from a cycle of poverty and seek sex work as a means of survival.

"I don't want to work as an FSW but because of poverty. If help is being given on employment and I would want to leave."
(26 years/FSW)

Ninety-five percent (95%) of the FSWs were aware on the preventive measures of HIV/AIDS. Safe sex practices among the FSWs indicated that 89% did practise safe sex and among these 76% practice safe sex by using contraceptives which was condoms in all sexual relationships.

Condoms are easily available as reported by the FSWs whereby they either carry one which is usually bought from the pharmacy, or they get it free from the drop-in centre of the TI.

Ninety-eight percent (98%) of the FSWs have gone for testing and only 2% have not gone for testing. Among those 109 who have gone for testing, 44% (49) were found to be positive in either of HIV/AIDS and/or STI/STD. Out of these, 28 among them were found to be HIV positive. 17 of them were found to be positive in STI/STD (syphilis) in which they have taken treatment and thus responded that they were cured while 4 of them prefer not to disclose. Among those who are HIV positive, they responded that they are under ART treatment.

Conclusion

This study highlights that, majority of the spouses/partners/clients of the FSWs have no formal education, low-income and a single mother's household. The study also showed that 75% of the spouses/partners/clients of the FSWs are aware of the free-of-cost counselling and testing facilities, and among these 70% have gone for testing, and of those who prefer not going to hospital for testing had a feeling of embarrassment. On the other hand, among the 25% who are not aware on the free of cost counselling and testing facilities, 12% have gone for testing on their own. This highlights that the public awareness on availability of the free of cost counselling and testing facilities is well disseminated. Further, 88% of the spouses/partners/clients were practicing safe sex practices and condoms were mostly used.

The study also highlighted that, 49% of the FSWs were able to provide the basic needs at home with their income earned.

Regarding testing among FSWs, 98% (n=109) have gone for testing and out of these, 28 of them were found to be HIV positive and 17 of them were found to be positive in STI/STD (syphilis) in which they have taken treatment.

Recommendations

1. Proper sensitisation of the FSWs through the healthcare workers and other stakeholders can pave more way for effective dissemination of information and awareness among the spouses.
2. IEC campaign to be made available that is culturally relevant to break the taboo and stigma on sexual health.
3. Spouses/partners of FSWs from low-socio-economic backgrounds can be providing travel allowances for testing.

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Initiation to Injecting Drugs among IDUs in Kohima District

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Introduction

It is estimated that there are about 8.5 Lakh Injecting drug users (IDUs) in India [1]. Nagaland is one of the states with a high number of IDUs. Nagaland State AIDS Control Society (NSACS) has an integrated strategy in place, with 46 Targeted Interventions (TIs), 31 TIs with Opioid Substitution Therapy (OST), and 26 satellite OSTs among other facilities across the state to tackle substance abuse, along with Human Immunodeficiency Virus (HIV) prevention [2]. According to NACO's HIV Estimates Report, 2023, Nagaland has the second highest rate of HIV adult prevalence in the country, with 23,086 People Living with HIV (PLHIV) [3]. The report also indicates a new annual 1,008 HIV infections in the state. In India, HIV positivity among IDUs stands at 7.71 % [4]. Preventive aspects of HIV and intravenous drug use are intricately linked [5]. Effective interventions can be achieved by targeting harm reduction messages to (non-injecting) drug users and capitalizing on existing IDU social networks [6]. This study is aimed at understanding the initiation of intravenous drugs usage among IDUs in the age group 18-24 years in Kohima District.

Methodology

This is a descriptive study conducted among 90 registered IDUs aged 18 to 24 years in TI-NGO under Kohima district, registered between the year 2022-23. Ten NGO personnel working in different TIs were also part of the study. A systematic random sampling method was used to obtain a representative sample. Data was collected using semi-structured questionnaires and interview schedules from these participants after obtaining consent. Quantitative data analysis was done using SPSS, and qualitative data was sorted according to the pre-categorised concepts and integrated with quantitative data.

Findings

Socio Demographic Profile of Respondents

Table 1 shows that around 60 % of respondents were between the age group of '21-23 years', followed by 23.3 % in the age group of 24 and above and 16.7 % in the age group of '18-20 years' respectively. The average age of the respondent is 22.21 years. Around 3.3 % respondents were postgraduate, whereas 11.1 % were graduates. Respondents with educational qualification of higher secondary and high school constituted 31.1 % and 54.4 % of the total respondents respectively. It is also observed that 10 % of the respondents are employed, 41.1 % are self-employed (though the nature of their employment is not specified). whereas around half of the respondents (48.9 %) were unemployed.

Table 1 Socio Demographic Profile of Respondents

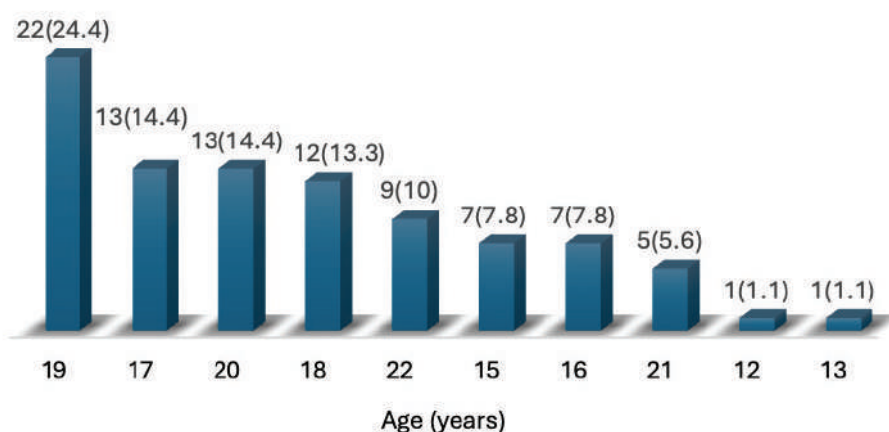
Socio-Demographic variables	Characteristics	No. of Respondents	Percentage
Age of respondents (x = 22.21 years)	18 – 20 years	15	16.7
	21 – 23 years	54	60.0
	24 years & above	21	23.3
Gender	Male	88	97.8
	Female	2	2.2
	Total	90	100

Socio-Demographic variables	Characteristics	No. of Respondents	Percentage
Marital status	Married	7	7.8
	Others	1	1.1
	Unmarried	78	86.7
	Divorced	1	1.1
	Single parents	3	3.3
	Total	90	100
Educational Level	Higher Secondary	28	31.1
	High School	49	54.4
	Graduate	10	11.1
	Post Graduate	3	3.3
	Total	90	100
Employment Status	Employed	9	10
	Unemployed	44	48.9
	Self-employed	37	41.1
	Total	90	100

Initiation to Drug Use

Figure 1 shows that the lowest year of initiation of drugs is 12 years (n=1) and the oldest is 22 years (n = 9), while 24.4% (n= 22) of the respondent started using drugs at 19 years of age in different forms. The mean age of initiation of drugs is 18.4 years. However, all of them do not get into intravenous injections from their first usage.

Figure 1 Age at the first usage of drugs (x=18.4 years)



Introduction to Drug Use

Table 2 above gives an overview between the first type/form of drug used and the manner in which it was introduced to the participants. Around 17.8 % (n=16) of the respondents initiated with sleeping pills, of which 19% (n=14) were introduced by friends, and 12.5% (n=2) respondents tried it out by themselves. In the same way, 48.9 % (n=44) of the participants started with 'hashish' out of which to half of respondents, it was introduced by friends; and 7 (43.8 %) respondents tried out by themselves. Thus, data for different drugs including analgesics, crack, shireh, naas, heroin and opium indicates that initiation to drugs for 74 respondents was through friends and 16 respondents by themselves.

Table 2 Nature of Introduction to Drug Use by "Type of Drug"

First Usage	Type of Drug first used								Total
	<i>Sleeping pills</i>	<i>Hashish</i>	<i>Analgesics like ibuprofen "pills"</i>	<i>Crack</i>	<i>Shireh (opium extract)</i>	<i>Naas</i>	<i>Heroin</i>	<i>Opium</i>	
Introduced by Friends	14 18.9%	37 50 %	1 1.4%	0 0.0%	1 1.4%	2 2.7%	14 18.9%	5 6.8%	74 100 %
Just tried it out by myself	2 12.5%	7 43.8%	0 0 %	2 12.5%	0 0 %	0 0 %	5 31.3%	0 0 %	16 100 %
Total	16 17.8 %	44 48.9%	1 1.1%	2 2.2%	1 1.1%	2 2.2%	19 21.1%	5 5.6%	90 100 %

Dependency on Drugs Usage

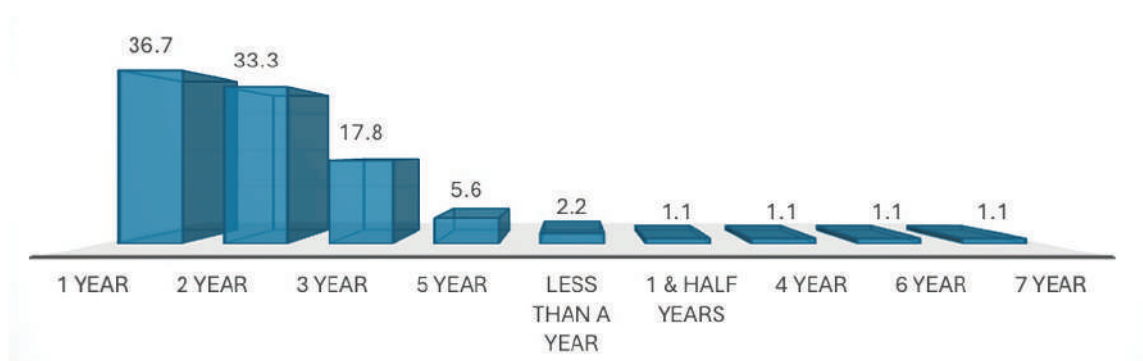
Table 3 shows response of the ten NGO personnel working in different TIs. These personnel were also part of the study. It is observed that 'peer pressure' is the most prominent reason for initiation to drugs.

Table 3 Reasons for Initiation

Response	Family Problems	Peer Pressure	Curiosity	Low Self Esteem	Recreational use	Stress & Frustration
	No. of Respondents	No. of Respondents	No. of Respondents	No. of Respondents	No. of Respondents	No. of Respondents
Yes	2 (20%)	10 (100%)	2 (20%)	1 (10%)	2 (20%)	1 (10%)
No	8 (80%)	0 (0)	8 (80%)	9 (90%)	8 (80%)	9 (90%)
Total	90 (100%)	90 (100%)	90 (100%)	90 (100%)	90 (100%)	90 (100%)

Figure 2 shows that not all respondents have the same time frame for developing dependency on drugs. It shows the time taken by different respondents to develop dependency on drugs.

Figure 2 Time taken to Develop Dependency



Transitions to Intravenous Drug use

Table 4 shows the time taken by the respondents to transition to intravenous injections after their first drug usage. Around one fourth respondents 25.56 % (n = 23) transitioned to intravenous injection within a year followed by 21.11% (n=23) in one year. Only 5.5 % (n=5) of respondents transitioned to intravenous injection in more than 3 years. Table 4 Transition to Intravenous Drug Use

Table 4 Transition to Intravenous Drug Use

Time (in years) between first drug use and intravenous injection	No. of respondents		Percentage
More than 3 years	5	5.55	31.1
3 years	3	3.33	54.4
2 years	14	15.56	11.1
1 year	19	21.11	3.3
Within a year	23	25.56	100
Not specified	26	28.89	10
Total	90	100	48.9

Conclusion

It is observed that the youngest year of initiation of drug use is 12 years (n=1), whereas majority of the respondents had their first experience of drugs from 17 – 20 years of age [17 years (n=13; 14.4%), 20 years (n=13; 14.4 %)]. Around 25.56 % (n = 23) transitioned to intravenous injection within a year, highlighting the urgency and the high transition to dependency on intravenous drug use. The age of initiation to drug usage also points towards the importance of working closely with various stakeholders and sections of the communities in order to create awareness and offer support to individuals at risk. Another point towards dispelling the myth that IDU is phenomenally common among adults and targeting the 'hard-to-reach' younger age group is important (Dhawan et al., 2016). Drug abuse and drug addiction are social realities that require holistic engagements of different stakeholders through multi-pronged strategies.

Recommendations

1. It is observed that initiation to drug is as early as 12 years of age. Thus, it is important to intensify targeted educational initiatives focusing specially on schools, colleges, and churches to target the 'hard-to-reach' age groups.
2. Risk awareness, safe practices, other preventive habits among IDUs and section of society vulnerable to drug abuse should be carried out continuously.
3. Devise strategies to address the stigma associated with IDUs and availing of services from TIs, by involving various stakeholders.
4. Increase the reach and the extent of the TIs programmes by starting more drop-in centres with OST facilities in Kohima district.

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Data was entered into EpiCollect-5 and analysed using STATA V16 (StataCorp, Texas, US). Continuous variables were summarised using mean with standard deviation or median with interquartile range, depending on the distribution of the data. Categorical outcome variables were summarized as proportions with 95% confidence intervals (CIs).

For the qualitative component, focus group discussions (FGDs), in-depth interviews (IDIs), and key informant interviews (KIs) were transcribed verbatim and translated into English. The transcripts were reviewed by a second investigator to minimise bias and enhance interpretive credibility. Two independent researchers conducted thematic content analysis to identify codes, categories, and themes. Member checking was performed with the transgender individuals (TGs/H) and service providers under NACO to validate the findings. The results were reported in accordance with the COnsolidated criteria for REporting Qualitative research (COREQ) guidelines.

Findings

Quantitative

The survey was conducted among ninety-nine H/TGs, with a mean age of 29 years (SD = 8). Table 1 shows that the majority of participants had completed their schooling, with 40% being graduates. However, most were unemployed and resorted to seeking alms (begging) for a livelihood. A significant 76% of the participants were unmarried and lived with their families. The majority of the H/TGs interviewed had spent their lives in Pondicherry. Approximately 77.8% of participants reported having no comorbidities.

Table 1 Socio-Demographic Characteristics of Study Population (N=99)

Socio-Demographic variables	n	Percentage (%)	Mean (SD)/ Median (IQR)
Age (years)			29 (8)
Education			
No formal education	5	5.0	
Primary school	3	3.0	
High school	34	34.4	
Post-graduate/ doctorate	4	4.0	
Occupation			
Unemployed	41	41.4	
Student	5	5.1	
Agricultural labour	2	2.1	
Non-agricultural labour/ daily wage labour	15	15.1	
Skilled or Semi-skilled worker	4	4.0	
Petty business or small shop	2	2.1	
Large business or self-employed	4	4.0	
Service (private or government)	9	9.0	
Sex work	2	2.1	
Others	15	15.1	
Marital status			
Never married	75	75.8	
Currently married	13	13.1	
Widowed	1	1.1	
Divorced	2	2.0	
Separated	4	4.0	
Others	4	4.0	
Living partner status			
Living alone	15	15.2	
Living with spouse	10	10.1	
Living with regular (main) male	4	4.0	
Living with other male/ hijra	3	3.0	
Living with friends	5	5.1	
Living with family or relatives	60	60.6	
Others	2	2.0	

Socio-Demographic variables	n	Percentage (%)	Mean (SD)/ Median (IQR)
Duration of living in this district (years)			25 (22, 34)
Co-morbidities*			
Yes	22	22.2	
No	77	77.8	
History of substance use in the last 12 months			
Yes	48	48.5	
No	51	51.5	

* Co-morbidities were self-reported

Table 2 outlines the uptake of various services. Most participants reported utilising the services provided under the Targeted Interventions (TIs) through Community-Based Organisations (CBOs). Nearly all (97%) participants had received information on STI/AIDS from a peer educator within the last six months. A similar 99% had received check-ups and counselling for STIs in the same period. However, receiving lubricants from peer educators or outreach workers was slightly lower at 93%. Regarding HIV testing, 97% of the participants had ever been tested for HIV, with 95% having undergone testing in the last six months.

Table 2 Uptake of Various Service Components provided through TIs among Study Participants (N=99)

Service components	Received in the last 12 months		Received in the	
	n	Percentage (95% CI)	n	Percentage (95% CI)
Received information on STI/ HIV/AIDS from a peer educator or an outreach worker from the CBO/ Programme	96	96.97 (90.9 – 99.0)	96	96.97 (90.9 – 99.0)
Received condoms from the peer educator or outreach workers of the CBO/Programme	94	94.95 (88.3 – 97.9)	94	94.95 (88.3 – 97.9)
Received lubricants from the peer educator or outreach workers of the CBO/Programme	92	92.93 (85.7 – 96.6)	92	92.93 (85.7 – 96.6)
Seen a demonstration on correct condom use by a peer educator/CBO outreach worker	96	96.97 (90.9 – 99.0)	95	95.96 (89.6 – 98.4)
Received check-up and counselling for STIs	98	98.99 (93.0 – 99.8)	98	98.99 (93.02 – 99.8)
Visited drop-in centre	98	98.99 (93.0 – 99.8)	98	98.99 (93.02 – 99.8)
Referred to other services (STI clinic, HIV testing, detox centre etc.) from the CBO/ Programme	76	76.77 (67.3 – 84.1)	75	75.75 (66.2 – 83.2)
Have you ever been tested for HIV/AIDS?	97	97.98 (92.1 – 99.5)	95	95.96 (89.6 – 98.4)
In the last 12 months, how many times you were tested for HIV/AIDS?	2 (2, 2)			
Received help and support when faced with physical or sexual violence	42	42.42 (32.9 – 52.4)	42	42.42 (32.9 – 52.4)
Received help and support when faced with trouble from police	38	38.38 (29.2 – 48.4)	37	37.37 (28.3 – 47.4)
Approximate number of times the participant has been visited/ contacted by an outreach worker or peer educator in the last month	2 (1, 4)			
Approximate number of condoms given freely to the participants in the last month	30 (10, 50)			

Qualitative

Thematic content analysis was conducted to generate codes, sub-themes, and themes, which are presented using the socio-ecological theory framework (figure 2). This framework summarises the various factors influencing the uptake of services at individual, interpersonal, organisational, community, and ministry levels.

Several barriers to both access and delivery of Targeted Intervention (TI) services were identified. A common challenge was the stigma and discrimination, both “anticipated” and “experienced,” particularly in public health facilities.

One participant shared,

“I feel uncomfortable sometimes to go to hospitals because people might treat me differently or they will see me weirdly. They only see us in a stereotyped way.” Another participant recounted her experience, stating, “...she (health care staff) said, how do you grow your hair? How do you look like a woman? How are your hands? Is your hair like this? She started talking like that. Even if the doctors don’t talk like that, the staff, attendants, they are all talking...”

This highlights the discomfort caused by the attitudes of healthcare staff. Low literacy and poor interpersonal communication skills further exacerbated these issues.

Another barrier was the restriction of primary care facilities to participants’ areas of residence, which increased the likelihood of encountering acquaintances and thus amplified the anticipation of stigma. One participant mentioned, *“...in that general population, my neighbours might be there, my relatives might be there, they may ask, why you are coming here, what’s wrong with you...”*

This reflects the added psychological burden of seeking care in familiar environments where one risks social exposure and judgment.

Within the services domain, many H/TGs expressed dissatisfaction with the quality of free condoms provided at the facilities. They reported issues with the condoms being prone to rupture and having an unpleasant odour, preferring the condoms provided by social marketing programmes instead.

As one participant explained,

“...Think about the condom for the gay people’s anal sex. They are given the same soft condom which can tear anytime, and all the condoms are of the same size also which can be changed...”

This highlights a gap in providing suitable, high-quality products that meet the specific needs of the community.

In terms of TI service delivery, some participants also mentioned the limitations posed by the target-based approach, which may prioritise numbers over quality of service. Additionally, the integration of activities from other healthcare programmes was raised as a concern, as it may hinder the specific needs of the H/TG community from being adequately addressed.

Facilitating factors for accessing TI services included the supportive and friendly environment, with many participants appreciating the presence of knowledgeable staff from the TG community.

One participant noted,

“If I go and talk to a man or woman, they’ll judge me. They’ll think these are bad people, why should we talk to them and won’t take us seriously. But if we go and talk to our own people, they’ll understand it and give solutions right away since they feel we have to take care of our own people.”

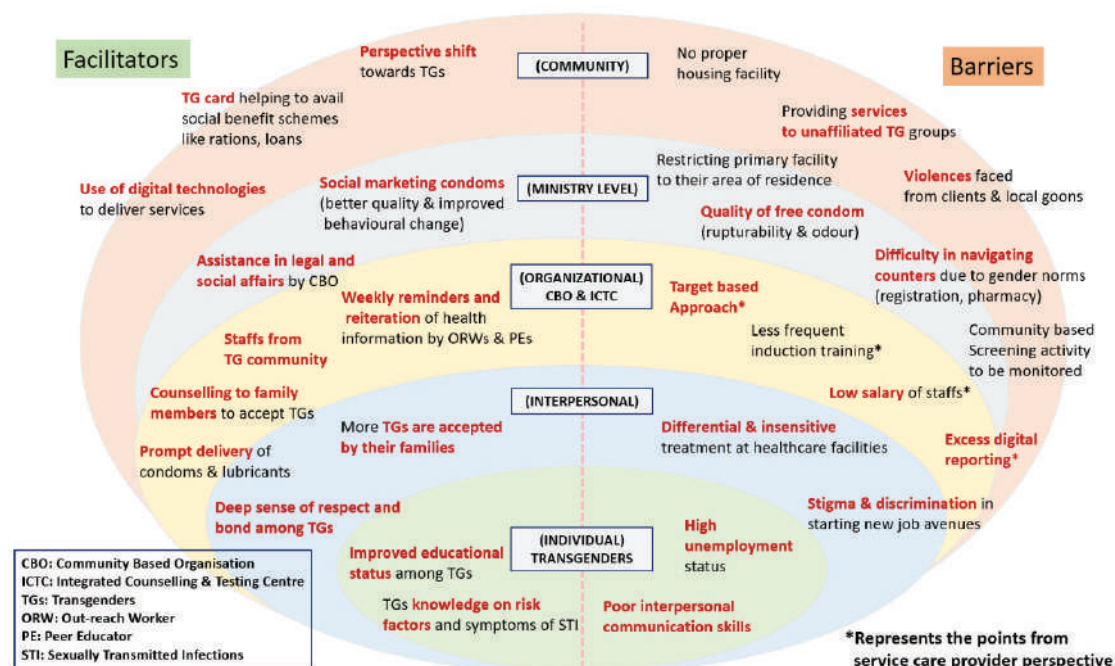
This underscores the importance of peer support in creating a safe and accepting space for H/TGs. Additionally, the use of digital technologies, such as WhatsApp, played a crucial role in counselling and sensitisation efforts. A staff member shared,

“We don’t know how to use WhatsApp from that period to this period. We don’t know how to create groups. Since we are in this office, we learned it fast. Now we teach other communities and ask them to join WhatsApp groups, write their daily activities there, and share their problems.”

This reflects the potential of digital tools in improving communication and fostering community engagement.

Overall, the study identified both significant barriers and facilitating factors in the uptake of TI services for H/TGs, highlighting the need for a supportive, inclusive, and community-driven approach to healthcare delivery.

Figure 2 Facilitators and Barriers of Service Uptake among Transgenders (Socio-ecological Model)



Conclusion

The study highlighted the critical challenges faced by the transgender community in accessing HIV/AIDS services. Despite considerable efforts by the National AIDS Control Programme (NACP) to reduce the gap in service uptake among H/TGs, as reflected in the quantitative results, several persistent issues remain. The qualitative component of the study points to stigma, discrimination, and societal marginalisation as major barriers, alongside systemic challenges such as cumbersome registration processes and inadequate staff training. These findings emphasise the urgent need for more inclusive, transgender-specific interventions and policies. To address these issues, it is crucial to focus on enhancing community engagement, improving healthcare infrastructure, and sensitising healthcare providers to the unique needs of the transgender population. These steps are essential for ensuring equitable access to HIV/AIDS services and promoting the well-being of the transgender community.

Recommendations

Addressing stigma and discrimination among key stakeholders, the plan is to adopt the model of the transgender clinic at Mahatma Gandhi Medical College, Puducherry, across all medical colleges. Clinics should be reoriented to evening timings to make healthcare facilities more accessible. Condoms and lubricants should be redesigned to meet the specific needs of the community. Plans should also be made to include pockets of H/TGs who are not currently utilizing services from the CBOs. Additionally, vocational and interpersonal communication skill development programmes should be developed for H/TGs.

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Assessment of Health-seeking Behavior of Female Sex Workers (FSWs) Registered with Targeted Intervention NGOs (TI-NGOs) in Tripura: A Mixed Methods Study

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Introduction

Female sex workers (FSWs) face a higher risk of HIV and other Sexually Transmitted Infections due to their occupation, which involves having multiple sexual partners and contacts [1,2]. Barriers such as stigmatisation, criminalisation of sex work, instances of sexual violence, discrimination related to their profession when seeking healthcare, and their disadvantaged socio-economic status collectively impede FSWs' access to healthcare services [3,6]. According to the Annual Report of NACO (2018-19), 73% of FSWs availed services at STI clinics, leading to diagnosis and subsequent treatment of Sexually Transmitted Infections/Reproductive Tract Infection (STI/RTI) among 2.06% of the diagnosed cases.

In the context of STI/RTI prevention and control, the primary aim is universal access to high-quality services, with a specific goal of eliminating vertical transmission, safeguarding the health of at-risk and vulnerable populations [7]. Interestingly, no study to date has delved into the health-seeking behaviour of FSWs in the state of Tripura or the barriers they encounter in accessing and utilizing essential services. To address this knowledge gap, the present study aimed to comprehensively investigate the health-seeking patterns of FSWs, the facilitating factors that promote, and the barriers that hinder their access to, and utilisation of STI prevention services.

Methodology

The present mixed-method, cross-sectional study was conducted using a multi-stage cluster sampling technique. Quantitative and qualitative data was collected during May-July 2024 from FSWs in the North Tripura and South Tripura districts of the state. These districts were chosen for the study given the highest number of newly identified FSWs from these districts in the last 2 years. Two TI -NGOs (Non-Government Organisations) in each of these two districts were selected randomly from which a total of 260 FSWs were personally interviewed by trained field investigators, using a pre-tested and semi-structured questionnaire, keeping in mind the privacy of study participants.

Additionally, to understand the perception of FSWs regarding barriers in health-seeking, qualitative data was collected in the form of two Focus Group Discussions (FGDs, one in each selected district). These semi-structured FGDs were conducted with 10-12 purposefully selected FSWs, at a place convenient to them and after obtaining their written informed consent.

Quantitative data was analysed using SPSS software version 26.0, while qualitative data was analysed manually using thematic approach. This led to the identification of factors/themes influencing the health-seeking behaviour of FSWs. Further, free listing (identifying relevant facilitating and barrier factors/themes more frequently mentioned by participants, following Smith's salience index); and pile sorting (relations among freely listed factors/themes - a two-dimensional scaling and hierarchical clustering analysis, to identify domains of facilitating factors and barriers) exercises were conducted using Visual Anthropac 4.98.1/X software (Borgatti SP 1992).



Pictures from FGDs at two of the study sites

Findings

Quantitative

Socio-demographic characteristics: The mean age of FSWs was 30.2 years, with a standard deviation of 30.2+5.5 years. The majority (94.2%) of FSWs came from rural areas, 92.3% practiced the Hindu religion, and 34.2% belonged to scheduled castes. Among the FSWs, 18.8% were migrants, 34.6% were unemployed, while 65.4% reported having other sources of income. Nearly half (47.7%) had received education up to the secondary level. Most FSWs were married and came from nuclear families.

Sex-work involvement: The majority of FSWs (41.9%) began sex work between the ages of 21- 30, while 8.1% started before turning 18. Most FSWs (89.2%) were engaged in sex work on a regular basis, with a frequency ranging from daily to weekly. Additionally, 70% reported having 2-3 sexual encounters per week over the last month, and 24.4% travelled between cities for their work. Nearly all FSWs (94.6%) consistently used condoms during their sex work.

Knowledge and experience of STIs among FSWs: Most FSWs were aware of various STIs (97.3%), and their symptoms (98.8%), and their peer educators and fellow FSWs were the primary sources of information. Three-fourths of the FSWs reported to have ever experienced STI symptoms.

Table 1 Health-seeking Behaviour of FSWs for STI symptoms

Health-seeking behaviour for STIs	District		Total N (%)
	North Tripura N (%)	South TripuraN (%)	
Availed services for STIs (n=260)			
Yes	46 (35.4)	40 (30.7)	86 (33.1)
No	84 (64.6)	90 (69.3)	174 (66.9)
Total	130 (100)	130 (100)	260 (100)
Sought health care from (n=86)			
Peer/Fellow FSW	4 (8.7)	0 (0.0)	4 (4.6)
Pharmacy	3 (6.5)	13 (32.5)	16 (18.6)
Private clinic	9 (19.6)	5 (12.5)	14 (16.3)
Public hospital	30 (65.2)	22 (55.0)	52 (60.5)
Total	46 (100)	40 (100)	86 (100)
Time in seeking health care (n=86)			
Within 7 days	22 (47.8)	0 (0.0)	22 (25.6)
7 days to 1 month	24 (52.2)	4 (10.0)	28 (32.6)
1 to 3 months	0 (0.0)	23 (57.5)	23 (26.7)
More than 3 months	0 (0.0)	13 (32.5)	13 (15.1)
Total	46 (100)	40 (100)	86 (100)

(Figures in parenthesis indicate percentages)

For minor ailments, public hospitals were the primary choice (52.7%) among FSWs, followed by pharmacies (26.9%), and private clinics (20.4%). The majority (68.8%) of the FSWs did not disclose their sexual practices to healthcare providers during these visits. FSWs who did not seek healthcare services for STIs cited multiple reasons for their decision, such as fear of compromised confidentiality, lack of money, and unfriendly healthcare workers.

Qualitative

Findings from qualitative FGD

Area	Health-seeking Behaviour and Practice
Common RTI/STIs	FSWs commonly seek health care for symptoms like white discharge, lower abdomen pain, genital ulcer, and itching
Support from peer educator	They are their first contact related to STI/RTI symptoms
Disclosure of high-risk behaviour	They do not share their high-risk behaviour initially, but only once when they feel comfortable with the HCW/doctor
Discrimination	Used to face discrimination in the past, but HCW/doctors, at present, are rather supportive and offer safe sex advice
Lab tests	They avoid public hospitals for these tests as these are often not available free-of-cost

Free listing Exercise

In the free list exercise, various facilitating factors identified by FSWs in descending order of Smith's S value, are as follows: 1. Behaviour of doctors at public hospitals, 2. IEC by peer educators, 3. Free medicines at public hospitals, 4. Accompanied by TI-NGO staff to hospitals. Various barriers identified by FSWs regarding their health-seeking behaviour in descending order of Smith's S value are as follows: 1. Fear of disclosure of identity, 2. Hesitation to visit local/known doctor, 3. Cost of medicines, 4. Cost of laboratory tests, 5. Distance of public hospital, 6. Male doctor, and 7. Language barrier of indigenous FSWs. Both the facilitating factors and barriers were subjected to pile sorting exercise.

Pile sorting exercise

The FSWs formed groups of barriers and suggested solutions for the barriers from multi-dimensional clustering.

Theme (Pile)	Barriers (from the free list)	Suggested Solutions
HCW/Doctor	Fear of disclosure of identity	1. Anonymous special medical camp for FSWs
	Hesitation to visit local/known doctor	2. HIV testing of FSWs at household level
	Male doctor	3. Provide free testing kits for STI/RTI with TI-NGOs
Cost	Cost of medicines	1. Free medicines for FSWs at sub-centre/TI-NGO
	Distance of public hospital	2. To provide medicines for STI/RTI for longer duration
	Cost of laboratory tests	3. Free HIV testing of FSWs at household level
		4. Free testing kits for STI/RTI at sub-centre level
Profession	Sex-work related	5. Free Hep B vaccine for FSWs
		6. Free supply of sanitary pads for FSWs
		1. Incentives for elderly FSWs from Govt.
		2. Flavoured condoms
		3. Quality of supplied condoms for FSWs to be improved

Verbatims for Identified Themes

"Sordi kasi, jor, matha betha hoile haspataal e jai, last Sonibar sarkari haspataal e gesilam matha betha ar sorir durbol lagtasilo"
(for minor ailments) usually visit hospital for cough and cold, fever, headache-like symptoms, visited the government hospital last Saturday for headache and weakness

"Beshi asustho porle, saptaha din wait koira tarpore haspataal e daktaar re dekhite jai"

[(for minor ailments) we wait up to seven days when we fall sick, if not resolved, then visit doctor at the hospital]

"Eka jaina, bandhobi songe jay, noile didi songe jay, eka Jaina, karon amra to bangali vasha kom jani"

(respondent belongs to indigenous community) do not go alone, usually go with friend or peer-educator, do not go alone because I do not understand Bengali language

"Aagee haspataal e jaite bhoy paitaam, didi r songe jaite jaite ekhon sahos baira gese, ekhon ekla jaite o bhoy laage naa"

[earlier we were scared to visit hospital alone, now since accompanied by peer educator, we feel confident to visit hospital even alone]

"Daktaar ra age o bhaloi byabohaar korto, ekhon aro bhalo byabohaar kore, chair tair o dey boite"

[doctors otherwise also used to behave well with us, but now they treat us even better, they even offer us chair to sit]

"Chele daktaar er kache jaite sonkoch bodh hoy meye daktaar hoile bhalo hoy ei sob somosya niya gele anek kichu jiggesh kore"

[we hesitate to visit male doctorsgood to visit a female doctormany questions are asked when we visit with these symptoms]

"Beshi asustho porle blood test korate hoy.... sarkaari hospital e test free te hoy naprivate e giya test korate hoy"

[when fall very sick, we get blood test done test is not done free-of-cost at the government hospitalswe visit private centres for blood tests]

"Tol pete beta, sada srab, niche chulkani, prosraber jaygay gha.....egulir jonno amader beshi sarkaari haspataal e jaite hoy"

[(regarding RTI/STI symptoms) lower abdomen pain, white discharge, itching at genital area, genital ulcer these are very common issues for which we often visit Govt. hospital]

Conclusion

Despite high awareness of STIs, and the fact that three-fourths of FSWs have experienced an STI, only one-third have accessed healthcare services for these conditions. Public hospitals are preferred by FSWs for minor ailments (52.7%) and STIs (60.5%). However, only a quarter of FSWs sought healthcare within a week of experiencing STIs. Common reasons for not seeking care included fear of compromised confidentiality, lack of financial resources, and unfriendly attitudes from healthcare workers. A majority (68.8%) of FSWs did not disclose their sexual practices to healthcare providers. The FGD-Free listing exercise identified several facilitating factors, including the behaviour of doctors at public hospitals, support from peer educators, availability of free medicines at public hospitals, and assistance from TI-NGO staff. On the other hand, barriers to healthcare access were linked to fear of identity disclosure, reluctance to consult local doctors, the cost of medicines and laboratory tests from external sources, distance to public hospitals, and the preference for male doctors.

Recommendations

To improve health, healthcare seeking, and access by FSWs regarding STI/RTI in Tripura, special medical camps for FSWs, confidential STI/RTI and HIV screening at household/TI-NGO level, free medicines for RTI/STI at sub-centre/ TI-NGO level for a longer duration, and free supply of sanitary pads and quality condoms may be considered.

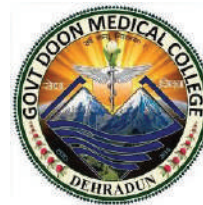
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Barriers to Accessing Opioid Substitution Therapy among Injecting Drug Users

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Introduction

Injectable drug users (IDUs) in India have been identified as a major mode of HIV transmission due to their intravenous use among high-risk groups [1]. This has been a growing concern due to changing drug cartels and cost-effectiveness [2]. In 2007, the National AIDS & STD Control Program mandated HIV prevention among IDU users [3]. Oral opioid substitution therapy (OST) is being implemented to reduce cravings and withdrawal symptoms among individuals who inject drugs (IDUs). The prevalence of HIV among IDUs is 7.2%, with significant contributions from states such as Punjab, Delhi, Mizoram, and Manipur. The Indian government has established 176 OST centres, with the highest number located in Nagaland. However, the prevalence of IDUs in the general population remains low at just 0.1% [4].

While harm reduction initiatives, such as needle exchange programs, have been introduced to minimise or mitigate intravenous drug use, substitution with opioid substances like methadone continues to be the primary method for detoxification and deaddiction of IDUs. Government initiatives, such as OST units, are commendable in this regard. However, evidence suggests that several barriers hinder the effectiveness of these programs. These include clients' lack of knowledge and awareness, negative attitudes, prevailing community stigma, concurrent HIV positivity, legal issues, and the availability and ease of access to opioids. Few studies have explored users' perspectives on barriers to service uptake, specifically regarding OST among IDUs. Therefore, the present study was designed to identify bottlenecks and barriers through self-reports from IDUs seeking or receiving opioid substitution therapy at detoxification and de-addiction centres, psychiatric clinics, self-help groups, and OST units.

Methodology

The study employed an observational, descriptive design over a period of four months. A systematic random sampling method was used to select the study participants. In the first stage, two OST units (one each in Dehradun and Haridwar) were randomly chosen from a total of five OST units in Uttarakhand. In the second stage, every fourth IDU was selected from a sampling frame of 1,000 IDUs, resulting in a final sample size of 252 participants. The study subjects consisted of IDUs who were registered, counselled, and referred by accredited NGOs to the sampled OST centres in Dehradun and Haridwar for OST aimed at detoxification and de-addiction.

Data was collected using a pre-tested, semi-structured tool that captured self-reported barriers to opioid therapy. Field personnel, along with a Data Entry Operator, were trained to administer the data collection tools, ensuring participant confidentiality and consent. Quality assurance and control protocols were followed throughout the data entry, collation, and analysis processes. The data was analysed using SPSS (version 22.0) and Microsoft Excel, with categorical variables summarised as frequencies and percentages.

Findings

A total of 252 clients were enrolled in the study, with 110 from the Dehradun OST Centre and 142 from the Haridwar OST Centre. All the clients were male, and drug consumption started at an early age, between 16-30 years.

The socio-demographic profiles of the IDUs from the Dehradun and Haridwar OST centres were reported in the study. In Dehradun, the majority (30.0%) of clients had completed high school, while in Haridwar, most (30.3%) had studied up to middle school. The study also revealed that a larger proportion of clients in Dehradun were skilled labourers (42.73%), while the majority in Haridwar were unskilled labourers (63.38%). Additionally, clients in Dehradun were more likely to fall into higher income brackets, while those in Haridwar were more likely to be in lower income brackets.

Regarding marital status, the study found that in Dehradun, the majority (55.5%) of clients were married, and around 47.3% were living with their spouse. In contrast, in Haridwar, 60.6% of clients were unmarried, and 59.1% were living alone.

The study also observed early initiation of drug abuse in both locations, with 61.8% of clients in Dehradun and 57.7% in Haridwar starting drug consumption between the ages of 16-30. Alcohol (37.3%) was the most common substance abused in both locations. However, in Dehradun, benzodiazepines (19.1%) and cannabis (11.8%) were more commonly used, while in Haridwar, cannabis (26.8%) followed by nicotine (26.1%) were most frequently used for the first time by OST clients.

Buprenorphine was used in higher proportions as an injectable substance in Haridwar compared to Dehradun. In Dehradun, clients commonly consumed buprenorphine, diazepam, and nitrazepam. Sharing needles was more common in Dehradun, and drugs were primarily obtained through friends. In both locations, the source of drugs was mainly through friends, although in Dehradun, only 23.7% of clients sourced drugs from drug peddlers.

Barriers to Access Opioid Substitution Therapy

a) Client centred barriers:

Fear of side effects, stigma from family and friends, psychosocial barrier and loss of wages were common client centred barriers

Table 1 Health-seeking Behaviour of FSWs for STI symptoms

Client centred barriers	Dehradun (N=110)		Haridwar (N=142)	
	Yes (n%)	No (n%)	Yes (n%)	No (n%)
Lack of interest	18 (16.4)	92(83.6)	21 (14.8)	121 (85.2)
Insufficient or incorrect Knowledge	13 (11.8)	97 (88.2)	30 (21.1)	112(78.9)
Don't Know from where to get Services	20 (18.2)	90 (81.8)	32 (22.5)	110 (77.5)
Don't want to involve their family	22 (22.0)	88(88.0)	41 (28.9)	101 (71.1)
Wastage of time	08 (7.2)	102(92.8)	16 (11.3)	126 (88.7)
Stigma from family and friends	82(74.5)	28 (25.4)	112(78.9)	30 (21.1)
Psychosocial barriers	68 (61.8)	42(38.9)	103 (72.5)	39 (27.5)
Fear of side effects	54 (93.6)	56 (50.9)	91 (64.1)	51(35.9)
Loss of wages	35(82.7)	75 (68.2)	42(29.6)	100(70.4)
Switching to alternate medicine	15 (38.2)	95(86.3)	24(16.9)	118(83.1)

b) Provider centred barriers:

Both Dehradun and Haridwar OST centres face challenges in providing essential services due to timing and distance. They lack doctor availability and potential strain on nursing resources. Despite these challenges, both centres maintain high standards in service delivery, client motivation, and overall health system support.

Table 2 Proportions of Provider-centred Barriers of Accessing OST in Study Sites

Provider centred barriers	Dehradun (n=110)		Haridwar (n=142)	
	Yes (n%)	No (n%)	Yes (n%)	No (n%)
Facility is too far	52 (47.3)	58 (52.7)	89 (62.7)	53 (37.3)
Timing of public health setting OST centre not appropriate/ suitable	86 (78.2)	24 (21.8)	118 (83.1)	24 (16.9)
Non availability of adequate doctors	2 (1.8)	108 (98.2)	10 (7.1)	132 (92.9)
Staff is too judgemental	22 (22.0)	88 (88.0)	41 (28.9)	101 (71.1)
Medicines not available / shortage in supply of drugs	0 (0.0)	100 (100.0)	0 (0.0)	142 (100.0)
Medicines availability is not in regular supply	0 (0.0)	100 (100.0)	0 (0.0)	142 (100.0)
Privacy not maintained at the time of consultation	15 (13.6)	95 (86.4)	22 (15.5)	120 (84.5)
Proper counselling	0 (0.0)	100 (100.0)	0 (0.0)	142 (100.0)
Delays in treatment and medicine initiation	0 (0.0)	100 (100.0)	0 (0.0)	142 (100.0)
OST time taking process	15 (13.6)	95 (86.4)	18 (12.7)	124 (87.3)

Despite these challenges, both centres maintain high standards in service delivery, client motivation, and overall health system support. In both the centres additional availability on public holidays and Sundays enhances its accessibility for clients. The differences in personnel and infrastructure between the two centres highlight areas for potential improvement to ensure uniformity in service quality.

Conclusion

In this study, the majority of participants were in the 18-30 years age group, suggesting a high prevalence of drug abuse among young individuals. Most of them were unskilled labourers with low literacy levels, living in joint families, which could indicate that socio-economic factors such as low income and job-related stress are contributing to drug abuse. A significant number of users started consuming drugs at an early age, highlighting the importance of peer education, awareness programs, and early prevention and intervention strategies to address drug abuse.

Alcohol was the most commonly consumed substance, appearing to act as a gateway for many users, leading them to experiment with other drugs later on. The high proportion of drug users in both areas points to the easy accessibility and availability of these substances.

It was also observed that 3.5% of users were still sharing needles, which poses a serious public health concern, as it increases the risk of spreading infectious diseases like Hepatitis C and HIV. Friends were identified as the main source of drugs, indicating the significant role of social networks in facilitating drug use.

Barriers to seeking treatment included stigma, fear of side effects, and psychosocial issues. On the provider side, logistical challenges such as the timing and location of OST centres also reduced access to care.

Recommendations

To effectively provide Opioid Substitution Therapy (OST) services, it is essential to create a supportive environment that encourages clients to seek help. This can be achieved through prior sensitisation and counselling by intermediary agencies such as NGOs and self-help groups. Addressing misinformation and stigma requires the development of appropriate training and orientation modules. Sharing positive stories and using motivational interviewing techniques can also help mitigate social stigma. Additionally, the health system needs to be actively engaged with clients' families and encourage ongoing support through relevant fellowships. Tackling issues related to follow-up loss and migration among injecting drug users is also crucial to ensuring continuous care.

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Barriers in Service Uptake for TG/TS in TI Programme in Uttarakhand

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Introduction

Asian countries have a rich historical context of gender diversity, with India exemplifying this through various identities like Hijras, Aravanis, Kothis, Jogtas/Jogappas, and Shiv-Shakthis, historically acknowledged in texts such as the Kama Sutra [1]. In contemporary terms, these identities fall under the umbrella of transgender people /transgender sex worker (TG/TS), encompassing a spectrum from transsexual people to gender-variant individuals, whose gender identity differs from their assigned sex at birth [2]. This community often faces significant challenges in accessing healthcare services, particularly HIV/AIDS-related care [3].

Transgender individuals in India encounter heightened risks of HIV and Sexually Transmitted Infections (STIs) due to factors like stigma, discrimination, and engagement in sex work for livelihood [4]. Studies in Mumbai and Southern India show high HIV and syphilis prevalence among Hijras and Aravanis. A Mumbai STI clinic found 68% HIV seroprevalence and 57% syphilis among Hijras [1]. In Southern India, HIV seroprevalence was 18.1% and syphilis 13.6% [5]. In Chennai, 17.5% of Aravanis were HIV-positive, and 72% had at least one STI, including HSV and HBV [6]. Despite legal recognition and HIV prevention programs like Targeted Interventions (TI), certain barriers persist which include discrimination in healthcare, lack of tailored treatment protocols, low health literacy, and fears of social repercussions for HIV-positive individuals [7,8].

This study specific to Uttarakhand focusses on identifying barriers to the utilisation of TI prevention and care services among transgender individuals. The secondary objective of the study was to document the proportion of TG and TS receiving TI services from the estimated population in Haridwar and Dehradun districts. The study aims to understand and address the challenges faced by transgender individuals in accessing HIV testing services, with the goal of informing strategies to mitigate these barriers.

Methodology

This qualitative study, conducted over five months in Haridwar and Roorkee, focused on NGOs implementing TI services for TG/TS communities. The study included only NGOs registered with the State AIDS Control Society (SACS) and actively working with TG/TS individuals. The two NGOs involved were HIRA in Roorkee and Adarsh in Haridwar.

Study participants were divided into two groups: NGO staff members (Project Managers, Outreach Workers, Counsellors, and Peer Educators) and representatives from the TG/TS community. Data collection methods consisted of Focus Group Discussions (FGDs) and In-depth Interviews (IDIs). FGDs explored participants' relationships with the NGOs, service utilisation experiences, and perceived barriers, while IDIs with NGO personnel provided insights into their roles, experiences, and perspectives on service uptake by TG/TS individuals. Informed consent was obtained and all discussions were audio recorded and transcribed for analysis. Data saturation was reached after 9 IDIs and 6 FGDs with 24 TG individuals.

Thematic analysis using the framework method was employed to analyse the data. Researchers first familiarised themselves with the transcripts, conducted open coding independently, and identified emerging themes. The analysis was structured around the Anderson Healthcare Utilisation Model, which categorised factors into predisposing, enabling, and need factors. Codes were grouped into subcategories and categories to identify the underlying themes.

In addition to primary data, secondary data from the last quarter (Sept-Dec 2023) records of three NGOs (Hira Roorkee, Adarsh Haridwar, and Dehradun) were included. These records included monitoring indicators such as the proportion mapped, monthly coverage of risky sexual acts through free condoms, coverage of TI services, and monthly visits. The study ensured rigor through triangulation of perspectives (health workers and TG individuals), verification of findings with participants, and maintenance of an audit trail, including memo writing throughout the analysis process.

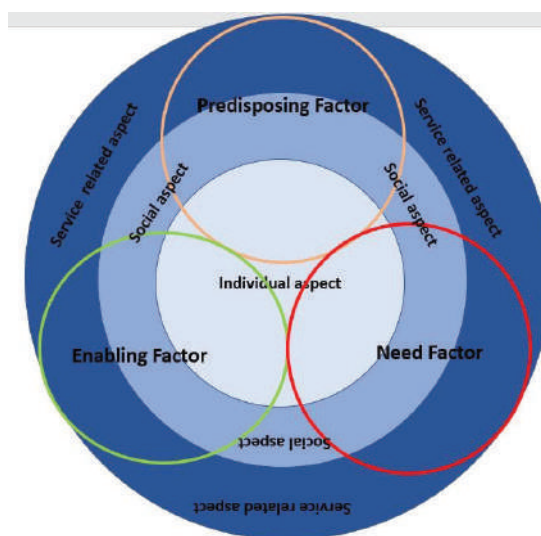
Findings

Data were collected through five FGDs with TG participants and nine IDIs with health workers involved in TI projects. Analysis utilised the Anderson Framework Model, categorising findings into themes, categories, and codes.

Perspective of Healthcare workers: Health workers highlighted several predisposing factors hindering service utilisation. Service-related challenges included poor implementation of STI programs, non-standardised testing, and low availability of essential consumables like condoms jellies and testing kits. Referral services were marred by out-of-pocket costs, long wait times, and inadequate privacy, exacerbating barriers. Health workers also cited insufficient travel allowances for outreach, irregular peer educator selection, and challenges in gaining community trust.

"I call them and whenever I call, they won't even pick up my phone." (Participant no.7)

Figure 1 Anderson Framework Model



Individual factors hindering service utilisation included age restrictions, low education levels, mental health issues, substance abuse, and financial constraints. Social factors included stigma and violence within communities as the barriers for service utilisation.

Perspective of the TG/TS people: From the TG community's viewpoint, individual factors such as diverse health beliefs, introverted personalities, and low literacy levels contributed to service avoidance. Stigma surrounding STIs and poor treatment-seeking behaviours were common. Financial constraints, lack of family support, migration issues, and experiences of discrimination exacerbated these challenges.

"I was made to hold the box filled with condoms in my hands, and then they took me to the police station. They said I had HIV and ran away in the car."

(TG, 24 years old)

Service-related barriers included inadequate privacy, poor service quality, and perceived inequalities in service provision. Limited focus on non-HIV-related ailments and uncomfortable experiences in government hospitals discouraged service uptake.

"HIV is not the only illness. There are many in the high-risk group. Hepatitis is happening these days, jaundice is going on a lot, and all these should be focused on as well."

(TG, 25 years old)

TG individuals also highlighted the lack of trust in NGOs, frequent referrals, and discomfort with the service-availed processes as the major barriers to service utilisation.

Enabling Factors: Enabling factors identified included the enforcement of the Transgender Act and efforts by NGOs. These efforts included crisis management committees, social marketing of condoms, and health education initiatives. NGOs facilitated regular health check-ups, provided free condoms, and supported vocational training, creating safe spaces for TG individuals to access services comfortably. Peer educators played a crucial role in building trust and providing necessary information.

Need Factors: TG individuals expressed a need for comprehensive health education, particularly on STIs and Hormone Replacement Therapy (HRT). They emphasised the importance of professional and dedicated healthcare providers, supportive social environments, and economic opportunities. They sought services tailored to their specific health needs beyond HIV-related care.

The secondary data also indicated location-specific variations in TI service uptake. While outreach contact ranged from 43% to full coverage (100%) in three NGOs, condom distribution coverage ranged from 16% to full coverage (100%). Broad service coverage for TG/TS individuals was 100%. Health-seeking behaviour for STI care was only 5% in the last quarter, highlighting the need for education on the importance of treatment.

Conclusion

Individual, social, and service-related issues interweaved through themes like predisposing, enabling, and need factors. Predisposing factors included low health literacy, stigma, poor mental health, financial insecurity, poor service availability (essential test kits, condoms, and HRT), accessibility (no hospital networking, minimum age for enrolment), and acceptability (binary gender in the medical system). Enabling factors included awareness through NGO campaigns, integrated services (ART, ICTC, and private laboratories), trustworthy providers (PE), and the existence of HIV and transgender laws. Perceived disease prevalence, severity of disease, the need for belongingness, and respectful, quality, need-based health services were identified as need factors for availing services. There is a need to improve treatment-seeking behaviour for STIs, and underperforming NGOs need to be mentored or assessed for the reasons behind the same.

Recommendations

- Combating stigma: training providers, raising awareness, and advocating for legal protections
- Increasing access: expanding services, utilising community outreach and creating culturally sensitive materials
- Strengthening healthcare systems: tracking service use, developing guidelines, and ensuring privacy
- Empowering communities: partnering with TG/TS organisations, training community members, and fostering collective advocacy

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Current Scenario and Factors affecting Optimal Therapeutic Support: An Explanatory Sequential Study among Attendees of Opioid Substitution Therapy Clinics in West Bengal

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Introduction

Opioid substitution therapy (OST) is an accepted form of treatment in which clients are provided buprenorphine to overcome drug addiction. A Cochrane review conducted by Mattick et al. (2009) concluded that OST using methadone was more effective, statistically significantly, compared to non-pharmacological treatments in retaining patients and in suppressing heroin use. The programme was first initiated in India about 20 years ago, with substantial scale-up of service provision.

Methodology

An explanatory sequential study involving a quantitative component followed by a qualitative study to explain the questions raised by the quantitative analysis, was adopted. With a retention rate of 58% at the end of 6 months and an absolute error of 12% (6), the calculated sample size was 65. Participants who had been in treatment for more than 3 months and were registered at an OST government-sponsored clinic and gave consent were included in the study through simple random sampling from the registered clients. Following the quantitative analysis, two focus group discussions (FGDs) were conducted. Each FGD involved 8 participants: all male attendees of the OST clinic and one peer navigator, with ages ranging from 32 to 61. Transcripts were prepared and analysed to derive results. A schedule was used by interviewers for data collection. The pointers and guidelines emerging from the quantitative analysis were explored in the qualitative component.

Findings

The most common drug used was heroin, followed by benzodiazepines. Around 44% of the study participants had been using these substances for more than 10 years. Approximately 2% had a history of relapse after a period of abstinence. About 34% of the study participants reported practicing safe sexual behaviours, while 33% had a history of needle sharing. Sixty-eight percent of the participants had been tested for HIV, with only 1.8% testing positive. Regular testing for tuberculosis was not conducted. Approximately 50% of the study participants reported receiving social support at some point from either government or non-government agencies. Around 81% had friends who were addicted but were not undergoing treatment. Seventeen percent of respondents preferred a shorter treatment regimen (less than 2 years), while only 34% of the study participants had ever been declared 'clean'. A lifetime episode of relapse after a clean period was observed in 52% of the study participants.

Table 1 Proportions of Provider-centred Barriers of Accessing OST in Study Sites

Addiction History	Percentage
Heroin usage	54
Cocaine usage	19
Benzodiazepine usage	54
Alcohol usage	74
First drug use at least 10 years back	44
Last drug use at least 2 years back	39

Past History	
Drug usage	54
Treatment by withdrawal	33
Treatment by substitution	21
More than 1 year of treatment	39
Relapse observed in	52
Sexual and Risk Behaviour	
Multiple sexual partner	17
Same sex	<1
Protective sexual practices	34
Health Care Practices	
Needle sharing	33
Needle exchange provided	39
History of non-fatal overdose	39
Percent having episodes of overdose	4
History of self injury	12
Tested for Hepatitis	58
HIV positive status	1.6
Tests for HIV regularly	73
History of testing for tuberculosis	52
Social Functioning	
Currently married	66
Currently employed	74
Presence of support system	17
NGO support	33
Supportive family member	74
No accompanying family member to the OST Clinic	41
Family member addicted	17.5
Family member in treatment	7
Friend addicted	81
Friend treated	52
Treatment Satisfaction	
Treated for more than 2 years in this spell	34
Prefer a shorter regimen	17
Prefer treatment elsewhere	12
Ever declared clean via tapering	34

On analysis, significant association was observed with relapse, among benzodiazepine users, having addicted family members, and with history of having declared clean, following tapering of OST therapy and having no social support via organisation.

Table 2 Relapse of Cases with significant Association Factors (N=65)

	Variable	Chi square value	P value
"Relapse associated with"	Presence of any addicted family member	3.91	0.04
	Tapering ever done for OST	5.18	0.02
	Use of benzodiazepine	6.43	0.01
	No Social support via any organisation	6.27	0.04

The qualitative component identified three main themes. The first theme, stressors, refers to health or non-health issues that play a role in relapse. As one study participant stated, 'Whenever we get any money, we waste it'. The second theme was the importance of social support or rehabilitation systems in promoting overall improvement. One participant mentioned, 'It would be beneficial if we could have some monetary support every now and then'. The third theme emphasised the need for a holistic approach to health, rather than focusing solely on addiction. As one participant put it, 'Nutrition and vitamin supplements would be beneficial for us'.

Conclusion

The most commonly used drug was heroin, followed by benzodiazepines. A lifetime episode of relapse following a clean period was observed in 52% of participants. Factors such as OST dose tapering, benzodiazepine use, having addicted family members, and lack of social support from any organisation contributed to relapse. The qualitative analysis also identified that stressful events or stressors play a significant role in contributing to relapse.

Recommendations

1. To prevent relapse, a system should be established to identify potential situations where clients may be at risk of relapse. Programmes could focus on identifying stressors, such as travel, family functions, influx of money, or health issues, which may destabilise the client. These factors can serve as predictors for targeted one-on-one counselling to prevent relapse.
2. Psychometric tools should be developed to assess the likelihood of relapse, and these could be integrated into the programme to help in early identification of at-risk clients.
3. Further strengthening and linking clients to social support networks could be valuable in addressing relapse among injecting drug users more effectively.

Acknowledgements

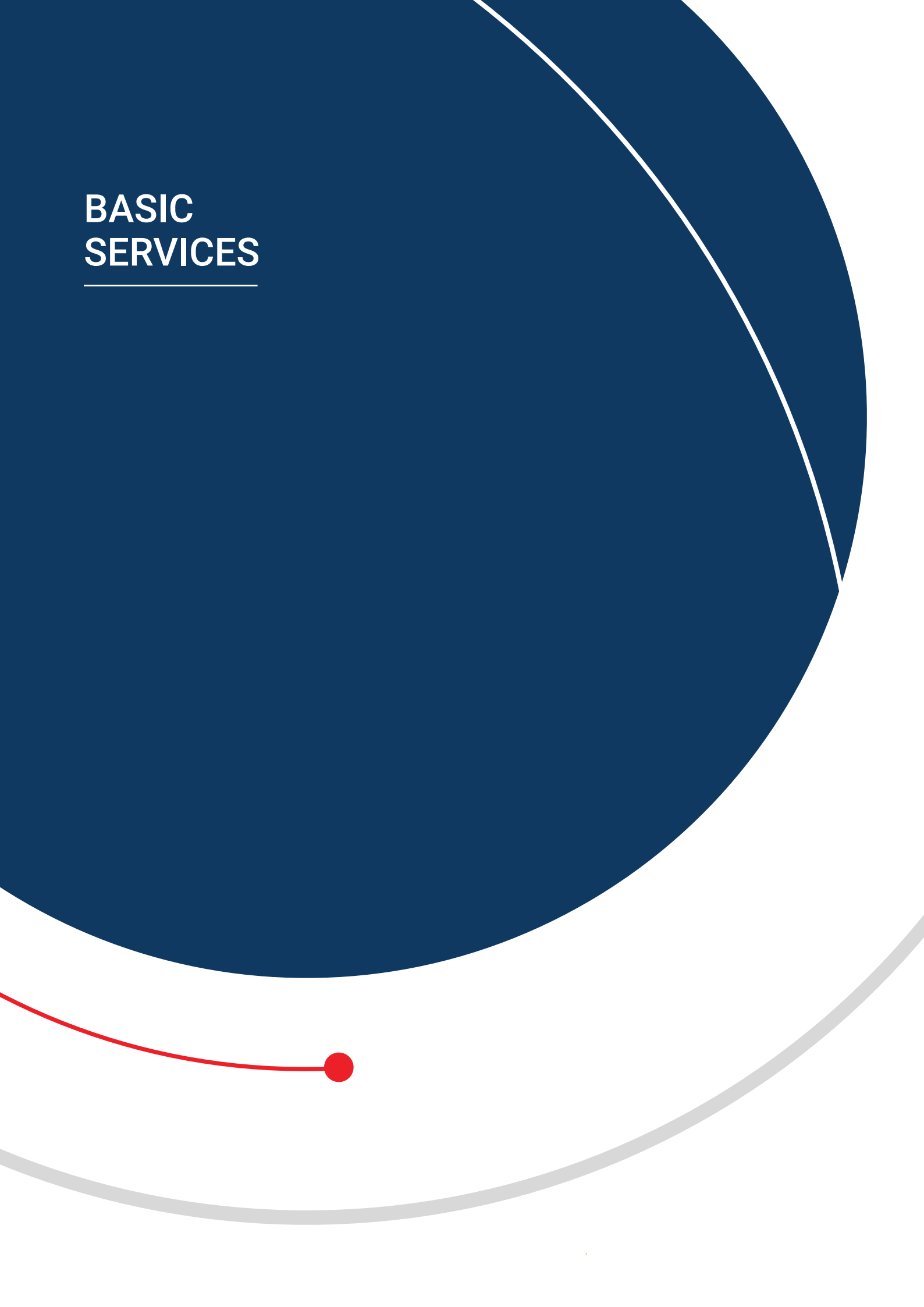
We would like to thank the staff of OST Centre at Calcutta National Medical College & North Bengal Medical College, SI Division of NACO & WBSACPS and the study subjects who participated in the study and shared their perspectives.

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BASIC SERVICES



Reasons for Low HIV Screening among Pregnant Women in Vidisha and Satna Districts of Madhya Pradesh

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Introduction

The issue of low Human Immunodeficiency Virus (HIV) screening among pregnant women in India is a significant concern, as it increases the risk of mother-to-child transmission (MTCT) and contributes to the further spread of the disease [1]. Globally, HIV remains a major public health challenge, particularly in low- and middle-income countries [1]. According to UNAIDS, early diagnosis is essential for the effective management of HIV and the prevention of transmission. Studies have shown that countries with strong antenatal care (ANC) programmes, which include routine HIV screening, have lower rates of MTCT [1,2]. In India, the National AIDS Control Organisation (NACO) has implemented various programmes to promote HIV screening, particularly among pregnant women. However, disparities persist across different states and regions [3]. A study by Nyamathi et al. (2011) highlighted significant variations in HIV care among women, attributing these disparities to factors such as physical barriers, psychological status, awareness levels, and social factors. These include challenges like difficulty paying for transportation, lack of childcare, lack of accompaniment, and limited access to healthcare services [4].

This study was conducted to identify the factors and barriers contributing to the low uptake of HIV screening among pregnant women in the Vidisha and Satna districts. It also explored the level of knowledge and attitudes towards HIV screening in these areas, as well as the role of the healthcare system and providers in promoting and facilitating HIV screening. Additionally, the study aimed to identify strategies to increase the uptake of HIV screening among pregnant women in these districts.

Methodology

The study was conducted using a mixed methods approach in two districts of Madhya Pradesh, Vidisha and Satna, from November 2023 to February 2024. A multi-stage sampling technique was employed, with the first stage involving the selection of the two districts -Vidisha and Satna based on the programme data for pregnant women for the year 2021-22 as Vidisha and Satna had the lowest percentages of HIV screening among pregnant women. In the second stage, four health facilities were selected—two from each district—providing prenatal care to pregnant women. In Satna district, the District Hospital Satna and Civil Hospital Maihar were selected, while in Vidisha district, the District Hospital Vidisha and CHC Ganj Basoda were chosen for participant enrolment in the study.

The third stage involved selecting pregnant women attending prenatal care at the chosen health facilities. Consecutive sampling was used to enrol participants on the days of visits to the outpatient departments (OPD). A total of 386 pregnant women recruited in the study, with an equal proportion of participants recruited from both districts. Additionally, 10% of the quantitative sample (n=40) participated in Focused Group Discussions (FGDs) and In-Depth Interviews (IDIs). IDIs and FGDs were conducted with pregnant women and healthcare providers to gather insights into their perceptions, attitudes, and experiences regarding HIV screening. In total, 6 IDIs and 4 FGDs were conducted across both districts. A cross-sectional survey was carried out using a structured questionnaire to collect demographic data, knowledge, and attitudes toward HIV screening among pregnant women. The data were analysed using descriptive statistics, including frequency counts, percentages, and means. Bivariate analysis was applied to examine the relationship between independent variables (such as awareness and knowledge of HIV testing, attitudes toward HIV testing, and perceived barriers to HIV testing) and the dependent variable (HIV testing uptake).

Findings

Quantitative

The mean age of the antenatal women in the study was 24.5 ± 3.649 years, with an age range of 17 to 36 years. In Satna district, the mean age was 24.58 ± 3.54 years, with ages ranging from 18 to 36 years, while in Vidisha, the mean age was 24.44 ± 3.746 years, with ages ranging from 17 to 36 years. Around 15.0% of the participants were from the general category, 52.8% were from OBC, 23.6% from SC, and 8.6% from ST categories. The majority of participants were Hindu (92.5%), while 7.5% were Muslim. Educationally, 2.9% of the antenatal women had a professional degree, 15.3% were graduates, 10.9% had completed intermediate education, and 5.9% were illiterate.

Table 1 Socio-demographic Profile of Study Participants

Characteristics		Satna (n=193) No. (%)	Vidisha (n=193) No. (%)	Total (n=386) No. (%)
Caste	Gen	35 (18.1%)	23 (11.9%)	58 (15.0%)
	OBC	91 (47.2%)	113 (58.5%)	204 (52.8%)
	SC	46 (23.8%)	45 (23.3%)	91 (23.6%)
	ST	21 (10.9%)	12 (6.2%)	33 (8.6%)
Religion	Hindu	184 (95.3%)	173 (89.6%)	357 (92.5%)
	Muslim	9 (4.7%)	20 (10.4%)	29 (7.5%)
Education status	Professional Degree	8 (4.1%)	3 (1.6%)	11 (2.9%)
	Graduate	31 (16.1%)	28 (14.5%)	59 (15.3%)
	Higher Secondary	22 (11.4%)	20 (10.4%)	42 (10.9%)
	High School	73 (37.8%)	76 (39.4%)	149 (38.6%)
	Middle School	43 (22.3%)	52 (26.9%)	95 (24.6%)
	Primary School	4 (2.1%)	3 (1.5%)	7 (1.8%)
	Illiterate	12 (6.2%)	11 (5.7%)	23 (5.9%)
Occupation of Participant	House Wife	193 (100%)	193 (100%)	386 (100%)
Occupation of Husband	Clerical	9 (4.7%)	16 (8.3%)	25 (6.5%)
	Farmer	6 (3.1%)	35 (18.1%)	41 (10.6%)
	Professional	4 (2.1%)	3 (1.6%)	7 (1.8%)
	Semi Professional	2 (1.0%)	2 (1.0%)	4 (1.0%)
	Semi-Skilled Worker	42 (21.8%)	32 (16.6%)	74 (19.2%)
	Shop	8 (4.1%)	23 (11.9%)	31 (8.0%)
	Skilled Worker	8 (4.1%)	9 (4.7%)	17 (4.4%)
	Unemployed	53 (27.5%)	6 (3.1%)	59 (15.3%)
	Unskilled Worker	61 (31.6%)	67 (34.7%)	128 (33.2%)
Family Income (INR)	9308-27882	162 (83.95)	171 (88.6%)	333 (86.3%)
	27883-46474	28 (14.5%)	20 (10.4%)	48 (12.4%)
	46475-69534	3 (1.6%)	2 (1.0%)	5 (1.3%)
Socio economic Status	Upper Middle	5 (2.6%)	5 (2.6%)	10 (2.6%)
	Lower Middle	43 (22.3%)	67 (34.7%)	110 (28.5%)
	Upper Lower	133 (68.9%)	112 (58.0%)	245 (63.5%)
	Lower	12 (6.2%)	9 (4.7%)	21 (5.4%)

Around 33.2% of the husbands of pregnant women were unskilled workers, 4.4% were skilled workers, 19.2% were semi-skilled workers, and 15.3% were unemployed. Of the total participants, 8 (4.1%) from Satna and 18 (9.3%) from Vidisha (26 participants in total, or 6.7%) were migrant workers. Most antenatal women (88.1%) lived in joint families. Regarding parity, 190 (49.2%) were primigravida, while 196 (50.8%) were multigravida. As for housing, 42.2% of participants lived in kutcha houses, 28.5% in semi-pucca houses, and 29.3% in pucca houses (Table 2).

Table 2 Socio-Demographic Profile of Study Participants

Characteristics		Satna (n=193) No. (%)	Vidisha (n=193) No. (%)	Total (n=386) No. (%)
Migrated (YES/NO)	No	185 (95.9%)	175 (90.7%)	360 (93.3%)
	Yes	8 (4.1%)	18 (9.3%)	26 (6.7%)
Structure of Family	Joint	159 (82.4%)	181 (93.8%)	340 (88.1%)
	Nuclear	34 (17.6%)	12 (6.2%)	46 (11.9%)
Partum Status	Multi Gravida	97 (50.3%)	99 (51.3%)	196 (50.8%)
	Primi Gravida	96 (49.7%)	94 (48.7%)	190 (49.2%)
Type of House	Kutcha House	89 (46.1%)	74 (38.3%)	163 (42.2%)
	Pucca House	53 (27.5%)	60 31.1	113 (29.35%)
	Semi Pucca House	51 (26.4%)	59 (30.6%)	110 (28.5%)
	Professional	4 (2.1%)	3 (1.6%)	7 (1.8%)

The findings in Table 3 showed that 250 (64.8%) participants had heard about HIV before. In Vidisha district, 107 (55.4%) participants had heard about HIV infection, while 143 (74.1%) participants from Satna were aware of it. A total of 323 (83.7%) participants believed that HIV testing is important for pregnant women, while 47 (12.2%) participants disagreed, and 16 (4.1%) were unsure. Additionally, 323 (83.7%) participants believed that HIV can be transmitted from mother to child during pregnancy or breastfeeding, while 45 (11.6%) did not agree, and 18 (4.7%) were unaware of this transmission route. Out of the total participants, 199 (51.6%) had never been tested for HIV before, with 95 cases from Satna and 104 cases from Vidisha.

Table 3 Knowledge and Attitude Towards HIV Screening among Study

Variables	Category	Satna (n=193) No. (%)	Vidisha (n=193) No. (%)	Total (n=386) No. (%)
Have you ever heard of HIV before?	Yes	143 (74.1%)	107 (55.4%)	250 (64.8%)
	No	50 (25.9%)	86 (44.6%)	136 (35.2%)
Do you think it is important for pregnant women to get tested for HIV?	Yes	167 (86.5%)	156 (80.8%)	323 (83.7%)
	No	26 (13.5%)	21 (10.9%)	47 (12.2%)
Do you think HIV can be transmitted from mother to child during pregnancy or breastfeeding?	Yes	167 (86.5%)	156 (80.8%)	323 (83.7%)
	No	26 (13.5%)	19 (9.8%)	45 (11.6%)
	No, Not Known	0	18 (9.3%)	18 (4.7%)
Have you ever been tested for HIV before?	Yes	98 (50.8%)	89 (46.1%)	187 (48.4%)
	No	95 (49.2%)	104 (53.9%)	199 (51.6%)
If no, why have you not been tested?	Primigravida	92 (47.7%)	94 (48.7%)	186 (48.2%)
	Not Applicable	98 (50.8%)	89 (46.1%)	187 (48.45%)
	Not Known	3 (1.5%)	10 (5.2%)	13 (3.4%)

In the Satna district, only 1 participant reported facing challenges or barriers to HIV testing, while in Vidisha, none of the participants cited any barriers. A total of 371 (96.1%) participants felt comfortable discussing HIV with their healthcare provider, while 15 (3.9%) were not comfortable. Additionally, 350 (90.7%) participants felt that healthcare providers in their region provided sufficient information about HIV, while 8 (2.1%) participants felt that adequate information was not provided.

Qualitative

According to all participants, there were no cultural, social, or logistical barriers that might prevent pregnant women from getting tested for HIV in this region. Furthermore, there were no health staff or facility-related issues in either district that could hinder pregnant women from undergoing HIV testing.

The following is the thematic analysis of the Focus Group Discussions (FGD) and in-depth interviews (IDI) with pregnant females and healthcare workers at ICTC.

Challenges of Health System			Barrier of caregiver and Beneficiary		
Not Prescribed by Physician	Distance from OPD	Lack of Documentation	Hesitancy among caregiver to administer HIV testing	Unavailability of regular supply & Poor Supporting system	
HIV prescription is not a priority/ lack of Job actualisation - "HIV should be written instead of ANC profile."...."In the ANC profile, Doctors do not highlight HIV+VDRL test. If they mention it, then patient will know that she needs to get HIV test done. Patient gets confused as to which test has to be done because CBC, ESR are done at different labs, while HIV, VDRL tests are done at ICTC. Instead of this, all the test should be done at one place." Poor motivation - "first goes to ASHA, Anganwadi, CHO. If they are informed about HIV there, there will be no gap. From this, patient will be made aware that they have to get tested for HIV too."....."My suggestion is that five villages should be combining to organize one camp and tests should be performed. Refresher training is very important so that new candidates also get the knowledge and training." Ineffective prescription - "There should be proper arrangement of kit. Due to lack of provision of kits, sample is sent outside. There is a delay in generation of report due to which treatment is delayed. Some patients do not come back to collect the reports."	Overreliance on staff other than programme - "Doctor's opd is far away from ICTC centre also the pathology lab is at some other place."...."The distance from OPD to lab, there might be some confusion to patient, some do not come to lab due to being late." Inadequate coordination between OPD and Programme staff - "Forget society, even medical staff do not respond properly to the positive patients. Everyone is scared."...."We are working as mediators. If we get support from our seniors and society, it would be beneficial in screening."....."It gets late. Have to sit in line. Have to check at 2 different places."...."Sir, there is only one reason for this, all the tests of the patients are done in room number 9, and ICTC is in room number 7, and OPD is in room number 13, the distance is very high. And some women are not aware that they should get tested for HIV." Poor understanding of rationale and schedule - "DTOs are made Nodal officer who also have the burden of TB. Hence, they are not able to focus on the HIV programme." Poor supervision of testing - "Those women, who got tested elsewhere and that is mentioned in their card, we do not retest them. This could be one reason for the gap. Otherwise, all ANC are getting tested." "ICTC people are instructed to do 100% testing but, CHC, PHC follows the order of CMHO. Therefore if there is an order from CMHO everyone will work for 100%. Then results will be achieved."	Inadequate documentation of HIV testing - "Due to increased workload, entry on portal is difficult. There is need for data operator." Poor record keeping of testing but it was done - "Due to heavy workload, portal entry work is not being done. Server remains down. Post-test of those who have been tested negative should not be done."	Poor counselling related to HIV testing - "People are still hesitant to get their test done."...."Our area is completely tribal, education levels are low. Secondly, transport facilities are poor. People are residing in forests. They cannot reach on time due to lack of transport facilities. This is a problem."...."There can be many social reasons like purdah system. Even today, they bring mother-in-law or father-in-law to ANC, due to which pregnant women are not able to communicate freely. Far away and conservative people influence even today."...."They have the disease of "what people will say" Poor understanding of importance of HIV testing - "There was a case in which the husband was positive and when we asked him for spouse testing, they don't come after many contacts, I went to his house and explained. He was very scared. They were afraid that they would be quarantined like COVID and what would people say. So, fear and confusion still prevalent in the society."...."This does not happen. Yes, if they leave directly OPD this could happen. But it is not possible. If they come to ICTC center, they cannot leave without getting tested."...."Those who are positive and on medication are the only people who refused to get tested."...."They are not getting misguided. But, because of the distance from OPD to lab, there might be some confusion. Some do not come to lab due to being late, and some are frightened because of pain while giving blood repeatedly."	Myths related to HIV disease - "Some people believe that HIV is spread only through unprotected sex, we have not done something like this otherwise why should we get tested."...."The misconception is that if someone has tested positive then it must be due to illegal unprotected sex."...."Forget society, even medical staff do not respond properly to the positive patients. Everyone is scared."...."Maybe they are afraid of needles, just now 1 woman was afraid." Nobody told about HIV testing - "Villagers are unable to explain their proper complaints. For that reason, proper investigations cannot be done."...."There is no such thing. There is 100% testing here. HRG, general ANC – all are supposed to get 100% tested. So, there is no such thing. Many are not aware for are they being tested for. They just know that they are getting a blood test."	Unavailability of drugs - "There should be proper arrangement of kit. Due to lack of provision of kits, sample is sent outside. There is a delay in generation of report due to which treatment is delayed. Some patients do not come back to collect the reports." Erratic supply of kits for testing - "There is a reduction in supply of kits, which is affecting us." Perceived that HIV testing is not necessary for pregnant - "ANC are tested Because there is a possibility of transmission from mother to child."

Conclusion

The low uptake of HIV testing at the centres can be attributed to several factors. At District Hospital Satna, the distance between the OPD and the ICTC centre is approximately 200 meters, which often leads to patients being diverted or not completing their blood tests. Additionally, patients are required to give blood samples to two different laboratories, causing confusion, and many patients assume their tests are complete once they provide the sample. In contrast, at CHC Maihar and CHC Ganj Basoda, sample collection is done in a single location, reducing confusion. Another issue is that healthcare staff typically advise an ANC profile, which includes a set of routine tests, rather than informing patients about specific HIV testing. As a result, pregnant women often believe that all tests have been done once they reach the blood collection point and do not proceed to the ICTC. Factors such as low female literacy, limited knowledge about HIV testing, poor community awareness, and stigma around HIV further hinder testing. From a facility perspective, issues such as a lack of regular monitoring and supervision, limited availability of HIV testing kits (especially mid-year), overburdened ICTC staff, and the absence of visible IEC (Information, Education, and Communication) materials in the OPD area also contribute to the low uptake of HIV testing.

Recommendations

- To increase HIV screening rates, a multifaceted approach is needed to address the low uptake of HIV screening among pregnant women in Vidisha and Satna.
- Providing regular training for healthcare providers to improve their ability to educate and counsel patients about HIV.
- Ensuring that HIV testing is an integral part of the ANC profile, reducing the distance between OPD and ICTC centres, and improving the availability of testing kits.
- Targeted community programs and educational campaigns to enhance awareness about HIV transmission and the importance of testing. IEC materials should be displayed at the waiting area of ANC.
- Utilising community health workers like ASHA and ANM to educate and motivate pregnant women about the importance of HIV testing. The CHO can work as a strong contributor to program operations and monitoring activities.
- Continuous education and counselling by healthcare providers to dispel myths and reduce stigma associated with HIV.
- Better integration of HIV testing with other prenatal services, ensuring the availability of testing kits, and addressing logistical challenges. Camp Activity could be helpful to cover all left out ANCs. At every level there is an administrative monitoring post to streamline the process. They should be given ownership for the activity. As there are various enablers and disablers in every program. In this program there should be a reward mechanism for good work and top performers.

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Profiling of Self-Initiated Clients Attending Integrating Counselling and Testing Centres

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Introduction

India has the second largest HIV epidemic in the world [1]. As per recent 2023 HIV estimates, 24.67 lakh people were living with HIV (PLHIV) with 0.2% Adult HIV prevalence and 66.47 thousands new HIV infections while in Maharashtra, number of PLHIV are 3.88 lakhs with adult HIV prevalence 0.33% with annual new infections 4461 [2]. Although the HIV incidence in India is low, vulnerability of the country to HIV rises due to the large population and due to spread from urban to rural areas; from high risk to general population via bridge population, and from permissive to conservative societies [3,4].

An Integrated Counselling and Testing Centre (ICTC) is a place where a person is counselled and tested for HIV of his own free will or as advised by a medical provider. The main functions of an ICTC are conducting HIV diagnostic tests, providing basic information on HIV and promoting behavioural change and link people with other HIV care and treatment services [5]. It is challenging to make people aware of their HIV positivity status and bring them forward for the testing and adopt a healthy lifestyle, so that they can access care and treatment services thereby preventing further transmission. Counselling and testing are important for prevention and control of HIV/AIDS [6]. To achieve the 2030 target, knowledge and awareness about HIV among the public is very crucial, so that self-initiated testing and utilisation of ICTC facility by the patients will improve and we can progress towards ending the AIDS epidemic. The aim of this study was to study the socio-demographic profile of self-initiated clients attending ICTC in Maharashtra. The specific objectives are as follows:

1. Socio-demographic profile of clients
2. Extent of knowledge about HIV in clients
3. Impact of counselling on knowledge about HIV on clients
4. Awareness about the services offered at the ICTC centre by clients

Methodology

In this observational study, around 125 Self-initiated direct walk-in adult clients aged 18 years and above, visiting ICTC and willing to participate in the study were recruited in the study after taking their written informed consent. Clients were interviewed before and after counselling by using a validated structured questionnaire for the socio-demographic details, knowledge about HIV and awareness about ICTC services. Both open ended and close ended questionnaires were included. Responses to close ended questions were in the form of yes or no with the assigned score '1' & '0' for positive & negative responses respectively. For open ended questions on the knowledge and awareness component, response was graded as desired knowledge/awareness, partial knowledge/awareness and no knowledge/unaware with the assigned scores 2, 1 & 0 respectively.

Socio-economic status was classified using modified BG Prasad (2022) classification based on per capita income. Clients having per capita income <1,272 rupees were classified as lower class; per capita income between 1,272-2,543 rupees as lower middle; per capita income between 2,544-4,239 rupees as Middle; per capita income between 4,240-8,479 rupees as upper middle, and per capita income ≥ 8,480 rupees as Upper-class socio-economic status.

Descriptive statistics in the form of percentage were used to analyse the socio-demographic profile of the clients and determine the proportion of knowledge about HIV and awareness about ICTCs. Wilcoxon signed rank test was used to compare differences between before & after counselling of the knowledge & awareness component. Mann Whitney

U test was used to compare differences between median scores of variables in socio-demographic parameter having only two independent groups. Kruskal Wallis test was used for those socio-demographic parameters having more than two independent groups.

Findings

A total of 125 clients participated in the study. Median age of clients was 23 years. The study group consisted of 61 (48.8%) male & 64 (51.2%) female; 100 (80%) clients were married, and 71 (56.8%) clients were literate having education up-to higher secondary. As per BG Prasad socio-economic classification, 70 (56%) of the participants belonged to the upper socio-economic class and majority of the participants were working in private sector 53 (42.4%) (Table 1).

Table 1 Profiling of Self-Initiated Clients attending ICTC

Parameter	Number N=125	%	Parameter	Number N=125	%
Gender			Willingness to visit Nearer ICTC	105	84
Male	61	48.8	If No, reasons	20	16
Female	64	51.2	Fear of known people	5	4.0
Age group			Spouse on ART in the same hospital / Admitted	6	4.8
18 to 30	35	28	Reliability of the Hospital	4	3.2
30 to 50	70	56	Preferred in KEM	3	2.4
>= 50	20	16	Relative stays near Hospital	2	1.6
Education of clients			High risk exposure		
Up to Primary	22	17.6	Exposed	54	43.2
Up to HSC	71	56.8	No Exposure	71	56.8
Graduate & above	32	25.6	Age of 1st High risk exposure	56	44.8
Occupation			<18 years	3	5.4
Housewife	40	32	18-25 years	32	57.1
Business	11	8.8	25-35 years	15	26.8
Private	53	42.4	>35 years	5	8.9
Government	13	10.4	Mean(standard deviation) age of exposure	24.9 ($\pm$ 7.2) years	
Student	8	6.4	Median age of exposure	23.0 years	
Socioeconomic status			Type of high-risk exposure		
Upper class	34	27.2	Bisexual	2	1.6
Upper Middle	36	28.8	Blood transfusion	1	.8
Middle	24	19.2	Needle Prick	2	1.6
Lower Middle	21	16.8	Eye splash of blood sample	1	.8
Lower	10	8.0	Blood-stained vomiting of HIV positive patients	1	.8
Current Working status			MSM	6	4.8
Working	68	54.4	Hetero sex	40	32.0
Not working	57	45.6	Knowledge at the time of Exposure	34	27.2
Marital status			Childhood Trauma	12	9.6
Single	25	20	Untoward Incidence	8	6.4
Ever Married	100	80	Addiction	42	33.6
Education of spouse			Alcohol	5	4.0
Up to Primary	39	31.2	Tobacco	13	10.4
Up to HSC	69	55.2	Smoking	4	3.2
Graduate & above	17	13.6	Drugs	5	4.0
Spouse working			Alcohol+ tobacco	5	4.0
Working	57	45.6	Alcohol + Smoking	5	4.0
Not working	38	30.4	A+ D	4	3.2
Family Type			S + D	1	.8

Joint family	42	33.6	Family member positive for HIV	54	43.2
Nuclear family	83	66.4	Relation with the member		
Residence			Spouse	48	38.4
Mumbai	105	84	Mother	2	1.6
Out of Mumbai	17	13.6	Spouse + Son	1	.8
Out of Maharashtra	3	2.4	Spouse + In-laws	2	1.6
Native state			Mother + Father	1	.8
Andhra Pradesh	1	.8	Has ever tested for HIV	94	75.2
West Bengal	2	1.6	Willing to accept Positive report	121	96.8
Bihar	1	.8	If no, reasons	4	
Delhi	1	.8	Fear for disease	2	1.6
Goa	1	.8	Unaware	2	1.6
Gujarat	3	2.4	Willingness to reveal the positive report		
Haryana	1	.8	Family	85	68.0
Himachal Pradesh	1	.8	Partner	17	13.6
Karnataka	1	.8	Family + Partner	6	4.8
Kerala	1	.8	Family + Friend	1	.8
Maharashtra	92	73.6	Reason for no revealing		
Tamil Nadu	1	.8	Fear getting family disturbed	6	4.8
Uttar Pradesh	17	13.6	Feeling of shamefulness	2	1.6
Jharkhand	2	1.6	Fear of negative attitude towards self	4	3.2
Distance from ICTC centre			Fear of harassment bad words/negative attitude/comment by family friends/healthcare setting	76 (60.8%)	
<5 Km	57	45.6			
>5 Km	68	54.4			

Table 1 shows that 105 (84%) participants were currently staying in Mumbai and 57 (45.6%) were residing within < 5km from an ICTC, 33 (26.4%) were from states other than Maharashtra. Fifty-four (43.2%) participants had history of high-risk behaviour at the median age of 23 years. Almost 54 (43.2 %) had history of HIV positivity among family members, 51/54 (94.4%) participants had their spouse as HIV positive, 109 (87.2%) participants were willing to reveal their positive status to their partner and family, and 76 (60.8%) was afraid of harassment about facing negative comments on revealing their seropositive status.

As per Table 2, in the 'before counselling' session, 74 (59.2%) clients were knowing about HIV being a viral infection (male-42(68.8%) & female-32(50%)), 20 (16%) had knowledge about HIV & AIDS (male-14(23%), female-6(9.4%)), around 44 (35.2%), 21 (16.8%) & 16 (12.8%) clients had desired knowledge about HIV transmission, HIV prevention & opportunistic infections respectively and this was found to be higher in males. Fifteen (12%) & 9 (7.2%) participants believed that HIV could be transmitted through mosquito bite and handshake respectively, and 7 (5.6%) of participants had misconception that both mosquito bite and handshake caused HIV. Misconception about HIV transmission was also higher among males compared to females. Thirty-five (28%) participants were aware about presence of ICTC centre, 20 (16%) were aware of purpose of ICTC facility and only 11 (8.8%) were aware of referral services provided at ICTC centre. Six out of ten (48%) participants were knowing about importance of counselling. 21 (16.8%) were aware of government organisations working for HIV. Awareness about ICTC services was also higher in male compared to female.

Table 2 Profiling of Self-Initiated Clients attending ICTC

Parameter	Male N=61	Female N=64	Total N=125 (%)
Knowledge about HIV			
HIV being viral infection	42 (68.8%)	32 (50%)	74 (59.2%)
Difference between HIV & AIDS			
Desired	14 (23%)	6 (9.4%)	20 (16%)
Partial	14 (23%)	12 (18.8%)	26 (20.8%)
No Knowledge	33 (54%)	46 (71.8%)	79 (63.2%)
Knowledge about HIV Transmission			
Desired	28 (45.9%)	16 (25%)	44 (35.2%)
Partial	19 (31.1%)	27 (42.2%)	46 (36.8%)
No Knowledge	14 (22.9%)	21 (32.8%)	35 (28%)
Unprotected sexual exposure	48 (78.7%)	46 (71.8%)	94 (75.2%)
Multiple sexual partners	49 (8.3%)	44 (68.7%)	93 (74.4%)
Having pre-existing STI infection	28 (45.9%)	23 (35.9%)	51 (40.8%)
Blood transfusion	34 (55.7%)	30 (46.8%)	64 (51.4%)
Mother to child	45 (73.7%)	44 (68.7%)	89 (71.2%)
Transmission through breastfeeding	15 (24.5%)	16 (25%)	31 (24.8%)
HIV Prevention			
Desired	12 (19.7%)	9 (14.1%)	21 (16.8%)
Partial	33 (54.1%)	26 (40.6%)	59 (47.2%)
No Knowledge	16 (26.2%)	29 (45.3%)	45 (36%)
Testing facilities			
Testing without Referral from Doctor	43 (70.5%)	31 (48.4%)	74 (59.2%)
ANC testing for HIV	41 (67.2%)	43 (67.1%)	84 (67.2%)
Testing of Infants	47 (77%)	41 (64.1%)	88 (70.4%)
Facilities for HIV testing of infants	29 (47.5%)	26 (40.6%)	55 (44%)
Knowledge about Treatment of HIV			
T/t of child born to HIV infected mother	26 (42.6%)	25 (39%)	51 (40.8%)
Knowledge about T/t centre for HIV patients	35 (57.4%)	36 (56.2%)	71 (56.8%)
Name of T/t centre for HIV patients	13 (21.3%)	8 (12.5%)	21 (16.8%)
Duration of HIV T/t	20 (32.8%)	24 (37.5%)	44 (35.2%)
Opportunistic infection			
Knowledge about opportunistic infection			
Desired Knowledge	10 (16.4%)	6 (9.4%)	16 (12.8%)
Partial Knowledge	21 (34.4%)	18 (28.1%)	39 (31.2%)
No Knowledge	30 (49.2%)	40 (62.5%)	70 (56%)
TB as the most common opportunistic infection	34 (55.7%)	30 (46.9%)	64 (51.2%)
Misconception about HIV transmission			
Mosquito bite	8 (13.1%)	7 (10.9%)	15 (12%)
Handshake	7 (11.5%)	2 (3.1%)	9 (7.2%)
Blood donation	30 (49.2%)	34 (53.1%)	64 (51.2%)
Awareness about ICTC services			
Name the centre where you can directly get tested for HIV			
Aware	26 (42.6%)	9 (14%)	35 (28%)
Unaware	35 (57.4%)	55 (85.9%)	88 (70.4%)
Mention main purpose of Integrated Counselling & Testing Centre			
Aware	11 (18%)	9 (14%)	20 (16%)

Partially aware	25 (41%)	20 (31.3%)	45 (36%)
Unaware	25 (41%)	35 (54.7%)	60 (6.4%)
How much time does it take to release the report of HIV in Integrated counselling & Testing Centre?			
Aware	29 (47.5) %	29 (45.3%)	58 (46.4%)
Unaware	32 (52.5%)	35 (54.7%)	67 (52%)
What are the referral services provided at Integrated Counselling & Testing Centre for HIV infected persons?			
Aware	4 (6.6%)	7 (10.9%)	11 (8.8%)
Partially aware	11 (18%)	13 (20.3%)	24 (19.2%)
Unaware	46 (75.4%)	44 (68.8%)	90 (72%)
Give importance of counselling in HIV.			
Aware	32 (52.5%)	28 (43.8%)	60 (48%)
Unaware	29 (47.5%)	36 (56.2%)	65 (52%)
Name the Govt organization which works for HIV?			
Aware	17 (27.8%)	4 (6.3%)	21 (16.8%)
Unaware	44 (72.1%)	60 (93.7%)	104 (83.2%)

Significant improvement in knowledge of HIV & awareness about ICTC services was observed after counselling session, except in knowledge about misconception, as per Wilcoxon signed Ranks statistical test (Table 3).

Table 3 Profiling of Self-Initiated Clients attending ICTC

Question	Ranks					P value
	Awareness		N	Mean Rank	Sum of Ranks	
Q 1. Is HIV a viral infection?	PostKnowQ1 - PreKnowQ1	Negative Ranks	1	24.00	24.00	Z=-6.564 P=0.000
		Positive Ranks	46	24.00	1104.00	
		Ties	78			
		Total	125			
Q 2. What is the difference between Human immunodeficiency virus infection (HIV) & Acquired immunodeficiency syndrome (AIDS)?	PostKnowQ2 - PreKnowQ2	Negative Ranks	1	21.00	21.00	Z=-8.222 P=0.000
		Positive Ranks	85	43.76	3720.00	
		Ties	39			
		Total	125			
Q 3. How is HIV transmitted from one person to another?	PostKnowQ3 - PreKnowQ3	Negative Ranks	2	23.00	46.00	Z=-6.973 P=0.000
		Positive Ranks	62	32.81	2034.00	
		Ties	61			
		Total	125			
Q 4. Does unprotected sexual exposure increases the risk of acquiring HIV infection?	PostKnowQ4 - PreKnowQ4	Negative Ranks	0	.00	.00	Z=-5.385 P=0.000
		Positive Ranks	29	15.00	435.00	
		Ties	96			
		Total	125			
Q 5. Is the risk of acquiring HIV infection high with multiple sexual partners?	PostKnowQ5 - PreKnowQ5	Negative Ranks	0	.00	.00	Z=-5.292 P=0.000
		Positive Ranks	28	14.50	406.00	
		Ties	97			
		Total	125			
Q 6. Does Mosquito bite transmit HIV infection?	PostKnowQ6 - PreKnowQ6	Negative Ranks	6	8.00	48.00	Z=-.775 P=0.439
		Positive Ranks	9	8.00	72.00	
		Ties	110			
		Total	125			

Q 7. Is HIV transmitted by handshake?	PostKnowQ7 - PreKnowQ7	Negative Ranks	6	6.00	36.00	Z=-.302 P=.763
		Positive Ranks	5	6.00	30.00	
		Ties	114			
		Total	125			
Q 8. Can HIV be transmitted from infected pregnant mother to her infant during pregnancy?	PostKnowQ8 - PreKnowQ8	Negative Ranks	1	17.50	17.50	Z=-5.488 P=0.000
		Positive Ranks	33	17.50	577.50	
		Ties	91			
		Total	125			
Q 9. Is HIV transmitted by blood donation?	PostKnowQ9 - PreKnowQ9	Negative Ranks	48	43.50	2088.00	Z=-1.078 P=0.281
		Positive Ranks	38	43.50	1653.00	
		Ties	39			
		Total	125			
Q 10. Does having sexually transmitted infection increases the risk of acquiring HIV infection?	PostKnowQ10 - PreKnowQ10	Negative Ranks	6	26.00	156.00	Z=-5.461 P=0.000
		Positive Ranks	45	26.00	1170.00	
		Ties	74			
		Total	125			
Q 11. How can HIV transmission prevented?	PostKnowQ11 - PreKnowQ11	Negative Ranks	3	36.00	108.00	Z=-8.108 P=0.000
		Positive Ranks	81	42.74	3462.00	
		Ties	41			
		Total	125			
Q 12. Is Blood tested for HIV before transfusion to patients ?	PostKnowQ12 - PreKnowQ12	Negative Ranks	0	.00	.00	Z=-6.708 P=0.000
		Positive Ranks	45	23.00	1035.00	
		Ties	80			
		Total	125			
Q 13. Can anyone get himself/herself tested for HIV without referral from doctor ?	PostKnowQ13 - PreKnowQ13	Negative Ranks	1	24.00	24.00	Z=-6.564 P=0.000
		Positive Ranks	46	24.00	1104.00	
		Ties	77			
		Total	124			
Q 14. Is Antenatal care receiving (ANC) mother tested for HIV infection?	PostKnowQ14 - PreKnowQ14	Negative Ranks	0	.00	.00	Z=-5.657 P=0.000
		Positive Ranks	32	16.50	528.00	
		Ties	93			
		Total	125			
Q 15. Can HIV infected mother breastfeed her infant ?	PostKnowQ15 - PreKnowQ15	Negative Ranks	11	22.00	242.00	Z=-3.202 P=0.001
		Positive Ranks	32	22.00	704.00	
		Ties	82			
		Total	125			
Q 16. Is HIV treatment is given to infants born to HIV infected mothers	PostKnowQ16 - PreKnowQ16	Negative Ranks	1	27.50	27.50	Z=-7.076 P=0.000
		Positive Ranks	53	27.50	1457.50	
		Ties	71			
		Total	125			
Q 17. Can the infant born to mother with HIV infection be also tested for HIV?	PostKnowQ17 - PreKnowQ17	Negative Ranks	0	.00	.00	Z=-5.568 P=0.000
		Positive Ranks	31	16.00	496.00	
		Ties	94			
		Total	125			
Q 18. Are facilities available for HIV testing of infant born to HIV infected mothers?	PostKnowQ18 - PreKnowQ18	Negative Ranks	0	.00	.00	Z=-7.416 P=0.000
		Positive Ranks	55	28.00	1540.00	
		Ties	70			
		Total	125			

Q 19. Do you know that there is a treatment Centre for HIV infected individual	PostKnowQ19 PreKnowQ19	Negative Ranks	1	24.00	24.00	Z=-6.564
		Positive Ranks	46	24.00	1104.00	P=0.000
		Ties	78			
		Total	125			
Q 20. Name the treatment Centre for HIV.	PostKnowQ20 - PreKnowQ20	Negative Ranks	2	14.50	29.00	Z=-6.861
		Positive Ranks	60	32.07	1924.00	P=0.000
		Ties	63			
		Total	125			
Q 21. For how much time should the HIV infected individual take the treatment if HIV infected?	PostKnowQ21 - PreKnowQ21	Negative Ranks	2	27.00	54.00	Z=-7.039
		Positive Ranks	64	33.70	2157.00	P=0.000
		Ties	59			
		Total	125			
Q 22. Which infections are likely to be acquired by HIV infected individuals?	PostKnowQ22 - PreKnowQ22	Negative Ranks	4	33.00	132.00	Z=-7.799
		Positive Ranks	79	42.46	3354.00	P=0.000
		Ties	42			
		Total	125			
Q 23. Do you think that there is more chance of getting TB infection in HIV infected individuals?	PostKnowQ23 - PreKnowQ23	Negative Ranks	27	40.00	1080.00	Z=-2.813
		Positive Ranks	52	40.00	2080.00	P=0.005
		Ties	46			
		Total	125			
Awareness						
Q 1. Name the centre where you can directly get tested for HIV.	PostAwareQ1 - PreAwareQ1	Negative Ranks	0	.00	.00	Z=-8.124
		Positive Ranks	66	33.50	2211.00	P=0.000
		Ties	59			
		Total	125			
Q 2. Mention main purpose of Integrated Counselling & Testing Centre	PostAwareQ2 - PreAwareQ2	Negative Ranks	1	27.50	27.50	Z=-7.405
		Positive Ranks	65	33.59	2183.50	P=0.000
		Ties	59			
		Total	125			
Q 3. How much time does it take to release the report of HIV in Integrated Counselling & Testing Centre ?	PostAwareQ3 - PreAwareQ3	Negative Ranks	2	30.50	61.00	Z=-7.230
		Positive Ranks	58	30.50	1769.00	P=0.000
		Ties	65			
		Total	125			
Q 4. What are the referral services provided at Integrated Counselling & Testing Centre for HIV infected persons?	PostAwareQ4 - PreAwareQ4	Negative Ranks	2	25.50	51.00	Z=-7.620
		Positive Ranks	75	38.85	2875.00	P=0.000
		Ties	48			
		Total	125			
Q 5. Give importance of counselling in HIV.	PostAwareQ5 - PreAwareQ5	Negative Ranks	0	.00	.00	Z=-6.856
		Positive Ranks	47	24.00	1128.00	P=0.000
		Ties	78			
		Total	125			
Q 6. Name the Govt organization which works for HIV?	PostAwareQ6 - PreAwareQ6	Negative Ranks	2	11.50	23.00	Z=-3.838
		Positive Ranks	20	11.50	230.00	P=0.000
		Ties	103			
		Total	125			

Participants within the age group of 18-30 years and 30-50 years, having an education of graduation & above, belonging to the upper-class socioeconomic status showed significant association with knowledge about HIV and awareness about the ICTC services as per Kruskal-Wallis Test. While those with single marital status and having high risk exposure showed significant association with Knowledge about HIV and awareness about the ICTC services as per Mann-Whitney U Test (Table 4).

Table 4 Association of Demographic Factors with Pre and Post Counselling Knowledge and Awareness

Age group		Count	Percentile 25	Median	Percentile 75	Mean	Standard Deviation	Kruskal-Wallis Test
18-30	PreKnowTotal	35	11.0	16.0	23.0	15.7	7.7	P=0.203
30-50		70	8.0	15.0	19.0	13.8	7.4	
>=50		20	11.0	18.0	21.0	16.5	6.5	
18-30	PostKnowTotal	35	24.0	26.0	28.0	25.5	2.6	P=0.004
30-50		70	21.0	25.0	26.0	23.0	4.7	
>=50		20	19.5	23.0	25.5	21.9	5.4	
18-30	PreAwareTotal	35	.0	2.0	5.0	2.9	2.6	P=0.255
30-50		70	.0	1.5	4.0	2.1	2.1	
>=50		20	1.0	2.0	4.5	2.7	2.1	
18-30	PostAwareTotal	35	5.0	6.0	8.0	5.9	2.2	P=0.115
30-50		70	3.0	5.5	7.0	5.1	2.2	
>=50		20	4.0	5.0	6.0	5.1	1.7	
Marital Status		Count	Percentile 25	Median	Percentile 75	Mean	Standard Deviation	Mann-Whitney U Test
Single	PreKnowTotal	25	15.0	19.0	24.0	19.0	6.4	P=0.002
Ever married		100	8.0	15.0	19.0	13.7	7.2	
Single	PostKnowTotal	25	25.0	26.0	28.0	26.1	2.4	P=0.000
Ever married		100	21.0	24.0	26.0	22.9	4.7	
Single	PreAwareTotal	25	2.0	4.0	6.0	4.1	2.3	P=0.000
Ever married		100	.0	1.0	4.0	2.0	2.1	
Single	PostAwareTotal	25	6.0	7.0	8.0	6.7	1.5	P=0. .000
Ever married		100	3.5	5.0	7.0	5.0	2.1	
High risk exposure		Count	Percentile 25	Median	Percentile 75	Mean	Standard Deviation	Mann-Whitney U Test
Exposed	PreKnowTotal	54	10.0	17.0	23.0	16.0	7.9	P=0.124
Not exposed		71	8.0	15.0	19.0	13.8	6.8	
Exposed	PostKnowTotal	54	22.0	25.5	27.0	23.8	5.2	P=0.075
Not exposed		71	21.0	24.0	26.0	23.3	3.9	
Exposed	PreAwareTotal	54	1.0	3.0	5.0	3.3	2.5	P=0.000
Not exposed		71	.0	1.0	3.0	1.8	1.9	
Exposed	PostAwareTotal	54	5.0	6.0	8.0	6.0	2.0	P=0.001
Not exposed		71	3.0	5.0	7.0	4.8	2.1	
Education		Count	Percentile 25	Median	Percentile 75	Mean	Standard Deviation	Kruskal-Wallis Test
Upto Primary	PreKnowTotal	22	4.0	6.0	18.0	10.1	8.2	P=0.001
Upto HSC		71	9.0	15.0	19.0	14.6	7.0	
Graduate & above		32	14.0	18.5	23.5	18.3	5.5	
Upto Primary	PostKnowTotal	22	19.0	21.5	25.0	20.3	5.9	P=0.000
Upto HSC		71	21.0	25.0	26.0	23.3	4.0	
Graduate & above		32	25.5	27.0	28.0	26.3	2.3	
Upto Primary	PreAwareTotal	22	.0	.0	2.0	1.1	1.8	P=0.000
Upto HSC		71	.0	2.0	4.0	2.3	2.1	
Graduate & above		32	2.0	4.0	5.5	3.7	2.2	

Upto Primary	PostAwareTotal	22	2.0	4.0	6.0	4.0	1.8	P=0.000
Upto HSC		71	4.0	5.0	7.0	5.2	2.1	
Graduate & above		32	6.0	7.0	8.0	6.6	1.8	
Gender		Count	Percentile 25	Median	Percentile 75	Mean	Standard Deviation	Mann-Whitney U Test
Male	PreKnowTotal	61	11.00	17.00	21.00	15.787	7.3260	P = 0.108
Female		64	8.00	15.00	19.00	13.641	7.3363	
Male	PostKnowTotal	61	21.50	25.00	27.00	23.869	4.4365	P=0.286
Female		64	21.25	24.50	26.00	23.203	4.5467	
Male	PreAwareTotal	61	1.00	2.00	5.00	2.738	2.3374	P= 0.119
Female		64	0	1.50	4.00	2.156	2.1765	
Male	PostAwareTotal	61	5.00	6.00	7.00	5.541	2.1569	P=0.215
Female		64	3.00	5.00	7.00	5.125	2.1044	
Socioeconomic status		Count	Percentile 25	Median	Percentile 75	Mean	Standard Deviation	Kruskal-Wallis Test
UC + UM	PreKnowTotal	70	13.0	17.0	21.0	17.0	6.0	P=0.000
Middle		24	5.5	13.5	19.5	13.4	8.9	
LM + LC		31	4.0	10.0	18.0	10.8	7.0	
UC + UM	PostKnowTotal	70	24.0	26.0	27.0	24.7	3.8	P=0.001
Middle		24	19.0	23.5	27.0	22.0	6.1	
LM + LC		31	21.0	22.0	25.0	22.1	3.9	
UC + UM	PreAwareTotal	70	1.0	3.0	5.0	3.1	2.2	P=0.000
Middle		24	.0	1.0	4.0	2.0	2.5	
LM + LC		31	.0	.0	2.0	1.2	1.7	
UC + UM	PostAwareTotal	70	5.0	6.0	7.0	6.0	1.8	P=0.002
Middle		24	2.5	4.0	7.0	4.6	2.4	
LM + LC		31	2.0	5.0	7.0	4.5	2.3	

Conclusion

ICTC services are utilised by both genders predominantly in the age group of 30-50 years followed by 18-30 years and among those belonging to literate and upper middle-income group with high-risk behaviour in 18–25 year age group. Majority of the clients are willing to accept and reveal their positive sero-status and visit the nearest ICTC for further help. The low level of desired scientific knowledge of HIV/AIDS and awareness about ICTC services was found among the literate & upper socio-economic group of clients which improved significantly after counselling; however, certain misconceptions about transmission of HIV infections remained. A significant association is observed with respect to factors affecting knowledge of HIV and awareness about ICTC services with respect to age, marital status, education, socioeconomic status and high-risk behaviour.

Recommendations

- Education for risk reduction behaviour at the age of 18-25 years
- Increasing the awareness about HIV among the lower as well as among upper income group with special emphasis on transmission and preventive measures
- Addressing issues of misconception about transmission of HIV while counselling of clients
- For prevention of HIV infection, emphasis should be given on effective, convincing and skillful counselling at every ICTCs

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Assessment of Service Linkages between HIV and Co-Infections (TB, HCV & HBC)

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Introduction

Co-infections are common among people living with human immunodeficiency virus (PLHIV), regardless of immune status. Globally, the three most prevalent co-infections that contribute significantly to morbidity in HIV-infected individuals are Mycobacterium tuberculosis, hepatitis B virus (HBV), and hepatitis C virus (HCV) [1]. These co-infections have a profound impact on morbidity and mortality rates among PLHIV.

Global awareness of the serious nature of HIV-related chronic co-morbidities has increased in recent years [2]. In 2020, approximately 1.5 million people (range: 1.1 to 2.1 million) worldwide acquired HIV, and an estimated 690,000 (range: 480,000 to 1 million) deaths occurred due to AIDS-related illnesses [3]. Tuberculosis (TB) remains the most common opportunistic infection in individuals with HIV, accounting for about 25% of all deaths among PLHIV in India. According to the World Health Organization (WHO), 8.2% of the estimated 10 million people who developed tuberculosis (TB) worldwide in 2019 were people living with HIV (PLHIV). Liver-related mortality has now become the leading cause of non-AIDS-related death in HIV-infected individuals [4, 5]. Globally, the estimated prevalence of HCV co-infection among PLHIV is 6.2%, while the prevalence of HBV co-infection is 7.6% [6].

In Mizoram, the Mizoram SACS and the National Tuberculosis Elimination Programme (NTEP) collaborate to ensure early detection and prompt linkage of TB and HIV cases to care, support, and treatment. Considering the importance of service linkages between HIV and co-infections for early detection and timely treatment, this study was conducted with the objective to assess the service linkages between HIV and co-infections (TB, HCV, and HBV) in two districts of Mizoram—Aizawl and Kolasib. Further, to identify factors contributing to any gaps in the service linkages between HIV and co-infections (TB, HCV, and HBV) in Mizoram—Aizawl and Kolasib.

Methodology

In this study, a purposive sampling technique was used to select the participants. The sample included 20 people living with HIV (PLHIV) from Aizawl district, divided as follows: 5 PLHIV availing TB services, 5 PLHIV not availing TB services, 5 PLHIV availing HCV/HBV services, and 5 PLHIV not availing HCV/HBV services. Additionally, 3 service providers were selected from the ART center, the TB center, and 1 service provider from the HCV/HBV treatment unit. A similar set of samples was selected from Kolasib.

In the first phase of the study, cascade data was analysed using separate indicators for existing TB and HCV/HBV services for PLHIV. Data from patient records at ART centres, district TB centres, and HBV/HCV treatment units were used for the cascade analysis to assess the service linkages between HIV and co-infections such as TB, HBV, and HCV in the two districts (Aizawl and Kolasib), in comparison with the indicators provided by WHO (2018). Additionally, the Review Checklist for TB-HIV activities at the state level (Annexure 14) provided by NACO (2013) was also utilised.

In the second phase of the study, semi-structured interviews were conducted with PLHIV who had availed TB, HCV/HBV services, and those who had not, as well as service providers from HIV, TB, HCV, and HBV services. The information gathered from the interviews was analysed using content analysis techniques to identify themes, patterns, and insights related to service linkages and gaps between HIV and co-infection services. Informed consent was obtained from all participants, and confidentiality was maintained throughout the study.

Findings

Of the 20 PLHIV, nine have disclosed their HIV status only to their family, five to their partner, four to both friends and family, and two to the community. The majority of them (12) have been living with HIV for 1-3 years. Cascade data

analysis reveals that no joint field visits are conducted by officers from the State AIDS Control Society (SACS) and the State Tuberculosis Control (STC) in the districts, which may indicate a lack of coordination between SACS and STC in Mizoram. The cascade data is presented below:

Table 1 Review Checklist for TB-HIV Activities at State Level

A	NO. OF SCC MEETINGS HELD IN THE LAST 4 QUARTERS	4
B	NUMBER OF TB-HIV STATE WORKING GROUP MEETINGS HELD IN THE LAST 4 QUARTERS	0

Table 2 Review Checklist for TB-HIV Activities at District Level

		Kolasib	Aizawl
State and District-Level Coordination			
a	Whether TB-HIV district coordination committee (DCC) functional at district level?	Yes	No
b	Proportion of districts with at least two DCC meeting in past 4 quarters	1	0
c	Do all ICTC counsellors attend HIV/TB monthly coordination meeting	Yes	No
d	Do ART centre staff attend HIV/TB monthly coordination meeting	Yes	Yes
e	No. of field visits made to the districts jointly by officers from SACS and STC	No	0
Infrastructure			
a	Total no. of stand-alone ICTCs in the state as of August, 2023 CMIS report	2	16
b	Distribution of ICTCs as per the district category (A, B, C, D)	A	A
c	No. of facility integrated ICTCs in the state as per August 2023 CMIS report	6	26
d	No. of PPP ICTCs functional in the state as per August 2023 CMIS report	0	4
e	No. of ART centres in the state as per August 2023 CMIS report	1	5
f	No. of LAC (Link ART Centres) functional in the state as per August 2023 CMIS report	1	4
g	No. of designated microscopy centres (DMC) in the state (latest NTEP PMR)	2	10
h	No. of co-located ICTC and DMC as per latest NTEP PMR	2	6
Intensified TB Case Finding at ICTCs and ART Centres (as per August 2023)		Kolasib	Aizawl
a	Proportion of ICTC reporting on ICF as CMIS report	2	0
b	Total no. of clients who attended ICTCs	375	3157
c	No. (%) of ICTC clients referred to NTEP as presumptive TB case	7 (1.86%)	24(0.76%)
d	No. (%) of the referred TB suspects from ICTCs who are diagnosed with TB	0	1(4.1%)
e	No. (%) of diagnosed TB patients from ICTCs who are initiated on TB treatment	1	1(100%)

The key findings from interviews with PLHIV and service providers at the ART Centre, TB Centre, and HBV-HCV Treatment Unit are presented below:

Assessment of TB-HIV Services from Interviews with PLHIV

1. **TB Screening and Referral for Testing:** Few patients expressed a lack of awareness about having been tested for TB, and some only realized during the interview that they had indeed been tested. Additionally, most patients were unaware of routine screening for TB in PLHIV. However, most patients expressed satisfaction with the HIV-TB services provided to them.

2. **TB Preventive Therapy (TPT)**

TPT for PLHIV who were TB non-reactive: Among the PLHIV found to be TB non-reactive, interviews revealed that most had been provided TPT. Those who reported not having taken TPT were those who had refused preventive measures. A few suggestions were made to improve the service, particularly regarding increased awareness of the relationship between TB and HIV, and for strategies to enhance patient adherence and engagement, especially for those who refuse TPT.

TB Screening for Family Members of PLHIV who were TB Reactive and were provided TPT: Among PLHIV who had availed TB services, interviews revealed that 50% of patients' family members were screened for TB, and TPT was provided to those found eligible. While these patients expressed satisfaction with the HIV-TB services, there were suggestions to improve counselling services, especially at the onset of TB diagnosis, by providing more information about TB-HIV co-occurrence, which could help in promoting preventive measures within the community.

Availability of TPT at ART Centres: Interviews highlighted issues regarding TPT shortages, indicating potential challenges in the supply chain that need to be addressed.

Assessment of TB-HIV Services from Interviews with Service Providers at ART Centres, ICTC, and District TB Centres

1. **TB Screening for PLHIV:** Interviews with ART and ICTC service providers revealed that all PLHIV are screened for TB during every visit. Those with symptoms are referred by Medical Officers for TB testing, with around 3-5 cases referred per day. At ICTC, service providers screen all patients using the 4S screening method and refer patients with TB symptoms. Regarding refusals of TB testing among some PLHIV, service providers at the ART Centre attributed this to:

Negligence or lack of understanding

Pill burden: Patients are already on ART, hepatitis treatment, and preventive medication, which can cause hesitations. Some patients express intentions to start treatment after a few months or once their viral load is suppressed because of being under too many medications

2. **TB Treatment and TPT for PLHIV:** PLHIV who test positive for TB are provided treatment, and their household contacts are screened and given TPT. Very few patients refuse to take TPT, and the main reason for refusal as per service providers is denial of their HIV status.
3. **TB-HIV Service Linkage:** All service providers at ART Centres reported that TB-HIV service linkage was satisfactory but suggested improvements, particularly in supply chain management. Issues related to increased workload due to TB management were also raised. Service providers at District TB Centres found TB-HIV services satisfactory but noted room for improvement, especially in TB screening and TPT provision for PLHIV at ART Centres.
4. **HIV Testing for TB Patients:** Interviews with service providers at District TB Centres and Treatment Units revealed that 100% of TB patients are screened for HIV before starting TB treatment. Patients found to be HIV-positive are referred to ART Centres for treatment. In cases where patients prefer TB treatment at TB Centres, they are provided treatment at the TB Centres and are informed and counselled to take ART at ART Centres.
5. **Joint Supervision and Coordination Meetings:** Regarding joint supervision between SACS and NTEP staff, service providers in Aizawl reported that they could not recall any joint supervision visits, but they occasionally sat together during NTEP Co-morbidity meetings. However, in Kolasib, coordination meetings and joint supervisions between SACS and NTEP are held regularly. Service providers in Kolasib reported a very good linkage between HIV and TB services.

Assessment of HIV-HBV/HCV Services from Interviews with PLHIV

1. **Testing for HBV/HCV:** Most PLHIV interviewed had been tested for HBV/HCV during baseline screening. Among those who were found to be HBV/HCV non-reactive, the majority were unaware that they had been screened for HBV/HCV. Several suggestions were made to improve communication regarding tests and results. This highlights the need to enhance communication strategies, ensuring patients are well-informed about the tests they undergo and the results.

One patient suggested:

"We should know more about how HIV, HBV, and HCV can occur together. It's important to understand how these conditions affect each other. This knowledge can help us stay healthier. We need to talk more and be informed about how these diseases are connected and what we can do to prevent them."

2. **Treatment for HBV/HCV:** Among the PLHIV who were found to be HBV/HCV reactive during baseline screening, some patients had availed treatment and expressed satisfaction with the services and free treatment provided. However, interviews also revealed gaps in communication or awareness regarding their medical conditions. Suggestions were made for a better information channel to ensure individuals are well-informed about their test results and necessary treatment. Additionally, no routine testing for HBV/HCV is currently being done for PLHIV.

Assessment of HIV-HBV/HCV Services from Interviews with Service Providers

1. **Screening for HBV/HCV and Treatment for Reactive Cases:** Service providers at the ART Centre and ICTC reported that baseline screenings routinely include tests for hepatitis B and C. However, they noted difficulties in screening PLHIV for HBV/HCV and in treating HBV/HCV reactivity.

"We conduct baseline screenings routinely, but due to economic challenges faced by some patients, we are unable to perform tests regularly. Initially, when we had access to a test kit, we conducted HBV/HCV tests for every patient. However, since we no longer have the kit, financial constraints make it difficult for some patients to afford the tests. Currently, we prioritize specific investigations and special cases."

"The medicine price is expensive, so there are times when we don't do the testing. When we receive a test kit for free from MSACS, we conduct testing for all patients. But since we don't always have free access to the kits, it is expensive for the patients to buy them, and often we don't do the testing."

"Most patients do follow through, especially when they come with family. The fear of Hepatitis plays a big role, and the fact that treatment can be expensive."

Regarding the issue of patients being unaware of their HBV/HCV reactivity, service providers came up with following reasons:

"There are instances where families act as proxies for patients who can't come themselves due to reasons such as surgery or being bedridden. Some families come instead of the patient out of shame or reluctance. We try our best to motivate and counsel them to bring in the patients. Another reason is that some patients come under the influence of substances, making them neglect or not comprehend our advice."

2. **Linkage of HIV-HBV/HCV Services:** Service providers at ART Centres and ICTC reported that they conduct HBV/HCV testing at the ART Centre itself. Service providers at HBV/HCV programs indicated that they conduct free testing and provide free treatment for all patients referred to them. However, they mentioned that they do not conduct HIV or TB testing for their patients, and there is no linkage between HIV and HBV/HCV services and said that the service linkage between HIV and HBV/HCV is not very good.

Conclusion

The study findings reveal several important insights into the coordination and service linkages between HIV and co-infections such as TB, HBV, and HCV in Aizawl and Kolasib districts of Mizoram. The study indicates that for PLHIV's, regular TB screening is conducted at ART centres, and HBV/HCV screenings are also performed during baseline evaluations. However, many patients are unaware of these tests and their results, which suggests communication gaps between service providers and patients that need to be addressed. The findings also reflect patients' lack of awareness regarding their medical conditions. Although TB and HBV/HCV treatments are provided to the majority of PLHIV found eligible, shortages of TPT and HBV/HCV test kits were highlighted, posing potential challenges in the supply chain that need to be addressed.

Recommendations

To enhance patient understanding and adherence to treatment plans, the implementation of a more effective information channel is necessary to ensure that PLHIV are well-informed about their medical conditions. Supply chain issues related to diagnostic and preventive resources, such as TPT and HBV/HCV test kits, need to be addressed to ensure prompt treatment and routine testing of HBV/HCV for PLHIV.

The present study also revealed gap in reference to coordination meetings and joint supervisions by officials from the concerned programmes, especially at the State level. This highlights the need for such State-level activities to improve service linkages and address gaps in screening, treatment, and supply chain management.

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Psychosocial Analysis of Spouses and Partners of HIV Index Clients Identified through Index Testing at Aizawl District

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Introduction

The Human Immunodeficiency Virus (HIV) prevalence in India varies across different regions and demographic groups [1]. The country is home to an estimated 24.01 lakh People Living with HIV (PLHIV), with an adult prevalence rate of 0.22 percent. Among the total estimated PLHIV, approximately 45 percent (10.83 lakh) are women, and 2 percent (about 51,000) are children under the age of 12 years [2]. Since 2010, the number of annual new HIV infections has declined by 32 percent. As of 2021, Mizoram has the highest HIV prevalence rate in India, standing at 2.73% [3].

The transmission of HIV in India primarily occurs through unprotected sexual intercourse, including both heterosexual and homosexual contacts [1]. Additional transmission routes include the sharing of contaminated needles among injecting drug users, mother-to-child transmission during childbirth or breastfeeding, and transfusion of infected blood or blood products. Factors contributing to the spread of HIV in India include stigma, discrimination, limited awareness, poverty, and restricted access to healthcare services [4].

There is limited knowledge about the experiences and challenges faced by individuals identified as spouses and partners of HIV index clients who have tested positive through index testing, particularly in resource-constrained environments. This study aims to examine the psychological distress, quality of life, and perceived social support of these spouses and partners (both sexual and injecting) who have been diagnosed as HIV-positive through index testing in Targeted Interventions (TIs) in Mizoram.

Methodology

The study was designed to include 84 spouses and partners of HIV index clients, consisting of 16 spouses and 68 sexual and injecting partners. The sample size was determined based on the entire population of 106 spouses and partners of HIV index clients, which included 16 spouses and 90 sexual and injecting partners identified as HIV-positive through index testing at Targeted Intervention (TI) in the Aizawl District over the past year. Data was collected from 5 TI dispersed across Aizawl. Prior permission to access the records of HIV index clients' spouses and partners identified as HIV-positive through index testing at these sites was obtained from the Mizoram State AIDS Control Society.

Quantitative data were collected using standardised psychological tools, ensuring reliability and validity. Qualitative data from the 84 participants were gathered through semi-structured interviews, designed to explore in-depth personal experiences. Data analysis involved descriptive statistics and relevant statistical techniques for the quantitative data. The qualitative data underwent content and thematic analysis to capture the nuanced psychological and social experiences of the participants.

Findings

Table 1 shows the demographic profile of the study's 84 participants. It reveals that the majority were male (73.8%), with females representing 26.2%. In terms of education, 34.5% had completed high school, 29.8% reached higher secondary school, and 21.4% held a Bachelor of Arts degree. A smaller percentage had completed middle school (13.1%) or primary school (1.2%). Regarding occupation, 46.4% were unemployed, 44.0% worked in private businesses or were self-employed, 8.3% held government jobs, and only 1.2% were students. This overview highlights a higher proportion of males, a range of educational levels, and diverse employment statuses among the participants.

Table 1 Demographic Profile of Study Participants

Category	Type/ Group	Frequency	Percentage
Sex	Male	62	73.8
	Female	22	26.2
	Total	84	100.0
Education	Primary School	1	1.2
	Middle School	11	13.1
	High School	29	34.5
	Higher Secondary School	25	29.8
	Bachelor of Arts or higher	18	21.4
	Total	84	100.0
Occupation	Student	1	1.2
	Sorkar/ Government Servant	7	8.3
	Private/Business/ Self-employed	37	44.0
	Unemployed	39	46.4
	Total	84	100.0

Psychological Measures

Table 2 shows the descriptive statistics. The mean score for Psychological Distress ($M=22.68$) indicates a relatively low level of psychological distress experienced by the spouses and injecting/sexual partners of index clients in Mizoram. The mean score for Quality of Life ($M=97.33$) suggests a notably high level of well-being among these individuals. Regarding Perceived Social Support ($M=60.39$), the mean score reflects a moderate level of perceived social support within the community.

Table 2 Quality of Life, Psychological Distress, and Perceived Social Support among Spouses and Partners of HIV Index Clients

INDICATORS	NUMBER OF PARTICIPANTS	SCORES ON PSYCHOLOGICAL MEASURES
QUALITY OF LIFE	84	97.33
PSYCHOLOGICAL DISTRESS	84	22.68
PERCEIVED SOCIAL SUPPORT	84	60.39

Correlation between Demographic Variables and Psychological Measures

The study found significant correlations among various factors. A positive relationship between quality of life and perceived social support ($r = 0.523$, $p < 0.01$) indicated that greater social support was associated with a higher quality of life. Perceived social support also correlated with being in a committed relationship ($r = 0.235$, $p < 0.05$), while age was similarly linked to relationship status ($r = 0.315$, $p < 0.01$). Higher education was associated with larger household size ($r = 0.286$, $p < 0.01$), and relationship status correlated with modes of disease transmission ($r = 0.294$, $p < 0.01$). On the negative side, quality of life was inversely related to psychological distress ($r = -0.385$, $p < 0.01$), as was perceived social support ($r = -0.378$, $p < 0.01$). Lastly, as age increased, psychological distress decreased ($r = -0.226$, $p < 0.05$).

Table 3, the stepwise regression table, shows that age was the only statistically significant predictor among the demographic variables tested, which included sex, education, occupation, relationship status, household size, substance use, and sexual orientation. Age showed a significant negative relationship with psychological distress, with a beta coefficient of $\beta = -0.315$, accounting for 15.8% of the variance ($R^2 = 0.158$), and a significance level of $p = 0.041$. This implies that as individuals age, their levels of psychological distress are likely to decrease.

Additionally, significant relationships were observed between the dependent variables. Psychological distress and Quality of Life (QOL) showed a meaningful predictive relationship with a beta coefficient of $\beta = 0.393$, explaining 27.3% of the variance ($R^2 = 0.273$, Sig. = 0.000). Furthermore, perceived social support was substantially linked to both psychological distress and QOL, with a beta coefficient of $\beta = -0.026$, explaining 40.5% of the variance ($R^2 = 0.405$, Sig. = 0.001). These findings suggest that psychological distress and perceived social support are particularly important for understanding mental health and quality of life outcomes in the sample.

Table 3 Psychological distress and Quality of life

PREDICTOR VARIABLE/ INDEPENDENT VARIABLE	CRITERION VARIABLE/ DEPENDENT VARIABLE	B (BETA)	R2 (R-squared)	Sig.
AGE	PSYCHOLOGICAL DISTRESS	-.315	.158	.041
PSYCHOLOGICAL DISTRESS	QUALITY OF LIFE	.393	.273	.000
PERCEIVED SOCIAL SUPPORT		-.026	.405	.001

Qualitative Analysis

The study revealed diverse emotional responses when participants were asked about their HIV status. Many shared that upon learning of their diagnosis, they experienced intense feelings of despair, sadness, and emotional anguish, underscoring the profound personal impact of such news. For those who discovered that their infection came from a spouse, partner, or close acquaintance, feelings of betrayal, hurt, and deep despair were common. One participant noted,

"I experienced a profound sense of despair, melancholy, and emotional anguish upon learning about my HIV status",

which highlights the added emotional complexity of contracting HIV from someone they trusted. In terms of treatment, most participants reported no significant challenges in accessing or adhering to ART or other HIV-related treatments. This reflects a generally positive response to the support systems available, allowing participants to manage their condition without substantial obstacles. When exploring psychological impacts, the majority of respondents expressed that they did not feel burdened by psychological issues or mental health disorders. This sentiment suggests that some participants may have found ways to cope or developed resilience despite the emotional toll of their condition. Reflecting on the hardest events they had faced, many participants pointed to the moment of receiving their HIV diagnosis as among the most difficult experiences of their lives, illustrating the life-changing effect of this discovery. When asked about what could improve their situation, a recurring theme was the importance of faith. Many participants shared sentiments such as,

"Putting my faith in God is the only thing that would improve my situation",

highlighting that trust in God was their greatest source of strength and hope. Lastly, regarding what could raise awareness of HIV within the Mizo community, participants emphasized the need for increased education about HIV/ AIDS. One participant stated,

"We the Mizo require increased knowledge and awareness regarding HIV/AIDS",

underscoring the belief that better awareness and understanding could reduce stigma, promote empathy, and offer better support to individuals living with HIV. This, in turn, would foster a more inclusive environment within the community. The qualitative analysis highlighted key themes such as emotional responses to HIV diagnosis, experiences of stigma, barriers to treatment access, and psychological well-being.

Conclusion

The findings suggest that understanding the psychosocial well-being of spouses and partners of HIV index clients in Mizoram requires a nuanced view of contextual factors and socio-cultural dynamics. Surprisingly, the overall well-being of the sample was not as severely impacted as anticipated, which could be attributed to several factors, including the effective support systems provided by Targeted Interventions (TI) and the Mizoram State AIDS Control Society (MSACS). The study highlights the importance of these support structures in alleviating some of the challenges faced by HIV-affected individuals.

The study emphasises the critical role of socio-cultural factors in supporting the well-being of HIV-affected partners in Mizoram. The qualitative analysis covered key themes such as emotional responses to diagnosis, stigma, access to treatment, and mental health, shedding light on how these factors shape the lived experiences of participants. Moreover, the integration of both quantitative and qualitative approaches strengthens the study's findings, providing a more comprehensive understanding of the issue. Addressing these implications can foster a more supportive and resilient community for those affected by HIV in Mizoram.

Recommendations

Based on the results of the study, several interventions can be proposed to address the negative aspects observed among HIV index clients' spouses and partners, including increasing stigma reduction campaigns, enhancing access to mental health services, promoting resilience and coping mechanisms and developing culturally relevant educational initiatives.

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Delayed Diagnosis of HIV among Women Living with HIV and Its Impact on their Health Status, Coping Mechanisms and Stigma & Discrimination – A Mixed Methods Study

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Introduction

In 2020, India recorded approximately 23.19 lakh individuals living with HIV (PLHIV), representing a 0.22% of adult prevalence rate. Of these, about 9.88 lakh were women aged 15 and above, constituting 42.6% of the total PLHIV population. The primary mode of transmission was heterosexual contact, accounting for nearly 83% of cases [1].

NACO reported that over 90% of HIV-positive women in India were married, indicating a significant transmission within marital relationships. Limited awareness, inadequate risk perception, and delayed diagnosis exacerbate health challenges for these women, who often confront opportunistic infections, social stigma, and financial hardships [2]. In Gujarat, factors such as male gender, advanced age, illiteracy, substance use, and severe illness were associated with lower rates of spousal HIV testing [3].

Findings from National Family Health Survey (NFHS)-III data underscored a substantial correlation between women's marital status and HIV serostatus, particularly among widowed, divorced, or separated individuals. HIV-positive women face discrimination from family members, who often blame them for introducing the virus into the family unit, leading to rejection and isolation [4]. Patriarchal norms, unequal gender dynamics, and economic dependency intensify the stigma experienced by women living with HIV, compounded by the additional stigma of widowhood [5].

Studies indicated that women living with HIV encounter higher levels of stigma and report poorer quality of life compared to men, with differences in testing behaviour and responses to diagnosis reflecting societal biases [6,7]. Many women relocate, post-diagnosis due to stigma, underscoring the disparities in societal attitudes toward PLHIV [8].

There are hardly any studies among Widows living with HIV in India (WLHIV). The present exploratory study was aimed at assessing the circumstances associated with delayed diagnosis among widows living with HIV and its impact on their clinical and immunological health status, the stigma/discrimination faced by the women in the family and the community.

Methodology

The study employed a mixed methods design, incorporating both quantitative (secondary data extraction) and qualitative components, conducted at four randomly selected ART centres under MDACS. It utilised a data extraction tool to collect secondary data from the line-list of widowed women living with HIV enrolled in BMC financial assistance scheme. The tool included various indicators such as date and age at HIV diagnosis, baseline CD4 count, date of husband's death, delay in HIV diagnosis, ART initiation details, history of TB, current age, ART regimen, and current CD4 and VL levels.

Focus group discussions (FGDs) were conducted using open-ended interview guides, in preferred local languages (Hindi/Marathi), among the widowed women living with HIV and healthcare providers (HCPs) at the ART centres. The FGDs with women included the topics like the disclosure process, events preceding their husbands' deaths, coping mechanisms, and experiences of stigma and discrimination. Each FGD comprised 6-8 participants, with data saturation achieved after 5-6 interviews, constituting the final sample. The FGD with HCPs included the health seeking behaviour of WLHIV, stigma/discrimination, challenges and training needs. The FGD guide was validated and translated into Hindi and Marathi.

All FGDs were audio recorded with participants consent, and a summary was shared afterward. The transcripts of FGDs were converted into verbatim from the audio tapes and manually written notes. The transcripts were then translated into English and thematic content analysis was done manually for interpretation of the data. Descriptive coding and categorisation were done for analysis.

Quantitative analysis utilised the data extraction tool on records of 3,433 widows enrolled in financial assistance. Quantitative Data were analysed using SPSS. The proportions for categorical variables, mean and standard deviations (SDs) or median and interquartile range (IQR) for linear variables were estimated. The proportions were compared using the chi square test or Fisher's exact test for low expected cell counts.

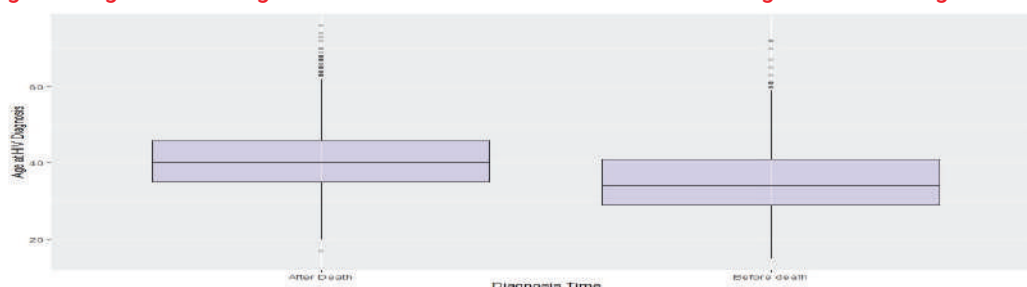
Findings

Quantitative

Around 40% of women living with HIV and registered at ART centres for treatment in Mumbai are currently widow. The mean age (SD) of WLHIV at HIV diagnosis was 39.7 (9.5) years and mean age (SD) at ART initiation was 41 (9) years. The WLHIV were widowed at a mean age (SD) of 35.1 (9.3) years and were widowed for a median (IQR) of 16.0 (10.0, 21.0) years. Baseline Median CD4 (IQR) levels at HIV diagnosis was 277 cells/ mm³ (159, 464) and 34.2% WLHIV had Advanced HIV Disease (AHD) with CD4 at diagnosis. Only 21.8% of WLHIV had baseline CD4 above 500 cells/mm³ at diagnosis. The median baseline CD4 count was higher among WLHIV diagnosed at a young age with lower proportion of AHD. The association between age at diagnosis and median baseline CD4 count was significant ($p < 0.0001$).

Analysis showed that 64.3% WLHIV were started on ART in the same year of diagnosis, 13.4% had a delay of 1-2 years, 11.2% were started on ART after a gap of 3-5 years while 11.2% women had a delay of more than 5 years for ART initiation. Majority (66.2%) of the WLHIV were diagnosed after the death of the husband. The median age of women (IQR) who were diagnosed before the death of husband (Med: 34, IQR: 29, 41) was significantly lower compared with those who were diagnosed after husband's death (Med: 40, IQR: 35, 45) ($p < 0.0001$) (Figure 1). The median baseline CD4 count among women diagnosed with HIV before husband's death was 339 cells/mm³ while it was low at 262 cells/mm³ among women diagnosed after husband's death, implying considerable delay in diagnosis.

Figure 1 Age at HIV Diagnosis in relation to Husband's Death among Widows Living with HIV



The median delay in HIV diagnosis among widows after the death of husband was 7.25 years (3.1, 11.9). Among them, 13.5% of women were diagnosed within a year of their husband's death, 22.7% had a delay of 1–5 year period, 29.2% were delayed by 5-10 years and 19.8 % were delayed by 10-15 years after husband's death. A higher proportion of women diagnosed after the death of the husband had CD4 counts <100 cells/mm³ compared with diagnosis before death (13.2% vs 7.8%) ($p = 0.04$). The delay in diagnosis after husband's death was significantly associated with occurrence of advanced HIV disease among widows living with HIV.

The current health status among WLHIV shows that 98.3% women are currently alive on ART. The latest median CD4 levels (IQR) have improved to 681.4 cells/mm³ (471, 851). 98.6% among those tested for viral load are virally suppressed. Among WLHIV, 14.1% suffered from TB and 2.4% were currently on Anti-TB treatment. The women have been on ART for average 8.9 (4.6) years. 87% women are on first line ART drugs (TLD). Majority of the women (70.9%) have current CD4 counts of more than 500 cells/mm³, of whom 83% have been on ART for more than 5 years. Longer duration of ART has been significantly associated with improvement in current CD4 levels ($p < 0.00001$).

Qualitative

FGDs with WLHIV and HCPs - Thematic analysis of FGD with WLHIV revealed lack of or delayed disclosure of husband's HIV status in most of the situations.

- Lack of family support and economic hardships after husband's death were found common reasons among the widows and posed social challenges for their affected children. Many women had to mortgage personal jewellery and join informal domestic work to look after the family needs for survival. Children in many families dropped out of the school due to economic hardships faced after the death of the earning member
- Majority of the WLHIV were not aware about HIV before their diagnosis. There was a significant delay in sharing the serostatus of husband despite his severe illness (by the families to the wife). Many women were diagnosed,

when they became symptomatic with the disease, few took treatment from private centres in the initial years due to better baseline CD4 count

- Majority of the women were displaced from husband's homes and were dependent on their parents/siblings for economic support. Few women continued to visit ART centre at a long distance, fearing disclosure of their status
- The women faced multi-dimensional stigma and discrimination in their families for being HIV positive widows. This adversely affected their health seeking behaviour, ART centre visits and care for other ailments
- Low self-esteem, lack of emotional support and financial dependency compounded the issues associated with ageing among elderly widows with HIV
- FGDs with ART staff suggested the need for financial support and peer support groups for WLHIV. They also expressed the need for training on bereavement counselling for early HIV testing, in case of spouses of deceased HIV clients
- Stigma discrimination against the WLHIV in their families was highlighted by health care providers, with denial of rights to social entitlements posing a challenge in availing social benefit schemes.

Conclusion

Women were widowed at a young median age of 35 years. Two-thirds of the women were diagnosed with HIV during widowhood. Delayed HIV diagnosis was significantly associated with low baseline CD4 values and Advanced HIV Disease, increasing the morbidity among the widows living with HIV. ART initiation was delayed in majority of the widows after HIV diagnosis for various reasons. Most WLHIV have been on ART for about a decade, majority on the first line regimen with significant improvement in CD4 levels and viral load suppression. WLHIV faced multi-dimensional stigma and discrimination in their family, majority displaced and dependent on parents/siblings for livelihood. Aged widows with HIV suffered multiple morbidities and faced insecurities due to economic hardships. Peer support groups, drop-in-centre services and accessible social benefit schemes were suggested by HCPs.

Recommendations

- Recognising the multi-dimensional vulnerabilities of WLHIV, it is necessary to understand the burden of currently widowed WLHIV at State and at NACO level through regular updating of Master line-lists
- Accessibility and availability of social protection measures should be intensified to address the economic and social needs of WLHIV to improve ART retention and quality of life
- Focused timely interventions for disclosure counselling and regular testing of non-infected spouses should be started at HIV facilities with a special focus on the spouses of deceased index male clients
- Training of ART centre staff especially counsellors is needed in gender responsive counselling and bereavement counselling
- Building ART centre specific peer support groups for the WLHIV and advocacy activities to reduce stigma and discrimination in the family need to be launched through outreach staff of Care Support Centres (CSC) for greater assimilation of the WLHIV in the society
- Advocacy efforts and linkage especially for young widows for skill training for economic self-sufficiency need to be launched through active collaboration with the respective line departments under the mainstreaming activities

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Evaluation Research on Counselling provided at ICTC Centres in Phek District, Nagaland

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Introduction

The evaluation of counselling services provided at Integrated Counselling and Testing Centres (ICTCs) in Phek District, Nagaland was envisaged to offer valuable insights into the effectiveness and impact of counselling services on individuals and communities affected by Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) and other sexually transmitted infections [1]. ICTCs serve as critical healthcare facilities providing counselling and testing services in a confidential and stigma free environment. Counselling at these centres play an essential role in promoting awareness, prevention, and adherence to treatment protocols, which are pivotal in reducing the spread and social stigma associated with HIV/AIDS [2]. ICTC counsellors also play a vital role in pre-test and post-test counselling, addressing prevention and coping strategies.

The role of counselling services becomes even more significant in rural area like Phek District, where cultural, social, and geographical factors can often limit access to healthcare. Counselling can act as a supportive network and create a safe space to address these challenges boosting mental resilience and emotional well-being [3]. The evaluation of these services seek to assess their quality, accessibility, and impact on behavioural change among clients [4]. Furthermore, this study examines the challenges faced by counsellors, the adequacy of resources, and the level of community engagement in utilizing ICTC services. By analysing these factors, the study also aims to highlight areas for improvement, recommend strategies for enhanced service delivery, and ultimately contribute to strengthening the public health framework in the region, which is a crucial step toward understanding the existing gaps and fostering an informed approach in enhancing ICTC services in Phek District

Methodology

The study on Evaluation of Counselling services at ICTC in Phek District, Nagaland utilised a mixed method approach. This approach enabled the researchers to gather both quantitative and qualitative data and identify interaction patterns among the study participants and facilitated a deeper understanding of the subject.

The criteria for identifying and selecting the respondents in this study was purposive sampling method as there are six (6) ICTC's under Phek district and all were taken under the study. From each centre, one counsellor was selected for in- depth interviews (IDIs). Using simple random sampling, 15 respondents were selected from each ICTCs, who visited the centre for the last 6 months. The total 90 respondents were taken under study, and descriptive statistics was used for different data sets, enabling required comparisons. The data was presented through tables and verbatim.

Findings

Profile of Respondents

Table1 reveals the profile of the respondents. The highest percentage 37.8% of respondents who visited the centres were in the age group 26-35 years. More than half (65.6%) of the respondents were married. Out of 90 respondents, only 33.3% studied till primary level and only 2.2% studied till graduation respectively.

Table 1 Profile of Respondents

Variables	Response	Total N=90	
		Frequency	Percentage
Age	15 years and below	3	3.3%
	16-25 years	26	28.9%
	26-35 years	34	37.8%
	36-45 years	24	26.7%
	46-55 years	1	1.1%
	56-65 years and above	2	2.2%
	Total	90	100%
Marital status	Married	59	65.6%
	Unmarried	28	31.1%
	Widow	2	2.2%
	Divorced	1	1.1%
	Total	90	100%
Gender	Male	37	41.11
	Female	53	58.89
	Total	90	100%
Educational qualification	Illiterate	10	11.1%
	Primary	30	33.3%
	Elementary	6	6.7%
	High school	23	25.6%
	Higher secondary	19	21.1%
	Graduation	2	2.2%
	Total	90	100%

Quality of Counselling Services Provided at ICTC Centres

Table 2 shows that majority of the respondents 77 (85.6%) agreed, that they were explained about the meaning of test results and offered emotional support, empathetic listening and help in coping up with the test results. In the case of the counsellor disclosing the HIV test results to the clients, all the respondents (100%) agreed that confidentially and supportive environment was ensured. Most of the respondents (83.3%) agreed that the result of the test is explained, clarified, and accurate information is given to the client. Majority (97.8%) of the respondents agreed that, on testing positive counsellors provided information and counselling regarding treatment options, available care services, and the importance of early initiation of antiretroviral therapy (ART).

Table 2 Counselling Services at ICTC Centres

Statement	Response	Total N=90	
		Frequency	Percentage
Counsellor explains the testing process, the meaning of test results and offered emotional support empathetic listening and help in coping up with the test results	Yes	77	85.6%
	Somewhat	13	14.4%
The counsellor confidentially disclosed the HIV test results to you and ensured supportive	Yes	90	100%
The counsellor explains the meaning of the test results, clarify misconceptions, and provide accurate information about your HIV status	Yes	75	83.3%
	Somewhat	15	16.7%
The counsellor provides information and counselling regarding treatment options, available care services, and the importance of early initiation of antiretroviral therapy (ART) when you were tested positive	Yes	88	97.8%
	Somewhat	2	2.2%
The counsellor maintains confidentiality of all information shared during the counselling session and assured you your privacy will be respected?	Yes	89	98.9%
	Somewhat	1	1.1%

Satisfaction Level of Clients receiving Counselling at ICTC centres

The data presented in Table 3 indicates that 63.3% of respondents “strongly agreed” and 36.7% “agreed” that counsellors provided them with clear and useful information. Regarding the impact of counselling sessions on feelings of support and understanding, 31.1% strongly agreed, 60% agreed, and 8.9% remained neutral. In terms of motivating clients towards healthier behaviours, 35.6% strongly agreed and 54.4% agreed, with 10% expressing neutrality. Regarding the empathetic and compassionate attitude of counsellors, 55.6% agreed, 35.6% strongly agreed, and 8.9% were neutral. 56.7% of respondents felt more knowledgeable about HIV/AIDS and its prevention post-counselling, with 36.7% in agreement and 6.7% neutral.

Furthermore, 61.1% agreed, 24.4% strongly agreed, and 14.4% remained neutral regarding counsellors effectively addressing their concerns and questions. Concerning anxiety and stress reduction, 54.4% agreed, 35.6% strongly agreed, and 10% were neutral. For encouragement in setting realistic behaviour change goals, 63.3% agreed, 30.0% strongly agreed, and 6.7% were neutral. Additionally, 43.3% strongly agreed, 32.2% agreed, and 24.4% were neutral about receiving practical strategies for managing HIV/AIDS-related challenges. Regarding satisfaction with follow-up counselling quality, 47.8% strongly agreed, 50% agreed, and 2.2% were neutral.

Table 3 Satisfactory Level of Clients

Statement	Response	Total N=90	
		Frequency	Percentage
The counsellor provided me with clear and useful information	Strongly agree	57	63.3%
	Agree	33	36.7%
The counselling sessions helped me feel more supported and understood	Strongly agree	28	31.1%
	Agree	54	60%
	Neutral	8	8.9%
The counselling sessions motivated me to adopt healthier behaviours	Strongly agree	32	35.6%
	Agree	49	54.4%
	Neutral	9	10%
The counsellor was empathetic and compassionate during the sessions	Strongly agree	32	35.6%
	Agree	50	55.6%
	Neutral	8	8.9%
I feel more knowledgeable about HIV/AIDS and its prevention after the counselling	Strongly agree	33	36.7%
	Agree	51	56.7%
	Neutral	6	6.7%
The counsellor effectively addressed my concerns and answered my questions	Strongly agree	22	24.4%
	Agree	55	61.1%
	Neutral	13	14.4%
The counselling sessions helped reduced my anxiety and stress related to HIV/AIDS	Strongly agree	32	35.6%
	Agree	49	54.4%
	Neutral	9	10%
The counsellor encouraged me to set realistic goals for behaviour change	Strongly agree	27	30.0%
	Agree	57	63.3%
	Neutral	6	6.7%
The counselling sessions provided me with practical strategies for managing my HIV/AIDS-related challenges	Strongly agree	39	43.3%
	Agree	29	32.2%
	Neutral	22	24.4%
Overall, I am satisfied with the quality of follow up counselling I received	Strongly agree	43	47.8%
	Agree	45	50%
	Neutral	2	2.2%

Qualitative Findings

Profile of Counsellors

Table 4 talks about the counsellors interviewed in the study. One counsellor was taken from each ICTC centre. Out of total 6 Counsellors, 3 were males and 3 were females in the age group of 32 to 44 years. All the counsellors are graduates, except one having post-graduate degree; and their years of service was in the range of 5 to 12 years.

Table 4 Profile of Counsellors

ICTC Centre	Gender	Age	Educational Qualification	Year of Service
Phek MICTC	Female	33	Graduate (BA)	5 Years
ICTC District Hospital	Female	32	Graduate (BA)	5 Years
Meluri ICTC	Male	44	Graduate (B.Th)	10 Years
Chizami ICTC	Female	35	Post Graduate (MA Public Administration)	11 Years
Pfutsero ICTC	Male	42	Graduate (B.COM)	11 Years
Chozuba ICTC	Male	37	Graduate (BA)	12 Years

Familiarity of Counsellors with the Guidelines, Protocols and Best Practices for HIV/AIDS and STI

The qualitative data collected through IDIs with the counsellors indicates familiarity with the guidelines, protocols, and best practices for HIV/AIDS and STI counselling and testing. Four counsellors mentioned that they are aware of the guidelines and protocols after undergoing series of induction and refreshers courses, except two who are in learning phase. In an interaction, one of the counsellors from Chozuba, a 37 years old male counsellor who has been working for 12 years mentioned

"I would say 90% familiar with guidelines and protocols in STI counselling and testing. Time to time I keep myself updated by attending induction and refresher's course."

Some of the important common activities practiced by the counsellors at ICTC Phek district includes

- Motivating clients and reminding them about living a healthy life by taking good care of themselves
- HIV/AIDS and STI counselling and testing are based on consent, confidentiality, prevention, treatment and care
- Helping clients to get treatment on time and clarifying their doubts

Satisfaction of Clients receiving Counselling at ICTC centres

The counsellors ensured that their client is fully informed about different tests available to them by capturing all the related critical variables on early stage of disease". One of the female counsellors at ICTC Chizami mentioned that,

"I ask from clients and ensure if they are well informed and have fully understood or whether any doubts remaining or clarifications required."

She also mentioned that they have displayed different test options in their office so that the clients can understand and get access

Some of the best practices undertaken by Counsellors at Phek district

- I. Addressing discrimination and stigma which is a prominent issue in tribal society
- II. Reaching remote and rural populations at far of villages
- III. Involvement of Community leaders and influencers, as the general public have belief
- IV. in them and look up to them
- V. Integrating traditional healthcare practice with modern ones

Strengths and Weaknesses of Counselling Services offered at ICTC centres

Statement	Weakness
Counsellors have a high ability to establish a comfortable and supportive environment during pre-test counselling	One area for improvement could be the counsellor's ability to provide more detailed information about different testing options during pre-test counselling
Their knowledge and ability to explain the testing process, risks, and implications of results are good	There is room for improvement in addressing emotional needs post-test counselling
They are effective in addressing clients' fears, anxieties, and misconceptions during pre-test counselling	The counsellor's ability to assist in developing personalized plans for managing HIV status and overall health can be given importance
They demonstrate confidentiality, non-judgmental attitudes, and responsiveness to clients' concerns	Limited accessibility, and insufficient trained staff
Opportunities	Challenges
Continued education and training can enhance counsellors' abilities to provide more detailed information about testing options and improve their proficiency in addressing emotional needs post-test counselling	Stigma and discrimination faced by clients with HIV-positive status require continuous efforts to address it effectively
Collaboration with other healthcare professionals and organisations can further enhance comprehensive care for clients	Ensuring counsellors stay updated on the latest guidelines and information can be challenging but crucial for providing the best support to clients.
Strengthening partnerships with community resources can expand support services available to clients	Adapting counselling approaches to meet the diverse needs of clients require ongoing evaluation and adjustment

Conclusion

In conclusion, the ICTCs in Phek district are performing well, however there are some challenges and gaps on delayed HIV diagnosis, stigma, limited accessibility, and insufficient trained staff. which require improvement for well-functioning of all the ICTCs; and strategies like improving counselling quality, ensuring privacy, and enhancing training are recommended for effective counselling. ICTCs play a pivotal role in early HIV detection, prevention, and care; and require strengthening, continuous mobilization and evaluation for optimal services and client support.

Recommendations

- Anonymous Feedback System:** Dedicated private space can be enhanced for confidentiality, to instill client security and trust. Anonymous feedback system can be promoted to empower clients and ensure continual improvement in client-centric services
- Community Awareness and Networking:** A comprehensive program to scale up on educating community about HIV testing in collaboration with local leaders can build a supportive network.
- Continuous Training and Professional Development:** Regular updates and knowledge-sharing sessions can enhance counselling team skills and effectiveness. The counsellors should be allowed to pursue at least diploma course in counselling psychology to update their knowledge.
- Continuous Monitoring and Evaluation:** Continuous monitoring and evaluation can enhance counselling effectiveness, ensuring responsiveness to evolving community needs. A data-driven approach will ensure evidence-based decision-making, contributing to sustained improvements in counselling services.

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Facilitators and Barriers in Detecting HIV cases through Index Case/ Family Testing Approach in Puducherry: A Mixed Method Study

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Introduction

HIV prevalence in India among adults (15-49 years) was 0.21%, with 0.22% in males and 0.19% in females in year 2022 [1]. The prevalence in Puducherry was 0.31% with 3,962 people living with HIV (PLHIV) [1].

In 2020, UNAIDS released the 95-95-95 strategy to achieve the sustainable development goals (SDG) of ending AIDS as a public health threat by 2030 [2]. The first 95% target is to ensure 95% of PLHIV to know their HIV status. In India, 77% of all PLHIV know their HIV status whereas in Puducherry, only 42% of PLHIV could know their HIV status in 2021[1]. The challenge before National AIDS Control Organisation (NACO) has been to reach all the HIV infected people in India through HIV counselling and testing services.

Heterosexual transmission, constituting 80% of HIV transmission mode in India [3], occurs mainly within stable heterosexual relationships. Couples living in a sero-discordant relationship face the highest risk of HIV transmission [4]. Partner testing for PLHIV is very crucial for prevention and treatment, yet uptake is very low [5] due to various challenges associated with behavioural, socio-cultural and legal contexts [6].

To address this gap, voluntary assisted partner notification services (aPNS) was recommended by NACO in the year 2022. There is limited information from the programmatic implementation of aPNS on the prevalence and determinants of partner HIV testing. In this study, we aimed to assess the status of partner HIV testing and the factors influencing in Puducherry.

Methodology

This mixed method study followed an Explanatory Sequential Design. In first phase, a record based cross-sectional descriptive study was carried out by reviewing records from all seven ICTC centres in Puducherry, focusing on newly diagnosed HIV cases between July 2022 and June 2023. Universal sampling technique was adopted, with a total sample of 191 cases in that period. Data were extracted on demographics, testing services offered, partner details and outcomes. In the second phase, 18 In-Depth Interviews (IDIs) with PLHIV and 11 Key Informant Interviews (KIIs) with healthcare workers (HCWs) at ICTC and ART centres were carried-out and purposive sampling was used to selected PLHIV and other stakeholders. IDIs and KIIs was done till the point of saturation. Data collection involved semi-structured interviews, audio recording, and transcription in Tamil, translated into English for analysis.

Data were entered in MS Excel and analysed using SPSS version20. The data were represented as frequency, percentage, mean and standard deviation. The associations were assessed using chi-square test, fisher exact test or t-test. $P < 0.05$ was considered as significant. Binary logistic regression analysis was also done to determine the effects of the factors on partner testing under the index testing. In qualitative, manual content analysis was conducted, and transcripts were coded to develop categories and themes.

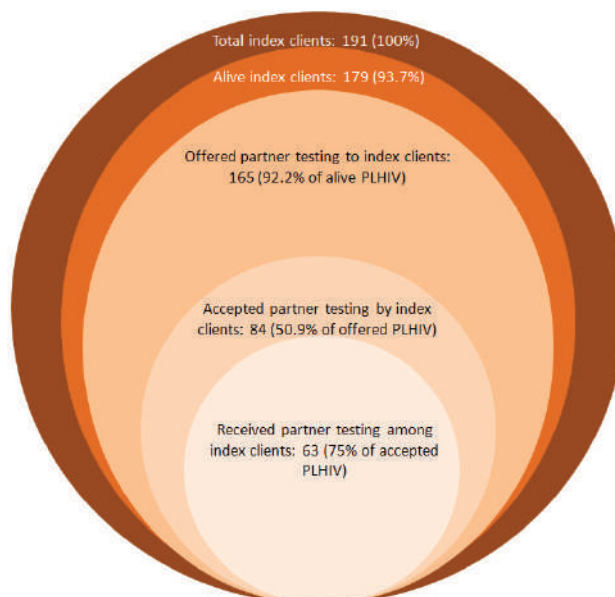
Findings

Quantitative

Around 191 PLHIV were newly diagnosed in Puducherry during the study period. Of these 191 newly diagnosed, 6.3% died before the offering of index testing. Around 165 PLHIV were offered partner testing and out of these 165 PLHIV, only 50.9% accepted the partner testing. Of those accepted partner testing, only 75% got tested their partners (fig. 1). All the partners of index testing clients were contacted through client referral model.

Of the newly diagnosed, 48.7% were aged between 41-60 years followed by 44% in 21-40 years; 57.1% were males and 42.9% were females; 96.3% were Hindus; 53.9% were married and the rest 46.1% were unmarried, separated or single; 67% were coming from Tamil Nadu followed by 27.7% from Puducherry; 55.5% were resided in rural areas and 43.5% in urban areas. Around 12.6% were educated till primary education and 15% were unskilled labourers.

Figure 1 Percentage of Index Clients who were Alive, Offered, Accepted and received Index Testing Services during July 2022 to June 2023



Findings in Table 1 showed the factors influencing the partner testing of index clients. Binary logistic regression analysis showed that index clients, who were married, had 20 times higher odds of receiving an HIV test for partners/children (AOR: 20.332; 95% CI: 7.171, 57.650; p value<0.001) than their counterpart. Index clients, who visited IGMCRI, had 9 times higher odds of receiving an HIV test for partners/children (AOR: 9.083; 95% CI: 3.162, 26.093; p value<0.001) and Index clients, being male, had 4 times higher odds of receiving an HIV test (AOR: 3.478; 95% CI: 1.588, 7.616; p value=0.002).

Table 1 Factors influencing Index Clients to make their Partner/children receiving HIV test (n=179)

Variables	Received HIV test	Not received HIV test	P value	Crude OR CI 95%	Adjusted OR CI 95%
Name of testing centre					
IGMCRI	26 (41.3%)	25 (19.8%)	0.002	2.841 (1.442-5.598)	7.583 (2.400-23.964)
Other centres	37 (58.7%)	93 (80.2%)		Ref	
Age groups (years)					
0-20	0 (0.0%)	4 (3.4%)	0.361	NA	-
21-40	27 (42.9%)	54 (46.6%)		0.625 (0.155-2.518)	
41-60	32 (50.8%)	53 (45.7%)		0.755 (0.189-3.018)	
61-80	4 (6.3%)	5 (4.3%)		Ref	
Gender					
Male	44 (69.8%)	59 (50.9%)	0.014	2.237 (1.168-4.284)	3.451 (1.574-7.566)
Female	19 (30.2%)	57 (49.1%)			
Religion					
Christian	0 (0.0%)	2 (1.7%)	0.495	-	-
Hindu	62 (98.4%)	112 (96.6%)		1.107 (0.098-12.45)	
Muslim	1 (1.6%)	2 (1.7%)		Ref	

Marital Status					
Married	51 (81.0%)	43 (37.1%)	<0.001	7.215 (3.466-15.018)	19.258 (6.769-54.791)
Others (unmarried, separated or single)	12 (19.0%)	73 (62.9%)			
Urban/Rural					
Rural	33 (52.4%)	67 (57.8%)	0.489	1.243 (0.671-2.303)	-
Urban	30 (47.6%)	49 (42.2%)			
Education					
Higher education	10 (27.0%)	11 (26.2%)	0.992	Ref	-
Pre university education	11 (29.7%)	13 (31.0%)		0.931 (0.288-3.011)	
Secondary education and below	16 (43.2%)	18 (42.9%)		0.978 (0.329-2.906)	
Occupation					
Professional, skilled, semi-skilled	14 (37.8%)	12 (27.9%)	0.3366	Ref	-
Unskilled	14 (37.8%)	14 (32.6%)		0.857 (0.294-2.497)	
Unemployed	9 (24.3%)	17 (39.5%)		0.454 (0.149-1.386)	
Residence in Puducherry					
Yes	27 (42.9%)	25 (21.6%)	0.003	2.730 (1.401-5.319)	1.431 (0.571-3.587)
No	36 (57.1%)	91 (78.4%)		Ref	

Qualitative The perspective of health care providers and PLHIV towards Index testing is provided in Table 2.

Table 2 Perspectives of Health Care Providers & PLHIV towards Index Testing (N=29)

Category	Barriers	Facilitators	Recommendations
Client Referral	Disclosing the status leading to IPV; Longer interval to disclose	Client's awareness to protect the partner	Counsellor must reveal client's status to partner
Provider Referral	Irritation; denial during phone call; threatening to suicide	Partners awareness about the disease	Least preferred method as the failure rate is high
Dual Referral	Partner is irregular; from other State;	Trained Counsellor	Preferred model when the partner is regular
Camp Model	Unknown locality; having multiple contacts	TI NGOs support; address available	Preferred model in disputed relationship, IPV risk, irregular partners
Obstacles	Confidentiality; stigma; fear of identity disclosure; fear of IPV	Peer and legal support	Awareness generation: Facilitators should accompany at initial visits
	Client's death	Address available	Awareness; Camp approach
	Partner from other States (transport)	Existing ICTC infrastructure all over India	Suggest client/partner to register in nearby ICTC; follow up with that ICTC counsellor
Motivation	Monitory motivation can't be done	Client's experiencing treatment benefits	Awareness generation
Reporting process & Supervision	No separate register. No specific supervision & monitoring	Good reporting process & supervision from SACS & NACO	Separate IT register; Monthly supervision
Manpower	Less manpower; high case load; time consuming	Trained & motivated counsellors	Manpower to be strengthened as per NACO guidelines
Training	Not happening regularly and exclusively; Not all of them involved	Induction & refresher training; Review meeting	Conduct yearly exclusive IT training& use the forum for annual review & feedback
Difficult cases not wanting to reveal	Women PLHIV	counselling; Legal support	Get the location; create awareness; conduct camp/ CBS
Record	No exclusive IT register	Recording of IT is happening	Provision of exclusive IT registers

Other Support Mechanism	Clients are not mapped	Available address in ICTC registers	Area mapping to be done every 3 months by ICTC counsellors
	Outreach activity is least utilised	Existing CSC/ NGOs	ICTC counsellors to make area visits to strength IT
	Old PLHIV are not included in IT	PLHIV on ART for many years	ART & ICTC counsellors to extend IT to all PLHIVs
	Non-functioning helpline numbers	Availability of IEC materials	HIV helpline to be checked by authorities regularly

*IT -Index Testing; CSC- Care & Support Centres; NGO- Non-Govt. Organisation; CBS-Community Based Screening

Some of the participants opined about their perspectives and usefulness of the camp type of partner testing model

"As a widower, I approached a married lady in my neighbourhood who lives with her children. I cited my status as a widower as the reason for approaching her.....Approximately one year ago, I was diagnosed with this condition. However, I am unable to directly inform her to get tested now. I can provide the address for testing but cannot reveal my identity. Their family would react severely if they were aware of my situation."

[One of the PLHIV]

"The index client was unable to convince their partner to undergo testing. When I contacted that partner directly, they immediately denied having any contact with the index client. The failure rate is high in the provider referral method."

[One of the healthcare providers]

Factors that motivate the clients to bring their partners for index testing:

"Once they are put on treatment, they will observe improvements in their own health, which can serve as motivation for the positive person to bring their partners for testing."

[One of the healthcare providers]

"Making them fully aware of HIV and its consequences during the initial visit itself can serve as a powerful motivator for positive individuals."

[One of the PLHIV]

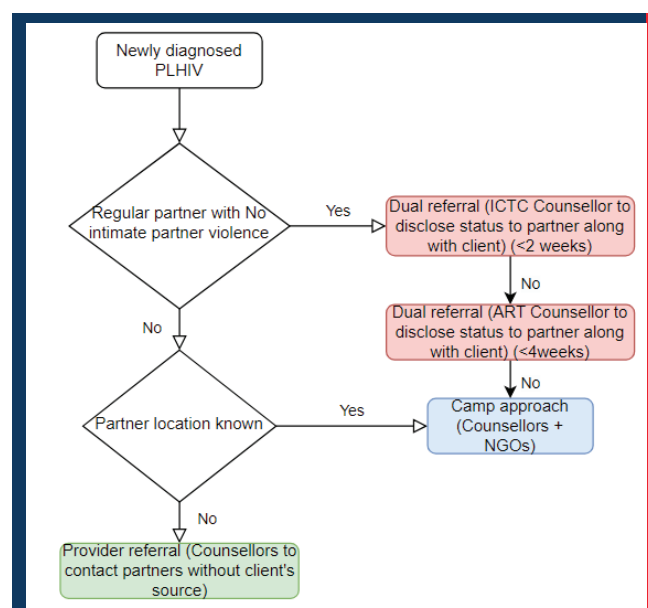
Obstacles that prevent clients from engaging in partner testing programmes:

"Many times, helplines were non-functional, which hindered my ability to clarify doubts related to HIV testing. In this city, transportation and distance are not barriers. However, a lack of understanding about the partner could pose a significant barrier to testing." - One of the PLHIV

"Some individuals may fear a breach in confidentiality with their partner, while others worry about negative perceptions from others. Additionally, there may be apprehension about family members becoming aware of their condition."

[One of the healthcare providers]

Figure 2 Simplified Approach for Assisted Partner Notification through Qualitative Research



Conclusion

Less than half of the index clients reported their partners and children. Only one third of the index client's partners & children received an HIV test. Among the listed partners and children, one third were found to be HIV positive. Facilitating factors for partners receiving HIV test were being Puducherry residents, being married, being male and accessing ICTC services at IGMCR&RI. Stigma, partner violence, client's death, exposure from other states were the barriers whereas awareness, training, infrastructure, peer support were the facilitating factors from qualitative research.

Recommendations

Awareness about the disease, availability of free and effective treatment and legal support must be provided to clients. Exclusive index testing register, yearly training, quarterly supervisory visits, supportive feedback and addressing the manpower requirements could be done to ensure optimal service delivery by providers. Dual model for regular partners and camp approach for difficult cases could be preferred. Due importance to other State partners must be given by linking and following up with them through nearby ICTC networks.

Acknowledgements

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Client-Initiated vs. Provider-Initiated Utilisation of HIV Counselling and Testing Services at Integrated Counselling and Testing Centres: A Comparative Study from Amritsar and Tarn Taran Districts of Punjab

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Introduction

HIV counselling and testing service is a key entry point to prevention of HIV infection and to treatment and care of people who are infected with HIV. When availing counselling and testing services, people can access accurate information about HIV prevention and care and undergo HIV test in a supportive and confidential environment [1].

Integrated Counselling and Testing Centre (ICTC) is an entry point to care and support services, which provides people with an opportunity to learn and accept their HIV sero-status in a confidential environment [2]. In the financial year of 2015-2016, more than 29 million clients had availed the counselling and testing services at ICTC throughout the country.

The challenge is to make all HIV-infected people aware of their status so that they adopt healthy lifestyles and prevent the transmission of HIV to others. Only 25–30% of the people who are HIV positive in India are aware of their HIV status [3].

A person is counselled and tested for HIV at an ICTC either of his own freewill (client initiated) or as advised by a medical provider (provider initiated), but client-initiated utilisation of these services is limited [4].

As no comparative study has been conducted which compares the utilization of PITC (Provider Initiated Testing & Counselling) & CITC (Client Initiated Testing & Counselling) as well as various factors associated with them. We conducted this study with an aim to compare the utilisation rates of PITC & CITC as well as determine the reasons associated with their utilisation. The specific objectives for the study were:

- To compare the proportion of utilisation of PITC & CITC services at ICTCs of district Amritsar & Tarn Taran
- To determine the socio-demographic variables associated with utilisation of PITC & CITC
- To compare the risk profile of clients receiving PITC & CITC

Methodology

This cross-sectional study was conducted among clients of either sex and aged more than 18 years attending ICTC for HIV testing and counselling located at Government Medical College, Amritsar & Civil Hospital, Tarn Taran over a period of 4 months after taking permission from the Institutional Ethical Committee.

A consecutive sampling technique was used to recruit participants from two ICTC centres in Amritsar and Tarn Taran districts. Each day (excluding weekends and public holidays), the first 20 clients attending the centres were recruited. With approximately 20 working days in a month, a total of 400 clients per centre was enrolled over a one-month period, resulting in a combined sample size of 800 participants.

Upon obtaining written informed consent, one-on-one interviews were conducted using a structured questionnaire, collecting information on sociodemographic details, behavioural history, service initiation type (Provider-Initiated Testing and Counselling [PITC] vs. Client-Initiated Testing and Counselling [CITC]), reasons for service utilisation, and knowledge and attitudes about HIV. Interviews were conducted after pre-test counselling and sample collection, while post-test counselling outcomes and HIV results were recorded once participants received their test results.

To analyse trends in PITC and CITC utilisation, secondary data from ICTC registers were extracted for the past five years, including annual client counts and categorisation by service initiation type.

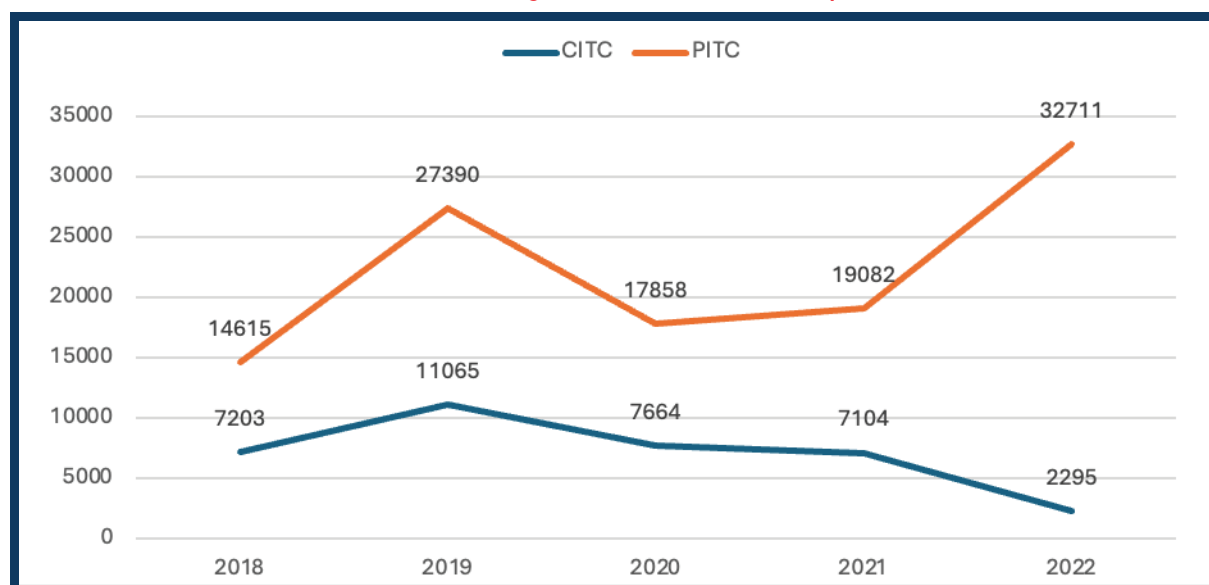
Data was compiled and entered in Microsoft Excel and analysed using R software. The association strength between variables was assessed through odds ratios, with statistical significance determined at p-values <0.05.

Findings

Trends of Provider and Client Initiated Utilisation of ICTC services

A total of 1,46,987 clients attended both the ICTC centres included in the study over a period of 5 years (2018-2022). Among these 59% were males and 41% were females. As far as client initiated and provider-initiated utilisation of ICTC services was concerned, approximately 2/3rd (76%) of clients were provider initiated whereas 1/3rd (24%) was client initiated. Trends of PITC and CITC utilisation is shown in Figure 1.

Figure 1 Trends of CITC and PITC Utilisation of Services at ICTC centres at Government Medical College, Amritsar and Civil Hospital, Tarn Taran



As far as sex distribution of clients was concerned, not much difference was found between PITC and CITC clients. Among PITC, 60% were males and 40% were females whereas among CITC 61% were males and 39% were females.

Socio-Demographic Determinants associated with Utilising PITC and CITC at Study Sites

A total of 800 clients attending ICTC centres of GMC Amritsar (n=400) and Civil Hospital, Tarn Taran (n=400) were included in the study where various socio-demographic factors associated with PITC and CITC utilisation of services were determined.

The odds of utilisation of client-initiated testing services were 3.2 (95% CI: 1.5-6.8) times higher among study participants aged between 18-45 years. Males sex [OR=1.88 (1.2-2.8)], rural residence [OR=2.2 (1.5-3.4)], educational status above primary [OR=1.9 (1.2-2.8)], being married [OR=1.7 (1.04-2.7)] and employed [OR=1.8 (1.2-2.7)] were significantly associated with CITC utilisation of counselling and testing services.

HIV positivity rates for HIV were found to be significantly higher among CITC utilisers (13%) in comparison to PITC utilisers (3%) with an odds ratio of 5.3 (95% CI: 2.7-10.4).

Those with no HRG history were at 4.2 times (95% CI: 2.4-7.5) higher odds of utilising CITC in comparison to PITC.

As far as sexual behaviour of study participants was concerned, 86% were sexually active at the time of the study among whom 81% had steady partners. 80% reported to have 2 or less sexual partners in lifetime and overall condom usage was 50% whereas regular condom use among the users was found to be 43%.

Table 1 Association of Sexual Behaviour with Type of Utilization (CITC/ PITC) of ICT

Variable	CITC (N=137) n(%)	PITC (N=663) n(%)	Total (N=800)n(%)	OR (95% CI)
Sexually active				
Yes	122 (89)	564 (85)	686 (86)	1.4 (0.8-2.5)
No	15 (11)	99 (14)	114 (14)	Reference
Type of partner				
Casual	41 (34)	90 (16)	131 (19)	2.7 (1.7-4.1)
Steady/ Husband/ Wife	81 (66)	474 (84)	555 (81)	Reference
Number of partners				
≤2	91 (75)	461 (82)	552 (80)	0.7 (0.4-1.03)
>2	31 (25)	103 (18)	134 (20)	Reference
Condom Use				
Yes	49 (40)	292 (52)	341 (50)	Reference
No	73 (60)	272 (48)	345 (50)	1.6 (1.1-2.4)
Type of condom use				
Regular	17 (35)	131 (45)	148 (43)	Reference
Irregular	32 (65)	161 (55)	193 (57)	1.5 (0.8-2.9)

Conclusion

The study revealed that approximately one-third of clients at the ICTC centres in the study areas were utilising services through CITC. The CITC utilisation was more common among certain demographics i.e., younger age groups (18-45 years), males, individuals from rural areas, employed, and with education levels above primary school. Notably, CITC utilisation was 4.2 times more likely among participants who did not belong to any high-risk group for HIV. Additionally, specific sexual behaviours were linked to CITC utilisation, with a significant association found among individuals with casual sexual partners and those reporting inconsistent condom use. These findings emphasise the importance of targeted awareness and prevention efforts that address the behaviours and demographics associated with CITC utilisation in the community.

Recommendations

Given the limited utilisation of CITC services, efforts must be intensified to raise awareness about HIV counselling and testing services at ICTCs. Expanding Information, Education, and Communication (IEC) initiatives can play a crucial role in achieving the “95-95-95” targets by educating the community on the availability and importance of these services. To encourage individuals to know their HIV status, it’s essential to empower communities through education and employment opportunities. Additionally, mobilising the single and unmarried population for HIV testing can further increase CITC utilisation, promoting early diagnosis and prevention. Increasing mobile van testing laboratories can help reach underserved populations, particularly in rural areas and urban slums where drug use is prevalent. Collaborating with district administration for targeted testing in these communities could address one of the key drivers of HIV transmission in the region, enabling more accessible and client-initiated HIV testing.

Study Limitations

- The sample size was calculated using a proxy indicator i.e., positivity rates among CITC and PITC and it was found to be adequate.
- A steep fall in CITC immediately after COVID-19 pandemic because of change in the definition in year 2021.

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Barrier to HIV Testing in Spouses, Partners, and Children of People Living with HIV (PLHIV) Registered at Select ART Centres in Uttarakhand

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Introduction

HIV testing, a key component of the UNAIDS 95-95-95 plan, is essential for early HIV treatment, care, and prevention [1]. Despite the efforts of National AIDS Control Programme (NACP), only 78% of PLHIV know their status and 83% are taking ART [2].

HIV counselling and testing capacity has expanded over the years, but the uptake remains low, ranging from 0.1 lakh to 40 lakh across the country, with Uttarakhand reporting between 1 to 5 lakh tests. In India, nearly 83% of HIV infections are transmitted through heterosexual contact. The Essential Packages of HIV Testing and Counselling Service Guidelines (2016) emphasise the importance of spouse testing or partner notification due to the heightened risk of HIV transmission from an HIV-positive individual to their sexual partner [3]. Nationally, 46% of HIV-positive spouses/partners were tested in 2020-21, while in Uttarakhand, the testing rate was only 30-40%, with a sero-positivity rate of 43.7% [2]. Couple counselling, as recommended by NACO, plays a critical role in helping clients disclose their status, cope with stress, and encourage their partners to get tested early and at six-month intervals. However, several barriers hinder HIV testing among at-risk contacts in India which include HIV-related stigma, social barriers, psychological challenges and lack of awareness regarding available options for testing. [4-5]. Non-disclosure of HIV status and lack of awareness and risk perception are additional barriers [6]. Indian data on barriers to HIV testing for spouses or at-risk children of People Living with HIV (PLHIV) is limited. Therefore, this study was conducted to identify the barriers to HIV testing among secondary cases and at-risk family members or partners at ART centres. The findings aim to fill this gap and inform strategies to improve testing uptake and reduce HIV transmission risks within households.

Methodology

A mixed-method approach was used, combining surveys and interviews, within a 6-month timeframe to identify the barriers to HIV testing among secondary cases and at-risk family members/partners at AIIMS Rishikesh and Doon Hospital in Uttarakhand. Over four months, researchers recruited 200 participants (5 per clinic day, 2 days/week) from clinics serving ART clients. Participants included Hindi-speaking individuals aged 19-64 years who were partners, spouses, or children (secondary cases/at-risk contacts) of ART clients. Exclusion criteria included individuals living alone or those who did not provide consent. Data was collected through a Hindi-language questionnaire, which took 15-20 minutes to complete. The questionnaire included background information (age, demographics) and a validated tool to assess barriers to HIV testing. The Karolinska scale was translated into Hindi, with content and face validity ensured. The scale had four subscales: Personal Consequences, Confidentiality, Structural Barriers, and Socio-Economic Concerns. Open-ended questions about participants' experiences with HIV testing, reasons for past decisions, and willingness to be tested in the future were also included.

Quantitative data (surveys) were analysed using statistical software (SPSS) to identify trends and relationships, while qualitative data (from open-ended questions) were analysed through content analysis to understand the reasons behind participants' choices.

Findings

When contacted by the ART centres, 168 index cases and 41 contacts were identified. Of the 168 index cases, 159 had disclosed their HIV status to their partners, resulting in the enrolment of their contacts (partners) into the study. A total of 200 participants were enrolled.

The mean age of the study participants was 37 years (SD = 10 years). Two-thirds of participants were female. The majority were married and identified as Hindu (90.5%). Most participants worked as hotel staff (41.5%), and four-fifths had a monthly income below 10,000 INR. Among the contacts, 49.5% were wives, and 45% were husbands of the index cases. The majority (97%) of participants had undergone HIV testing, with the median time interval between learning about their risk and HIV testing being less than 7-30 days. Notably, 70% of contacts were newly diagnosed as HIV-positive during the first testing.

The study also identified several barriers to HIV testing. A significant proportion of participants reported feeling strongly connected to concerns such as fear of becoming sick (74.5%), worries about confidentiality (59.5%), fear of losing friends or social contacts (42%), fear of losing their partner (40%), and lack of time (42.5%). In contrast, fewer participants expressed concerns about issues like the potential negative impact on their sex life, fear of being recognised at the testing site, lack of awareness about where to go for testing, or fear of losing their job.

When barriers were grouped into subscales and normalised to a 0-1 score, the highest-rated barrier was personal consequences (0.42), followed by confidentiality issues (0.32). These findings highlight the importance of addressing personal and social concerns in the promotion of HIV testing among at-risk family members and partners of PLHIV.

Association with Socio-Demographic Profile

Participants who were illiterate and had primary or secondary education had barrier scores that were 8.4 and 5.8 points higher, respectively, than those with graduate-level education, after adjusting for other sociodemographic factors. No significant associations were found with other sociodemographic variables.

Table 1 Proportion of Participants facing varying Barriers to HIV Testing

S. N	Barriers to HIV-testing	Surely relates to me no. (%) (5)	Somehow relates to me no. (%) (4)	May or may not relate to me no. (%) (3)	Somehow Don't relate to me no. (%) (2)	Surely don't relate to me no. (%) (1)
1	I was afraid of becoming sick	83 (41.5)	66 (33)	12 (6)	13 (6.5)	26 (13)
2	I was worried about feeling like a failure	52 (26)	37 (18.5)	51 (25.5)	23(11.5)	37 (18.5)
3	I was worried about confidentiality	69 (34.5)	50 (25)	22 (11)	21(10.5)	38 (19)
4	I was afraid that my sex life would be negatively affected	32 (16)	29 (14.5)	59 (29.5)	36 (18)	44 (22)
5	I was afraid of losing my friends and other social contacts	46 (23)	38 (19)	42 (21)	22 (11)	52 (26)
6	People might recognise me at testing site	43 (21.5)	14 (7)	40 (20)	48 (24)	55 (27.5)
7	I did not want to know the results	19 (9.5)	21 (10.5)	31 (15.5)	42 (21)	87 (43.5)
8	I was afraid of losing my family	42 (21)	36 (18)	19 (9.5)	54 (27)	49 (24.5)
9	I was afraid of losing my partner	40 (20)	40 (20)	33 (16.5)	41(20.5)	46 (23)
10	I did not know where to go for testing	40 (20)	16 (8)	4 (2)	70 (35)	70 (35)
11	I was worried about the legal consequences	27 (13.5)	32 (16)	49 (24.5)	39(19.5)	53 (26.5)
12	I was afraid of losing my job	28 (14)	27 (13.5)	42 (21)	48 (24)	55 (27.5)
13	There was no cure so why get tested	19 (9.5)	10 (5)	16 (8)	62 (31)	93 (46.5)

14	Did not have transportation to a testing site	34 (17)	26 (13)	13 (6.5)	37(18.5)	90 (45)
15	I did not have enough time	57 (28.5)	28 (14)	23 (11.5)	20 (10)	72 (36)
16	I was worried about my insurance/insurance	31 (15.5)	18 (9)	27 (13.5)	48 (24)	76 (38)
17	The testing site was too far away	41 (20.5)	22 (11)	19 (9.5)	42 (21)	76 (38)
18	I did not like the people at testing site	23 (11.5)	7 (3.5)	21 (10.5)	41(20.5)	108 (54)

Qualitative Findings on Barriers in HIV testing

Open-ended responses revealed the emotional turmoil surrounding potential testing, with guilt, shame, and fear were the significant barrier in HIV testing among the study participants.

"I don't know how will he react or he will leave me alone, how will I tell him it's not my fault at all."

Many expressed willingness to test despite initial anxiety, suggesting the effectiveness of stigma reduction efforts and accessible testing options –

"for sake of my children I surely wants to do their testing but fearful about result, what will be our fate."

Conclusion

The findings of the present study indicate that a high percentage of contacts (spouses) underwent testing within six months of the HIV diagnosis, suggesting successful outreach and potentially effective initial counselling. However, the high HIV positivity rate emphasises the urgent need for preventive interventions. The non-disclosure of HIV status as a barrier to testing underscores the importance of addressing the stigma and fear associated with HIV. Additionally, the correlation between lower education levels and higher barriers to testing suggests that targeted educational interventions could significantly improve testing rates. In conclusion, while the study highlights the successful reach of HIV testing, it also emphasises the need for stigma-reduction and educational programmes to promote early detection and treatment initiation.

Recommendations

- **High Testing Rate:** An impressive 97% of participants (contacts) had undergone HIV testing, indicating a positive trend in awareness and willingness to get tested.
- **Timely Testing:** The time interval between awareness of the index case diagnosis and testing was less than six months. Early testing allows timely intervention and better outcomes. 70.5% positivity rate underscores the importance of prompt testing.
- **Non-Disclosure:** Some participants had not yet undergone testing due to non-disclosure. Addressing stigma and promoting open communication about HIV status could encourage more individuals to get tested.
- **Barriers to Testing:** All participants faced varying barriers to HIV testing, mostly personal factors (such as fear or denial) and concerns about confidentiality, which need to be addressed by targeted campaigning and counselling.
- There is a need for targeted educational campaigns for the less educated.

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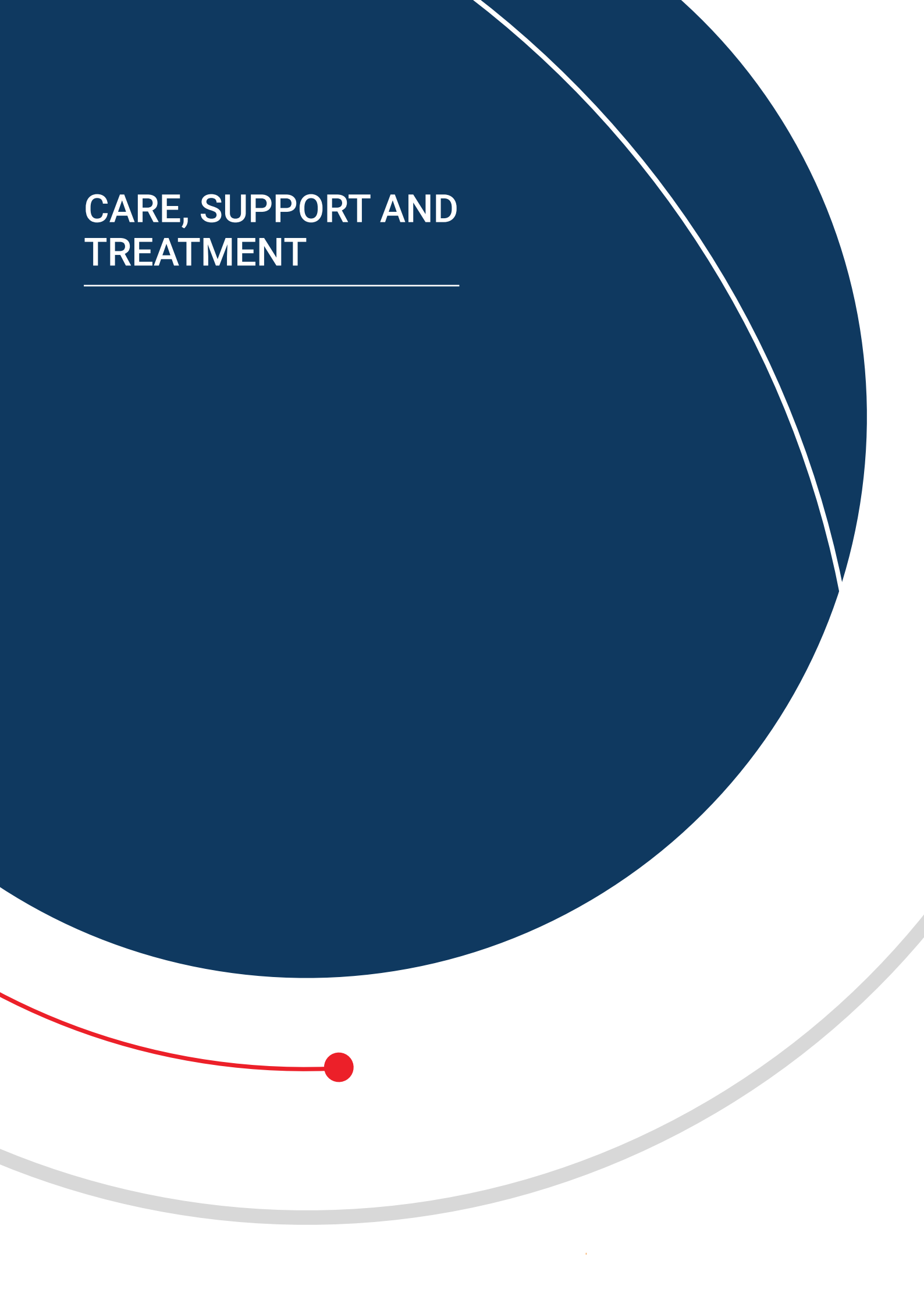
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CARE, SUPPORT AND TREATMENT





A Mixed Method Study on Mental Morbidity and Coping Mechanism in People Living with HIV/AIDS (PLHIV) of Andaman and Nicobar Islands

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Introduction

The development of combined antiretroviral therapy (cART) has changed HIV to a chronic management disease with a life expectancy approaching population norms for patients who comply with treatment [1].

The virus also has broad effects on the nervous system, including evidence for direct pathology in the brain, spinal cord, and peripheral nerves [2]. The primary HIV-associated neurocognitive disorder, combined with a unique range of opportunistic infections especially cryptococcal and tubercular meningitis, toxoplasma encephalitis, and progressive multifocal leukoencephalopathy [3, 4].

There has been increasing recognition of a syndemic including HIV, substance use, and mental illnesses encompassing schizophrenia spectrum disorders, depression, bipolar disorder, anxiety disorders and other mental illnesses [5]. Mental illness is regarded as a chronic disease that, in many instances, tends to fluctuate in terms of symptomatically depending on the specific diagnosis (e.g., bipolar affective disorder), as well as individual responses to medications and psychotherapy, including the availability of support systems (e.g., family, friends).

The stigma associated with mental health issues is generally cited as the main formidable barrier to mental health care. Understanding the type, severity, and stage of mental illness with a patient's motivation, lifestyle, and personal perception can enhance the knowledge of the association of HIV/AIDS with mental health issues.

Therefore, this study was conducted to determine the prevalence of mental morbidity of PLHIV and to study the coping strategies adopted and qualitative assessment of coping mechanism in PLHIV patients.

Methodology

Methodology for Objective 1 & 2

The study was conducted among People living with HIV (PLHIV) registered at the ART centre at GB Pant Hospital, Port Blair, Andaman and Nicobar Islands. All PLHIV who attended the FI-ART centre for regular follow-ups were contacted in person and provided with detailed information about the study. After obtaining voluntary written consent, participants were referred to the Department of Psychiatry for the evaluation of mental morbidity (n=100). Diagnoses were made based on the ICD-10 classification. Following the evaluation, the coping mechanisms of all 100 patients were assessed using the standardised Carver C.S. COPE Inventory.

Methodology for Objective 3

For patients with poor coping scores, a detailed in-depth interview was conducted to assess the factors influencing their current condition. Since some study participants were hesitant to visit the hospital or have home visits, the interview was conducted telephonically at their request. After obtaining informed verbal consent, telephonic in-depth interviews were carried out. Only the ICTC counsellor, interviewer, and the team were present during the interview. Each participant was contacted by the counsellor at the ICTC centre, who explained the procedure to them. The interview lasted approximately 15-20 minutes. For participants who did not answer the call the first time, two additional calls were made on alternate days to ensure no participant was left out. If the participant did not answer the call or refused to participate after three attempts, they were excluded from the study. All collected data was entered into an MS Excel spreadsheet. After coding, the data was analysed using SPSS version 24. The Chi-square test was used to assess the association between various socio-demographic factors, mental comorbidity, and coping mechanisms. The qualitative data were analysed using thematic analysis with open coding of themes.

Ethical approval was taken from the Institutional Ethical Committee, Andaman and Nicobar Institute of Medical Sciences (ANIIMS), Port Blair.

Findings

At the beginning of the study, a total of 140 PLHIV were registered at the ART centre at GB Pant Hospital, Port Blair. Of these, 20 patients were non-traceable. Among the remaining 120 patients, 20 refused to give consent. Therefore, the first two objectives were completed with 100 participants.

The mean age of the participants was 42.30 ± 11.93 years, and 57% were male. Sixty-six percent of the study participants had completed only school education. Eighty-four percent acquired the disease through sexual transmission, and 8% were unaware of the route of transmission. Eight percent were in the high-risk group (MSM), and 2% were female sex workers (Table 1).

Table 1 Socio-Demographic Details of Study Participants (n=100)

Socio Demographic Variables		Frequency	Percent
Age	<= 25 years	10	10.0
	26 -35 years	16	16.0
	36 – 45 years	38	38.0
	46 – 55 years	21	21.0
	>=56 years	15	15.0
Gender	Female	43	43.0
	Male	57	57.0
Sexual Orientation	Bisexual	1	1.0
	Heterosexual	99	99.0
Religion	Christian	12	12.0
	Hindu	83	83.0
	Muslim	4	4.0
	Others	1	1.0
Education	Graduate and above	17	17.0
	Illiterate	17	17.0
	School	66	66.0
Occupation	Semi-skilled	21	21.0
	Skilled	11	11.0
	Unemployed	33	33.0
	Unskilled	35	35.0
Type of Family	Joint/Extended	16	16.0
	Living alone	13	13.0
	Nuclear	71	71.0
Residing in Andaman	1 - 5 years	3	3.0
	More than 5 years	97	97.0
Marital Status	Divorced or separated	6	6.0
	Married	59	59.0
	Unmarried	19	19.0
	Widow	16	16.0
Sexually Active	No	63	63.0
	Yes	37	37.0
Route of Transmission	Blood transfusion	4	4.0
	Not known	8	8.0
	Sexual	84	84.0
	Vertical transmission	4	4.0
High-risk group	FSW	2	2.0
	IDU	2	2.0
	MSM	8	8.0
	None	88	88.0

If one looks at the mental morbidity, it is observed that around 46% of the PLHIV were experiencing mental morbidity at the time of the study

Table 2 Prevalence of Mental Morbidity among PLHIV (n=100)

Mental Morbidity	Frequency	Percent
Yes	46	46.0
No	54	54.0
Total	100	100.0

Table 3 shows that nicotine use (19%) and alcohol use (17%) were the commonly witnessed mental disorders followed by dysthymia (10%) and adjustment disorders (9%) among the study participants.

Behavioural disengagement (74%), instrumental support (71%), and emotional social support (56%) were identified as the most commonly used coping strategies. In contrast, suppression of competing activities (99%), followed by substance abuse (81%), planning (79%), and humour (79%), were the least used coping strategies.

Table 3 Distribution of Mental Morbidity among PLHIV (n=100)

Morbidity	Yes		No	
	Frequency	Percent	Frequency	Percent
Adjustment disorder	9	9.0	91	91.0
Somatization disorder	3	3.0	97	97.0
Depression	3	3.0	97	97.0
Anxiety	2	2.0	98	98.0
Nicotine use	19	19.0	81	81.0
Alcohol	17	17.0	83	83.0
Bipolar	1	1.0	99	99.0
Dysthymia	10	10.0	90	90.0
personality disorder	1	1.0	99	99.0
Sleep disorder	1	1.0	99	99.0

Table 4 shows that around 24% had a poor coping mechanism among the study participants.

Table 4 Distribution of Coping with Stressful Events among PLHIV

Coping status	Frequency	Percent
Good coping	76	76.0
Poor Coping	24	24.0
Total	100	100.0

The association between socio-demographic variables and mental morbidity showed that mental morbidity was higher in the age group of 46-55 years (57.14%), among males (47.26%), those residing in Andaman for 1-5 years (66.6%), and married/divorced/separated individuals (50%). However, none of these associations were statistically significant.

Participants aged 56 years and above had better coping (93.33%) compared to those below 25 years (50%). This association was found to be statistically significant ($p=0.020$). Illiterate participants had better coping (88.23%) compared to those with a graduation or higher education (47.05%). This association was also statistically significant ($p=0.012$). Unmarried participants had poorer coping (36.84%) compared to married (27.11%), separated (16.66%), or widowed (0%) participants, and the association was statistically significant ($p=0.013$).

A few qualitative interviews were conducted among the study participants. Of the 100 participants, 24 with poor coping mechanisms were selected for in-depth interviews. Of these, 18 consented to participate, and qualitative assessments were conducted with these individuals, who exhibited poor coping status. Preliminary findings on emotional responses indicated that most of them were in denial and shock.

"I was frustrated and angry, I am not getting words to express the emotion I felt on that day."

(Participant 9 from South Andaman district)

Those who received familial support appeared to have hope for the future, while those who were lonely or separated did not think about the future. None of the participants disclosed their diagnosis at the workplace.

"I did not disclose my diagnosis to anyone except my family. I am afraid that I will not be accepted in this society."

(Participant 5 from North Andaman)

All participants feared being isolated or not being accepted as normal people. Those who did not aspire for a better future had no solid coping mechanisms, while participants with family support had hope for the future.

"I am scared of the future. I want to live for my daughters."

(Participant 13 from South Andaman)

Conclusion

The prevalence of mental morbidity among PLHIV undergoing ART in the Andaman & Nicobar Islands is high. The majority of patients have adopted various coping methods, with instrumental support and behavioural disengagement being the most prominent strategies.

The emotional responses of PLHIV on ART are closely linked to their family dynamics, societal and professional experiences, self-coping mechanisms, and perceptions of the future. Addressing these emotional challenges requires a multifaceted approach, including mental health support, education on effective coping strategies, and efforts to reduce stigma and discrimination. Such efforts could improve coping mechanisms and overall quality of life for PLHIV undergoing ART.

Recommendations

Destigmatisation and debunking myths related to HIV through robust community-level IEC activities. Recording sessions (audio/video, while maintaining confidentiality) exclusively with patients who serve as real-life examples of coping optimistically with HIV and leading productive, healthy lives, and disseminating these recordings to encourage other patients. Sensitisation and counselling for the family members and friends of PLHIV regarding the importance of emotional support. Tele-consultation services can be provided for addressing mental health issues. Inter-sectoral coordination with Non-Governmental Organisations to conduct therapy and de-addiction sessions.

Limitations

There is still significant stigma in society regarding discussions of mental health, which posed a major challenge for the study team. Additionally, there was considerable reluctance from a majority of the study participants to engage face-to-face in professional and social settings. Communication and travel between islands also presented significant hurdles for both the participants and the study team.

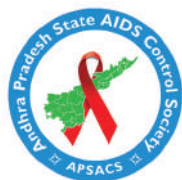
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Factors influencing Frequency of Loss to Follow-Up among PLHIV in Andhra Pradesh

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Introduction

The National AIDS Control Organisation (NACO) provides free HIV counselling and testing services, which are essential for early detection and linking individuals with HIV to treatment and care. These services have been available since 1997 with the aim of identifying People living with HIV (PLHIV) as early as possible and connecting them to prevention, care, and treatment services in a timely manner [1].

The introduction of antiretroviral therapy (ART) in 2004 significantly boosted HIV counselling and testing efforts in India, a country with one of the largest populations of PLHIV. However, ART requires a lifelong commitment to adhering to daily medication schedules and regular visits to ART centres, which remains a challenge [2]. The 95–95–95 UNAIDS target aims for 95% of PLHIV to know their status, 95% of those diagnosed to receive ART, and 95% of those on ART to maintain viral suppression [3–4]. A significant barrier to achieving this target is the retention of patients on ART. Studies from sub-Saharan Africa report that approximately 25% of patients are lost to follow-up (LFU) within a year of starting ART, and this figure rises to 40% after two years. Patients LFU are at greater risk of opportunistic infections and can further spread the virus [5–7]. In India, there is limited and conflicting data on LFU rates and the factors contributing to it. This study aims to explore the prevalence and factors influencing LFU among PLHIV attending an ART centre in a district in Southern India.

Methodology

The study assessed retrospective secondary data records in ART centres and primary data to explore the reasons for loss-to-follow up among PLHIV initiated on ART from January 2017 to January 2023. Confidentiality of the study participants was maintained throughout the study. Research assistants were trained in collecting primary information regarding socio-demographic characteristics and baseline clinical and laboratory characteristics. Secondary data from ART centres record was taken. Patients' LFU were routinely searched for by phone calls and home visits by a group of outreach workers distributed throughout the district, and in those patients who had died, relatives were asked the date of death of the patients.

The sample size was calculated to be 100. Sample size proportionate to LFU rates of each ART centre as per NACO Andhra Pradesh Programme data from the January 2017 to January 2023 was calculated and Anantapur, Kadiri and RDT Bathalapalli ART centres were selected.

By simple random technique 102 patients from all the 3 ART Centres of the Anantapur and Sri Satya Sai districts were selected. Patients who transferred to other ART centres after initiating ART were excluded from the study.

A pretested, semi-structured questionnaire containing socio-demographic characteristics (age, gender, residence, education, profession) and baseline clinical and laboratory characteristics (BMI, duration of initiation of ART, WHO staging, ART regimen, CD4 count, side effects of drugs) was used by trained staff to collect required information from the selected LFU patients through face-to-face interview method.

Findings

Table 1 shows the prevalence of loss to follow up in active ART patients on care in all the ART centres in Anantapur and Satya Sai district. The overall prevalence of LFU in PLHIVs in the two districts was 6.4%, with Anantapur ART showing more LFU.

Table 1 Prevalence of Loss to Follow up in ART facilities

	ART Anantapur (72)	ART Kadiri (17)	ART Bathalapalli (13)	Total
Number of PLHIV registered in HIV care	17788	3017	7041	27846
Number of PLHIV alive on active HIV care	9062	1991	4751	15804
Number of PLHIV who are LFU	666	89	251	1006
Prevalence of LFU	7.3%	4.47%	5.3%	6.4%

The mean age of the LFU HIV patients was 39.6 ±11.3 years.

Table 2 Socio-Demographic Characteristics of PLHIV who are Loss to Follow up in ART facilities (n=102)

Variable	Variable	Number	Percentage
Age	10 - 19 years	3	2.9
	20 - 29 years	14	13.7
	30 - 39 years	34	33.3
	40 - 49 years	32	31.4
	50 - 59 years	14	13.7
	≥ 60 years	5	4.9
	Mean age (in years)	39.6 ±11.3	
Gender	Female	54	52.9
	Male	48	47.1
Educational Status	Illiterate	47	46.1
	Primary school	23	22.5
	Secondary school	23	22.5
	Intermediate	6	5.9
	Degree	2	2
	Post Graduation	1	1
Occupation	Unemployed	18	17.6
	Unskilled	40	39.2
	Semi-skilled	23	22.5
	Skilled	17	16.7
	Professional	4	3.9
Marital Status	Unmarried	20	19.6
	Married	41	40.2
	Separated/Widow	19	18.6
	Divorced	15	14.7
	Missing	7	6.8

The median age at which HIV diagnosed in the study participants was 32 years. Among 102 patients LFU, 42.2% were diagnosed at the age of 16–30 years, 98% were having Stage 1 WHO clinical staging.

Table 3 Clinical Characteristics of HIV Patients with LFU (n=102)

Variable	Variable	Number	Percentage
Age at Diagnosis (Median 32 years)	0 – 15 years	5	4.9
	16 – 30 years	43	42.2
	31 – 45 years	40	39.2
	46 – 60 years	14	13.7
WHO Clinical Stage	Stage I	100	98
	Stage II	02	2
Baseline CD4 (97) (Median 344 cells/cu mm)	≥ 500 cells/cu mm	13.4	12.7
	200 – 499 cells/cu mm	62.9	59.8
	< 200 cells/cu mm	23.7	22.5

Baseline BMI (101) (Median 20.5Kg/m ²)	Underweight	29	28.7
	Normal	53	52.5
	Overweight	17	16.8
	Obese	2	2
Baseline Functional Status	Working	100	98
	Ambulatory	1	1
	Bedridden	1	1
Time Elapsed since LFU (90) (Median 2 Years)	1 year	28	31.1
	1 – 3 years	31	34.4
	3 – 6 years	18	20
	6 – 9 years	6	6.7
	≥10 years	7	7.8

The most common reason perceived by the patients for discontinuation of treatment was patients feeling of being healthy (75.5%), attitude of 'no need for ART' (50%),

Few patients said, "I don't need any medication as I am feeling healthy" and the other said "I retested myself in a private hospital and tested negative. I don't want to continue as I am free from disease. If I come again to ART clinic, they may declare me positive again. I don't want to go through that mental stress again".

Some interviews with the healthcare staff were also conducted. It was asked what the strategies were employed by them to reduce LFU.

Table 4 Reasons for Discontinuation of ART Therapy among LFU (n=101)

Variable	Number	Percentage
1. Distance of ART centre from residence (101) - Median 46 Km		
≤ 10 Kms	20	19.8
11 – 50 Kms	31	30.7
51 – 100 Kms	36	35.6
100 Kms	14	13.9
1. TB HIV Co-infection	2	2
2. Access to Care		
Long distance to ART clinic	40	39.2
Long waiting time	6	5.9
Started treatment at other ART Centre	2	2
High cost of transportation	1	1
Transferred in /out	3	3
Others	16	15.7
3. Quality of ART Clinic		
Staff not co-operative	7	6.9
Afraid of scolding from staff	6	5.9
Risked disclosure to community	27	26.5
Others	5	4.9
4. Work and Family		
Busy at work	45	44.1
Busy with family works	16	15.7
Spouse/family members death/sickness	4	3.9
Others	7	5.9
5. Medical		
Feeling healthy	77	75.5
Didn't need ART	51	50
Side effects of ART	22	21.6
6. Alternative Treatment	3	3

Table 5 shows the strategy of identifying and contacting patients LFU to motivate for continuation of treatment. The strategy of 'sending messages and contacting close relatives' was most followed to reduce LFU followed by call over phone and identification and contacting method.

Table 5 Strategies followed to Reduce LFU

Strategies	Number	Percentage
Identification and contacting method	51	50
Sending messages and contacting close relatives	12	11.8
Home visit	87	85.3
Posted letter	2	2
Call over phone	45	44.1

Conclusion

LFU remains a major factor halting the progress of the prevention and treatment of HIV. LFUs were young adults, female, illiterate married labours. Clinically mostly all are functionally active, with low CD4 counts and less time lapsed from discontinuation. The most common reasons observed were patients' perception of being healthy, treatment being non-essential, side effects of treatment, long distance from health facility, fear of stigma and discrimination of status disclosure, busy with work to find time to visit ART facility. The strategy followed to identify and contact by home visits and over call by outreach workers, NGOs, Peers were employed.

Recommendations

Despite recent strategies to reduce LFU rates among PLHIV, more efforts are needed, particularly in high-risk populations and regions. Patients can benefit from electronic reminders for ART adherence, regular motivation, and education on drug compliance by ASHA, ANM, and MLHP while maintaining confidentiality. Healthcare workers at ART centres must also be properly trained on the importance of preserving confidentiality, which is crucial to the care and well-being of individuals living with HIV.

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Barriers and Facilitators to Accessing HIV Care and Support Services: A Mixed Method Study

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Introduction

Access to HIV care may be the most important step in reducing morbidity and mortality of people living with HIV (PLHIV) and preventing onward transmission [1]. The HIV treatment cascade includes testing and diagnosing HIV, linkage to treatment, initiating and adhering to ART, and sustaining viral suppression [2]. Projections indicate that HIV will be controlled if at least 95% of infected people are aware of their HIV status, 95% of those who are aware of their HIV status receive sustained ART, and 95% of those on ART remain virally suppressed [3,4]. India is committed to the Sustainable Development Goals (SDG) of the United Nations and is committed to achieving the ambitious UNAIDS 95-95-95 targets by 2030. India's strategic focus includes leveraging innovative solutions like removing barriers to access services and implementing policy reforms that create an enabling environment. In line with the treatment programme, the care and support component also adopted the differentiated care model as a client-centered approach that simplifies and adapts HIV services across the cascade to meet the preferences and expectations of various groups of PLHIV. Research has identified many challenges that disrupt HIV care at multiple levels, including at the individual, societal, and health systems levels. These barriers and facilitators could be specific for each region, country, and population [5-8]. Moreover, PLHIV themselves may have the best insight into the specific facilitators and barriers to HIV services through their lived experiences [9,10]. Therefore, the present study was designed to assess the barriers and facilitators of HIV, care and support services in Chandigarh, through interviews with PLHIV who have and who have not accessed these services.

The objectives of the study are as follows:

- To study the socio-demographic profile of HIV Positive patients
- To assess the gaps and barriers in the accessibility of the care and support services (CSC)
- To identify the facilitators for retention to the HIV care and support services

Methodology

A concurrent mixed-method study design was adopted to examine the barriers and facilitators for accessing care and support services by PLHIV in Chandigarh. Written informed consent was obtained from all participants prior to data collection. The following tools were used for the study: Semi-Structured Interviews, In-Depth Interviews (IDIs), and Focus Group Discussions (FGDs).

Semi-Structured Interviews were conducted with PLHIV visiting the CSC and ART centres in Chandigarh. Additionally, a desk review was undertaken to study Lost-to-Follow-Up (LFU) cases. The FGDs and case studies were transcribed, and themes were generated for qualitative data analysis.

To attain a broad range of information-rich perspectives, convenience and purposive sampling were used to select the sample, ensuring it was representative of the entire population. Study participants were drawn from different high-risk groups (HRGs), including Injecting Drug Users (IDUs), Female Sex Workers (FSWs), Transgender (TGs), Men who have Sex with Men (MSM), and Bridge Populations such as Migrants and Long-Distance Truck Drivers. An attempt was made to capture 20% of the registered PLHIV (approximately 295 respondents) for the study. However, due to low footfall of PLHIV visiting the CSC during the study period, denial of consent, and time and resource constraints, only 120 respondents were accessed.

Of the 120 participants, 94 were regular cases, while 26 were categorised as either missed or LFU. Three FGDs were conducted, including people from both the Regular and Non-Regular (Missed and LFU) categories. Six in-depth interviews were conducted with CSC staff, including Outreach Workers, Peer Counsellors, and the Project Coordinator. The collected data were analysed descriptively using SPSS 21.0.

Findings

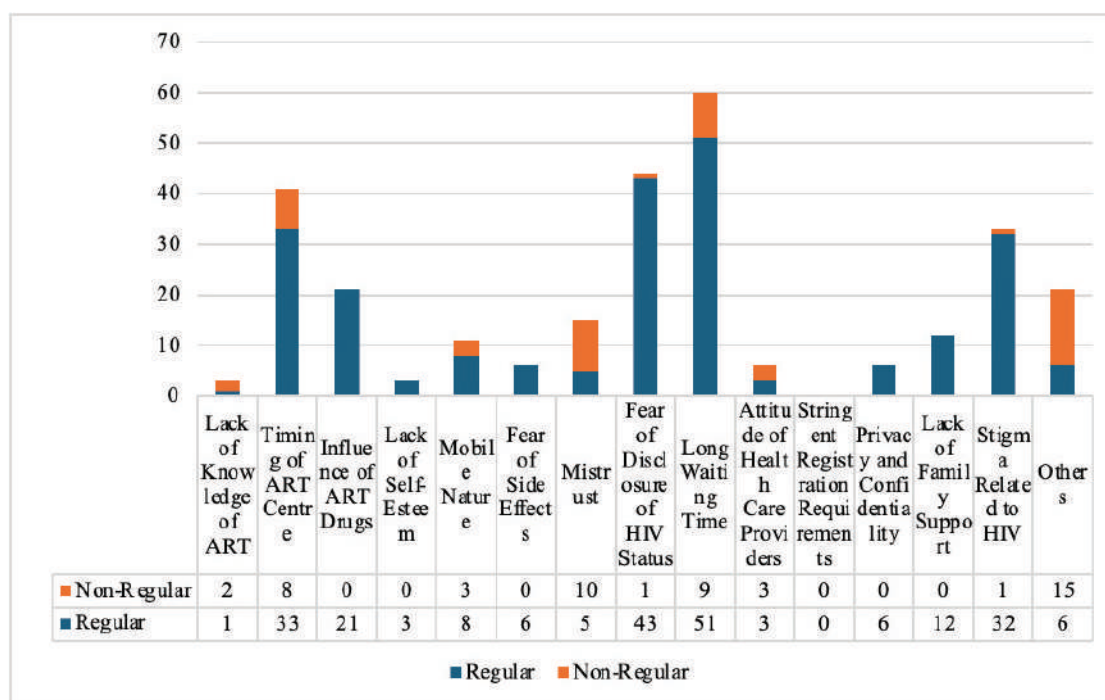
Out of the total 120 respondents, 76 (63.33%) were male, 42 (35%) were female, and 2 (1.67%) were transgender. The majority of respondents (45.83%) were aged 25 to 40 years, followed by 34.71% (41) in the 40 to 60 years age group, 15.83% (19) were under 25 years old, and 4.17% (5) were above 60 years of age. Additionally, 60% (72) of the respondents were currently married, which included both discordant and concordant couples.

Table 1 Socio-Demographic Data of Regular and Non-Regular PLHIV

Variables		Regular (n)	LFU (n)
Gender	Male	59	17
	Female	34	8
	Transgender	1	1
Age	Up to 25 year	14	10
	26 to 35 year	32	9
	36 to 45 year	25	4
	Above 45 year	23	3
Educational Status	Illiterate	13	2
	Literate but no formal education	6	0
	Up to Matric	51	15
	Senior Secondary	18	8
	Grad and above	6	1
Occupation	Daily wage labourer	8	2
	Unemployed	29	8
	Self-Employed	22	8
	Service	34	0
	Drug Dealer	1	1
Marital Status	Never Married	23	9
	Widower	10	0
	Married	58	15
	Separated	3	2
Living with	Living alone	3	3
	Family	91	22
	Living with Sexual Partner	0	1

Around 26.37% (32) of the respondents were never married, while 9.17% (11) were divorced or widows/widowers. 27.5% (33) of the respondents have passed matriculation, while 21.67% (26) have passed the 12th Class. Only 12.5% of the respondents were illiterate, whereas 5% (6) were literate but not formally educated. 30.83% (37) of the respondents were unemployed, while 32.5% (39) had private jobs. 24.17% (29) were self-employed, 7.5% (9) were daily wage labourers and 2.5% (3) were sex workers. 78.33% (94) respondents were regular, 15.83% (19) were LFUs and 5.83% (7) were MIS-cases.

Figure 1 Barriers of Services Uptake (Regular and non-Regular)



It has been found that these barriers exist at different levels, and though interconnected, affect the lives of PLHIV in different ways. The common barriers have been presented below under three categories:

Table 2 Barriers to accessing HIV Care and Support Services

INTRA-PERSONAL	INTER-PERSONAL	INSTITUTIONAL
1. Fear of Disclosure 2. Mobile Nature of Work 3. Mistrust and Denial 4. Neglect of Importance 5. Hopelessness and Fatalism 6. Substituting ART with alternative medicine 7. Other addictions/ condition 8. Financial Issues	1. Lack of Family Support and Spouse Interference 2. Social Stigma and related discrimination	1. Long Waiting Time and Restrictive Timing 2. Distance between PLHIV's residence and ART centre 3. Side Effects 4. Lack of Knowledge and Awareness

"Shuru shuru me jab aati thi haspatal to muh dhak ke aati thi... Mujhe yahi lagi jata tha ki koi pehchaan na le mujhe... vo puchenge ki kyu gye the haspatal."

[Reena, Housewife (name changed)]

[Initially, I used to cover my face when coming to the hospital... I was afraid that someone might recognise me... they would ask me why I came to the hospital]

"Woh dawai tod tod ke khat hain... Jab unhe HIV se judi hui koi bimari hoti hai ya kamzori aati hai, tab who dawai khat hain, jab theek hojate hain toh dawai lena band kardete hain."

[Kiran, Outreach Worker at CSC (name changed)]

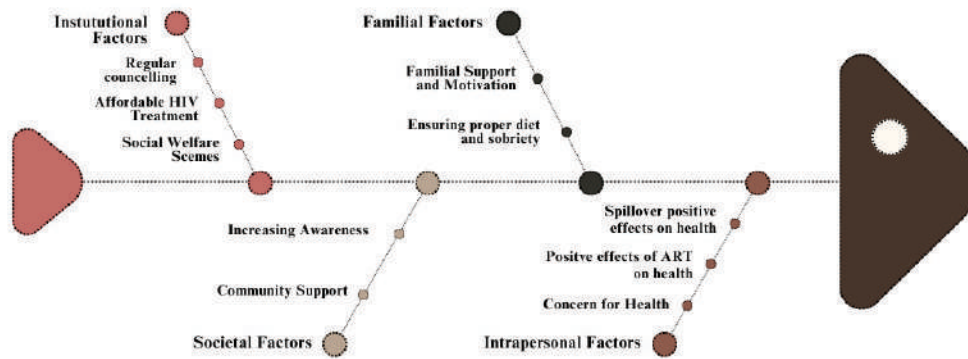
(They break the streak of taking the medicines... When they suffer from any HIV related comorbidities or weakness, they take the medicine, and stop when they recover)

"Mujhe apne bache ki ko HIV se bachana hai. Isliye mai yeh dawai leti hun, and jaisa doctor kehte hain, vaise dhayan rakhti hun."

[Maya, a Pregnant Housewife (name changed)]

(I want to save my child from HIV. That's why I take these medicines, and all the precautions shared by the doctor)

Figure 2 Facilitating Factors to Accessing HIV Care and Support Services



Conclusion

This study highlighted several barriers faced by PLHIV residing in Chandigarh in accessing services. Understanding these barriers in greater detail can help improve each step in the HIV treatment cascade in India. Institutional barriers identified include long waiting times, restrictive hours, distance between PLHIV residences and ART/CSC centres, side effects, and lack of knowledge and awareness about the treatment process. Intrapersonal barriers such as fear of disclosure, hopelessness, and fatalism were also observed. Along with these barriers, facilitators that enhance access to HIV care and support services were identified, and suggestions for improvement were made. After the initial shock and difficulty in accepting their HIV-positive status, most PLHIV undergo counselling where they are informed about the importance of medication. This motivates them to initiate ART, as it helps achieve undetectable viral loads, reduces transmission risk, and enables them to lead healthy lives. For pregnant women, this is a significant motivator to protect their child from HIV.

Recommendations

- Regular counselling and timely follow-up by the CSC have been effective in improving adherence to ART. More manpower needs to be recruited and trained for the outreach activities of the CSC, to improve these services
- Long waiting times and long queues have been reported as one of the major barriers to accessing these services. This can be addressed by assigning more doctors and medical equipment like testing labs etc., to the ART centres, so that the patient load can be divided efficiently

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Assessment of Depression, Anxiety and Stress among HIV Patients attending ART Centre of Bhimrao Ambedkar Memorial Hospital, Raipur, Chhattisgarh

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Introduction

HIV is a significant burden due to its multifactorial impact on an individual's health, with the psychological consequences being among the most vulnerable aspects [1]. The adult HIV prevalence in India has declined significantly over the years. As of 2021, the estimated adult HIV prevalence was 0.21% [1], down from 0.32% in 2010 [2]. However, the stigma associated with HIV, along with societal pressure, often leads to depression and anxiety among people living with HIV (PLHIV) [1]. PLHIV and their families face a multitude of stressors that affect their overall functioning and lifestyle. Despite the profound psychological effects of living with HIV, there are limited studies exploring this aspect of the disease. Therefore, this study was undertaken to assess the prevalence of depression and anxiety among people living with HIV in Chhattisgarh. This study aimed to evaluate the levels of depression, anxiety, and stress among HIV patients attending the ART centre at Bhimrao Ambedkar Memorial Hospital, Raipur, Chhattisgarh.

Methodology

This cross-sectional observational study was conducted at the ART centre of Dr. Bhimrao Ambedkar Memorial Hospital in Chhattisgarh. A total of 100 people living with HIV (PLHIV) who visited the ART centre for the first time during the study period were recruited through consecutive sampling. Only those who were visiting the ART centre for the first time and provided consent were included in the study. PLHIV who refused to participate, were critically ill, or had behavioural disorders were excluded from the study. A semi-structured questionnaire was used to collect information on the socio-demographic factors and clinical profiles of the participants, including personal history, age at HIV diagnosis, number of hospital admissions, and use of medications. The Depression, Anxiety, and Stress Scale (DASS-21) was employed to assess the levels of depression, anxiety, and stress among newly registered PLHIV at the ART clinic of Dr. Bhimrao Ambedkar Memorial Hospital. The DASS-21 questionnaire consisted of 21 items, with 7 questions related to depression, 7 related to anxiety, and 7 related to stress. Scores for depression, anxiety, and stress were calculated by summing the scores of the relevant items, and final interpretation was done by doubling the scores.

Table 1 Dass Scale and Scores of Depressions, Anxiety, and Stress

Dass scale	Depression score	Anxiety score	Stress score
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28 & above	20 & above	34 & above

Findings

The majority of the PLHIV in the study were aged between 35 to 48 years, accounting for 49% of the total 100 participants. The gender distribution was nearly balanced, with males representing 51% and females 49%. A majority of the participants were from the OBC caste (61%) and identified as Hindu (96%). Most of the participants were married (64%). Education levels varied: 21% had attended primary school, 15% were illiterate, and 24% were graduates. In terms of occupation, 24% were skilled workers, and 28% were professionals. Socio-economic status, based on the modified Kuppuswamy scale, showed that 40% of PLHIV belonged to the upper-lower class, while only 7% were from the lower socio-economic class. Additionally, 72% of participants lived in nuclear families. Regarding substance use,

76% of the participants reported no abuse, while 13% had alcohol abuse, 12% were addicted to cigarettes, 4% had gutkha addiction, and 11% were using gudakhu. Sleep patterns were adequate for 95% of the participants, with only 5% reporting inadequate sleep. The age at first symptoms and diagnosis was most commonly in the 26 to 34 years age group (40%). Regarding hospitalization history, 67% of participants had never been hospitalized, and 24% had been hospitalized once.

Findings related to psychological health showed that depression was more prevalent among PLHIV aged over 40 years (70.2%) compared to those aged 40 years or younger (69.8%). Depression was higher among females (71.4%) than males (68.6%). For anxiety, PLHIV aged 40 years or younger were more anxious (75.5%) than those aged over 40 years (68.1%). Anxiety was also more prevalent in females (73.5%) than males (70.6%). Among the illiterate participants, 100% experienced anxiety, compared to 67.1% of the literate participants, which was statistically significant. Regarding stress, PLHIV aged over 40 years were more stressed (59.6%) compared to those aged 40 years or younger (56.6%). Males had higher stress levels (61.2%) compared to females (54.9%). Illiterate participants were significantly more stressed (86.7%) compared to those who were literate (52.9%).

Conclusion

The study provides a comprehensive overview of the demographic, socioeconomic, and psychological profiles of people living with HIV (PLHIV). The findings reveal notable patterns in education, occupation, socioeconomic status, age at diagnosis, and mental health status. Overall, among the study sample, approximately 36% of PLHIV were extremely severely depressed, 18% were moderately depressed, 16% were severely depressed, and 10% were mildly depressed. In terms of anxiety, 38% of PLHIV experienced extreme anxiety, 24% were moderately anxious, 10% were severely anxious, and 4% were mildly anxious. Regarding stress, 31% of participants were severely stressed, 14% were moderately stressed, 13% experienced extreme stress, and 8% were mildly stressed. Illiterate participants experienced statistically significantly higher levels of depression, anxiety, and stress compared to those who were literate. Furthermore, employed participants had significantly more anxiety (78.6%) than unemployed participants (56.7%). These findings suggest that lower educational levels and employment status are important factors influencing mental health outcomes in PLHIV, highlighting the need for targeted mental health support for these vulnerable groups.

Recommendations

Provide accessible mental health resources and counselling services to address depression, anxiety, and stress in HIV patients. Implement educational programs for HIV patients to reduce depression, anxiety, and stress. Create employment opportunities and vocational training programs to reduce unemployment and its associated mental health issues. Develop a community-based support group to provide a sense of belonging and reduce stress.

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Adherence to Anti-Retroviral Treatment (ART) among HIV Positive Pregnant Women for Prevention of Mother to Child Transmission (PMTCT) at B.R. Ambedkar Hospital and District Hospital, Raipur

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Introduction

Globally, an estimated 1.3 million women and girls living with HIV become pregnant each year [1]. In the absence of intervention, the rate of transmission of HIV from a mother living with HIV to her child during pregnancy, labour, delivery, or breastfeeding ranges from 15% to 45% [1]. As per programme data, around 75 pregnant women are found HIV positive each year in Raipur district. In 2019, 85% of women and girls globally had access to antiretroviral therapy (ART) to prevent mother-to-child transmission (MTCT) [1]. However, high ART coverage levels do not fully account for continued transmission after women are initially counted as receiving treatment. Adequate adherence to the prescribed antiretroviral medications is essential to achieve maximal viral suppression necessary to prevent MTCT. Adherence rates exceeding 95% are necessary to maximize the benefits of ART. Higher levels of drug adherence are associated with improved virological, immunological, and clinical outcomes, while poor adherence can lead to suboptimal viral suppression, the development of viral resistance, a higher risk of MTCT, and mother-to-child transmission of resistant HIV strains. Hence, this study was conducted to assess adherence to ART among pregnant women for the prevention of mother-to-child transmission. The objective of this study was to assess the level of adherence to ART among HIV positive pregnant women for PMTCT and the factors influencing it.

Methodology

In this study, a prospective follow-up study design was employed to collect information from 56 HIV-positive pregnant women receiving ART treatment at Dr. Bhimrao Ambedkar Memorial Hospital (BRAM) and District Hospital, Raipur, using consecutive sampling during the period of August 2023 to February 2024. All consenting HIV-positive pregnant women visiting the ART centre at Dr. BRAM Hospital or District Hospital, Raipur, were included in the study. HIV-positive pregnant women with any mental instability or illness were excluded. Patients with an adherence rate of 95% or higher were considered to have good adherence, while those with adherence below 95% were categorized as having poor adherence. All 56 women were followed up until delivery. At the time of registration, pregnant women were asked about their drug adherence on a 4-day recall basis. For subsequent visits, monthly drug adherence was assessed on a recall basis for each visit. Adherence was verified through empty medication strips and monthly records. After delivery, adherence records were further checked from the hospital's records. Additionally, each patient's child's HIV status was checked from hospital records at the end of 6 weeks after delivery. To gain a better understanding of factors influencing ART adherence, interviews were conducted with 8 staff members from the ART centre.

Findings

In the sample, the mean age of the study participants was 25.96 years $\pm$ 4.48 years. Among the 56 participants, 3 were aged $\leq$ 18 years. 16.07% of the subjects were in the 19-23 years age group, 32% were between 24-28 years, 7% were between 29-33 years, and the remaining 8.92% were 34 years or older. Nearly half (48.21%) of the study subjects had completed secondary school, while one-third (35.71%) had completed up to the primary level of education. 64.28% of the participants lived in urban areas, while 35.72% resided in rural areas. More than half of the study subjects (58.9%) had been taking ART for 0-3 years, 17.85% had been on ART for 4-6 years, and 23.25% had been taking ART for more than 6 years.

Adherence to ART based on previous 4-Day Recall

A total of 9 subjects (16.07%) reported missing only one pill at the time of registration in the study, resulting in poor adherence (75%) based on the 4-day recall method.

Table 1 Adherence to ART on 4-Day Recall Basis

Total No. of patients	Good adherence (>95%)	Poor adherence (<95%)
56	47(83.93%)	9(16.07%)

Reported Monthly Pill Missing

On recall basis, 32 (57.14%) of study subjects confirmed to have an adherence of 100% and didn't miss a single pill and 24 (42.86%) missed a pill in a month period.

Adherence to ART based on Monthly Recall

On recall basis, 32 (57.14%) of the study subjects confirmed having 100% adherence and did not miss a single pill, while 24 (42.86%) missed at least one pill during the month.

Table 2 showed the associations between missing ART pills and background variables. The findings indicate that age was significantly associated with missed pills in a month, with the highest number of patients who missed a pill falling within the 24-28 years age group. However, education level and duration of ART use were not found to have a significant association with missed pills.

Table 2 Association between PLHIV background characteristics and missed ART Pills

Variables		Missed ART pills monthly status		Chi-Square test
Age of the patient		Yes (n=24)	No (n=32)	$\chi^2 = 10.394$ df= 4 p value= .034
	<=18 Years	0 (0%)	3 (100%)	
	19-23 Years	6 (66.67%)	3 (33.33%)	
	24-28 Years	15 (47%)	17 (53.12%)	
	29-33 Years	0 (0%)	7 (100%)	
	34 and above	3 (60%)	2 (40%)	
Education	College & above	1 (14.28%)	6 (85.71%)	$\chi^2 = 5.065$ Df=3 P value =0.167
	Up to primary	9 (45%)	11 (55%)	
	Up to Secondary	12 (44.44%)	15 (55.56%)	
	Illiterate	2 (100%)	0 (0%)	
Duration of Taking ART	0-3 Years	15 (45.45%)	18 (54.55%)	$\chi^2 = 0.824$ Df=2 P value=0.662
	4-6 Years	3 (30%)	7 (70%)	
	>6 Years	6 (46.15%)	7 (53.84%)	

Table 3 showed the association between overall adherence and patients' background characteristics. The findings indicate that education, time taken to reach the centre, duration of ART use, distance of residence from the ART centre, and family income had no significant associations with overall adherence.

Table 3 Association between PLHIV background characteristics and overall adherence

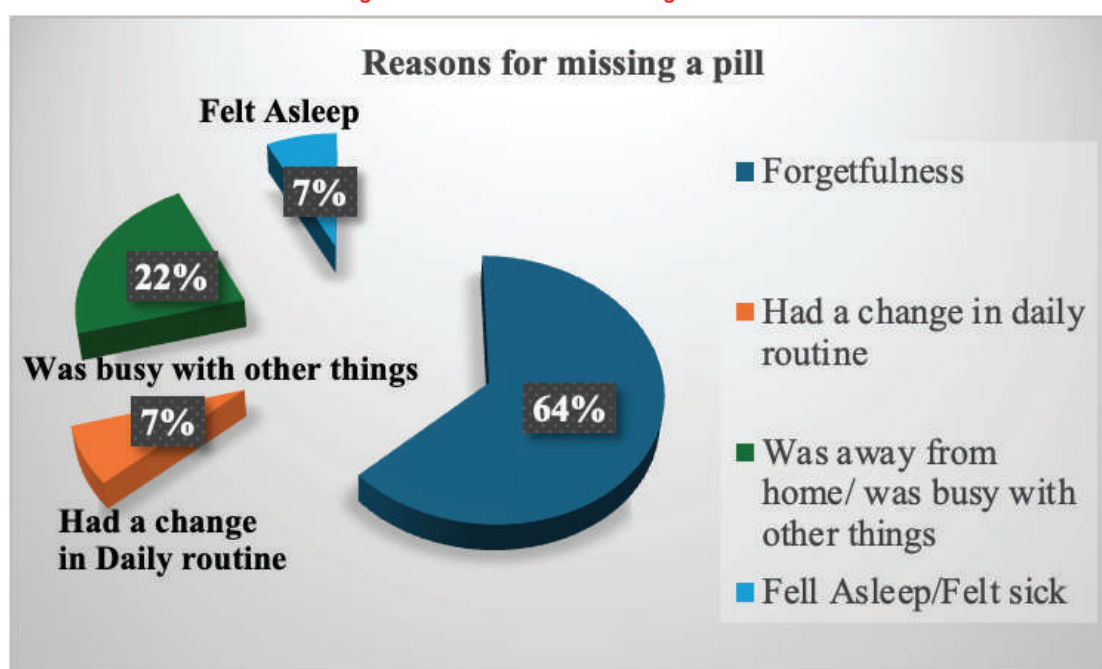
Variables		Overall Adherence to ART as per Hospital Record		Chi-Square test
		>95%	>95%	
Education	College & above	0 (0%)	7 (100%)	$\chi^2 = 0.941$ Df=3 P value=0.815
	Up to Secondary	2 (7.4%)	25 (92.59%)	
	Up to Primary	2 (10%)		
	Illiterate	0 (0%)		
Travel time to ART centre	0-30 min	1 (7.69%)	12 (92.3%)	$\chi^2 = 2.071$ Df=3 P Value=0.558
	31 min-1 hour	1 (3.84%)	25 (96.16%)	
	1-2 hours	2 (15.38%)	11 (84.62%)	
	>2 hours	0 (0%)	4 (100%)	

Duration of taking ART	0-3 Years	2 (6.06%)	31 (93.94%)	Df=2 X ² = 2.159 P value= 0.34
	4-6 Years	0 (0%)	10 (100%)	
	>6 Years	2 (15.38%)	11 (84.62%)	
Distance from the ART centre	0-5 Km	1 (4.76%)	20 (95.24%)	Df=4 X ² =4.053 P value= 0.399
	6-10 Km	0 (0%)	4 (100%)	
	11-15 Km	2 (22.22%)	7 (77.78%)	
	16-20 Km	0 (0%)	6 (100%)	
	>20 Km	1 (4.76%)	20 (95.24%)	
Family Monthly income	Rs. 5000-10000	1 (4%)	24 (96%)	Df=3 X ² =1.145 P value= 0.766
	Rs. 11000-15000	2 (10.52%)	17 (89.48%)	
	Rs. 16000-20000	1 (11.11%)	8 (88.89%)	
	>Rs. 20000	0 (0%)	3 (100%)	

Reasons for missed ART pills

The most common reason for missing pills was forgetfulness, reported by 64% of the participants, followed by being busy with other activities, reported by 22%.

Figure 1 Reasons for Missing ART Pills



PPTCT Impact

Out of the 56 women enrolled in the study, none of them delivered an HIV-positive child.

Average Adherence to ART based on hospital record till delivery

The majority (93%) of the patients showed good adherence to ART, with adherence rates above 95%, while a small fraction (7%) had poor adherence, with rates below 95%. The average adherence was calculated by taking the two monthly adherence records from the hospital, one at the time of registration and the other at the time of delivery.

Conclusion

A good adherence to ART was observed in approximately 93% of study subjects based on hospital records. Around 7% of subjects had poor adherence to ART according to the hospital records. Based on monthly recall, 8.93% of patients reported poor adherence. Based on a 4-day recall, 16.07% had poor adherence to ART. No cases of mother-to-child transmission were found among any of the subjects enrolled in the study.

Recommendations

Overall, 7% of patients had poor adherence to ART. While this number is small, it is still significant. Patients with poor adherence should be counselled separately, with a strong emphasis on Preventing Mother-to-Child Transmission (PMTCT). Proper and regular counselling should be continued for all patients on ART, with special focus on PMTCT counselling for those with poor adherence.

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Psychological, Social and Personal Impact of HIV Infection among Newly Diagnosed PLHIV in Goa

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Introduction

The total number of HIV-positive cases detected in Goa since 1987 until December 2022 is 18,044, with a total of 1,876 AIDS cases reported by December 2022 [1]. The report also mentions that 1,278 AIDS-related deaths have been recorded by Goa SACS up to November 2022. HIV infection is prevalent across all parts of Goa, with the majority of cases reported in the four coastal talukas: Mormugao (18.1%) and Salcete (17.3%) in South Goa, and Bardez (21.0%) and Tiswadi (10.3%) in North Goa during 2022. Out of the 242 HIV cases reported in Goa in 2022, 16.5% were from people outside Goa (from other states, foreigners, or unspecified). A majority (70.6%) of the cases detected in Goa during 2022 were in the age group of 15-49 years. Among the total number of female HIV cases, nearly 21% belonged to the age group of 15-34 years, while approximately 40% of male cases were in the same age group. In the 35-49 age group, over 34.4% of males and around 37% of females were found to be infected.

Being diagnosed with HIV can be a shocking and distressing experience. Living with HIV presents many challenges, and the sudden news of an HIV-positive diagnosis often creates a traumatic situation. A study conducted at an ART centre in a coastal Karnataka tertiary healthcare centre with 380 patients found that people living with HIV/AIDS (PLHIV) in the age group of 30-60 years, those who were illiterate, had a history of alcohol abuse, and had lower quality of life (QOL) scores, as well as higher perceived stress scale (PSS) scores, had increased odds of experiencing psychological distress [2]. A study in China showed that the prevalence of anxiety and depression among PLWHA was 49.0% and 73.1%, respectively, concluding that PLHIV suffer from significant psychological problems [3]. Psychological distress was also found among PLHIV in selected hospitals in the North Sowa Zone of the Amhara region, Ethiopia [4].

Given the psychological challenges faced by PLHIV, there is an urgent need to conduct a study on the psychological, social, and personal impact of HIV infection in newly diagnosed individuals in Goa. This study aimed to assess the level of psychological distress and its associated factors, and to suggest intervention strategies to reduce the distress experienced by these patients.

Methodology

This study used a cross-sectional, hospital-based descriptive research design conducted in Goa, targeting two ART centres in North and South Goa districts. Participants were stratified by district and gender, with respondents randomly selected from those visiting the ART centres. According to the GSACS report, 242 individuals were diagnosed with HIV in 2022. The study aimed to sample 50% of this population, resulting in a target sample size of 120. The sample was to be evenly divided between the districts and genders; however, due to various factors during data collection, the sample size of female participants was reduced. A total of 102 People Living with HIV (PLHIV) aged 18 years and older participated in the study.

Figure 1 Selection of Study Participants



Data collection tools included an interview schedule, the DASS Scale, and in-depth interviews with healthcare providers. Data analysis was performed using JAMOVl Version 2.3.28. JAMOVl's comprehensive features provided a robust platform for analysing the dataset, enabling a thorough examination of relationships and patterns within the data.

Findings

Findings showed a significant socio-demographic trends among HIV-positive respondents. The highest proportion of participants were in the 41-50 age group, followed closely by those aged 31-40, indicating a high prevalence in these age groups. A notable representation of younger individuals aged 18-30 years also highlights the widespread nature of HIV across different age groups. In contrast, participants aged 51 years and above made up a smaller proportion of the sample. When examining respondents across various talukas, higher HIV prevalence was observed in coastal areas, which are characterized by tourism and urbanization. Factors such as population density, the tourism industry, and associated risk behaviours (e.g., alcohol consumption and sex work) likely contribute to increased infection rates in these regions. Salcete emerged as the most common native place among participants, followed by Mormugao, Bardez, and Tiswadi, reflecting a strong regional presence within Goa. Additionally, a considerable portion of participants were from outside Goa, underscoring the study's broad geographic scope and regional diversity, with individuals hailing from various states across India. These findings reveal critical demographic and geographic patterns in HIV prevalence, offering valuable insights into the dynamics of the epidemic in Goa. Figure 2 illustrates the taluka-wise distribution of respondents.

Figure 2 Taluka-wise Distribution of Respondents

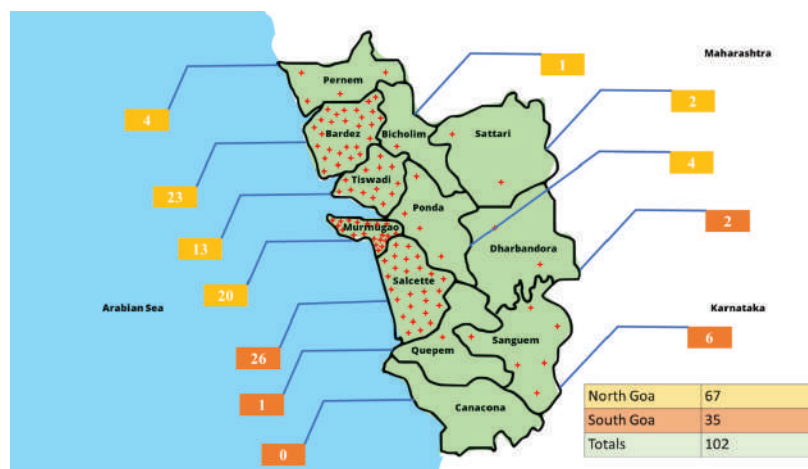
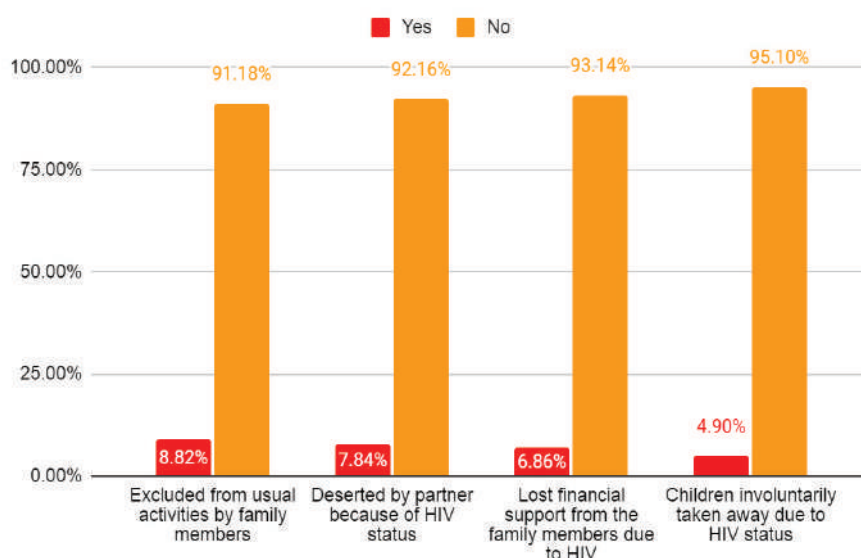


Figure 3 highlighted the pervasive familial discrimination, including exclusion (8.82%), lack of financial support (6.86%), partner abandonment (7.84%), and child separation (4.90%), underscoring the profound stigma and misinformation

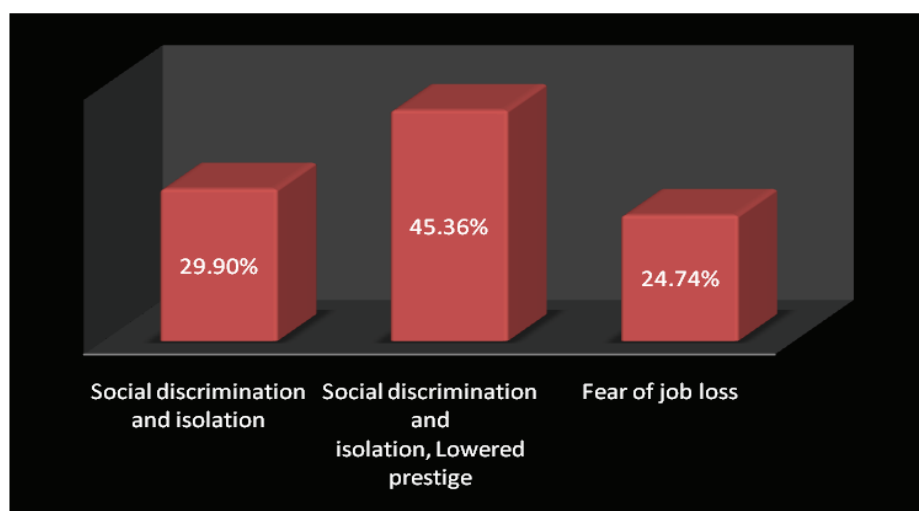
surrounding HIV/AIDS. The study reveals alarming levels of familial discrimination faced by individuals living with HIV. Although half of the respondents reported no discrimination, a significant number experienced exclusion, lack of financial support, partner abandonment, and separation from their children. Many were unjustly isolated due to misconceptions about transmission risks.

Figure 3 Familial Discrimination-wise Distribution of Respondents



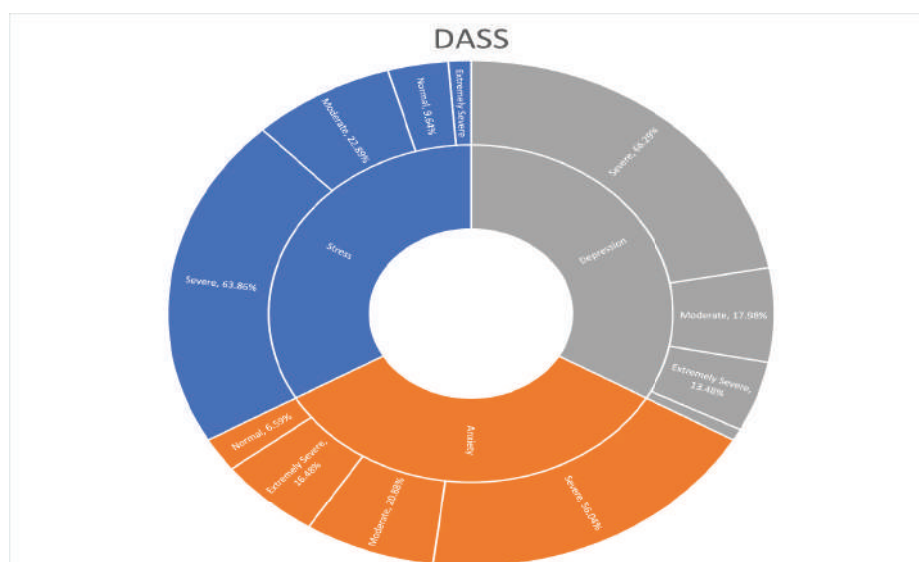
Community experiences are marked by social exclusion (4.90%), threats of violence (3.92%), and forced relocation (2.94%), highlighting the critical need for comprehensive education and awareness campaigns to foster inclusive and supportive environments. The fear of stigma and discrimination is also evident in the workplace, where 95.1% of respondents chose non-disclosure of their HIV status. Among these, 45.36% cited fears of discrimination, while 24.74% were concerned about potential job loss.

Figure 4 Distribution of Respondents Based on Reasons for Not Disclosing HIV Status at Workplace



Gender disparities in disclosure behaviours are evident, with all female respondents and most males opting for non-disclosure, reflecting deep-seated stigma and workplace culture influences. Discrimination affects 5% of those who disclosed, with consequences such as forced retirement and denial of financial opportunities, underscoring the necessity for protective policies. Emotionally, respondents report shock, disbelief, and suicidal thoughts (83.33%) upon diagnosis, with guilt common due to perceived consequences on family and societal standing. Anxiety about the future (40.20%), prolonged illness (63.73%), and discrimination (52.94%) exacerbates distress, impacting sexual life, self-confidence, and financial stability.

Figure 5 Depression, Anxiety and Stress Scale Analysis



Despite these challenges, the study identified positive familial support from close relatives (84.62% to 94.23%) and strong tertiary support from healthcare professionals, highlighting the critical role of comprehensive support systems. However, the uptake of support groups remains low (19.61%), indicating a gap in awareness or confidentiality concerns. Healthcare professionals emphasized varied patient reactions and challenges in diagnosis disclosure, highlighting the need for tailored counselling and education. Concerns include patient distrust in test results, stigma perpetuated by societal and workplace contexts, and specific issues for women related to family dynamics and medical adherence.

Table 1 DASS Scale Analysis

DASS			
Category	Stress	Anxiety	Depression
Extremely Severe	3.61%	16.48%	13.48%
Severe	63.86%	56.04%	66.29%
Moderate	22.89%	20.88%	17.98%
Normal	9.64%	6.59%	2.25%

The focus group discussions with doctors, counsellors, and nurses revealed several key qualitative findings:

- Challenges in Patient Engagement:** Healthcare professionals face difficulties in engaging patients, particularly during initial consultations. Gathering comprehensive medical histories is often challenging, especially with more conservative individuals.
- Tailored Counselling Needs:** There is a critical need for customised counselling approaches that address the diverse concerns and backgrounds of patients.
- Fears among Newly Diagnosed Patients:** Common fears among newly diagnosed individuals include discrimination, societal judgment, and anxiety about their health and immunity, which hinder their ability to seek care and support.
- Stigma and Isolation:** Social stigma remains a significant barrier, resulting in patients experiencing isolation and rejection from family and the community.
- Family Support Dynamics:** Although some improvements in family support have been noted, issues surrounding disclosure and acceptance continue to pose challenges.
- Health Concerns:** Newly diagnosed individuals often worry about opportunistic infections and the side effects of antiretroviral therapy, highlighting the need for better education and counselling.
- Access to Resources:** While government healthcare facilities are generally viewed positively, concerns persist about the availability of counsellors and support services, particularly for non-resident patients and women.

8. **Call for Policy Interventions:** Addressing these challenges requires targeted initiatives and policy measures to enhance comprehensive care and support for individuals living with HIV.

Conclusion

This study provided a comprehensive examination of the multifaceted impacts of HIV/AIDS on newly diagnosed individuals living with HIV (PLHIV) in Goa. On a personal level, the findings highlight the profound effects of HIV/AIDS on individuals' lives, including their living arrangements, addictions, family dynamics, and overall health. Socially, the study exposes the deep-rooted stigma and discrimination faced by PLHIV within their families and communities. Experiences such as exclusion, financial abandonment, and workplace discrimination are common, with fear of stigma significantly affecting disclosure behaviours and access to support networks. Psychologically, the emotional toll of an HIV/AIDS diagnosis is significant, with common reactions including shock, guilt, and fear of societal judgment. The study also reveals widespread issues of depression, stress, and anxiety, exacerbated by the perceived costs of treatment, underlining the urgent need for robust mental health support systems. Insights from healthcare professionals underscore the complexity of care challenges, influenced by various socio-demographic factors. In summary, this study emphasizes the interconnected personal, social, and psychological impacts of HIV/AIDS, reinforcing the critical need for comprehensive, tailored interventions that address these multifaceted challenges in a holistic manner.

Recommendations

The recommendations for the programme are as follows:

Capacity-Building for Caregivers: Implement training programs for family members, friends, and healthcare professionals, focusing on medication adherence, symptom management, stigma reduction, communication, and psychological coping.

Mental Health Integration: Establish a structured intervention model that includes systematic mental health screening by professionals, along with robust referral mechanisms to psychiatric facilities. This model should also include psychotherapy and psychoeducation for patients and their families.

Enhanced ART Counselling: Conduct workshops and online training sessions to improve ART counsellors' skills in updated counselling techniques and patient communication.

Mental Health Screening: Integrate mental health screening tools into routine patient assessments, and train healthcare providers to recognize early signs of mental health issues, ensuring timely intervention.

Legal Awareness: Hold regular sessions on patient rights, privacy, and access to legal aid, ensuring that healthcare staff are well-informed about national HIV/AIDS policies and legal protections for PLHIV.

Flexible Service Delivery: Develop tailored service delivery options to meet the diverse needs of patients, including initiatives that provide economic independence through financial literacy programs and vocational training.

Supportive Work Environments: Promote inclusive employment practices through policies from employers and trade unions, creating support networks for individuals facing health challenges, and fostering a work environment that accommodates the needs of PLHIV.

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Factors Responsible for Gap between PLHIV Registered and Initiated on ART and Possible Ways to Address them

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Introduction

Worldwide, 1.5 million new cases of HIV have been reported in the year 2021 [1], while in India total reported new cases were about 63,000 in the same year. India has also reported 41, 970 deaths in the year 2021 related to HIV/AIDS. It has been observed that early detection and initiation of ART has been of much benefit to patients and helps in preventing further complications and secondary transmissions. Various studies have been conducted in the field of early detection and timely initiation of ART among AIDS patients, but some factors like high level of perceived stigma, financial issues, time related issues, fear of rejection, side effects, distance to a healthcare facility, long clinic waiting time, lower level of education, pregnancy, drug stock outs require further attention and needs to be studied properly. Due to these reasons, there are wide gaps between registration and initiation of treatment among newly diagnosed HIV patients. Therefore, in this study an attempt was made to find out the reasons for the gaps and possible solutions for the same.

Methodology

The study entailed qualitative method using convenient sampling. The study participants were recruited from the ART centres at Bhavnagar and Mahuva medical colleges. Around thirty-three In-depth interviews (IDIs) among patients and Key Informant Interviews (KIIs) were conducted to explore the perception of HIV-positive patients (20), project coordinators (3), a nodal officer (1), medical officers (3), a staff nurse (1), counsellors (5) from VIHAN and ART Centre of Mahuva and Bhavnagar. The People Living with HIV (PLHIV) whose initiation of ART was delayed were included in the study. The interviews were conducted till saturation of responses was achieved. After each interview, important points were noted to compare with subsequent interviews to confirm saturation. Once saturation was achieved, two more interviews were conducted to confirm. The audio recordings were transcribed in English language. Data was analysed in the form of codes and categories.

Findings

Perception of study subjects was categorised into the reasons and their solutions, further categorised into sub-themes of time and money, stigma and medication. A code of reason for late initiation of treatment was developed. While decreasing distance, Start- FICTC, home delivery of medication, ART at taluka level, skill counsellor, tracking and informing, counselling regarding opportunistic infections financial support, mental support, community awareness, social acceptance, pre-treatment counselling, rapport building, VIHAN equipped with medicine, better staff behaviour, empowered VIHAAN/NGO were the solution for the same.

Reasons for Delay

Discrimination

"First of all, when report was done, I didn't talk at home. Only I and my husband knew it. Then my father came to know. I called my father, he took me to Surat city. I am from Surat. Then he said we will re-do test here. Then reports were done at Surat and cost incurred was Rs. 5000. Then my father got confirmed. My sister and I reside in same house. I thought my sister will support me so I called her, but she told entire Bhavnagar and Surat, resulting no one drinks water at my house."

(HIV positive Patient)

Identity Disclosure

"Fear of identification is also one of the most important reasons. patients are not coming for their monthly medical and counselling appointments because they are afraid that if their family or friends or anyone will find out about their illness they will be socially separated from others." (ART Counsellor)

"As my field experience, in initial phase there is no symptoms, their health is good so they thought that no medicine is required. They thought that HIV means patient is on bed, we are healthy, we don't have symptoms so, we don't have HIV infection. So, they deny their HIV status." (Project Coordinator VIHAN)

Unaware

"I also witnessed such cases, in which patient and his/her relatives came to ART centre and only relatives knew about his/her HIV infection, patient himself/herself doesn't know about their infection." (Counsellor)

Solution to Reduce Delays

We have interviewed medical officers, staff nurse, project coordinator and counselling and nodal officers to explore the perception about what are the solution to decrease the gap in PLHIV registered and Initiated on ART. They perceived that reduce distance, home delivery of medication, community awareness, social acceptance, empower VINHAN, VIHAN equipped with medicine, ART at taluka level, financial support, skill counsellor, counselling regarding consequences, tracking and informing, report building, start F-ICTC, improve staff behaviour were the solutions.

Tracking and Informing

"For those who are lost to follow up, whenever patient come to their nearby clinic or CHC for any complaints, make sure to inform us about the patient location. This helps us to track the LFU patient." (ART Counsellor)

Reduce Distance

"In Botad district, F-ICTC were functional in past, so it is useful if they start again as distance will decrease and they can save time and money. So, if they will get medicine from place near to them it will be beneficial for them." (Project Coordinator)

Start FICTC

"In past, they get medicines from F-ICTC but after that they stopped. So, lost to follow up also increased." (Project Coordinator)

Home Delivery of Medicine

"At programme level, if we provide medicine to their home, all patients will take medicine." (Project Coordinator)

Taluka level ART

"If ART or link ART centres are formed at TALUKA level, then many patients will come to ART centre, because the problem of travel expense will be solved, as most patients are labourers and they have to take day off and also have to pay for travel." (Counsellor)

Counselling regarding Consequences

"We have to prepare the patient mentally. Like we should tell patients that you may look healthy now but in future you might get opportunistic infections, and you may suffer. That time if you start medicines then it will not work. So, it's better to start medication now." (ART Counsellor)

Mental Support

"Tell the parents that you should support patient mentally, don't taunt on him/ her." (ART Counsellor)

Financial Support

"If patient is having financial crisis, then we can provide some money from "Rogi Kalyan Samiti." (ART Counsellor)

Community Awareness

"We should also start spreading awareness in the community mostly at village level so that people can understand the severity of disease and how to prevent it." (ART Counsellor)

Social Acceptance

"If socially everyone starts accepting the disease, then patients won't feel fear of identity disclosure and they will come to ART centre for their medication." (ART Counsellor)

VIHAN equipped with Medicine

"We have 'VIHAN' where patients got checked their medical status so we should also add medications as well so when 'VIHAN' goes for monthly check-ups they also provide medications. This will encourage patients to take medications and also solve their transportation problem." (ART Counsellor)

Rapport-building

"One should counsel the patients with respect and show affection, this might satisfy the patients and helps the patients to become more open with us." (ART Medical Officer)

Counselling regarding Opportunistic Infections

"We are conducting proper counselling sessions, we properly counsel patients that even if there are no symptoms available right now but patient is at high risk of getting opportunistic infections such as TB, pneumonia etc." (ART Medical Officer)

Community Awareness

"Camps should be organised and educate people that diagnosed patients must take medicines for their entire lifetime. It is good for them as well as society and their families. They should be informed about maintaining their immunity by regular medicines. They should test for TB regularly." (ART Medical officer)

Behaviour

"Counsellor should improve upon their behaviour and perspective toward patients, patients might delay in reaching ART centre, there can be a valid reason too, so treat them nicely not aggressively." (Project Coordinator)

Table 1 Code and Categories of Reasons for Gap in PLHIV Registered and Initiated on ART and Possible Solutions

Category	Sub-category	Code
Reason	Time and money	Financial issue
		Scheme not reaching
		Daily wages loss
		Rigidity in timing
	Stigma	Grant issues
		Discrimination
		False belief
	Medicine	Identity disclosure
		No need
		Asymptomatic
		Life long duration
		Alternative therapy
		Unnecessarily medication
		Distance
		Denial
		Unaware
		Prefer private practitioner
		Migrant
		Superstition

Solution		Decrease distance
		Start- FICTC
		Home delivery of medication
		ART at taluka level
		Skill counsellor
		Tracking and informing
		Counselling regarding opportunistic infections
		Financial support
		Mental support
		Community awareness
		Social acceptance
		Pre-treatment counselling
		Report build up
		Equip VIHAAN with medicine
		Improve staff behaviour
Enablers		Empower VIHAAN/NGO
		Husband support
		Family support

Conclusion

It was found that monetary problems, time, wage losses, stigma, identity disclosure, false believes, and superstition were the reason for the non-initiation of treatment from patient perspective while migration, denial, preferred private practitioners, less awareness, grant issues, rigidity of timing, and rude behaviour of staffs were the reason from provider perspective.

Recommendations

Tracking of patients for services within the hospital, i.e. enhanced tracking and monitoring is suggested. These interventions would likely reduce delay in ART initiation and save lives. ART centres at taluka level are one of the solutions where HIV-positive patients can easily access medication.

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GAP Analysis and Track Down of Lost to Follow-Up from Confirmation to Linkage to Treatment

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Introduction

The United Nations Joint Programme on HIV/AIDS (UNAIDS) initiated the 95-95-95 campaign in 2021, targeting attainment by 2030, aiming for 95% viral load suppression, 95% sustained antiretroviral therapy (ART) coverage, and 95% awareness of HIV status among individuals living with HIV. By the close of 2023, global HIV prevalence stood at 39.9 million, with approximately 1.3 million new infections reported worldwide [1].

As per 2022 estimates, India stands with 24.6 lakh people living with HIV (PLHIV); an adult prevalence of 0.20% (15-49 years) [2]. NACO has adopted "Test and treat" policy since 2017 i.e., providing free ART with once or twice daily dosing.

This approach advocated immediate ART initiation upon HIV diagnosis, with lifelong continuation [3,4]. However, ensuring ART utilisation among asymptomatic individuals needs a good counselling. Lack of it can exacerbate loss to follow-up (LTFU) rates among ART recipients, which may result in adverse outcomes ranging from treatment failure to mortality [4,5]. As per estimates from 2022, 79% of individuals living with HIV were aware of their status, with 86 % receiving ART in India. As per guidelines adherence of >95% is required to achieve best results and for optimal viral load suppression.

LTFU encompasses various scenarios, including death, default, or self-transfer to other Integrated Counselling and Testing Centre (ICTC) facilities, thereby potentially skewing overall ART coverage estimations. Tracing methodologies have emerged as effective tools for enhancing ART compliance and reducing LTFU rates, as evidenced by multiple studies [3-6]. Therefore, to estimate the lost to follow up and success of test and treat strategy this study was planned with the objective to estimate the incidence rate of loss to follow-up, to identify factors associated with loss to follow-up and assess the treatment need gap analysis among PLHIV attending ICTC centre in Mandi district of Himachal Pradesh.

Methodology

A mixed method study was conducted on patients diagnosed as confirmed cases of HIV by ICTC centres across the district Mandi of Himachal Pradesh. In Mandi district, there were 07 ICTCs and 01 each ART centre and TI. The Mandi ART centre also catered to the population of adjoining Kullu, Lahaul and Spiti.

After reviewing data records of ART centre of Mandi, a line-list of lost to follow-up (LTFU) ((from 1st April 2018 to 31st March 2022), was prepared. In data review of all record sheets available at ART centre on PLHIV following quantitative variables were collected: patient's sex, age at ART initiation, level of education, marital status, baseline and current (31st March 2022) CD4 count, WHO stage, TB status, and BMI, any other co-morbid illness, and any other lifestyle disorder, reasons for LTFU were collected. For calculating lost to follow up incidence PLHIV who are less than 18 years during study period, transferred out of state, death was excluded.

For qualitative component: after preparing line list of LTFU exclusion criteria of PLHIV less than 18 years, LTFU from ART Mandi but living outside Mandi districts and failed to provide consent were excluded for scheduling in-depth interview. A total of 20 in-depth interviews were conducted of PLHIV who were ever lost to follow up in 4 years. Data secrecy, privacy and confidentiality was maintained at all levels, with access to data only to the team and that also in one computer with no online connectivity.

In addition to the qualitative in-depth interviews for PLHIV, 13 interviews with stakeholders were also conducted which included 1 Medical officer of ART centre, 7 counsellors and 5 social workers from the ICTC and TI-NGO.

The qualitative data was analysed through thematic content analysis by dividing the responses into categories using the fishbone framework, mainly environment, systems, processes, incentives, people, supplies, and methods/equipment.

Regular on treatment were defined as those who never lost follow-up as per the definition in the last four years. Only, consenting and willing participants interviewed for both PLHIV and SACS staff. All SACS staff gave consent. Quantitative data were characterised by medians (interquartile range) or mean (standard deviation) for continuous variables depending on the distribution, and percentages for categorical variables.

Loss-to-follow up was defined as the failure of a client to show up in the clinic for at least 30 days from the last date of their scheduled appointment during 1st April 2018 to 31st March 2022. Patients who were transferred out of state or died in these four years were excluded for identifying the cause of loss to follow-up but were included for incidence rate calculation.

Findings

Out of 876 records assessed, 619 were found to be eligible to be included in our study as per time frame; after applying age criteria of 18 years only 586 were found to be eligible.

The socio-demographic characteristics of the patients whose records were included in the study reported that the mean age was 45.5 years, and gender wise distribution indicated majority were males (59.1%) and remaining were females. It was observed that 87.9% were married, and proportion of primary education was higher (48.9%) relative to illiterate, high school and graduates from the records provided. The records indicated that majority of patients were residing in Mandi district (63.6%) followed by Kullu (28.8%). It was reported that in 55% of the records the status of spouse was mentioned. The records also highlighted that 11.4% patients have died and 1.5% have opted out of the treatment in due course of time.

Table 1 DASS Scale Analysis

Category	All patients (586)
Median age	50 years
Mean age (in years)	45.46 years
Gender	
Male	348 (59.1%)
Female	238 (40.4%)
Known Marital Status	
Married	349 (87.9%)
Single	22 (5.7%)
Others (Widowed/Divorced)	26 (6.53)
Education	
Illiterate	78 (13.2%)
Primary	288 (48.9%)
High school	108 (18%)
Secondary	71(12%)
Graduation & above	41 (6.9%)
Residential district	
Mandi	372 (63.6%)
Kullu	169 (28.8%)
Other districts: (Hamirpur, Kangra, Bilaspur, Shimla)	23 (3.9%)
From other states	22 (3.7%)
Spouse status mentioned	322 (55%)
Died	67 (11.4%)
Opt-out	9 (1.5%)

Table 2 indicates the frequency of LFU records from Mandi district. Out of a total of 586 eligible records, 36.5% were lost to follow-up (LFU) in the last 5 years, 0.5% were LFU at the time of the study, 11.4% of LFU patients had died, and about 1.5% were transferred out. It was also reported that 1% of the LFU patients had returned to the ART centre for treatment.

Table 2 Frequency of Lost-to-follow up records from Mandi district

Category	Number (%)
Total eligible cases	586
Never at any stage	372 (63.5)
Ever Lost to follow up in last 05 years	214 (36.5)
Currently Lost to follow up at the end of study	3 (0.5)
LFU followed by death	67 (11.4)
LFU due to opting out	9 (1.5)
Transferred out	9 (1.5)
LFU returned back to treatment on IDI	6 (1.0)

Table 3 describes the stakeholders' perception on ensuring compliance at all stages from diagnosis to treatment and follow up of HIV patients. Several reasons mentioned by them have been given in Table 3 for better understanding of the gaps in diagnosis and treatment of HIV patients leading LFU cases.

A counsellor on being enquired whether SACS need to ensure prevention of LFU said that

"Refresher courses happen regularly, however, there is a requirement of training on the latest ART guidelines, side effects of ART regime, and understanding of the basics of ART, which will be useful for our updating of knowledge, and this will help us in treating the HIV patients with much better understanding. We will be able to do counselling in a better way."

On training and programmatic issues, a counsellor indicated that *"if there are some case studies which can be shared by NACO on LFU PLHIV, and how to ensure bringing them back for treatment. We will be able to have strategies for that."*

Table 3 Perceptions of Stakeholders on ensuring Compliance from Diagnosis to Treatment to follow-up of HIV patients in Mandi district

Reasons mentioned	Category	Percentage
Need for regular training on latest treatment guidelines broadly and their possible side-effects	Training	70%
Verbal Abuse by patients on calling again and again for start of ART treatment	Work-hazard	90%
Frequent change of follow-up; with no facility of previous data transferred	Programmatic issue	89%
Single day linkage not possible due to climatic & geographical conditions	Geo-political issue	90%
Handholding by NACO for strengthening follow-up	Programmatic	70%
Guidelines on lost to follow-up linkage and getting back on treatment	Programmatic issue	80%
Coordination of NGO with local ICTC centre for LFU patients	Programmatic issue	60%
Far-flung visits not possible due to less TA/DA	Programmatic issue	20%

Table 4 indicates the reasons for loss-to-follow-up reported by the patients interviewed during the study. The majority of PLHIV (89%) reported that they had moved out of the station due to work or family commitments, which led to their loss to follow-up after diagnosis. Accessibility to the ART centre was also cited by 60% of participants as a major reason for loss to follow-up from diagnosis to the start of treatment. Once treatment had started, participants identified several factors contributing to continued loss to follow-up, including irregular CD4 count testing, family engagements, personal health issues, dependency on other family members for visits to the ART centre, and the distance to the ART centre.

Table 4 Reasons for Lost to Follow-up among Patients

Reasons mentioned	Category	Percentage
Diagnosis to start of treatment		
Outstation PLHIV	Work & Family	89%
Failure to accept HIV status	Personal	15%
Asymptomatic, thus no need to start treatment	Medical	12%

Reasons mentioned	Category	Percentage
Distance of ART centre	Access to care	60%
Start of treatment to continuous treatment		
Distance of ART centre	Access to care	60%
Behaviour of staff	Clinic quality	2%
COVID-19 restrictions	Environmental issues	80%
Irregular CD4 count testing facility	Clinic quality	60%
Non-disclosure of status to family	Personal	34%
Personal health issues	Medical	48%
Dependence on family for taking to ART centre	Family	51%
Own family pre-appointments	Family	61%
Workplace issues	Work	43%
Daily wage loss	Work	28%
Marriage	Family	43%
Transfer of job	Work	17%
Return to home-place	Personal & Family	15%
Death of the patient	Medical	20%

Conclusion

LFU was more common in the younger, asymptomatic age group based on the records assessed in the present study. The findings indicated that the migrant population, particularly from Kullu and Manali, constituted the majority of the lost-to-follow-up groups. The primary reasons for loss to follow-up identified in the study were transfers to other locations and denial of treatment. Furthermore, stakeholders suggested the need for more sensitisation workshops on handling loss to follow-up and streamlining data entry portals.

Recommendations

It is vital to identify the causes of loss to follow-up and determine how it can be managed at the programmatic level. Scientifically, gap analysis has been shown to improve loss to follow-up rates. Record keeping need to be standardised, and no additional record registers may be allowed. Data needs to be stored in a secure, digital format with password protection, allowing for both offline and online entries. Regular refresher training and support for all stakeholders on the latest treatment guidelines are essential. Additionally, individuals who have been transferred out or denied treatment need to be contacted quarterly to update their address, treatment status, or any developments related to their condition.

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Determinants Influencing Retention in HIV Antiretroviral Treatment (ART) in the Context of the HIV 'Treat All' Strategy

AUTHORS

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Introduction

India has the third largest number of People Living with HIV (PLHIV) in the world after South Africa and Nigeria [1]. In 2023, HIV prevalence among adult male and female populations was estimated at 0.22% and 0.19% respectively [2]. With the active interventions of the National AIDS Control Programme (NACP), the estimated adult HIV prevalence and incidence have been declining in India since the peak of the epidemic in 2000. Additionally, AIDS-related deaths per 100,000 population were estimated to have declined from 25.77 in 2004 to 15.04 in 2010 and further reduced to an estimated 2.61 in 2023 [2].

Retention of patients in HIV care is crucial for the success of Antiretroviral Treatment (ART), as it helps reduce HIV-related morbidity and mortality and prevents the emergence of drug resistance [3]. PLHIV may be lost at any of three steps in the treatment cascade: first, from confirmation of HIV diagnosis to enrollment in care services; second, from enrollment in care to initiation of ART; and third, from initiation to lifelong ART [3].

Despite significant advances in HIV treatment, a large proportion of people living with HIV do not consistently receive antiretroviral therapy, often due to decreased engagement in long-term clinical care [4]. To achieve Sustainable Development Goal Target 3.3, which aims to end the AIDS epidemic, understanding the risk factors related to poor adherence to treatment and loss to follow-up (LFU) is essential [5]. Previous studies have reported 25–63% LFU among PLHIV on ART across countries [6–9]. The estimated optimal adherence to ART in India was 77% (95% CI: 73 – 82) based on a recent meta-analysis [10]. Hence, this study was designed to estimate the incidence of LFU and the time to LFU across various steps of the treatment cascade, from detection to lifelong ART. The study aims to identify the determinants influencing retention in HIV care and explore factors associated with LFU among adult patients registered at selected ART Centres (ARTCs) in Jharkhand.

Methodology

This study adopted an exploratory sequential mixed methods design (quantitative: retrospective cohort design; qualitative: free listing) and was undertaken in Jharkhand.

Free listing was conducted with PLHIV and ARTC programme staff. Participants who were willing to participate in the study were purposively selected for the interview. The quantitative component involved reviewing treatment registers to extract the necessary patient data related to the study objectives. Records of all adult patients (>18 years) who tested positive during the two-year period from 01/04/2021 to 31/03/2023 were included in the study.

The sample size for the record review was calculated to be 600 using OpenEpi software, based on an adjusted hazard ratio (aHR) of 2.32 for disclosure of HIV status to family as a factor influencing LFU, according to a previous study conducted in India [8]. The calculation assumed a 95% confidence interval, 80% power, and 10% incompleteness of records. Among the four high-burden ART Centres, Jamshedpur and Ranchi were randomly selected. All registered PLHIVs at these centres during the data retrieval period were included until the desired sample size was reached. The study was initiated after obtaining IEC clearance from AIIMS Deoghar, Jharkhand (IEC Code: 2023-102-EMP-03, dated 11/05/2023).

Data was captured using the Epicollect mobile application, and analysis was performed using SPSS version 25.0. Content analysis was conducted to identify factors related to LFU. Bivariable analysis was followed by a multivariate Cox proportional hazard regression model to identify predictors of LFU. The hazard ratio (HR) and adjusted hazard ratio (aHR) with their corresponding 95% confidence intervals (CI) were reported.

Findings

A total of 600 HIV-positive adults registered at the ART Centres of Jharkhand, namely Jamshedpur (371, 61.8%) and Ranchi (229, 38.2%), were recruited for the study. The overall cumulative incidence of loss to follow-up (LFU) was 6.8% (95% CI: 5% – 9%), and the incidence rate of LFU was 6.27 per lakh patient months (95% CI: 4.6 to 8.4 per lakh patient months). The total LFU-free time for the participants was 544,950 patient-years. The median (IQR) duration from diagnosis to enrolment in ART care was 2 (1–4) days, and from enrolment to treatment initiation was 2 (1–6) days. The median duration of treatment among study participants was 18.8 (13.9–22.7) months.

Of the total participants, the majority (447, 74.5%) were aged 18 to 39 years, 378 (63%) were male, and 11 (1.8%) were transgender. A total of 121 (20.2%) belonged to scheduled tribes, 320 (53.3%) resided in urban areas, 103 (17.2%) were illiterate, and 149 (24.8%) had studied beyond college. Additionally, 42 (7%) were professional workers, 192 (32%) were unemployed, and 429 (71.5%) were currently married. Among them, 53 (8.8%) were men who have sex with men (MSM), 34 (5.7%) were drivers or migrants, 185 (30.8%) were alcoholics, 148 (24.7%) were smokers, and 129 (21.5%) chewed tobacco. Regarding ART regimen, 582 (97%) received TDF (Tenofovir) + 3TC (Lamivudine) + DTG (Dolutegravir), with only 6 (1%) experiencing a regimen change. At the time of diagnosis, 411 (68.5%) had a CD4 count >200 cells/mm³, 386 (64.3%) were in WHO clinical stage I, and 15 (2.5%) were in stage III. Additionally, 451 (75.2%) had a working functional status, while 16 (2.7%) were bedridden. Finally, 494 (82.3%) had a good adherence score (>95%) during their last ART visit.

Table 1 Association Between LFU with Demographic and Clinical Parameters among HIV-Positive Adults Registered at ARTC, Jharkhand from April 2021 To March 2023 (N=600)

Characteristics n	N (%) ^a % [#]	LFU		HR	95% CI	p-value
Age group in years						
18 – 39	447 (74.5)	35	7.8	1 (Ref)	---	---
40 – 59	141 (23.5)	5	3.5	0.4	0.2 – 1.1	0.08
≥ 60	12 (2)	1	8.3	1.3	0.2 – 9.3	0.81
Gender						
Female	211 (35.2)	5	2.4	1 (Ref)	---	---
Male	378 (63)	34	9.0	4.1	1.6 – 10.5	0.003*
Transgender	11 (1.8)	2	18.2	8.2	1.6 – 42.3	0.01*
ARTC						
Jamshedpur	371 (61.8)	29	7.8	1.5	0.7 – 2.9	0.24
Ranchi	229 (38.2)	12	5.2	1 (Ref)	---	---
Caste						
Unreserved	190 (31.7)	7	3.7	1 (Ref)	---	---
Other Backward Class	211 (35.2)	14	6.6	1.9	0.8 – 4.8	0.15
Scheduled Caste	78 (13)	5	6.4	1.8	0.6 – 5.8	0.29
Scheduled Tribe	121 (20.2)	15	12.4	3.6	1.5 – 8.8	0.005*
Residence						
Rural	280 (46.7)	17	6.1	1 (Ref)	---	---
Urban	320 (53.3)	24	7.5	1.3	0.7 – 2.4	0.39
Education						
Illiterate	103 (17.2)	8	7.8	5.4	1.2 – 25.6	0.03*
Primary school	89 (14.8)	7	7.9	5.8	1.2 – 27.8	0.03*
Secondary school	259 (43.2)	24	9.3	6.7	1.6 – 28.7	0.009*
College and above	149 (24.8)	2	1.3	1 (Ref)	---	---
Occupation (n=590)						
Professional	42 (7)	0	0	NA	---	---
Skilled & semi-skilled worker	182 (30.3)	12	6.6	2.6	0.9 – 7.5	0.06
Unskilled worker	174 (29)	23	13.2	5.6	2.1 – 14.7	<0.001*

Unemployed	192 (32)	5	2.6	1 (Ref)	---	---
Monthly income in INR (n=598)						
< 10,000	286 (47.7)	23	8	1 (Ref)	---	---
10,000 – 49,999	296 (49.3)	18	6.1	0.7	0.4 – 1.3	0.35
≥ 50,000	16 (2.7)	0	0	NA	---	---
Marital status (n=595)						
Married	429 (71.5)	24	5.6	1 (Ref)	---	---
Single	131 (21.8)	15	11.5	2.2	1.2 – 4.3	0.01*
Others	35 (5.8)	2	5.7	0.9	0.2 – 4.2	0.99
High-risk groups (n=593)						
Heterosexual	445 (74.2)	19	4.3	1 (Ref)	---	---
MSM	53 (8.8)	6	11.3	2.7	1.1 – 6.8	0.03*
Migrants & Drivers	34 (5.7)	6	17.6	4.2	1.7 – 10.5	0.002*
Others	61 (10.2)	8	13.1	3.4	1.5 – 7.7	0.004*
Alcohol consumption (n=583)						
Yes	185 (30.8)	22	11.9	2.7	1.5 – 5.1	0.002*
No	398 (66.3)	19	4.8	1 (Ref)	---	---
Tobacco smoking (n=587)						
Yes	148 (24.7)	13	8.8	1.5	0.8 – 2.9	0.20
No	439 (73.2)	27	6.2	1 (Ref)	---	---
Tobacco chewing (n=585)						
Yes	129 (21.5)	14	10.9	2.1	1.1 – 4.1	0.02*
No	456 (76)	26	5.7	1 (Ref)	---	---
Co-morbidities (n=586)						
Yes	69 (11.5)	7	10.1	1.6	0.7 – 3.6	0.27
No	517 (86.2)	34	6.6	1 (Ref)	---	---
Current ART Regimen						
TLD	582 (97)	37	6.4	1 (Ref)	---	---
Others	18 (3)	4	22.2	3.9	1.4 – 11.1	0.009*
Change in ART regimen						
Yes	6 (1)	2	33.3	3.3	0.8 – 13.9	0.10
No	594 (99)	39	6.6	1 (Ref)	---	---
CD4 count in cells/mm ³ (n=583)						
< 150	138 (23)	24	17.4	4.4	2.3 – 8.2	<0.001*
150 – 200	34 (5.7)	1	2.9	0.7	0.1 – 5.6	0.77
>200	411 (68.5)	16	3.9	1 (Ref)	---	---
WHO clinical staging (n=590)						
I	386 (64.3)	20	5.2	1 (Ref)	---	---
II	114 (19)	6	6	1.1	0.4 – 2.7	0.83
III	75 (12.5)	13	13	3.6	1.8 – 7.3	<0.001*
IV	15 (2.5)	1	1	1.2	0.2 – 8.9	0.85
Functional status (n=594)						
Working	451 (75.2)	24	5.3	1 (Ref)	---	---
Ambulatory	127 (21.2)	13	10.2	1.9	0.9 – 3.7	0.06
Bedridden	16 (2.7)	3	18.8	3.1	0.9 – 10.4	0.06
Drug adherence score in % (last visit)						
≥ 95	494 (82.3)	9	1.8	1 (Ref)	---	---
< 95	106 (17.7)	32	30.2	17.5	8.3 – 36.8	<0.001*

^Column percentage, #Row percentage, LFU=Loss to Follow-up, MSM=Men Who Have Sex with Men, TLD=TDF (Tenofovir) +3TC (Lamivudine) +DTG (Dolutegravir), Ref=reference group, NA=Not Applicable, HR=Hazard Ratio, CI=Confidence Interval, *statistically significant (p<0.05) based on Cox-Regression unadjusted survival analysis

In the unadjusted bivariate Cox regression model, several factors were found to be significant predictors of LFU, including male gender (HR 4.1; 95% CI: 1.6–10.5), scheduled tribe status (HR 3.6; 95% CI: 1.5–8.8), illiteracy (HR 5.4; 95% CI: 1.2–25.6), involvement in unskilled work (HR 5.6; 95% CI: 2.1–14.7), unmarried status (HR 2.2; 95% CI: 1.2–4.3), MSM (HR 2.7; 95% CI: 1.1–6.8), migrants & drivers (HR 4.2; 95% CI: 1.7–10.5), alcohol consumption (HR 2.7; 95% CI: 1.5–5.1), tobacco chewing (HR 2.1; 95% CI: 1.1–4.1), receiving a regimen other than TDF + 3TC + DTG (HR 3.9; 95% CI: 1.4–11.1), CD4 count < 150 cells/mm³ (HR 4.4; 95% CI: 2.3–8.2), WHO clinical stage III (HR 3.6; 95% CI: 1.8–7.3), and poor adherence score (<95%) (HR 17.5; 95% CI: 8.3–36.8).

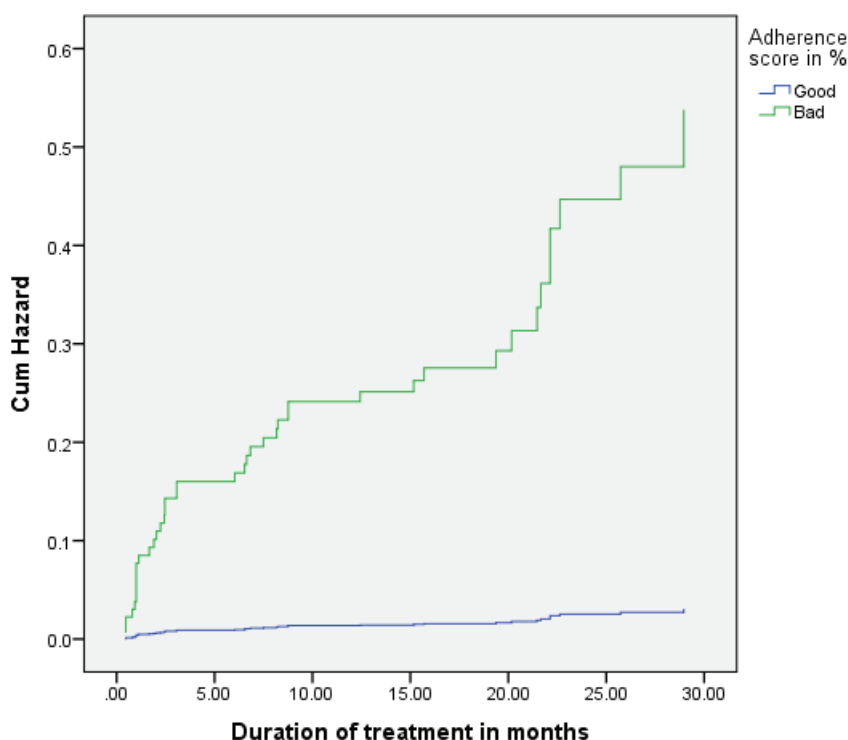
In multivariable Cox regression analysis, the following factors remained significant predictors of LFU: male gender (aHR 3.4; 95% CI: 1.1–10.8), CD4 count < 150 cells/mm³ (aHR 3.6; 95% CI: 1.7–7.3), and poor adherence score (<95%) during the last visit (aHR 13.2; 95% CI: 5.8–29.7).

Table 2 Multivariate Cox-Regression Analysis Predicting Factors Associated with LFU among HIV-Positive Adults Registered at ARTC, Jharkhand from April 2021 to March 2023 (N=558)

Characteristics	aHR	95% CI	p-value
Gender			
Female	1 (Ref)	---	---
Male	3.4	1.1 – 10.8	0.04*
Others	3.7	0.6 – 23	0.15
Education			
Illiterate	4.9	0.7 – 21.5	0.09
Primary school	1.3	0.2 – 8.2	0.72
Secondary school	2.8	0.6 – 12.7	0.19
College and above	1 (Ref)	---	---
High-risk groups			
Heterosexual	1 (Ref)	---	---
MSM	1.5	0.5 – 4.2	0.42
Migrants & Drivers	1.9	0.7 – 5.7	0.19
Others	2.2	0.8 – 5.8	0.11
Alcohol consumption			
Yes	0.9	0.4 – 2.1	0.89
No	1 (Ref)	---	---
Tobacco chewing			
Yes	1.5	0.7 – 3.2	0.36
No	1 (Ref)	---	---
Current ART Regimen			
TLD	1 (Ref)	---	---
Others	3.4	0.99 – 11	0.05
CD4 count in cells/mm³			
< 150	3.6	1.7 – 7.3	<0.001*
150 – 200	0.5	0.07 – 3.9	0.52
>200	1 (Ref)	---	---
Drug adherence score in % (last visit)			
≥ 95	1 (Ref)	---	---
< 95	13.2	5.8 – 29.7	<0.001*

MSM (Men Who Have Sex with Men), TLD=TDF (Tenofovir) +3TC (Lamivudine) + DTG (Dolutegravir), Ref – reference group, Ahr=adjusted Hazard Ratio, CI=Confidence Interval, * statistically significant ($p<0.05$) based on Cox-Regression adjusted survival analysis

Figure 1 Cumulative Hazard Rate of Lost to Follow-Up among HIV-Positive Adult Individuals Based on their Drug Adherence Score, Registered at ARTC Jharkhand from April 2021 to March 2023



The findings identified factors related to LFU under three major themes: patient-related, staff-related, and treatment-related. Patient-related factors included old age, frailty, lack of awareness, long travel distances, high travel costs, loss of daily labour, lack of accompaniment, difficulty in traveling, stigma, bedridden status, substance abuse (alcohol, tobacco), and mental disabilities. Treatment-related factors included drug side effects, co-morbidities and their impact on ART, treatment for opportunistic infections, type of ART regimen, CD4 count status, and the need for frequent follow-up. Staff-related factors included impatience with patients, inadequate communication, lack of training, and discriminatory attitudes towards patients.

Conclusion

This study revealed that the incidence rate of loss to follow-up (LFU) among adult HIV-positive patients at the ART Centres of Jharkhand was relatively low, with an incidence proportion of 6.8% (95% CI: 5% – 9%) and an incidence rate of 6.27 per lakh patient months (95% CI: 4.6 to 8.4 per lakh patient months). The median (IQR) duration from diagnosis to enrolment in ART care was 2 (1–4) days, and from enrolment to treatment initiation, it was 2 (1–6) days, both of which are considered acceptable. The free listing activity helped identify key factors associated with LFU, categorised into patient, staff, and treatment-related factors. Significant predictors of LFU included male gender, CD4 cell count <150 cells/mm³, and a drug adherence score of less than 95%.

Recommendation

Programme managers, ART Medical Officers, and staff should prioritise patients with a CD4 cell count <150 cells/mm³, those with poor drug adherence scores, and male patients to prevent LFU. The factors identified during the free listing activity, such as the challenges related to travel, stigma, substance use, and treatment side effects, may be considered when counselling patients registered at the ARTCs. Addressing these issues may improve retention and adherence to ART, ultimately reducing LFU rates.

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Barriers to Service Access among People Living with HIV/AIDS (PLHIV) in South-western Jharkhand: An Operational Research

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Introduction

Worldwide, prompt and effective access to antiretroviral therapy (ART) for people living with HIV (PLHIV) has been shown to significantly reduce morbidity and mortality, decrease the risk of HIV transmission (even with modest ART coverage and imperfect adherence), improve employment rates to pre-HIV levels, and enhance the quality of life for PLHIV [1-3]. Access to HIV care is critical in reducing PLHIV morbidity, mortality, and transmission risks [4-5]. PLHIV who use ART and achieve low viral levels can live long and healthy lives, with significantly reduced transmission risks [5, 6]. Research has identified various individual, societal, and health system-related challenges in HIV care [7-8]. UNAIDS has set 95-95-95 targets to which India is a signatory. HIV control will be achieved when at least 90% of infected people are aware of their status, 90% of those diagnosed receive continuous ART, and 90% of those on ART maintain viral suppression [9]. UNAIDS has set 95-95-95 targets: 95% of PLHIV should be identified, 95% of those diagnosed should be on ART, and 95% of them should achieve viral suppression, leading to improved health outcomes [10].

Globally, the 95-95-95 targets for 2025 are within reach. By 2023, approximately 86% of people living with HIV worldwide knew their HIV status, 89% of them were on ART, and 93% of those on ART had suppressed viral loads [11]. In India, the HIV prevalence among adults aged 15-49 years is 0.2%, with around 2.5 million people living with HIV/AIDS. Of these, 81% are aware of their status, 70% are on ART, and 68% have achieved viral suppression [12]. However, India is yet to meet the 95-95-95 targets to fully control the HIV/AIDS epidemic. In India, the National AIDS Control Organisation (NACO) has implemented several initiatives, including free medical assessments, counselling, and ART provision. Despite these efforts, PLHIV continue to face significant barriers to care at individual, societal, and health system levels [13]. To end the HIV/AIDS epidemic as a public health threat by 2030, it is essential to address these underlying challenges to ensure greater access to HIV care.

Objectives

- To assess the current status of service access among people living with HIV (PLHIV)
- To identify the barriers to service access among PLHIV, including health system-related, community-related, and social barriers

Methodology

Study was a mixed-method study consisting of both quantitative and qualitative components. The quantitative part used a cross-sectional design, while the qualitative part involved in-depth interviews (IDIs) with people living with HIV (PLHIV) and other stakeholders at the ART centre to explore underlying factors not captured by the quantitative approach. A total of 30 IDIs were conducted with PLHIV, and 5 IDIs were conducted with stakeholders of the ART centre. Study was conducted between February to December 2023 at ART Centre, East Singhbhum, Jharkhand, located at M.G.M Medical College & Hospital, Jamshedpur, East Singhbhum, Jharkhand. The sample size for the quantitative part was calculated to be 139. For the qualitative part, in-depth interviews (IDIs) were conducted with a selection of PLHIV and stakeholders from the ART centre with the following inclusion and exclusion criteria

- a) Inclusion criteria:
- Adults who have been diagnosed with HIV/AIDS for more than 6 months
 - Consented adults for participation in the study
- b) Exclusion criteria:
- Those under intoxication of alcohol or other drugs

The sampling technique adopted for quantitative part of the study was simple random sampling, while purposive sampling technique was employed for qualitative part of the research.

A pre-tested semi-structured questionnaire, containing the following sections: socio-demographic details, prevalence of service utilisation, and perceived barriers to HIV care, was used for data collection in the quantitative part of the study. For the qualitative part, five in-depth interview questions with 3-4 guiding probes were used to conduct the interview. The broad information areas covered in the IDI included services being received and challenges faced by PLHIV, knowledge about the process of registration at the ART centre and schemes available for PLHIV, and discrimination faced after being diagnosed with HIV/AIDS. Quantitative data was analysed using Jamovi Software (Version Solid 2.2.5) and qualitative data was analysed using ATLAS Ti (free version) using thematic analysis.

Ethical clearance was obtained from the Ethics Committee of the institution. The identity of the patient was kept confidential by not taking any variable that would reveal the identity. Participant information sheet was given to the study participants, and they were made to read it, for those who could not read or understand, the entire participant information sheet was read out to them and explained, followed by taking their consent to participate in the study by signing the informed consent form.

Findings

Table 1 presents the socio-demographic characteristics of the study participants. Most of the participants were male (78 out of 139, 56.5%), while 10 out of 139 (7.1%) were transgender. The majority of participants (121 out of 139, 86.9%) were from East Singhbhum district, although a few patients attending the ART centre at MGM Medical College and Hospital were from Saraikela and West Singhbhum.

Table 1 Socio-Demographic Details of Study Participants (n=139)

Variable	Frequency	Percentage
Gender		
• Female	51	36.3%
• Male	78	56.5%
• Transgender	10	7.1%
Residence		
• Rural	55	39.3%
• Urban	84	60.7%
District		
• East Singhbhum	121	86.9%
• Saraikela	13	9.5%
• West Singhbhum	5	3.1%
Education		
• Illiterate	30	21.4%
• Up to primary	26	19%
• Above primary	83	59.5%
Occupation		
• Unemployed	17	12.5%
• Homemaker	32	23.2%
• Daily wage worker	20	14.3%
• Service class	05	3.5%
• Others	65	46.4%
Marital Status		
• Married	89	63.7%
• Unmarried	27	19.6%
• Others	23	16.7%

The current status of service access among people living with HIV/AIDS in the district of East Singhbhum is approximately 99%.

Figure 1 depicts the various community related barriers faced by people living with HIV/AIDS. A total of 27 out of 139 patients reported experiencing community related barriers, with most expressing fear of being recognised by others. Some were also afraid of being ostracised by the community if their HIV status were revealed. This was also reflected in some of the qualitative findings.

- **Respondent 1:** *"There are chances of social discrimination in the community where we live because we visit the ART center".*
- **Respondent 2:** *"I have a supportive family and community which always helps me and supports me".*
- **Respondent 3:** *"If I come to this place to get medicine and anyone from my place comes to know, they will not accept me in the society".*
- **Respondent 4:** *"There are many myths and beliefs about this disease in the society."*
- **Stakeholder 1:** *"Some patients face social outcast due to the disease and their visit to ART centre".*

Figure 1 Community related Barriers (n = 139)

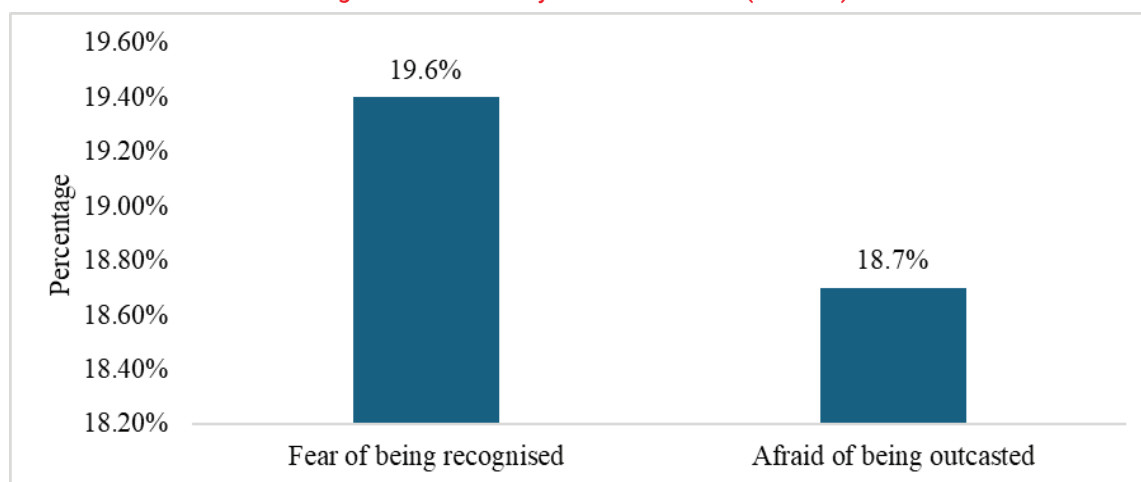


Figure 2 presents the various types of health system-related barriers. More than half of the patients, 72 out of 139 (51.8%), reported long waiting times at the centre due to long queues as their primary health system related barrier. Additionally, 58 out of 139 (41.7%) patients stated that the functional hours of the ART centre were not suitable for them. Health system related aspects were also highlighted in the qualitative findings.

- **Respondent 5:** *"We got help from health workers of the hospital for registration at ART centre".*
- **Respondent 6:** *"There are sometimes long waiting times for us to receive medicines at the ART centre".*
- **Respondent 7:** *"I don't like the manner in which ART staff behave with me."*
- **Stakeholder2:** *"Sometimes there are medicine stock-outs during service delivery at ART centre".*
- **Stakeholder 3:** *"Language acts as a barrier in service delivery sometimes".*
"Transport of the patients from other states is an issue of concern in barrier to access the services".
- **Stakeholder 4:** *"The patients do not want to visit the ART centre again and again for the medicines".*
"Lack of proper and adequate infrastructure at ART centre is also a barrier to the service delivery".
- **Stakeholder 5:** *"Counselling of the patients helps to improve their adherence to medicines and ART centre visit".*

Figure 2 Health System-Related Barrier (n = 139)

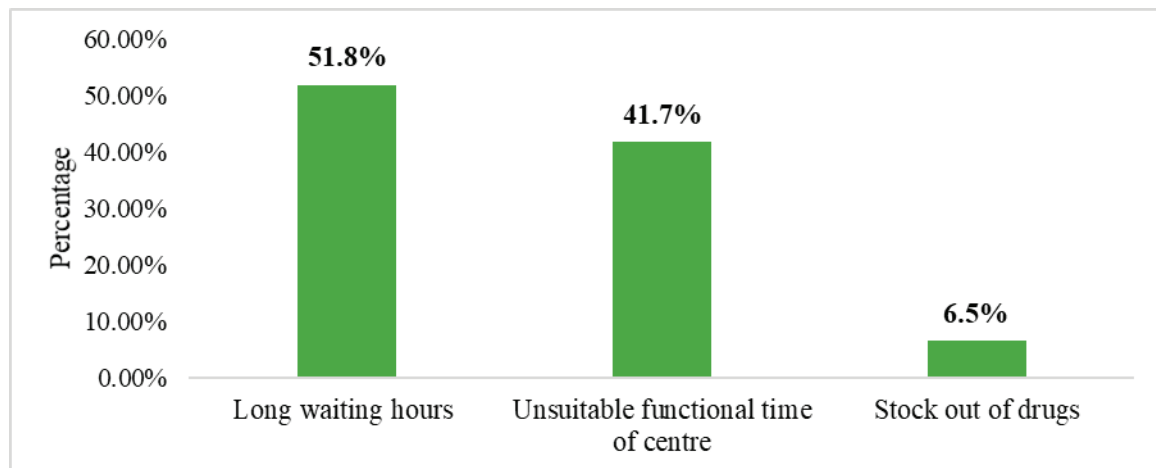
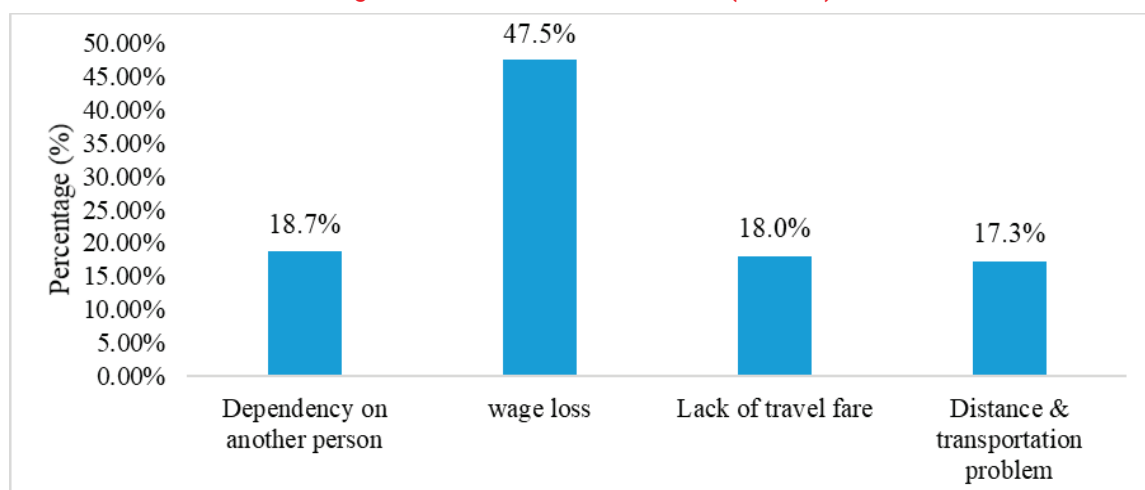


Figure 3 depicts the socio-economic barriers. The most common social barrier reported was wage loss, which was mentioned by 66 out of 139 (47.5%) participants, followed by dependency on others to reach the ART centre (26 out of 139, 18.7%) and lack of travel fare (25 out of 139, 18%).

Qualitative findings reveal the following:

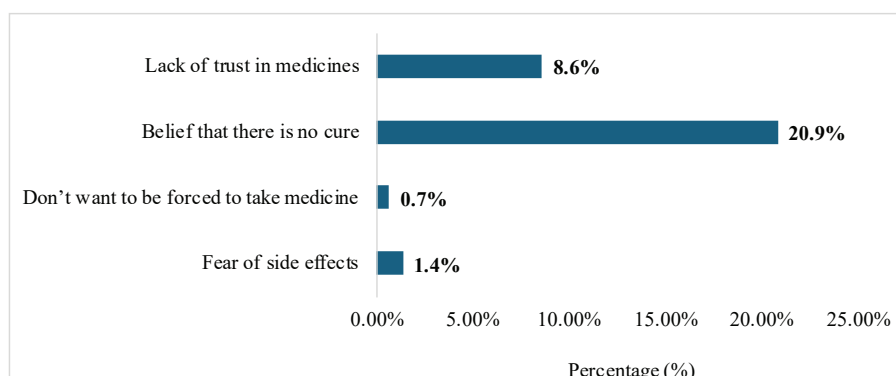
- **Respondent 8:** "We have to spend too much amount for our travel to ART centre to get the medicines".
- **Respondent 9:** "We do not get any type of pension".
- **Respondent 10:** "We have to spend too much amount for our travel to ART centre to get the medicines".
- **Respondent 11:** "The timing of ART centre is during the working hours of our work, so wage loss is there if I visit the ART centre for medicines".
- **Respondent 12:** "We have to travel from very long distance to reach to this place to get the medicines, to get even the vehicle we have to walk several kilometre".
- **Respondent 12:** "I am dependent on my family member to take me to the ART centre".
- **Respondent 13:** "We come from far off place and have to wait here for very long duration."

Figure 3 Socio-Economic Barriers (n = 139)



Personal barriers are presented in Figure 4. About 20.9% of the respondents reported believing that HIV/AIDS has no cure, 8.6% expressed a lack of trust in the medicines, and a few respondents (0.7%) reported not wanting to be forced to take medicines.

Figure 4 Personal Barriers Identified by the PLHIV (n = 139)



Conclusion

We conclude that service utilisation by PLHIV is relatively high in the East Singhbhum district, with about 99% of PLHIV visiting the ART centre. This enhanced utilisation can be attributed to the collaborative efforts of staff and agencies working towards ending the HIV/AIDS epidemic as a public health threat by 2030. However, there are several barriers to service access among PLHIV, including community-related issues such as fear of being recognised, health system-related issues like stock-outs of medicines and long queues, socio-economic challenges such as transportation and delays in availing pensions, and personal barriers like a lack of trust in the health system.

Recommendations

The study concludes with the following recommendations:

- Provision of a continuous supply of ART drugs to patients
- Designating health personnel for drug distribution and patient counselling at their doorsteps
- Implementing strategies to address administrative, infrastructure, and logistical challenges through staff training and patient orientation to the system
- Ensuring regular and timely credit of pensions to patients' bank accounts
- Introducing a tailored token system to engage PLHIV patients during service delivery

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Reasons for High Death in ART Centres in Selected Districts in Madhya Pradesh

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Introduction

Wider access to ART has led to a 29% reduction in the estimated annual AIDS-related deaths between 2007 and 2011 [1]. It was estimated that the scale-up of free ART since 2004 has averted over 0.15 million HIV/AIDS-related deaths. In the next five years, the current rate of scale-up is predicted to prevent an additional 50,000–60,000 deaths per year, according to the Assessment of ART Centres in India National Report [1]. As per Sankalak: Status of National AIDS Response (2021), there has also been a 54% decrease in estimated AIDS-related deaths, largely due to the increasing coverage of ART [2]. In Madhya Pradesh, a 24% decline was observed. During the same period, HIV/AIDS-related deaths also declined by 30%, from a total of 2,553 in 2007 to 1,006 in 2020, according to Epidemic Estimates (2020) in Sankalak.

In Jabalpur, ART services were initiated in October 2006, covering 21 districts of Madhya Pradesh. By 2024, 9,988 patients had been registered for ART. Of the patients on ART, 1,708 have died, while 627 died prior to starting ART. According to programme data, it is evident that mortality among ART patients is high in Jabalpur District, followed by Bhopal, Gwalior, and Rewa. Therefore, this study has been conducted to investigate the reasons for the high death rate among PLHIV on ART in Jabalpur, Bhopal, Gwalior, and Rewa districts. The findings will provide valuable insights to policymakers for future strategies aimed at reducing the mortality rate among PLHIV.

With this background, a retrospective cohort study has been planned with the following objectives:

- To estimate the mortality incidence among registered HIV-positive patients from January 2016 to December 2021 at the ART centres.
- To understand the trends of HIV-related deaths over the last 6 years in Jabalpur, Gwalior, Bhopal, and Rewa districts.
- To identify the factors responsible for deaths among registered HIV-positive patients in ART centres of Jabalpur, Gwalior, Bhopal, and Rewa districts.

Methodology

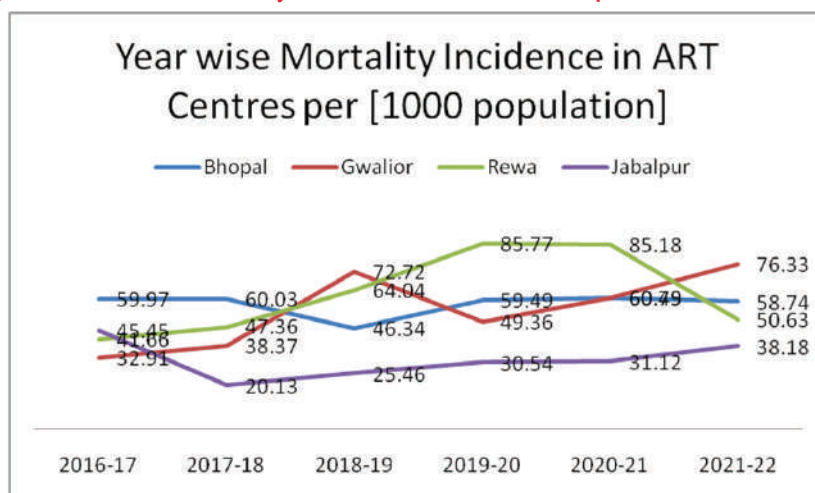
This study employed an explanatory sequential mixed methods design to recruit study participants from the ART centres in Jabalpur, Bhopal, Gwalior, and Rewa districts. All HIV-positive patients who were registered at ART centres and who continued care and treatment services between January 2016 and December 2022 were included in the analysis. A total of 359 samples were collected from all four ART centres using the PPS (Probability Proportional to Size) approach. Study variables included socio-demographic characteristics (age, sex, marital status, educational level, and occupational status), date of HIV diagnosis, duration on ART (measured in months), nutritional status (measured by BMI, though this could not be obtained due to unavailability of records), WHO clinical staging (from Stage I to Stage IV), opportunistic infections, baseline CD4 count, complete blood count, and functional status (bedridden, ambulatory, and working), as recorded on patients' cards. Data were recorded at ART initiation, during treatment, and at the outcome (i.e., death). The cause of mortality was recorded as documented in patient records.

The study techniques involved reviewing patient records and conducting interviews with key informants (medical officers and counsellors). Data were entered into Microsoft Excel, coded, and validated. Descriptive statistics were generated using MS Excel and SPSS version 20. For qualitative data, thematic analysis, transcript analysis, and verbatim writing were performed.

Findings

Findings in Figure 1 and Table 1 show that the highest mortality rate among registered ART patients was found in Rewa, with 61.93 deaths per 1,000 patients. Bhopal had the second-highest rate at 57.02, followed by Gwalior at 55.09. The lowest rate was observed in Jabalpur, with 31.19 deaths per 1,000 registered PLHIV on ART.

Figure 1 ART-wise Mortality Incidence in ART Centres per 1000 PLHIV on ART



**In the figure, population is registered PLHIV on ART*

The mortality rate in Rewa is a major concern, as it has shown a significant increase between 2019-2020 and 2020-2021. Similarly, Gwalior has also experienced a notable rise in mortality rates over the past six years (Figure 1 and Table 1).

Table 1 Year-wise Mortality among ART-Registered Patients in the selected Districts

ART Centre		Bhopal	Gwalior	Rewa	Jabalpur	TOTAL
2021-2022	Registered patients	715	393	316	550	1974
	Died	42	30	16	21	109
2020-2021	Registered patients	562	395	270	514	1741
	Died	34	24	23	16	97
2019-2020	Registered patients	874	547	443	753	2617
	Died	52	27	38	23	140
2018- 2019	Registered patients	863	495	484	746	2588
	Died	40	36	31	19	126
2017-2018	Registered patients	633	443	380	596	2052
	Died	38	17	18	12	85
2016-2017	Registered patients	667	395	432	528	2022
	Died	40	13	18	24	95
Total	Registered patients	4314	2668	2325	3687	12994
	Died	246	147	144	115	652

Analysis showed that a significant number of males were among the deceased individuals. The majority of the patients were adults, married, aged between 31-45 years old. They had received education only up to the primary level and were employed. The predominant cause of mortality in all four districts was due to co-infection with pulmonary tuberculosis. Analysis showed that documentation of follow-up visits was inadequate across all centres, resulting in the unavailability of vital information such as the cause of death, six-monthly CD4 counts, viral load, 4S screening (only found for 61 out of 359 cases), co-infection status (documented for only 162 out of 359 cases), opportunistic infections (available for 210 cases only), AIDS-defining illnesses (documented for 75 cases), and AIDS-related malignancies (documented for 50 cases). This indicates that recommended services and care were either not provided to patients or not properly documented. This is a significant setback in terms of programmatic aspects and raises questions about the quality of services and care being provided.

The definite causes of mortality among ART patients, as documented, were:

- Pulmonary TB: 46.6%
- Chronic Kidney Disease: 13.33%
- Cardiopulmonary arrest and respiratory failure: 6.66%
- Acute febrile encephalopathy: 3.22%
- Carcinoma Lymph node: 3.22%
- COVID-19: 3.22%
- Lower respiratory tract infection: 6.4%
- Pericardial effusion: 3.22%
- Severe anaemia: 3.22%
- Shock with respiratory failure: 3.22%

Based on qualitative analysis, leading factors responsible for mortality were late reporting and diagnosis, poor treatment adherence due to financial constraints, non-availability of regimens (MMD), lack of 4S screening for TB, inadequate follow-up investigations, frequent shifting of regimens due to irregular supply, and lack of awareness due to illiteracy (Table 3).

Table 2 Details of in-depth Interviews [N=14]

S.no.	Designation of interviewee	Name of centre
1.	ART centre Nodal	Bhopal (1)
		Gwalior (1)
		Jabalpur (1)
		Rewa (1)
2.	Counsellors	Bhopal (5)
		Gwalior (1)
		Jabalpur (4)
		Rewa (1)

Table 3 Thematic wise details of Qualitative Findings

Category	Codes
Theme- Trends of HIV	
Sex	Males > Females
Age	Middle age group (15-49 years)
High-risk groups	Intravenous drug users, Transgender, Migrants, Female Sex Workers, Truckers
Sexual behaviours	Heterosexuals
Types of patients who visit ART centre	Patients come for a general assessment and are diagnosed with HIV or identified as having opportunistic infections (OIs)
	The majority of cases at the Bhopal ART centre are those that are accidentally detected, followed by cases identified through routine screening and referrals

Category	Codes
Theme-Status of patient at diagnosis	
WHO staging	Stage 1 – CD4 >200 Stage 4 – CD4 <200, Critical conditions, OIs – Tuberculosis, CNS infections. <i>“Majority of patient who comes for routine testing are Stage 1 and there are few subsets of population who are illiterate or uneducated who comes in critical condition and they are diagnosed when they comes with OIs like TB or CNS infections.”</i> -Nodal Officer, ART Centre Gwalior
Functional status	Illiterate/Uneducated are the majority in this stage In Bhopal ART – Most patients at time of diagnosis have CD4 up to 350 cells/mm3, few have <100 cells/mm3 The majority of patients’ functional status at diagnosis is ‘Working’, while for those with TB co-infection, the status is ‘Ambulatory’ (Jabalpur) In Bhopal ART, 70% of patients are classified as ‘Working’, while 30% are classified as ‘Ambulatory’
Theme- Disease Transmission	
Types of clients	Heterosexual individuals with high-risk behaviours, including migrants from Gujarat working in the diamond cutting industry and from Delhi engaged in manual labour (Gwalior) Majority of clients in Jabalpur: General population, IDUs and migrants In Bhopal ART, the most critical patients are referred from the 6 or 7 linked ART centres. Sex workers are most prevalent around the Ratlam and Chhindwara areas
Route	Sexual route – 86% among heterosexuals (Jabalpur)
Transmission rate	High among heterosexuals with high-risk behaviour, IDUs, truckers, migrants and sex workers
Theme- Investigations	
CD4 and Viral load	Used to be sent to Shivpuri from Gwalior, but now CD4 machines are available at its own centre CD4 Count observed to be least among abdominal TB patients (Jabalpur) CD4 and Viral load test done regularly in Jabalpur ART Viral load done regularly all days of week Supply gap of CD4 kit (Bhopal ART)
4S Screening (Cough, Fever, Weight loss, Night sweat)	4S screening is conducted for all patients during follow-up in Jabalpur. However, it was not consistently documented in patient cards, as only 60 out of 359 cards recorded the status of this screening. 4S are screened and look for (Bhopal ART)
HIV screening	Partners not willing to come for mandatory testing (Bhopal ART). Cervical cancer screening advised for ANC HIV clients. <i>“Regarding partner notification, if the cases are from educated background or working in good jobs, they do provide us with the details and we can track and provide partner management but in majority of cases they do not disclose their contact history, so there is no partner notification as well as partner management.”</i> -Nodal Officer, ART Centre Gwalior
Cervical Cancer screening	Cervical cancer screening advised for ANC HIV clients.
Theme- Treatment	

Category	Codes
Adherence	Adherence is generally good in the general population, but lower among high-risk groups. Overall, adherence among ART patients is poor, with paediatric HIV patients showing particularly low and irregular adherence (Jabalpur). She told that ..Paediatrics HIV patient are contributing to this low adherence as they are very irregular with their treatment and may be this issue can be attributed to their parents for not taking the responsibility. Additionally, factor contributing to low adherence is interrupted drug supply, which we get only once every 3 months. Medical officer ART centre Jabalpur "Aadivaasi chhetra ke marizo ko door-daraz se ART centre tak aane me kaphi pareshani ka samna karna padta hai" "Hum log dawaiyo ko 3 mahine ke liye dene ki koshish karte hai, Multi month dispensing ke dwara". In Bhopal ART, poor treatment adherence is observed among prisoners who are IDUs. Migrants from the Rajgarh area, a backward region, face challenges due to the distance from the ART centre, with many opting to seek treatment in Rajasthan. Orphaned HIV-positive children often lack responsible caregivers, leading to poor adherence. Overall, adherence is >95% for approximately 80% of clients, while <95% adherence is observed in around 20% of cases. Adherence challenges are particularly noted among migrant workers, truckers, and beggars. One of the main reasons for poor adherence is a shortage of medicines. "Anaath bachhe jo HIV Positive hai..unki dekh reh koi achche se nahi karta." -Medical Officer, ART-plus Centre Bhopal
Linkages to NGO/TI/PLHIV Network/Community Care centres	In Jabalpur, there are 5-6 Targeted Interventions (TIs) for Injecting Drug Users (IDUs) and a few TIs for Female Sex Workers (FSWs) focusing on HIV screening and counselling. Vihaan, a key programme, primarily focuses on improving adherence to treatment. In Bhopal ART, all patients are linked to NGOs or PLHIV networks. Vihaan acts as a bridge between ART services and clients, providing support for address verification, social linkages, spouse screening, counselling, home visits, medicine distribution, follow-up care, and contact tracing, particularly in hotspot areas. These networks play a crucial role in ensuring treatment adherence, counselling, and tracking of missed doses.
Loss to follow up	In Gwalior, a list of Lost to Follow-Up (LFU) cases is shared with the NGO (Vihaan) for tracing and conducting home visits through their outreach workers. The majority of LFU cases were observed before 2017, but the number has significantly decreased since 2017. In Bhopal ART, the majority of LFUs are from high-risk groups, including Injecting Drug Users (IDUs), Men who have Sex with Men (MSM), and migrants. Vihaan actively traces these LFU cases and follows up by visiting their homes to ensure continuity of care.
Changes observed	HAART is very effective and the number of OIs decreased significantly.
Medicine supply	Shortage of Multi-Month Dispensing (MMD) supply (Bhopal ART)

Category	Codes
Time	Late diagnosis and late presentation. "The most common cause of mortality, I would say, is due to late diagnosis and late presentation and there is severe OIs in them, malnutrition, and illiteracy in a chunk of population." In Bhopal ART, pre-ART clients – were denied admission. Delay in testing which prevents early diagnosis. "Majority of patient who comes for routine testing are Stage 1 and there are few subsets of population who are illiterate or uneducated who comes in critical condition and they are diagnosed when they come with OIs like TB or CNS infections. Talking in proportion the ones who are in Stage 4 are approximately 15%."
Opportunistic Infections	In Jabalpur ART, the most common Opportunistic Infections (OIs) among patients include Tuberculosis (TB), with TB accounting for 90% of cases. Other OIs observed include lymphomas, leukaemia, CNS infections, cancer of the cervix, and primary lymphomas of the CNS. In Bhopal ART, the common OIs are TB, acute respiratory infections, oral candidiasis, diarrhoea, anaemia, weakness, and herpes. Additionally, in HIV-positive ANC clients, Hodgkin's lymphoma has been observed. The most frequent OIs in Bhopal ART are TB, followed by cancer, and a CD4 count of <100 cells/mm³ is commonly seen among these patients. "In our setting patients who comes here are those who comes for general assessment, followed by people with opportunistic infections for treatment and Tuberculosis is still there in majority of the patients." [Stated by Medical Officer] "At the time of diagnosis, the functional status of majority of patients is -Working and those who have TB coinfection most of them are Ambulatory. In addition, I have noticed that CD4 count is least among abdominal Koch's patient. Among the OIs, TB is still the majority, then there are cases of Primary Lymphoma of CNS and cases of Cancer of Cervix." [Statement of Medical Officer]
Financial	Financial issues contributed to malnutrition
Education	Illiteracy
Treatment regimen	Treatment failure – regimen shifted from 1 st line to 2 nd line which is more toxic
Loss to follow up	
Stage of disease	Advance stage of disease with immune compromise. "The probable cause of deaths is due to advance stage of disease with immune compromise state they are in along with low CD4 count and high Viral load, I believe all these factors contributed to their mortality."
	Low CD4 count with high Viral load
Cause of death	Did not get a report on the cause of death – therefore, no report on causes of death in the patient's card. Most probable cause of death is Tuberculosis (Jabalpur) "In our centre, I would say the common causes of mortality would be Tuberculosis, which at approximately 90% would be the most common cause, followed by malnutrition and treatment failure. In case of treatment failure, the patient's regimen shifted from 1st line to 2nd line regimen which is more toxic and this can also contribute to mortality". "We usually do not get the report on the cause of death, that is why we don't report these causes of death in their card" "I think tuberculosis is the probable cause of death in most of the cases."

Category	Codes
Awareness and sensitisation	Lack of awareness about HIV in interior/rural areas, workers in those areas need to be sensitised about regular HIV testing not only for high-risk groups but also for the general population. "I feel that a lot has been done from our side but still I feel there is still lack of awareness about this disease in the interior areas and those health care workers in those areas need to be sensitized about regular HIV testing. Here at the tertiary centre, we are doing testing but I feel places like tehsils or District Hospital, the workers need to be sensitized on HIV testing, not only for high-risk group but also for general population should be encourage and make it a routine screening."
Challenges	Multiple Targeted Interventions (TIs) are working with high-risk groups, but motivating Injecting Drug Users (IDUs) to come forward for HIV screening remains a significant challenge. The majority of IDUs are from the younger population, highlighting the need to strengthen and expand the existing awareness programmes to reach this demographic more effectively. Patients from interior areas face the challenges of distance and financial issues to come regularly for follow up. Low adherence among paediatric HIV patients in Jabalpur – parents not taking the responsibility. Shortage of medication is a recurring issue, with medicines sometimes unavailable during patient follow-ups. This results in a financial burden on patients, who have to make multiple trips to the ART centre to collect their medicine, leading to missed doses and poor adherence. In Bhopal ART, a shortage of medicine requires clients to visit ART centres multiple times. Frequent changes in the treatment regimen also contribute to treatment resistance among patients.

Conclusion

The highest mortality incidence rate was observed in Rewa, with 61.93 deaths per 1,000 PLHIV on ART, followed by Bhopal (57.02 deaths), Gwalior (55.09 deaths), and Jabalpur, with the lowest rate of 31.19 deaths per 1,000 registered patients. The mortality rates in Rewa and Gwalior have been increasing over the past few years. This trend is concerning and warrants further investigation and attention. Pulmonary tuberculosis (TB) co-infection was the primary cause of mortality among ART cases, accounting for 46.6% of the deaths, followed by chronic kidney disease (13.33%). Other causes of death included cardiopulmonary arrest, respiratory failure, acute febrile encephalopathy, carcinoma lymph node, COVID-19, lower respiratory tract infection (LRTI), pericardial effusion, severe anaemia, and shock with respiratory failure. The risk of death was found to be higher during the first six months of therapy, particularly for patients who started ART with clinical stage 4 events, such as diagnosed TB at baseline, malnutrition (e.g., wasting) during follow-up, severe immunosuppression, and/or very low CD4 counts.

Recommendations

We suggest implementing the Care, Support, and Treatment (CST) guidelines rigorously, with a focus on comprehensive documentation of patient details and the services provided which will enrich the records, benefiting future research and strengthening the programmatic aspects of the HIV care system. An incentive-based approach to developing community and NGO support systems, along with active follow-up and close monitoring, is essential. Additionally, ensuring the availability of medications year-round, along with proper mapping of patients and service delivery centres, is crucial to guarantee the effective implementation of the programme.

Acknowledgements

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Factors Responsible for High Lost to Follow-Up (LFU) Rate in Dimapur ART Plus Centre

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Introduction

Adherence to Antiretroviral Therapy (ART) is crucial for effective Human Immunodeficiency Virus (HIV) care, which includes retention in care, treatment adherence, and subsequent viral load suppression. In Nagaland, as of March 2022, 18,205 patients were registered for HIV care, with 8,100 on first-line ART and 202 on second-line ART. Additionally, 1,114 children living with HIV (CLHIV) were receiving HIV care, including 496 on ART [1]. Between March 2018 and January 2023, around 1,629 People Living with HIV (PLHIV) were lost to follow-up (LFU) in the Dimapur district [2].

The care and support programme emphasises the critical importance of consistent ART adherence, informing PLHIV that missing even a single ART dose can shorten their lifespan. ART is effective only when taken regularly as prescribed by healthcare providers at ART centres, which require long-term follow-up. LFU not only jeopardises individuals' health but also undermines the long-term success of ART programs [3]. To address these concerns, this study was conducted to explore the reasons behind LFU, with a focus on treatment adherence, the facilities and services provided at ART Plus centres, and the measures implemented by these centres to enhance retention and improve treatment outcomes.

Methodology

The research methodology employed in this study incorporated both qualitative and quantitative approaches to assess various aspects of Lost to Follow-Up (LFU), including opinions and characteristics. LFU was defined as patients who had failed to collect their ART medications for three consecutive months. A predetermined sampling strategy was used, starting with the most recent LFU patients and continuing until the desired sample size was reached.

Interviews were conducted with 100 respondents, with the assistance of ART centre counsellors and the Vihaan Coordinator. Additionally, to get insight from service providers, interviews were conducted with four counsellors, and one Focus Group Discussion (FGD) was held with the care and support staff at Vihaan. The study included both male and female LFU individuals, aged 18 to 57, who had registered at least once for ART.

A semi-structured interview schedule was used to gather both quantitative and qualitative data, facilitating a comprehensive understanding of the subject and enhancing the overall findings. Quantitative data were analysed using SPSS, and the results were interpreted accordingly. Qualitative data were analysed, categorised, and used to complement and enrich the quantitative findings.

Findings

Demographic Profile of LFU

Table 1 provides a comprehensive demographic profile of the respondents. In this study, male respondents constitute of 51.0% (n=51) of the total, while female respondents constitute of the remaining 49.0% (n=49).

The age distribution reveals that the majority (47.0%; n=47) are aged between 28 and 37 years. In terms of marital status, 60.0% (n=60) of the respondents are married, while 32.0% (n=32) are unmarried. Widows represent 3.0% (n=3) of the sample, 2.0% (n=2) are widowers, and 3.0% (n=3) are divorced. Regarding education, 16.0% (n=16) of respondents have never attended school. Primary education is reported by 11.0% (n=11), while an equal percentage (11.0%; n=11) attended middle school. High school graduates account for 29.0% (n=29), and those with higher secondary education make up 15.0% (n=15). Respondents with a bachelor's degree and postgraduate qualifications represent 17.0% (n=17) and 1.0% (n=1), respectively.

In terms of occupation, 5.0% (n=5) are employed in the government sector, while 38.0% (n=38) work in the private sector. Self-employed individuals constitute 1.0% (n=1), and 47.0% (n=47) are unemployed. Additionally, 9.0% (n=9) of the respondents are students.

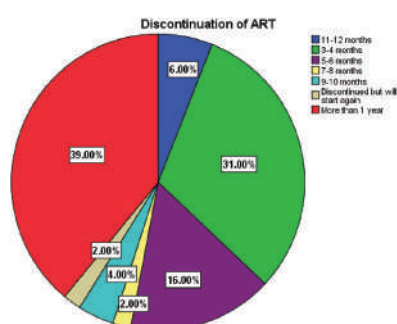
Table 1 Age at HIV Diagnosis in relation to Husband's Death among Widows Living with HIV

	Item	Frequency	Percent
Gender	Male	51	51.0
	Female	49	49.0
	Total	100	100.0
Age	18-27	26	26.0
	28-37	47	47.0
	38-47	24	24.0
	48-57	3	3.0
	Total	100	100.0
Marital status	Married	60	60.0
	Unmarried	32	32.0
	Widow	3	3.0
	Widower	2	2.0
	Divorce	3	3.0
	Total	100	100.0
Educational qualification	Never studied	16	16.0
	Primary	11	11.0
	Middle school	11	11.0
	High school	29	29.0
	Higher secondary	15	15.0
	Graduation	17	17.0
	Post-graduation	1	1.0
	Total	100	100.0
Occupation	Government sector employee	5	5.0
	Private sector employee	38	38.0
	Self employed	1	1.0
	Unemployed	47	47.0
	Student	9	9.0
	Total	100	100.0

Discontinuation of ART

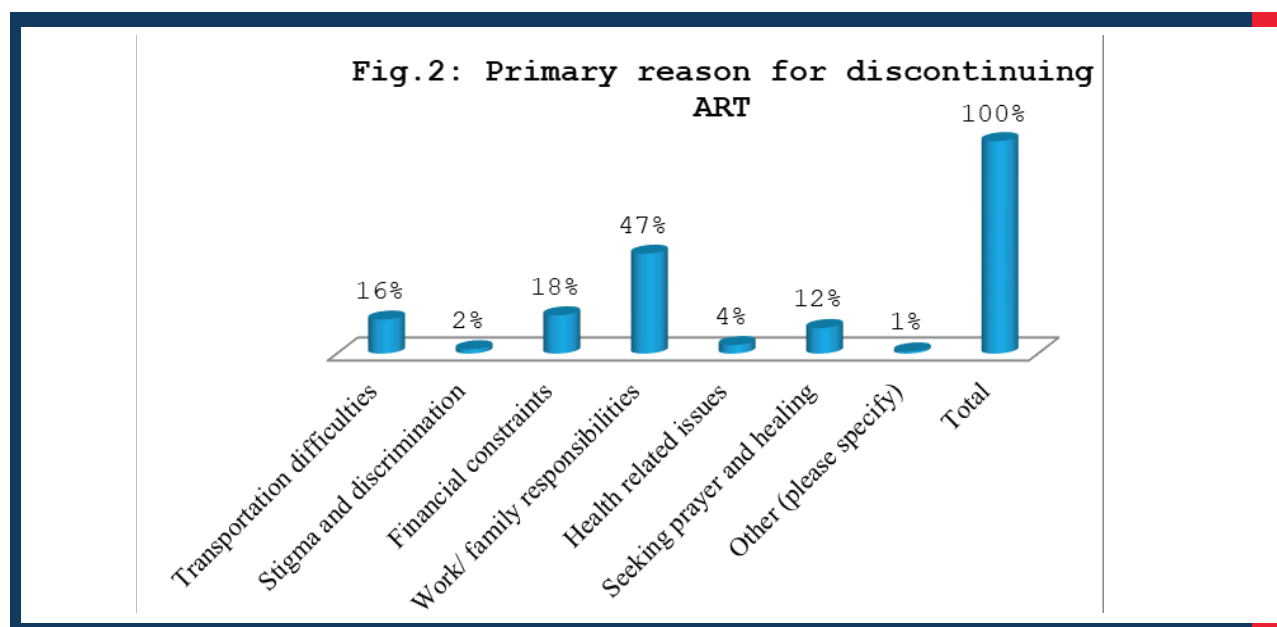
The data shows that 39% of respondents have discontinued ART for more than one year. Thirty-one respondents (31.0%) reported a gap of 3-4 months, while 16.0% experienced a lapse in ART for a duration of 5-6 months. Six respondents (6.0%) had not received ART for 11-12 months, and four respondents (4.0%) faced a treatment gap lasting 9-10 months. Two respondents (2.0%) reported discontinuing ART for 7-8 months. Interestingly, two respondents (2.0%) mentioned that they had discontinued ART but planned to restart treatment. The Figure 1 below displays the discontinuation of ART.

Figure 1 Discontinuation ART



Primary Reason for Discontinuing ART

The figure 2 below reveals the primary reason for discontinuing ART. The data reveals that work and family responsibilities are the primary reasons for discontinuing ART, with 47.0% of respondents citing these obligations. Financial constraints were mentioned by 18.0% of respondents, highlighting the significant impact of economic challenges. Meanwhile, 16.0% of respondents identified transportation difficulties as a barrier, and 12.0% mentioned a preference for prayer and healing. Health-related concerns (4.0%) and stigma and discrimination (2.0%) played smaller roles in discontinuation. Additionally, 1.0% of respondents cited other unspecified reasons. These findings suggest that addressing work-family dynamics, providing financial support, and considering cultural factors are essential for improving ART adherence.



Health Care Services provided to PLHIV at ART plus centre

The data indicate high levels of satisfaction among respondents regarding various aspects of healthcare services. The majority (95.0%) of respondents expressed satisfaction with the empathy demonstrated by healthcare providers. Additionally, most respondents were content with the clarity of health information (89.0%), explanations of health problems (88.0%), counselling services (93.0%), and the overall treatment experience (92.0%). Courtesy and respect during healthcare interactions also received positive feedback (92.0%). Only minimal dissatisfaction was reported, particularly regarding the clarity of health information (1.0%) and explanations of health problems (1.0%). Overall, the results suggest a generally positive perception of healthcare services, with areas of neutrality providing opportunities for improvement.

Table 2 Services and Assistance Provided to PLHIV at ART Plus Centre

Factors	Response	Frequency	Percentage
Empathy of Healthcare Providers	Very Satisfied	2	2.0
	Satisfied	95	95.0
	Neutral	3	3.0
	Total	100	100.0
Understandable Health Information	Very Satisfied	2	2.0
	Satisfied	89	89.0
	Neutral	8	8.0
	Strongly Dissatisfied	1	1.0
	Total	100	100.0
Explaining Health Problems	Very satisfied	1	1.0
	Satisfied	88	88.0
	Neutral	10	10.0
	Strongly dissatisfied	1	1.0
	Total	100	100.0

Counselling Services	Very satisfied	3	3.0
	Satisfied	93	93.0
	Neutral	4	4.0
	Total	100	100.0
Treated Properly	Very satisfied	2	2.0
	Satisfied	92	92.0
	Neutral	6	6.0
	Total	100	100.0
Courtesy and Respect	Very satisfied	4	4.0
	Agree/Satisfied	92	92.0
	Neutral	4	4.0
	Total	100	100.0

Willingness to Continue ART

The table shows that the majority (88%) of respondents in this study expressed a willingness to continue ART.

Table 3 Willingness to continue ART

RESPONSE	FREQUENCY	PERCENT
YES	88	88.0
NO	12	12.0
TOTAL	100	100.0

Qualitative Findings

To understand the problems and challenges faced by care support groups in tracing Lost-to-Follow-Up (LFU) individuals in Dimapur district, a Focus Group Discussion (FGD) was conducted with eight members, consisting of 2 males and 6 females. Additionally, four counsellors from the ART centres were interviewed to gather their perspectives. Some of the key findings from the FGD and individual interviews with the counsellors are as follows:

Unnotified Relocation and Frequent Contact Number Changes

Many PLHIV relocate or use different centres without informing the counsellors at ART Plus centres. Counsellors mentioned that proxy pill pick-ups and lack of proper transfer documentation further complicate continuity of care. One male counsellor at the ART Plus centre shared:

"It is difficult to trace and follow up with LFU individuals because they relocate to different places without informing us. When we try calling them, some respond and listen, but others are unreachable because they keep changing their contact numbers. It's difficult to locate them when they leave without informing us, and the lack of proper transfer documentation complicates care continuity."

Similarly, during the FGD, care support group members also highlighted that frequent changes in phone numbers make it challenging for the centres to maintain communication, disrupting consistent health monitoring and follow-up.

Hostility from Lost-to-Follow-Up (LFU) Individuals

During the FGD, one female care support group member recounted an experience with a male LFU who had stopped coming to the ART centre:

"I was trying to contact one male LFU who was on ART but had stopped coming to the centre. I tried calling, and initially, he said he had moved to another district. I felt like he was lying. I kept calling but he stopped answering. Then one day, his wife answered the phone and said her husband was dead. I didn't believe her because we hadn't received any formal notification. So, I tried calling from a different number, and he picked up the phone. He was alive! He had gone as far as pretending to be dead to avoid coming to the ART centre."

Another female group member shared her experience, feeling it was risky to conduct home visits to LFU individuals. She mentioned:

"We went to a house for a follow-up visit, but the first time, the male LFU threatened us, saying he would beat us if we visited his home again. The next time we visited, he chased us with a machete, threatening to kill us if we came back."

This highlights that LFU individuals often react with anger during follow-ups, sometimes threatening staff or falsely reporting deaths to avoid contact.

Religious Beliefs and ART Neglect among LFU

Some LFU individuals rely solely on prayer and alternative healing practices, neglecting Antiretroviral Therapy (ART) due to their religious beliefs. This was shared by both the counsellors interviewed and the participants in the FGD. One male counsellor explained:

"After visiting the ART centre for some time, some adult PLHIV stop coming because they think they've become healthy. When we call them, they often tell us they're at a prayer centre for healing."

This suggests that some PLHIV rely on prayer centres and have misconceptions about HIV recovery, which emphasises the need for stronger counselling on the importance of ART for sustained health.

Conclusion

The findings indicate that 47% of the respondents were unemployed. The primary factors influencing ART discontinuation and LFU include work and family responsibilities (47%), financial difficulties (18%), and transportation issues (16%). These findings highlight the importance of addressing social and economic barriers to improve ART adherence.

The majority of respondents (88%) expressed a willingness to continue ART, which reflects a strong commitment to treatment but it also emphasises the need for consistent support mechanisms. Challenges faced by Care Support Group members and counsellors, such as difficulties with tracking, misinformation, and changes in contact details, as well as hostility from LFU individuals, present significant obstacles to providing continuous support. Addressing these issues through improved communication, better community engagement, and formalised transfer processes could enhance the effectiveness of ART services.

The data also reveals a high level of satisfaction with healthcare services, particularly in areas such as empathy (95%), clarity of health information (89%), and courteous interactions (92%). This positive feedback suggests that the effectiveness of ART Plus Centre's services.

Overall, this study emphasises the need for holistic interventions that address both the practical and psychosocial factors influencing ART adherence. Such interventions are essential for improving health outcomes for PLHIV and ensuring sustained engagement with care services.

Recommendations

1. Given that financial constraints are a significant reason for ART discontinuation (18% of respondents), the government could increase targeted subsidies or financial aid specifically for PLHIV. This support could cover transportation costs to ART centres and provide direct financial assistance to alleviate economic pressures that hinder individuals from continuing their treatment.
2. To address misconceptions about HIV being treatable without ART, and the reliance on prayer and alternative healing, the government could collaborate with Community-Based Organizations (CBOs) to launch localised awareness campaigns and interventions.
3. Since many PLHIV seek alternative therapies, integrating the spiritual aspect into counselling and treatment processes could potentially enhance patient retention. Incorporating spiritual aspect alongside medical care may help retain patients who are seeking holistic approaches to their health.
4. A more comprehensive tracking system could be developed in collaboration with NGOs to better manage LFU cases. This system could include a centralized, real-time database accessible by multiple ART centres, preventing issues such as proxy pill pickups and ensuring proper documentation during transfers between centres. Improved follow-up protocols could reduce the burden on healthcare providers and ensure consistent treatment for PLHIV, even when they relocate or change contact details.

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Viral Load Suppression and its associated factors among People Living with HIV on Antiretroviral Therapy at Two High-Load ART Centres in Punjab: An Analytical Cross-Sectional Study

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Introduction

Among People living with HIV and AIDS (PLHIV) on Anti-retroviral Treatment (ART), CD4 T-cell enumeration and virological assays (HIV RNA load assays) are done for monitoring the stage and progression of HIV infection. Determining the increased rate of HIV replication, reflected in an increase in plasma viral RNA load, is presently considered one of the primary tests for monitoring the progression of HIV infection. The tests are further used to confirm treatment failure in HIV infected individuals who are suspected to have failed first line ART and decide if second-line ART should be initiated [1]. However, due to cost and technical feasibility, NACO has included use of Viral Load assay to PLHIV, who are recommended by SACEP to identify first line ART failure cases [1].

Viral loads are usually reported as copies of HIV in one millilitre of blood. The best viral load test result is “undetectable”. The sensitivity of commercially available viral load tests cannot detect copy numbers below 20 per ml [1].

Prior to 2018, viral load (VL) monitoring in India was targeted only at PLHIV that were suspected to have immunological failure on first-line ART [2]. Since then, NACO has designated VL as the preferred approach to monitor treatment response to second-line ART, with testing recommended at 6 months, 12 months, and yearly thereafter, following second-line ART initiation [3,4]. The prevalence of virological failure (VF, i.e., high VL) on second-line ART reported across 19 studies from low-and-middle income countries (LMICs) included in a meta-analysis, was between 6% and 38%. This meta-analysis of 2035 PLHIV found poor adherence to second-line ART to be the primary factor associated with VF [5]. Older age, lower CD4 counts, and socio-economic disadvantage are other factors reported to be associated with second-line VF [6,7,8].

Due to limited facilities and a long-time lag between sample collection and report exact status of VL suppression is not clear and no study has been done in the state to know the factors responsible for VL suppression. Therefore, a study was planned with following specific objectives:

Objectives

To assess the rates of viral load suppression among PLHIV registered at ART centre of Government Medical College, Amritsar and Civil Hospital, Tarn Taran

To determine the various factors associated with Viral Load suppression among PLHIV registered at the selected ART centres in two districts of Punjab

Methodology

This analytical cross-sectional study was conducted over four months at two high-case-load ART centres in Punjab: Government Medical College, Amritsar, and Civil Hospital, Tarn Taran. The study population included HIV-positive patients aged over 18, who had been registered at these ART centres from 2018 to 2022 and were on ART for at least six months. Exclusions included those without available viral load (VL) readings, as well as patients who had died, were lost to follow-up, or were transferred out.

In total, 400 participants were recruited from each site, yielding a final sample of 800 participants across both centres.

Participants attending the outpatient department at the ART centres were interviewed after providing written informed consent. Data were collected using a pre-structured, validated questionnaire, ensuring confidentiality at all stages of the study.

Data was compiled in Microsoft Excel and analysed using R software. Descriptive statistics, including frequency and proportions for categorical variables and measures of central tendency and dispersion for continuous variables, were used. Viral load was analysed as a binary outcome (suppressed vs. non-suppressed). Associations between VL suppression and independent variables—such as age, sex, education, occupation, treatment-related details, social isolation, discrimination, substance use, and CD4 counts—were assessed using odds ratios. Statistical significance was set at a p-value of <0.05.

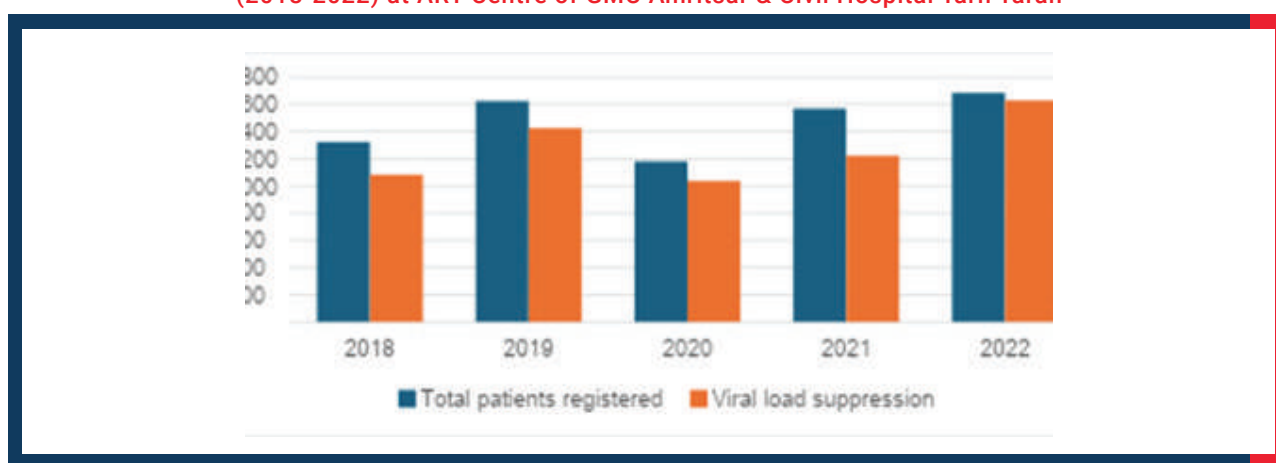
Findings

Trends of Viral load Suppression

The study included secondary data of a total of 7,383 PLHIVs (4,517 from GMC Amritsar and 2,866 from Civil Hospital, Tarn Taran) who were registered and put on ART at both ART centres over a period of 5 years (2018-2022). Among them, 76% were males and 24% were females.

The overall viral load suppression rate of these PLHIV was 87%, with a higher suppression rate among males (89%) compared to females (79%). The trends in viral load suppression over the 5-year period (2018-2022) are shown in Figure 1.

Figure 1 Trends of Viral Load Suppression among PLHIV put on ART over a period of 5 years (2018-2022) at ART Centre of GMC Amritsar & Civil Hospital Tarn Taran



Unsuppressed viral load (VL>1000 copies/ml) was found to be significantly higher at Civil Hospital Tarn Taran (26%) in comparison to ART centre, GMC Amritsar (05%).

Table 1 Overall Viral load Suppression over 5 years (2018-2022) by District

DISTRICT	TOTAL PATIENTS REGISTERED			VL>1000 COPIES/ML		
	Male (n%)	Female (n%)	Total (n%)	Male (n%)	Female (n%)	Total (n%)
YES	3598 (80)	919 (20)	4517 (61)	176 (05)	57 (06)	233 (05)
NO	1995 (70)	871 (30)	2866 (39)	418 (21)	313 (36)	731 (26)
TOTAL	5593 (76)	1790 (24)	7383 (100)	594 (11)	370 (21)	964 (13)

Determinants of viral load suppression

Among the 800 study participants had a mean age of 42.7 ± 13.05 years, with 57% being male. The majority (79%) resided in rural areas, and the literacy rate was 70%, while 66% were employed. Regarding marital status, 62% were married, and 15% were single. A large proportion (82.2%) of participants reported not engaging in any high-risk behaviours. Among those with high-risk behaviours, 98 were injecting drug users (IDUs), 14 were truck drivers, 13 had a history of blood transfusions, 10 were men who have sex with men (MSM), and 7 were female sex workers (FSW).

Factors associated with Viral Load Suppression

Out of 800 study participants, 87% had viral load suppression, while 13% had a viral load greater than 1,000 copies/ml. The mean viral load for participants with unsuppressed viral load was $138,162.7 \pm 381,611.1$ copies/ml, ranging from 1,192 to 2,592,110 copies/ml.

The time lag between HIV diagnosis and the start of treatment was found to be $456.9 \pm 1,004.1$ days (range: 0-5,162 days) for participants with a suppressed viral load (<1,000 copies/ml). Surprisingly, the time lag was shorter for participants with unsuppressed viral loads (>1,000 copies/ml), with a mean of 265.2 ± 724.5 days (range: 0-2,841 days). This difference was statistically significant.

Before April 2017, the time lag for participants with a viral load greater than 1,000 copies/ml was 389.62 ± 862.2 days, while those with a viral load under 1,000 copies/ml had a longer time lag of $583.1 \pm 1,090.3$ days. After the introduction of Test and Treat, the time lag for participants with a suppressed viral load (<1,000 copies/ml) was 32.9 ± 129.5 days, which was shorter compared to 40.4 ± 16.3 days for those with unsuppressed viral loads (>1,000 copies/ml).

Among all socio-demographic factors, only the place of residence was found to be associated with viral load suppression. The odds of having a high viral load were 1.8 times higher for participants residing in urban areas compared to those in rural areas (OR = 1.8; 95% CI = 1.2-2.9). Married, employed, and female participants showed slightly higher rates of viral load suppression, but these differences were not statistically significant.

Viral load levels remained significantly high (>1000 copies/ml) among those study participants who were in stage 3 and stage 4 of HIV at start of ART (85%) in comparison to those who were in stage 1 and stage 2 of HIV (9%). Those who reported ≥ 2 treatment interruptions were at 28.1 times higher odds of high viral load in comparison to those who did not report any treatment interruptions. Viral load suppression was significantly lower among study participants who were consuming ≤ 2 meals a day (36%) in comparison who were taking more meals in a day (94%). Treatment adherence and travelling time to ART centre were not found to be associated with viral load suppression among study participants.

Table 2 Association of Viral load Suppression with Risk behaviour, Substance abuse and Co-morbidity

VARIABLES	VL >1000 COPIES/ML (N=102)	VL <1000 COPIES/ML (N=698)	OR (95% CI)
HIGH RISK BEHAVIOUR			
YES	42 (30)	100 (70)	4.2 (2.7-6.5)*
NO	60 (08)	598 (91)	REF
HIV STATUS OF REGULAR PARTNER			
POSITIVE	39 (12)	277 (88)	0.9 (0.6-1.4)
NEGATIVE	63 (13)	421 (87)	REF
ALCOHOL INTAKE			
YES	61 (22)	218 (78)	3.3 (2.1-5.0)*
NO	41(08)	480 (92)	REF
DRUG INTAKE IN LAST 30 DAYS			
YES	46 (47)	52 (53)	10.2 (6.3-16.5)*
NO	56 (08)	646 (92)	REF
CO-MORBIDITY			
YES	35 (34)	68 (66)	4.8 (2.9-7.8)*
NO	67 (10)	630 (90)	REF

*p value is <0.05

The study participants who faced discrimination because of HIV were 2.8 times more likely to have higher viral load in comparison to those who had not faced any discrimination. A significantly higher viral load was found among those who have faced social isolation and do not have persons to share private concerns and fears (70%) when compared with those who were not socially isolated (7%) with an OR of 31.9 (95% CI: 17.9-56.8). Family support was not found to be associated with viral load suppression.

Conclusion

From the trend analysis, it was observed that the overall VL suppression was 87%, which is still lower than the target of 90%. Viral load suppression was reported by 89% of males and 79% of females.

As for socio-demographic variables, only place of residence (urban) was found to be significantly associated with high viral load. Indulgence in high-risk behaviours (e.g., FSW, MSM, IDU) and intake of any drugs or alcohol in the last 30 days were also identified as risk factors for high VL. Study participants with co-morbidities had 4.8 times higher

odds of having unsuppressed VL compared to those without co-morbidities. Participants who reported discrimination and social isolation had significantly higher levels of VL. Suppression rates were lower among those in HIV stage 3 and 4, with ≥ 2 treatment interruptions, and those who ate ≤ 2 meals a day instead of 3 or more.

Recommendations

Programme may identify peers for drug delivery in both urban and rural areas to improve treatment compliance

1. A nutritional support programme similar to the one for TB patients can be developed to improve the nutritional status of PLHIV and enhance treatment response. The programme may also include health education on dietary modifications for PLHIV
2. Close monitoring of immunological and virological failure cases in PLHIV need to be conducted, along with screening for non-communicable diseases, as early diagnosis and treatment will lead to better outcomes
3. Due to the stigma associated with the disease, special awareness campaigns may be launched to integrate individuals into the mainstream and enable them to move freely without inhibitions
4. Since viral load suppression was higher in males, there is a need to empower women and increase their involvement in the programme to improve viral load suppression rates

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Reasons for High Opt-out from Anti-Retroviral Treatment among PLHIV at Selected Districts in Rajasthan

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Introduction

The National Antiretroviral Therapy (ART) initiative in India began in 2004 [1]. The primary goal of ART is to reduce HIV-associated morbidity, mortality, and transmission of HIV at the population level [2]. In 2019, there were an estimated 23.48 lakh persons living with HIV (PLHIV) in India [3]. Low- and middle-income countries, such as India, contributed to 86.5% (5.2 million) of the total number of people living with HIV (PLHIV) accessing ART worldwide [4]. However, early mortality and retention of PLHIV in care after initiation of ART remain significant challenges for national ART programmes in developing countries [5,6]. Opting out of ART is an independent risk factor for the development of drug resistance, which can lead to treatment failure and increased mortality [7,8].

Early initiation of ART and retention in care are critical for achieving the longevity and preventive benefits of ART [9]. Adherence to ART is of paramount importance for achieving optimal control of viral load and preventing disease progression among PLHIV. According to data from the Rajasthan State AIDS Control Society (RSACS), the opt-out rate increased from 6% to 14% in Dungarpur district between 2019-20 and 2021-22, while in Kota district, it increased from 7% to 11% during the same period. Adherence to lifelong treatment for HIV/AIDS is influenced by several factors, which may result in the need for second- and third-line antiretroviral drugs. The factors influencing ART adherence are complex, involving individual, societal, and health system factors, as well as the progressive nature of the disease [10]. Therefore, recognising these factors is essential to reinforcing conditions that support adherence to ART.

Methodology

This cross-sectional study was conducted at the ART Centres (ARTC) in Dungarpur and Kota districts in Rajasthan using a mixed method approach. Follow-up data of persons living with HIV (PLHIV) who initiated ART and opted out between April 2018 and March 2022 were collected. PLHIV aged 15 years or older, who started ART between April 1, 2018, and March 31, 2022, at the selected ART centres, and who provided consent to participate in the study, were included. Transferred-out patients were excluded from the analysis, as endpoint data could not be collected from these patients. Data on demographic details, baseline and follow-up CD4 counts, weight, personal history, WHO clinical stage, antiretroviral regimen, date of HIV diagnosis, death, adherence, ART substitution, past history of tuberculosis (TB), and opt-out status were extracted from patients' treatment cards available at the ART centres. In-person interviews with those who opted out of ART were conducted using a pre-structured questionnaire, which was bilingual (Hindi and English) for the convenience of the participants. The questionnaire also included open-ended questions to capture the possible factors behind discontinuation or non-compliance with ART. Additionally, Focus Group Discussions (FGDs) were held with various stakeholders and ART staff, including in-charges, counsellors, and patients currently undergoing treatment at the selected ART centres. Each FGD consisted of 4-10 participants at both centres.

Findings

Quantitative

A total of 303 and 264 patients had opted out of ART in Dungarpur and Kota, respectively, at the time of data collection. Out of 303 patients in Dungarpur, 173 were interviewed, and out of 264 patients in Kota, 233 were interviewed. The majority of the patients were above 18 years of age, female, illiterate, married, from a low socio-economic background, and lived in rural areas. Most of the patients had high CD4 counts, were classified under the WHO clinical stages, and were on the TLE (Tenofovir, Lamivudine, Efavirenz) regimen. The main reason for opting

out was the patients' belief that they were "feeling healthy". Approximately 190 patients (125 from Dungarpur and 65 from Kota) reported feeling healthy after taking ART for 2-3 years. A total of 118 patients (90 from Dungarpur and 28 from Kota) were untraceable, either due to incorrect addresses or contact numbers. Additionally, 43 patients (40 from Dungarpur and 3 from Kota) were deceased.

Fifty-five patients (20 from Dungarpur and 35 from Kota) reported that ART visits caused disruptions in their daily activities, as they were the primary earners in their families. Fifty-one patients (15 from Dungarpur and 36 from Kota) mentioned the difficulty of travelling from distant locations to reach the ART centre. They struggled to manage the finances required to travel to the centre on the scheduled days. Forty-three patients (13 from Dungarpur and 30 from Kota) had a history of intravenous drug use. In Kota, 24 patients reported financial issues, including a lack of money for food, transportation, or other essential needs. For some, funds initially allocated for healthcare were redirected toward purchasing basic commodities, fulfilling social responsibilities, or repaying loans. Twenty-two patients from Kota reported that they were receiving ART medications from other centres, while 21 patients were getting their medications from private hospitals. These patients were either registered at ART centres or private hospitals in other states due to their work or business commitments, making it difficult for them to return to the selected ART centres.

Qualitative

Focused Group Discussions (FGDs) were conducted with different stakeholders, including the MOIC, ART staff, and regular patients, at the ARTCs in Dungarpur and Kota. At both centres, participants shared their personal experiences and challenges encountered during their treatment journey. Following findings were documented from FGDs at both sites:

- Most of participants mentioned systemic barriers contribute to patients opting out of ART treatment, including disruptions in daily activities due to ART centre visits, the distance of ART centres from their native areas, financial constraints, lack of access to resources, and the stigma associated with HIV/AIDS
- There is a need for more comprehensive support and resources to address these barriers in the ART programme
- Qualitative finding from stakeholders and ART staff regarding opt-out patients is that some may lack understanding or awareness of the potential risks and benefits of ART treatment
- Some patients may feel overwhelmed or uncertain about their treatment and would benefit from more personalised support and communication. Rural people do not believe this medicine works for HIV patients. HIV patients will die eventually either taking ART or not. One patient stated that why should I die by taking these harmful pills. They stopped taking medicines after initiating treatment. ART staffs suggested that these patients could benefit from additional education and counselling to help them make informed decisions about their treatment options
- Some patients suggested establishing drug dispensing depots at health centres closer to rural areas, which may reduce the number of patients opting out from these regions
- Overall, these qualitative findings emphasise the importance of individualised support, education, and addressing systemic barriers to improve patient engagement and retention in ART treatment

Table 1 Reasons for High Opt-Outs from ART at the Selected Districts in Rajasthan

REASONS	NUMBERS	
	DUNGARPUR	KOTA
DISTANCE OF ART CENTRE IS MORE FROM RESIDENCE	15	36
DISTURBANCE IN DAILY PURSUITS DUE TO ART CENTRE VISIT	20	35
NO PROVISION OF MONETARY INCENTIVE TO ADHERE AT ART	00	24
ASSOCIATED SUBSTANCE ABUSE (ALCOHOL/ DRUG)	13	30
OTHERS (FEEL HEALTHY)	125	65
OTHERS (REGISTERED IN OTHER ART CENTRES)	00	22
OTHERS (TAKING MEDICINES FROM PRIVATE HOSPITAL)	00	21
TOTAL	173	233

Conclusion

The findings revealed that the primary reasons for opting out of ART treatment included patients' belief that they were "feeling healthy", disruptions in daily activities due to frequent ART visits (particularly among those who are the sole earners in their families), the challenge of traveling from distant areas to reach ART centres, a history of intravenous drug use, and financial constraints. Additionally, a few PLHIV reported obtaining their medications from private hospitals, either because they were registered at ART centres or private hospitals in other states, due to their jobs or business commitments. These patients were unable to visit the selected ART centres regularly because of their occupational responsibilities.

Recommendations

The findings suggest several strategies to improve adherence to ART treatment. First, promoting adherence counselling is crucial, particularly for less educated individuals who may be more likely to disengage from treatment. Special attention should be given to this group during the initial registration process at ART centres. Additionally, providing financial incentives and transportation services could address financial and logistical barriers that patients face in accessing care. Moreover, programme managers may need to consider adjusting the "routine periodicity" of follow-up visits, allowing patients more flexibility to manage their travel plans and work schedules without being constrained by fixed follow-up schedules at ART centres.

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A Cross-Sectional Study to Assess Factors associated with AIDS related Deaths in Tamil Nadu

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Introduction

The HIV/AIDS epidemic, which began in 1981, remains a global public health challenge. The 2015 Global Burden of Disease study estimated the peak of new HIV infections at 3.3 million annually in 1997, declining to 2.6 million by 2005 and dropping by 23% from 2010 to 2020, largely due to progress in Eastern and Southern Africa [1]. In 2020, 1.5 million new infections were reported, with 39 million people living with HIV globally, 75% of whom were on Antiretroviral Treatment (ART) [1]. HIV disproportionately affects key populations, including sex workers, men who have sex with men, people who inject drugs, and transgender individuals [1].

In 2018, there were 1.7 million new HIV cases globally, with 24.5 million receiving ART and 770,000 AIDS-related deaths [1]. India reported an estimated 10 million annual deaths without medical certification, with symptoms like prolonged fever, diarrhoea, and cough linked to AIDS-related mortality. Maharashtra leads Indian states with 330,000 HIV cases and a prevalence of 0.33%. ART has reduced mortality, but global coverage reached only 67% by 2019 [3]. Tamil Nadu, despite improved awareness, faces challenges like stigma and low testing rates, with 143,000 people living with HIV (0.27% prevalence) [4]. In 2019, Andhra Pradesh reported the highest AIDS-related deaths in India, followed by Mumbai and Karnataka [5].

The study was conducted to determine and assess the factors associated with AIDS related death in Tamil Nadu.

Methodology

This study is a cross-sectional analysis conducted over three months at the Government Tuticorin Medical College, Tamil Nadu, India. It focuses on 56 deceased people living with HIV (PLHIV) whose deaths, occurring between 2021 and 2023, were directly attributed to AIDS, with inclusion criteria requiring complete medical records and death certificates confirming AIDS as the primary cause of death. Individuals who died from health conditions unrelated to AIDS, even if they had HIV, were excluded. Secondary data were collected from a randomly selected ART center, supplemented by death certificates, autopsy reports (where available), and interviews with healthcare providers involved in the care of the deceased. Statistical analysis included descriptive statistics to summarize demographic and clinical characteristics and bivariate analysis to identify factors significantly associated with AIDS-related deaths.

Findings

Out of 56 AIDS-related deaths, 4 (7.1%) occurred in the age group of 21-30 years, 13 (23.2%) in the age group of 31-40 years, and the majority of deaths (35.7%) occurred in the 41-50 years age group, with 13 (23.2%) deaths in the 51-60 years group, and 6 (10.7%) deaths in those aged 61 and above. Of the deceased, 40 (71.4%) were male, 15 (26.8%) were female, and 1 (1.8%) was from the transgender population. Regarding clinical stages before death, the majority of clients were in Stage 4, comprising 15 (26.8%) deaths, followed by Stage 3 with 14 (25%). Stage 2 was reported in 6 (10.7%) of the PLHIV, and 5 (8.9%) were in Stage 1. The majority of those who died were on the TLD regimen, taken by 49 (87.5%) individuals. The DTG regimen was used by 5 (8.9%) participants, while the ZLE regimen was used by only 2 (3.6%) individuals. In terms of adherence to ART, 26 (46.4%) exhibited good adherence, while 25 (44.6%) had poor adherence, and 5 (8.9%) were newly diagnosed, so their adherence was not monitored.

Regarding follow-up, 22 (39.3%) maintained regular follow-up, 18 (32.1%) had irregular follow-up, 11 (19.6%) were classified as Lost to Follow-Up (LFU), and 5 (8.9%) were newly registered. In terms of viral load and CD4 counts, at the pre-ART stage, the majority of the patients had more than 1000 copies of viral load (67.9%), while 32.1% had less than 1000 copies. Among those on ART, 80.4% had viral loads greater than 1000, while only 19.6% had viral loads under 1000. The last CD4 count showed that 53.6% of the PLHIV had a CD4 count of less than 250, while 46.4% had a CD4 count greater than 250. Regarding the last viral load measurement, 48.2% had "Target Not Detectable" (TND) results, 7.1% had viral loads less than 1000, 17.9% had viral loads greater than 1000, and 26.8% had no viral load data. As for the partner status of PLHIV on ART,

35.7% had HIV-positive partners, 19.6% had HIV-negative partners, and 10.7% had an unknown partner status. Of those who died, 16.1% were either separated or unmarried, and 17.9% were in this category at the time of death. The causes of death included AIDS-related deaths (14.3%), heart-related issues (12.5%), renal-related causes (5.4%), lung-related causes (19.6%), psychological causes (8.9%), diabetes (1.8%), and other causes (8.9%). The majority of deaths (44.6%) occurred at home, closely followed by 42.9% occurring in the hospital.

The death information was reported by family members in 33.9% of cases, by the DIC (District Integrated Counselling and Testing Center) in 16.1%, by outreach workers (ORW) in 26.8%, by NGOs in 16.1%, and by the TB Cell in 7.1%. Additionally, it was observed that most individuals who died in Stage 4 had a CD4 count of less than 250 prior to their death.

Table 1 Distribution of Study Variable Distribution of Demographic and Clinical Factors in HIV/AIDS Mortality

Variables		Frequency (N=56)	Percent
Age	21-30	4	7.1
	31-40	13	23.2
	41-50	20	35.7
	51-60	13	23.2
	61 and above	6	10.7
Gender	Female	15	26.8
	Male	40	71.4
	Transgender	1	1.8
Clinical Staging	Stage 1	5	8.9
	Stage 2	6	10.7
	Stage 3	14	25
	Stage 4	15	26.8
	NA	16	28.6
ART Regimen	TLD	49	87.5
	ZLE	2	3.6
	DTG	5	8.9
Adherence to ART Regimen	Poor	25	44.6
	Good	26	46.4
	New	5	8.9
Follow up Status	Regular	22	39.3
	Irregular	18	32.1
	Lost to Follow up (LFU)	11	19.6
	New	5	8.9
Pre- ART Viral load	Less than 1000	18	32.1
	More than 1000	38	67.9
On ART Viral Load	Less than 1000	11	19.6
	More than 1000	45	80.4
Last CD4 Count	Less than 250	30	53.6
	More than 250	26	46.4
Last Viral Load count	TND	27	48.2
	Less than 1000	4	7.1
	More than 1000	10	17.9
	NIL	15	26.8

Partner Status	On ART	20	35.7
	Negative for HIV	11	19.6
	Unknown	6	10.7
	Separated/Unmarried	9	16.1
	Died	10	17.9
Cause of Death	Liver Disease	8	14.3
	Cardiac Disease	7	12.5
	Renal Disease	3	5.4
	Respiratory Disease	11	19.6
	Psychological	5	8.9
	Other	5	8.9
	Diabetes	1	1.8
	NA	16	28.6
Place of Death	Home	25	44.6
	Hospital	24	42.9
	NA	7	12.5
Death informed	Family	19	33.9
	DIC	9	16.1
	ORW	15	26.8
	NGO	9	16.1
	TB cell	4	7.1

The results of the association findings show a strong association between viral load status both pre-ART and on ART, as well as between follow-up status and adherence to the ART regimen. Additionally, the last CD4 count showed a significant association with pre-ART and on ART viral load, follow-up status, and clinical stage. The findings indicate that deaths were comparatively higher among PLHIV who had more than 1000 copies of viral load during both their pre-ART and on ART stages. A majority of these individuals had irregular follow-up, were on the TLD regimen, and were in WHO clinical stages 2 and 3 at the time of death.

Table 2 Association between Variables

	CHI SQUARE	P VALUE
VIRAL LOAD PRE-ART AND VIRAL LOAD ON ART	28.899	0
FOLLOW-UP STATUS AND ADHERENCE TO ART REGIMEN	97.021	0
VIRAL LOAD PRE-ART AND LAST CD4 COUNT	4.368	0.048
VIRAL LOAD ON ART AND LAST CD4 COUNT	10.889	0.001
FOLLOW-UP STATUS AND LAST CD4 COUNT	27.112	0.001
CLINICAL STAGE AND LAST CD4 COUNT	9.917	0.042

Conclusion

This cross-sectional study evaluates the variables linked to deaths caused by AIDS in Tamil Nadu. The majority of deaths in this study occurred among PLHIV in the 41–50 age range. Notably, a higher proportion of deaths were among males, and most individuals had more than 1000 copies of viral load during both their pre-ART and on-ART stages. At the time of their deaths, the majority were in clinical stages 2 and 3 and were on the TLD regimen. The primary causes of death included AIDS-related complications, along with heart and lung issues, highlighting the complex, multisystem effects of HIV/AIDS. Consistent follow-up was linked to better treatment adherence and improved clinical outcomes, emphasising the importance of continuity of care and ongoing monitoring for people living with HIV (PLHIV). A notable limitation of the study was the recall bias related to the antiretroviral treatment (ART) history of deceased individuals.

Recommendations

To address the challenges identified in this study, several key recommendations are proposed. Firstly, there is a need to enhance early detection and diagnosis of HIV infection through targeted screening programs and strengthened efforts to promote HIV testing and linkage to care. Strategies to improve treatment adherence, such as counselling services, peer support groups, and reminder systems, should be implemented to effectively address barriers to adherence. Moreover, healthcare systems should be strengthened to ensure regular monitoring of patients on ART, including viral load testing and CD4 count assessments, to track treatment response and detect complications early. Comprehensive care and support services that address both medical and psychosocial needs of PLHIV should be provided, alongside community engagement initiatives aimed at reducing stigma and improving access to care. Additionally, further research is recommended to explore additional factors contributing to AIDS-related deaths and to conduct longitudinal studies to gain insights into long-term treatment outcomes and survival rates among PLHIV in Tamil Nadu. By implementing these recommendations, healthcare authorities and policymakers can work towards reducing AIDS-related mortality and improving the quality of life for individuals living with HIV/AIDS in the region.

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Risk Profile of People Living with HIV on Second Line ART in Telangana

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Introduction

According to Global USAID fact sheet 2022, the prevalence of adult (15-49 years) HIV is estimated to be 0.2% with males and females having same prevalence of 0.2% [1]. The incidence of adult HIV in India has fallen from an estimated peak of 0.38% in 2001-03 to 0.20% in 2022 [2]. The decrease in the prevalence is mainly due the treatment with ART drugs and adherence to these drugs.

Antiretroviral drugs are supplied at no cost to all PLHIV at ART centres by NACO (National AIDS Control Organisation). Despite decrease in prevalence, reducing morbidity and mortality, few patients fail to maintain sustained virological failure on first line drugs which in turn leads to switch or substitute to second line drugs including protease inhibitors and increases pill burden. Though access to second line drugs is expanded, Data associated with factors associated to first line drug failure is limited. First line Antiretroviral drugs mainly used to suppress the viral replication are Zidovudine, Tenofovir, lamivudine and Integrase strand inhibitor Dolutegravir. Treatment response can either be inadequate response to medication or lack of adherence which are monitored by virological criteria [3]. Early detection of treatment failure is crucial to sustain the effectiveness of the first line therapy.

This study was principally conducted to identify the risk profile and factors of treatment failure in people living with HIV for first line Antiretroviral drugs. It further explored the relationship of treatment failure with the type of ART, duration of first-line ART, and adherence among HIV-infected patients with treatment failure to first-line ART attending tertiary care at ART centre at Centre of Excellence-Gandhi Medical College & Hospital in Telangana.

Methodology

A cross-sectional retrospective hospital based observational study was conducted among 255 patients who were switched from first line to second line regimen at Gandhi Hospital, Telangana. The records of 255 patients were randomly taken from the ART centre and SACEP records for study purpose.

A pre-designed, semi-structured validated questionnaire was used for collecting the data on reasons for switch to second line regimen like treatment failure, socio-demographic profile, baseline CD4 counts, adherence at the time of change in regimen, adverse drug reactions and opportunistic infection at the time of visit. The data was taken from SACEP records and entered accordingly for 255 patient records. Additionally, the white cards of the PLHIV containing basic information and follow up details were accessed for additional relevant information.

Statistical analysis is done in SPSSV.20 Software. Continuous variables are analysed by mean, median, standard deviation and mean difference. Categorical variables are analysed by proportions and chi square test.

In the data and findings, the following variables were defined as:

- The virological failure was defined at HIV RNA viral load of greater than 1000 copies/ml on ART for 6 months and adherence >95%
- Immunological failure is defined by CD4 Count of 250 following clinical failure or persistent CD4 count below 100 cells/cu.mm
- Clinical failure is defined as WHO Stage 3 (with severe bacterial infections and pulmonary tuberculosis) and Stage 4 after 6 months of initiating ART
- ART non-adherence was defined as <95%

Findings

The socio-demographic profile of total of 255 study participants is described in Table 1. The gender-wise distribution showcased that 57.3% respondents were male, while, 42.3% were female and 1 respondent was transgender person. Majority of the participants (38.8%) belonged to age group of 31-40 years. The distribution was residential status between urban and rural was almost equal in proportion. Regarding marital status, the majority of patients were married (71.2%), followed by 16.6% reported to be single while 12.2% reported under category of separated/divorced or widowed. It was reported that 58.8% participants were illiterate and 37.6% were labourers, 26.6% were employed and 20.4% were housewives.

Table 1 Socio-Demographic, BMI, Mode of transmission Characteristics Among Study Population (N=255)

CHARACTERISTICS	FREQUENCY	PERCENTAGE (%)
GENDER		
MALE	146	57.3
FEMALE	108	42.3
TRANSGENDER	01	0.4
AGE (IN YEARS)		
<20	20	7.8
21-30	61	23.9
31-40	99	38.8
41-50	48	18.8
51-60	26	10.3
>60	01	0.4
MEAN AGE	36	
RESIDENCE STATUS		
URBAN	129	50.6
RURAL	126	49.4
MARITAL STATUS		
MARRIED	182	71.2
SINGLE	42	16.6
SEPARATED/DIVORCED/WIDOW	31	12.2
EDUCATION		
LITERATE	105	41.17
ILLITERATE	150	58.82
OCCUPATION		
LABOURER	96	37.64
EMPLOYED	68	26.66
TRUCKER	39	15.29
HOUSEWIFE	52	20.39

The study findings indicated that the most common mode of transmission of HIV infection among the study participants was through heterosexual mode of intercourse (76.8%).

Table 2 Proportion of Mode of Transmission of HIV Infection among Study Participants (N=255)

MODE OF TRANSMISSION	TOTAL	PERCENTAGE
HETEROSEXUAL	196	76.80
MSM	26	10.19
MOTHER TO CHILD	24	9.4
BLOOD TRANSFUSION	12	4.7
UNKNOWN	09	3.5

The proportion of adherence to ART among the study participants was reported to be more than 95% among 53.3% patients, while 34.1% adhered to the regimen by 80-95%.

Table 3 Adherence of ART among Study Participants (N=255)

ADHERENCE	FREQUENCY	PERCENTAGE (%)
<80%	32	12.6
80 – 95%	87	34.1
>95%	136	53.3

The study findings on reasons for inadequate adherence due to missed doses indicated forgetfulness (27.1%) as the most common reason followed by work timings (17.6%) and alcoholism (14.1 %) among the study participants.

Table 4 Reasons for Inadequate Adherence due to Missed Doses among Study Participants (N=255)

INADEQUATE ADHERENCE DUE TO MISSED DOSES	NUMBER	PERCENTAGE
TRANSPORT ISSUES	15	5.9
FEELING HEALTHY	22	8.6
DEPRESSION	8	3.1
FORGETFULNESS	69	27.1
PILL BURDEN	9	3.5
WORK TIMINGS	45	17.6
STIGMA	13	5.1
TO ALCOHOLISM	36	14.1
BUSY	8	3.1
OTHER CO-MORBIDITIES	14	5.5
NO IDENTIFIABLE REASONS	16	6.3

In the findings on study participants with first line failure with duration of ART initiation, it was reported that most of the patients (58.8%) with first-line ART failure had been on treatment for more than 5 years. However, the association between the duration of ART treatment and CD4 count was statistically non-significant.

Table 5 Proportion of Study Population with First-line Failure with Duration of ART Initiation (N=255)

DURATION OF ART IN MONTHS	NO OF PATIENTS REFERRED TO COE	PERCENTAGE
6-24 MONTHS	11	4.3
24-60 MONTHS	94	36.9
>5 YEARS	150	58.8

Table 6 Association between Duration on ART Treatment with CD4 Count

DURATION VS. MEAN BASELINE CD4			
	CD4 <350	CD4 ≥350	TOTALS
≤ 2 YEARS	7 (7.38) [0.02]	4 (3.62) [0.04]	11
2-5 YEARS	55 (62.36) [0.87]	38 (30.64) [1.77]	93
>5 YEARS	109 (101.26) [0.59]	42 (49.74) [1.20]	151
TOTALS	171	84	255
THE CHI-SQUARE STATISTIC IS 4.4951. THE P-VALUE IS .10566. THE RESULT IS NOT SIGNIFICANT AT P < .05.			

A total of 36 study participants were on TLD regimen since the start of ART. Among these patients, majority (61.1%) were males while remaining were females and 58.3% were illiterate. The adherence levels of <95% were recorded in 52.7% patients. It was also reported that majority of patients (50%) were on clinical stage I and 22.2% patients had low body mass index, while majority (44.4%) had normal range of BMI.

Table 7 Data of Patients only on TLD Regimen since the Start of ART Treatment (n=36)

CHARACTERISTICS	FREQUENCY	PERCENTAGE (%)
GENDER		
MALE	22	61.11
FEMALE	14	38.8
EDUCATION		
LITERATE	15	41.6
ILLITERATE	21	58.3
ADHERENCE		
<80%	03	8.3
80-95%	14	38.8
>95%	19	52.7
CLINICAL STAGE		
STAGE 1	18	50
STAGE II	12	33.3
STAGE III, IV	06	16.6
BODY MASS INDEX (BMI)		
<18.5	08	22.2
18.5-24.9	16	44.4
25-29.9	09	25
>30.0	03	8.3

Conclusion

The study findings highlighted that there is increasing failure rate for first-line drugs and factors contributing to low body mass index, there is an increasing failure rate among Tenofovir-based first-line regimens with low body mass Index and less than 95% adherence. It is also necessary to identify risk profile for treatment efficacy to decrease the rate of treatment failure.

Recommendations

Emphasis must be placed on maintaining adherence levels above 95% to prevent failure of first-line drugs and avoid the burden of patients needing to switch to second-line ART. During patient visits, if adherence is found to be below 95%, special attention needs to be given by the medical officer. Enhanced counselling is necessary, and the underlying reasons for non-adherence may be evaluated and addressed. For example, if forgetfulness is identified as the cause of non-adherence, patients need to be educated on using alarms or reminders to take their medication at the appropriate time.

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Identifying Barriers to ART Adherence and Follow-up of HIV Positive Patients Registered at ART Centres in Nainital district

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Introduction

The global challenge posed by the Human Immunodeficiency Virus (HIV) epidemic continues to underscore the imperative of developing nuanced and effective strategies, especially in high-burden countries like India [1]. The National AIDS Control Programme (NACP) Phase IV aims to reverse the HIV epidemic and achieve the 95-95-95 targets, leading to the goal of ending the HIV epidemic by 2030. While ART has revolutionised HIV management by suppressing viral replication and restoring immune function, its long-term success is based on patient adherence and consistent follow-up [2].

In the Nainital district, the complex interplay of socio-cultural and geographical factors significantly influences the adherence behaviour and follow-up practices among HIV positive patients [3]. However, despite the commendable efforts of the National Programme, the unique challenges faced by the people living with HIV in this place necessitates a meticulous exploration to identify the barriers to ART adherence and follow-up among HIV-positive patients which will be beneficial in improving treatment outcomes [4]. Therefore, the present study is aimed to identify the barriers to ART adherence among the PLHIV registered at ART centre in Nainital district.

Methodology

A cross-sectional study was conducted at the ART centre in Dr. Sushila Tiwari Government Hospital, Haldwani, the only ART centre located in Nainital district. A total of 420 patients registered as of December 31, 2022, who were either non-adherent to ART or lost to follow-up (LFU) were selected through stratified random sampling for this study. The participants were classified into two groups: 151 patients classified as LFU (defined as missing follow-up appointments for more than three consecutive months) and 269 non-adherent patients (defined as those missing at least 10% of their monthly doses). Inclusion criteria comprised all HIV-positive patients registered at the ART centre, above 18 years of age, who either missed at least 10% of their doses or failed to attend follow-up appointments for over three months. Patients unwilling to participate or untraceable despite multiple efforts were excluded.

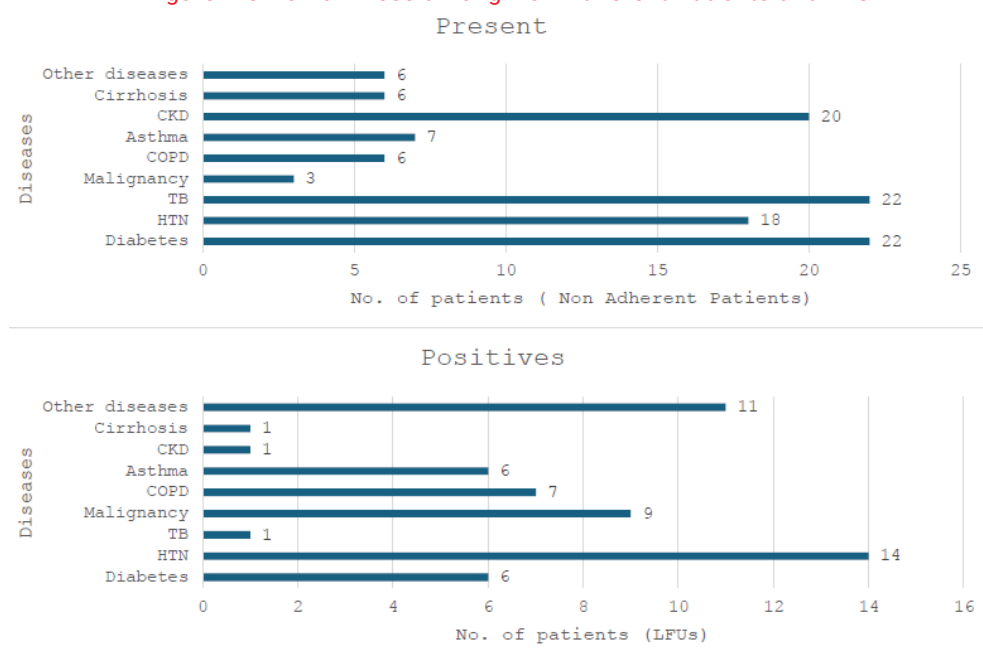
Quantitative data was collected using a semi-structured questionnaire administered by the ASHA workers during home visits for LFU patients, and by medical social workers for non-adherent patients at the ART centres. Qualitative in-depth interviews were also conducted to corroborate the quantitative findings among PLHIV (n=30) and ART centre staff (n=4). Descriptive statistics and frequencies were calculated for the collected data and themes were identified through interviews for interpretation of results to identify the barriers to ART adherence and LFU among the study participants.

Findings

The study involved interviews with 420 respondents, divided into two groups: non-adherent (n=269) and LFU patients (n=151). The socio-demographic factors reported that 49.1% participants were non-adherent and 48.7% were LFU patients who were aged between 30-45 years. A higher proportion of LFU patients were male (78%) compared to non-adherent patients (60.9%). Most non-adherent patients resided in rural areas (55.9%), while LFU patients were predominantly urban residents (60.7%). Moreover, among the non-adherent female patients, 21.9% were housewives and 16.8% were skilled/semi-skilled workers, while LFU patients included a significant proportion of petty business owners (18%). Both, the non-adherent as well as LFU had relatively low education levels, with many completing middle school or intermediate education. Majority of respondents i.e., 66.3% of non-adherent and 58.7% of LFU patients were married. Alcohol use was lower among non-adherent patients (53.4%), while tobacco use was higher among LFU patients (46.7%).

Figure 1 indicated the status of chronic illness in both the groups, and it was observed that diabetes and tuberculosis were more common among non-adherent patients, while LFU patients had a higher prevalence of hypertension.

Figure 1 Chronic Illness among Non-Adherent Patients and LFU



The data in Table 1 indicated HIV status disclosure indicated that disclosure was more frequent among non-adherent patients (83.2%) than LFU patients (60.7%).

Table 1 Study Participants by Sharing of HIV Status

VARIABLE	NON-ADHERENT PATIENTS (N1 = 269)	LOST TO FOLLOW UP (N2 = 151)
NO (HIV STATUS SHARING)	30 (10.8%)	59 (39.3%)
YES (HIV STATUS SHARING)	232 (83.2%)	92 (60.7%)
TOTAL	269 (100.0%)	151 (100%)

Table 2 indicated observations on discrimination felt by the PLHIV and their pill intake details. Among non-adherent patients, 45.2% felt discrimination due to their HIV status, whereas, among the lost-to-follow-up group, 5.3% acknowledged feeling discrimination. Among the non-adherent patient group, the mean daily pill intake is 1.375 with significant skewness (7.143), highlighting adherence challenges. Additionally, 77.8% report missing over three doses, underscoring adherence issues. Among lost-to-follow-up patients, the mean daily pill intake is 1.093, with a low variability (Standard Deviation of 0.2919), and the majority (90.7%) take 1 tablet, indicating consistent medication patterns.

Table 2 Discrimination and Pill Intake Details

VARIABLE	NON-ADHERENT PATIENTS (N1= 269)	LOST TO FOLLOW UP (N2 = 151)
DISCRIMINATION FELT	122 (45.2%)	8 (5.3%)
NO DISCRIMINATION	136 (50.5%)	143 (94.7%)
MEAN DAILY PILL INTAKE	1.375	1.093
SKEWNESS (DAILY INTAKE)	7.143	N/A
STANDARD DEVIATION	N/A	0.2919
MISSED OVER 3 DOSES	209 (77.8%)	136 (90.7%)

The non-adherent respondents in the study identified several reasons for their non-compliance with ART. The most common reason was forgetfulness (56.3%), followed by treatment interference with daily activities (27.2%) and a perceived lack of necessity for medication (6.5%). Other barriers included inconvenient ART centre timings (6.8%), unavailability of medicines at ART centres (5.4%), busyness of ART centre staff (15.8%), and adverse drug effects (20.4%). The impact of the COVID-19 lockdown (5.4%) also emerged as a significant challenge, along with having too many pills to take (0.7%) and negative healthcare facility experiences (1.8%).

Among the Lost to Follow-Up (LFU) respondents, the predominant reason for non-adherence was again forgetfulness (90.7%). Other reasons included treatment disrupting daily activities (14.7%) and inconvenient ART centre timings (5.3%). Interestingly, 99.3% of LFU respondents denied any negative experiences with ART centre staff. Other factors such as transportation difficulties affected 32.7% of LFU patients, stigma was reported by 5.3%, and financial constraints by 2.0%.

Additionally, 100% of respondents expressed satisfaction with their prescribed medication, though 0.7% acknowledged having a casual attitude towards medication, and 1.3% reported being too sick or fearing retribution to attend visits.

Table 3 Barriers to Non-adherence to ART among Non-adherent and LFU Patients registered at ART centre in Nainital district

PRIMARY REASONS	NON-ADHERENT PATIENTS (N1= 269)	LOST TO FOLLOW UP (N2= 151)
FORGETFULNESS	151 (56.3%)	137 (90.7%)
TREATMENT INTERFERENCE WITH LIFE	73 (27.2%)	22 (14.7%)
PERCEIVED LACK OF NECESSITY	17 (6.5%)	N/A
INCONVENIENT ART CENTRE TIMINGS	18 (6.8%)	8 (5.3%)
UNAVAILABILITY OF MEDICINES	15 (5.4%)	N/A
ADVERSE DRUG EFFECTS	55 (20.4%)	N/A
COVID-19 LOCKDOWN IMPACT	15 (5.4%)	N/A
TRANSPORTATION ISSUES	N/A	49 (32.7%)
FINANCIAL CONSTRAINTS	N/A	3 (2.0%)
SATISFACTION WITH MEDICATION	N/A	151 (100%)
NEGATIVE EXPERIENCES WITH STAFF	5 (1.8%)	1 (0.7%)
STIGMA	N/A	8 (5.3%)

In addition, qualitative interviews highlighted the barriers to adherence, which corroborated the quantitative findings. It was reported that patients, especially those in rural and slum areas, faced significant issues in accessing ART centres. One respondent quoted that

"Being a labourer, affording regular transportation to the HIV centre is often difficult."

Secondly, they also pointed out that long wait times and negative attitudes from healthcare staff deterred them from adhering to ART. One of the respondents said in their interview that

"I've encountered judgmental attitudes from staff at the HIV centre, making me hesitant to seek help. Sometimes, the medication supply has been inconsistent, causing disruptions in my treatment plan." Another added that "Wait times at the HIV centre are sometimes long, affecting my willingness to follow up, as time away from work means loss of income."

Some patients also reported medication delays and inconsistent supplies. The financial hardship among the participants was also identified as a common issue, with non-adherent patients earning an average of ₹10,000 per month.

Despite the challenges, several facilitators of adherence were reported by the respondents. The majority (63%) emphasised that family support played a significant role in their ART adherence. It was also noted that patients who incorporated medication into their daily routines, using tools like alarms or pillboxes, showed better adherence. This was a common personal strategy adopted by many respondents to avoid forgetting to take their medications. Additionally, some respondents mentioned having developed positive coping strategies, such as seeking support from peers or maintaining a hopeful outlook, which helped them improve adherence and cope with their treatment regimen.

Table 4 Facilitators of Adherence reported in Study

VARIABLE	FREQUENCY	PERCENTAGE (%)
EMOTIONAL SUPPORT FROM FAMILY AND FRIENDS	378	90%
SUCCESSFUL INTEGRATION OF MEDICATION INTO ROUTINE	235	56%
ACCESS TO SUPPORT GROUPS OR COUNSELLING	265	63%
POSITIVE COPING MECHANISMS (PERSONAL WELL-BEING)	308	73.33%
AWARENESS AND UNDERSTANDING WITHIN THE COMMUNITY	168	40%
PERSONAL STRATEGIES FOR ADHERENCE ADOPTED BY PATIENTS		
STRATEGY	FREQUENCY	EFFECTIVENESS (%)
SETTING DAILY REMINDERS	235	56%
INCORPORATING MEDICATION INTO ROUTINE	235	56%
RELIABLE SUPPORT SYSTEM	378	90%

Conclusion

This study provides valuable insights into the factors influencing ART adherence among PLHIV in Nainital district. It underscores the role of demographic, socioeconomic, and psychosocial factors in determining adherence levels. Younger patients, rural residents, and males were found to be more likely to be non-adherent. Key barriers to adherence included transportation difficulties, long wait times, stigma, and financial challenges. On the other hand, facilitators of adherence included strong family support, the use of regular medication routines, and patient education.

The findings highlight the importance of a multifaceted approach to improving ART adherence. Interventions need to be tailored to address specific challenges, including transportation issues, stigma reduction, and enhancing the overall healthcare facility experience. This study serves as a foundational platform for developing effective, culturally sensitive interventions aimed at improving HIV treatment adherence within the population studied.

Recommendations

- Addressing Transportation Barriers: Develop community-based transportation services, particularly for rural patients, to reduce missed appointments.
- Improving Healthcare Facility Experiences: Streamline appointments to reduce wait times and train staff to offer non-judgmental care.
- Reducing Stigma: Launch awareness campaigns to reduce HIV-related stigma and establish support groups for patients.
- Enhancing Patient Education: Improve education programmes on the importance of ART adherence, especially for patients with low literacy levels.
- Expanding Counselling Services: Increase counselling availability and address mental health issues, which are common among non-adherent patients.
- Strengthening Peer Support Networks: Facilitate the formation of peer groups to provide emotional support and encourage treatment adherence.

Study Limitations

There are chances of potential recall bias, as patients may not accurately report their adherence patterns. Additionally, variability in data collection during home visits by different field workers may have affected consistency.

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Client Satisfaction Regarding ART Services among People Living with HIV Attending an ART Center with Special Emphasis on Sexual Minority Population

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Introduction

Patient satisfaction refers to the patient's perception of the care received compared to their expectations [1]. Assessing patient satisfaction helps understand client expectations of health services, recognise challenges, and evaluate care quality. Higher levels of patient satisfaction promote better patient compliance and treatment adherence, while dissatisfaction can lead to poorer health outcomes due to non-adherence [2].

People living with HIV (PLHIV) often encounter administrative and procedural challenges when accessing antiretroviral therapy (ART) services, which can affect their satisfaction levels. Patient satisfaction is influenced by various factors, including lifestyle, past experiences, future expectations, and societal values [3].

A sexual minority refers to groups whose sexual identity, orientation, or practices differ from those of the majority in a society. This term commonly includes lesbian, gay, bisexual, and other non-heterosexual individuals, as well as transgender and non-binary (including third-gender or intersex) individuals. In this study, the sexual minority group includes only MSM (men who have sex with men) and TG (transgender patients), as they represent the majority of sexual minority patients at the ART clinic of Barasat Government Medical College.

Study definition of PLHIV MSM: Any male PLHIV known to have sexual relations with another male, irrespective of any additional heterosexual behavior was considered as PLHIV MSM in the present study.

There is a dearth of information regarding the utilisation of ART services and level of satisfaction of sexual minority groups of PLHIV regarding the treatment services. Hence this study was conducted with the aim to assess the client's satisfaction, especially among the sexual minority group, with the antiretroviral service delivery at ART center of Barasat Government Medical College.

Methodology

This cross-sectional analytical study was conducted from September 2023 to May 2024. The study population included PLHIV who attended the ART center at Barasat Government Medical College & Hospital. Participants comprised both sexual minority patients and general (heterosexual) patients, enrolled in a 1:3 ratio using the probability proportionate to size sampling method. A total of 430 patients (101 sexual minority patients and 329 general patients) were included in the study. Data collection involved face-to-face exit interviews conducted by three experienced nurses (not posted at the ART center) and supervised by the principal and co-investigators. Focus group discussions were facilitated by the principal and co-investigators, using a structured discussion guide. Data were entered into MS Excel, cleaned, and analysed using SPSS version 20.

Patient self-rated satisfaction was determined using a single statement asking patients to rate their satisfaction with service delivery. Patients indicated their level of agreement with each statement on a five-point Likert scale (ranging from strongly disagree to strongly agree, with corresponding scores from 1 to 5). Overall patient satisfaction was calculated by summing the scores and dividing the total by the number of statements. A mean score ≥ 4 indicated satisfaction, while a mean score < 4 indicated dissatisfaction.

A χ^2 test was used to assess the association between overall patient satisfaction, demographic, and service-related variables at alpha 0.05. A Chi square or Fisher's exact test was used to explore associations between overall patient

satisfaction and demographic characteristics of participants and other variables. A p-value of 0.05 or less was considered statistically significant. FGDs were audio-taped and transcribed verbatim on the same day. Structural coding and paraphrasing were applied to the responses specific to the research question.

Findings

The majority of patients in both groups were Hindu, came from nuclear families, and had completed up to secondary-level education. Most male and female patients were married and belonged to the lower middle class, whereas most MSM and TG patients were single and came from lower socio-economic backgrounds. Approximately 64.19% of the patients found the service hours to be convenient. However, 43.16% of male and female patients and 41.58% of MSM and transgender patients reported spending more than two hours at the facility.

Overall patient satisfaction was 85.1% in general patients and 75.2% in sexual minority patients. Z test of proportion showed a significant difference in overall patient satisfaction between general patients and sexual minority patients. In bivariate analysis, factors that showed significant association with satisfaction among sexual minority patients were marital status, residential background, type of family, socio-economic status and convenient service hours.

Focus group discussions (FGDs) were conducted to explore group experiences at times and locations convenient for the study participants. Both the heterosexual group (males and females) and the sexual minority group reported that staff explained their treatment plans and informed them of their next visit dates. The most significant cause of satisfaction among participants was the gentle behaviour of the staff and the continuous supply of medicine. However, some MSM and TG patients noted that when they raised complaints about service issues, staff sometimes threatened to withhold their medication.

The majority of patients from both groups stated that their confidentiality was maintained. However, a few patients from the sexual minority group reported instances where their gender identity was disclosed in front of accompanying relatives or friends. Patients from both groups agreed that long waiting times were a common challenge. The main reasons cited for these delays were the limited number of healthcare providers and the large number of beneficiaries. Additionally, some patients highlighted that healthcare providers often arrived late, resulting in a delayed start to outpatient department (OPD) services, a point that was echoed in the FGDs.

"The staffs explain everything. They are very cooperative."

(Patient)

"The staffs give alternate dates if we are unable to come at a specified date."

(Sexual minority patient)

"I am happy with a continuous supply of medicines, nothing else is needed."

(Patient)

"Counselling was good. Just after my diagnosis, counselling helped me a lot to overcome my anxiety."

(Patient)

"Staffs call us whenever we miss any date of visit and give us an alternate date."

(Patient)

"Staffs often force us to go for TB test without counselling. They force us in almost everything. In every matter they tell us that our medicines will be stopped if we don't follow their advice."

(Sexual Minority patient)

Conclusion

Overall, patient satisfaction was high among the study participants. Approximately 85.1% of patients from the general (heterosexual) group and 75.2% of patients from the sexual minority (MSM and TG) group reported being satisfied with the ART services. The difference in overall satisfaction between the general and sexual minority groups was found to be statistically significant. Factors such as marital status, educational level, residential background, and social class were significantly associated with patient satisfaction within the sexual minority group. In both groups, waiting time was notably linked to patient satisfaction.

Recommendations

Based on the study findings, following are the recommendations:

- Treating patients with respect: Emphasise the importance of treating all patients with care and respect, regardless of their age, sexual identity, social status, educational background, or place of residence.

- Training for healthcare professionals: Implement induction and refresher training programmes focused on counselling and providing support to the sexual minority population to enhance the quality of care and ensure inclusive service delivery.

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A Study on Burden of Non-Communicable Diseases, Risk Factors and Quality of Life among People Living with HIV-AIDS attending ART Centres of Different Medical Colleges of West Bengal

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Introduction

People living with HIV (PLHIV) are at an increased risk for chronic morbidities such as cardiovascular disease, depression, cancers, and metabolic abnormalities, including diabetes and hyperlipidemia. The rising prevalence of non-communicable diseases (NCDs) among HIV-infected adults is influenced by various factors, including aging, higher rates of traditional NCD risk factors, the direct effects of HIV infection, and exposure to specific antiretroviral therapies (ART). To effectively manage NCDs among PLHIV in low- and middle-income countries, it is crucial to understand the key risk factors, associated symptoms and complications, and the available treatment and preventive interventions. This study was designed to assess and describe the burden and risk factors of NCDs among PLHIV attending ART centres in various medical colleges of West Bengal. Additionally, the study aimed to explore the relationship between different NCDs and ART regimens, as well as to evaluate the quality of life among the study population.

Methodology

A descriptive cross-sectional study was conducted among 311 study subjects of three ART centres of West Bengal, namely North Bengal Medical College, Murshidabad Medical College and M R Bangur Hospital, Kolkata. The study included adult patients living with HIV (PLHIV), specifically those aged 18 years and older, who were receiving ART and had visited the respective ART centre at least once before. Patients who were severely ill or who did not provide consent were excluded from the study. Systematic random sampling was employed to select the study population. A pre-designed and pre-tested semi-structured questionnaire was used for the collection of information regarding socio-demographic details. For quality of life, WHOQOL-HIV-BREF scale was used, which is a 26-item questionnaire that is grouped into six domains (physical, psychological, independence level, social relations, environment, and spirituality) and two general questions that examine self-perception of overall quality of life and socio-demographic variables included age, gender, religion, marital status, occupation, educational status, type of family, socio-economic status, family history of HIV status, WHO clinical and functional status, duration of time on ART, opportunistic infections, motivation to take ART, and disclosure status. Investigation records and OP cards were used to get information of NCD and related factors. A pre-testing was done on 30 samples (10%) from ART centre of MR Bangur Hospital, Kolkata for validation and questionnaire finalization. One Focus Group Discussion (FGD) was conducted at each ART centre. Data was collected through face-to-face interview method from the study participants with prior informed consent with the help of an anonymous data collection form.

Ethical approval for the study was obtained from the Institutional Ethics Committee of Human Research at Medical College, Kolkata, as well as from the IEC of the Institute of Health and Family Welfare, Government of West Bengal. All study participants provided informed consent before participating, with illiterate participants affixing their left thumb impression, which was countersigned by a witness.

Findings

The study participants had a mean age of 41.41 (± 11.60) years, with 167 males, 140 females, and the remaining non-binary. The majority were Hindus (72%), with 26.1% being Muslim, and a small percentage following other religions. About 62.1% were married, while 4.8% were divorced, and 14.3% were widowed. Educationally, 22.9% had no formal education, and only 6.4% had completed graduation. Based on the modified B.G. Prasad scale (updated Jan 2024), participants were categorized into various socio-economic classes, with 16 in the upper class, 56 in the upper middle class, 78 in the middle class, 92 in the lower middle class, and 69 in the lower class.

Regarding health, 18.0% of participants were underweight, 18.3% were overweight, and 2.9% were obese. Approximately 39.2% reported current or past use of addictive substances. Non-communicable diseases (NCDs) were prevalent in 25.4% (79) of participants, with 42 being hypertensive, 23 diabetics, and others suffering from conditions like hypothyroidism, cardiovascular diseases, and a history of cerebrovascular accidents. Fruit consumption varied, with 45.7% eating fruits at least twice weekly, but a higher percentage (86.9%) consumed vegetables more than twice a week. However, 13.8% never added salty sauces to their meals, and 12.5% consumed processed foods with high salt content.

Regarding physical activity, 19.3% reported vigorous activity for more than 2 days a week, while 45.9% engaged in moderate intensity activity. A majority (67.2%) linked excessive salt consumption to health issues like hypertension. About 28.3% never had their blood glucose tested, and 43.4% never had a lipid profile. Around 89 and 83 participants reported having family histories of hypertension and diabetes respectively.

When analysing the relationship between ART regimen and NCD prevalence, 26.69% of those on the TLD regimen had NCDs, compared to 13.34% among those on non-TLD regimens, though this difference was not statistically significant. Additionally, the WHO-QOL Bref scores were positively correlated across physical, psychological, social, and environmental domains. Participants with NCDs had lower scores in all domains, with statistically significant differences observed in quality-of-life scores between those with and without NCDs.

Qualitative findings

The themes emerging from the qualitative component were fair knowledge regarding diet, necessity of regular exercise, lack of knowledge regarding addiction and NCD, increased number of pills, prejudice regarding travel, and fear of being stigmatized. The participants had fair knowledge regarding food items to be avoided in NCDs such as diabetes mellitus and hypertension. For example, some mentioned,

"I will eat less sweet if I have diabetes, won't take sugar with tea," or "Doctor has forbidden me to take extra salt" for hypertension.

Those who had been hypertensive for more than five years also knew the importance of regular exercise, stating,

"Doing household chores is not enough, we need to sweat, need to provide more time to exercise."

Some participants mentioned challenges in remembering to take their medicines for NCDs on time and expressed that the number of pills they took was overwhelming, with one participant saying,

"I forget my pills frequently."

Participant K4, a type II diabetic on Dolutegravir as part of her ART regimen, mentioned feeling uncomfortable with her physical appearance due to weight gain, saying,

"I have gained so much weight, I have become so fat."

Some participants used concession cards for travel in government-run buses but expressed dissatisfaction with the card's limited use. One participant shared an experience of being harassed by bus conductors because the card identified them, saying,

"I gave the fare at that time because I couldn't fight them alone at that moment. Later, I lodged a complaint."

A few participants also recounted experiences of discrimination from healthcare providers, which made them apprehensive about hospitals. One participant shared, "They (attending doctors) shamed me and my daughter when she was admitted to the hospital. They did not even touch her while she was dying. Nobody helps us."

Conclusion

Of the study participants, 79 (25.4%) suffered from different non-communicable diseases (NCDs), with many developing an NCD after starting the ART regimen. The majority of participants were receiving the TLD (Tenofovir, Lamivudine, Dolutegravir) regimen, and 26.69% of them were suffering from NCDs. This percentage is higher than the 13.34% of participants on other regimens, although the difference was not statistically significant. Participants without NCDs had higher mean scores in the Physical, Social, Psychological, and Environmental domains of Quality of Life (QOL) compared to those suffering from NCDs. A statistically significant relationship was found between the presence of NCDs and the four domains of QOL as measured by the WHO-QOL BREF.

A significant concern highlighted by the study was that many participants had not been screened for common co-morbidities, such as blood pressure and blood glucose levels. Focus Group Discussions revealed that, although many participants had knowledge of risk factors for developing NCDs and recognised that proper diet and exercise could improve their conditions, they were reluctant to take action. Additionally, participants expressed feelings of shame and frustration due to the stigma surrounding HIV/AIDS, leading many to conceal their condition in order to remain socially acceptable, both in their local communities and in interactions with healthcare professionals.

Recommendations

Active screening for common non-communicable diseases (NCDs) needs to be implemented for all People living with HIV (PLHIV), with proper record maintenance. Special attention is needed for PLHIV who develop NCDs during their course of treatment. Dedicated NCD screening and treatment services should be integrated into their care pathways. Health education and regular motivation are essential to address the risk factors for NCDs and promote healthier lifestyles. De-stigmatisation at the community level is crucial, and Behaviour Change Communication (BCC) interventions may be conducted periodically to reduce stigma. Additionally, the enforcement of the HIV and AIDS (Prevention & Control) Act, 2017, which protects the rights of those infected and affected by HIV, needs to be ensured. This will help combat stigma and discrimination, creating an enabling environment for improved access to healthcare services.

Acknowledgements

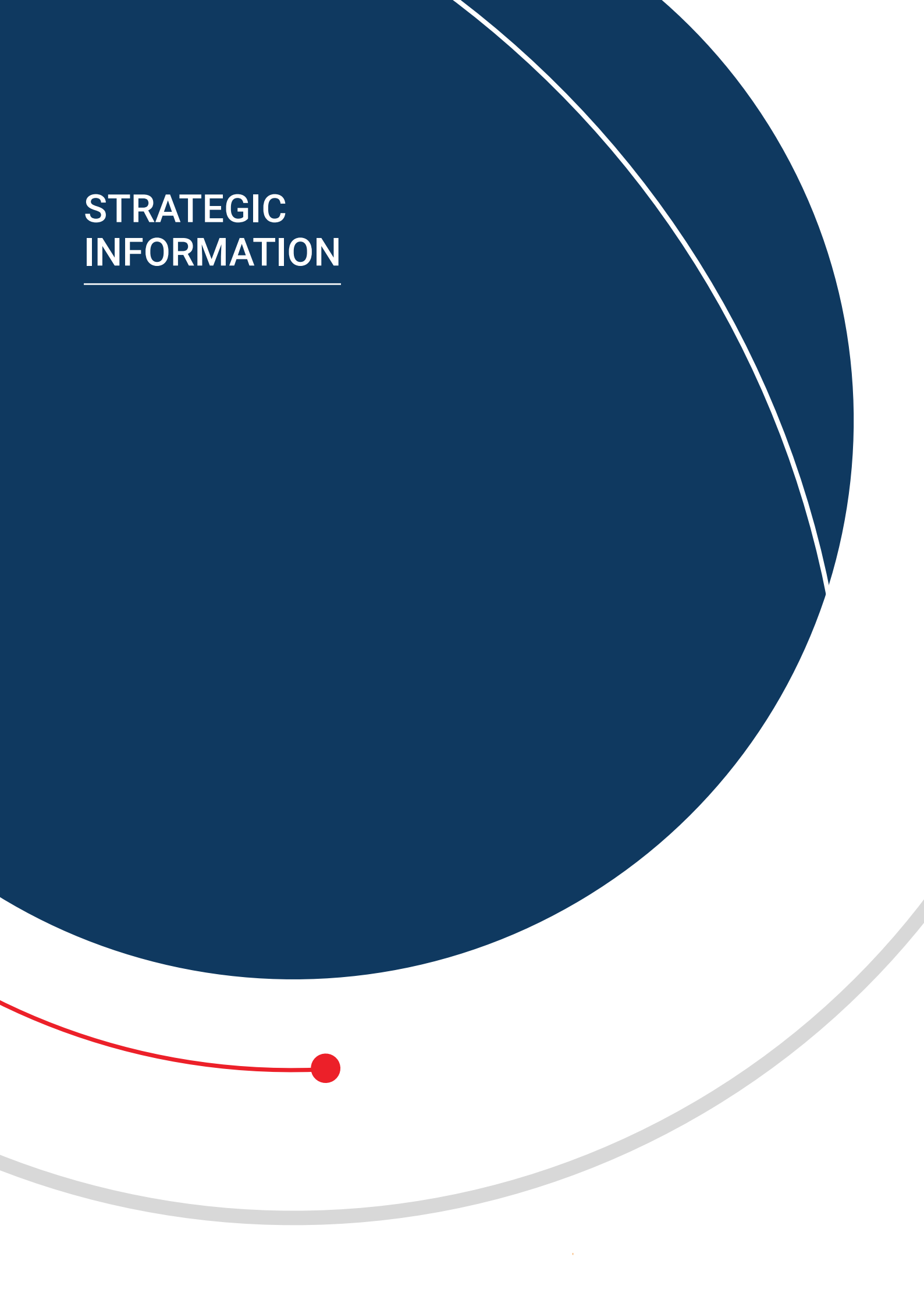
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STRATEGIC INFORMATION





Study to Understand Level of Knowledge and Risk Behaviours among at-Risk Groups in Gujarat

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Introduction

National adult (15–49 years) Human immunodeficiency virus (HIV) prevalence was estimated at 0.20% in 2023[1] in India. Even with this low prevalence, in terms of absolute numbers, India has the second highest burden of HIV in the world with an estimated 25.44 lakh (21.68 lakh–30.38 lakh) in 2023 [1]. Assessment of the magnitude and distribution of the disease in a population is a prerequisite for understanding and dealing with any public health problem. An integrated approach is required to cover both High-Risk Groups (HRGs) and 'at risk non HRGs' as the 'at risk non HRGs' may also contribute to the undetected disease transmission. There is a need to document the epidemiology of these populations, the affected geographic areas or localities, the people most vulnerable, their networks and the risky behaviours exposing them to HIV infection and thus involve the non HRGs that are not yet covered by programmes [2]. The existing targeted interventions (TI) caters HRGs for safe sexual practices and control of HIV spread. However, 'at risk non-HRGs' are not specifically targeted for HIV prevention & care and there has been a rising trend among these groups as compared to HRGs recently. Hence this study was envisaged to understand the socio-demographic profile of at risk non-HRGs, assess their knowledge of HIV transmission and to identify the pattern of high-risk sexual behaviour among 'at risk non-HRGs'.

Methodology

Ahmedabad and Sabarkantha districts are classified as high and moderate risk districts respectively for HIV among 'at risk non HRGs' and were selected for this study in consensus with GSACS. Two ART centres in Ahmedabad and one in Sabarkantha were selected for the study to have geographical diversity and the sample size was finalised at 240 for 'at risk non-HRGs' People Living with HIV (PLHIV). In this study, PLHIV other than high risk groups were considered as at risk non-HRG PLHIV.

Inclusion criteria:

'At risk non-HRG' PLHIV [PLHIV other than FSW, MSM, IDU, TG] above 18 years of age registered at ART centres between 1st April, 2021 to 31st March, 2022. However, as desired sample size was not achieved so PLHIV registered prior to 1st April, 2021 were enrolled in study.

Exclusion criteria:

Those who were unwilling to give consent for the study.

A semi-structured questionnaire was used for interviewing PLHIV which included questions on socio-demographic, sexual behaviour patterns, knowledge regarding transmission of HIV and various possible reasons for getting (acquiring) HIV infection. A semi structured questionnaire for the In-Depth Interviews (IDIs) of counsellors was used to know the experiences and programmatic challenges and their views about high positivity rate among at risk non-HRG PLHIV.

Data were entered in Microsoft excel and analysed for proportion in various categories of behaviour and pattern with various typology, chi square test along with identifications of domains and sub domains for qualitative research data.

Findings

A total of 240 at risk non- HRG PLHIV were interviewed using a semi structured tool and while 20 IDI were conducted among counsellors.

Socio-Demographic Profile

Majority of PLHIV belonged to age group >45 years (35.4%) and received education up to secondary class (45%), while 20% had higher education. 58.8% were residing in urban and rest in rural localities.

Table 1 Age at First Marriage among PLHIV (N=214)

AGE AT FIRST MARRIAGE	MALE (%)	FEMALE (%)	N (%)
< 18	14 (12.8)	33 (31.4)	47 (21.9)
18 – 20	25 (22.9)	50 (47.6)	75 (35.1)
21 – 25	49 (45.0)	15 (14.3)	64 (29.9)
> 25	21 (19.3)	7 (6.7)	28 (13.1)
TOTAL	109	105	214

About 22% of PLHIV were married under age of 18 years and 35.8% (39/109) males and 31.4% (33/105) females married prior to legal age of marriage with mean age 21.6 ± 4.5 years for males and 18.7 ± 3.6 years for female.

About 70.8% PLHIV were married, while 18.4% were separated / divorced / widowed. 92.1% were living with family.

Among males, 32.5% of were skilled or semi-skilled workers, employed in government or private sector jobs (23%), labourers or unskilled workers (23%) and 15% were agricultural land owners. Among females, 61% were home makers, labourers or unskilled workers (15.2%), 10.5% were skilled or semi-skilled workers and 5.7% were agricultural land owners.

Table 2 Occupation and Literacy Status of PLHIV

OCCUPATION	N (%)	LITERACY STATUS	N (%)
HOME MAKERS	65 (27.3)	ILLITERATE	40 (16.7)
SEMI-SKILLED	23 (8.9)	LITERATE & TILL 5TH STANDARD	39 (16.3)
SKILLED	65 (27.3)	6TH TO 10TH STANDARD	108 (45.0)
UNSKILLED	87 (36.5)	11TH TO GRADUATION	32 (13.3)
-	-	POST-GRADUATION	21 (8.8)
TOTAL	240	TOTAL	240

Preference of Patients on Service Utilisation

Around 7% of PLHIV opted for self-testing, 52.6% were referred by doctor, 19.5% tested as their spouse were positive. 70% PLHIV first tested in government hospital while 30% in private health facilities.

Knowledge of PLHIV regarding Transmission of HIV/AIDS Infection

More than 80% of PLHIV had a comprehensive knowledge on HIV transmission routes. Awareness regarding parents to child transmission was 47%. Less than half of PLHIV had awareness about HIV/AIDS before they tested positive.

Table 3 Current Knowledge of PLHIV about Transmission of HIV/AIDS Infection (N=240)

INDICATORS ON KNOWLEDGE	KNOWLEDGE OF THE RESPONDENT (%)
BY HAVING UNPROTECTED SEX WITH AN INFECTED PERSON LIVING WITH HIV	201 (83.7)
BY SHARING INFECTED NEEDLES/ SYRINGES	194 (80.4)
BY INFECTED BLOOD TRANSFUSION	190 (80)
PARENTS TO CHILD TRANSMISSION	114 (47.5)
THROUGH MOSQUITO BITES	22 (9.1)
BY SHARING A MEAL WITH SOMEONE WHO IS INFECTED WITH HIV	18 (7.5)

Route of Transmission

70% PLHIV had probably acquired HIV infection through sexual route (spouse, girlfriend, sex worker) while the rest attributed it to some illness or pregnancy or blood transfusion or parents, and 18% of PLHIV first sought care in private sector for HIV while rest were first treated in government sector. Around 73.3% of PLHIV did regular investigations every six months. Almost all PLHIV in study are not part of self-help groups / peer groups for HIV.

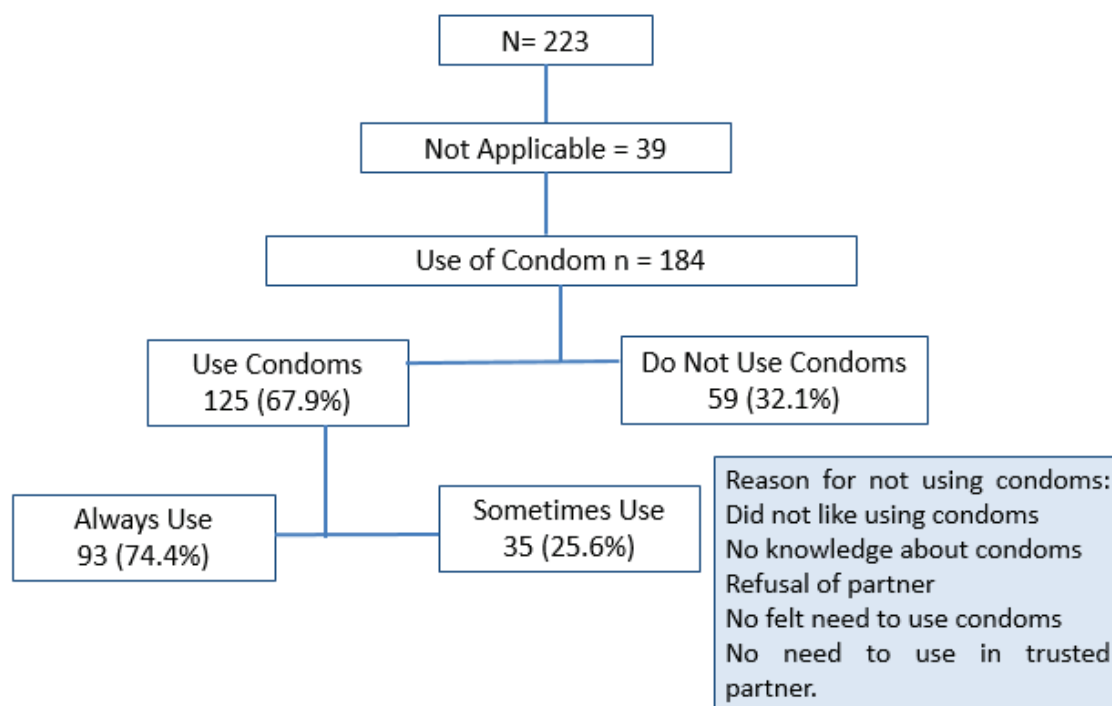
Sexual Behaviour

Females were younger at first sexual intercourse (mean age 18.8 ± 3.1 years) compared to males (mean age 20.5 ± 3.7 years). 93.4% (224) of PLHIV were heterosexuals 3.7% (9) were LGBTQIA+.

Condom Use with Sexual Partners

About 32.1% PLHIV denied using condoms during sexual intercourse with their regular partner and most common reasons were did not like using condoms (45%), no knowledge about condoms (14.5%), not felt need to use condoms (12.9%), refusal of partner (11.3%). Almost 16.3% PLHIV denied having sexual intercourse after testing positive for HIV. Around 28.3% PLHIV had sex with other than spouse / regular partner; (50% - unmarried and separated, 25% - married and widowed) and more than 90% of them had sex quite often while 66.2% did not use condoms.

Figure 1 Use of Condom by PLHIV during Sex with Spouse/ Regular Partner



Around 70% PLHIV were aware about HIV status of their partners while 29.5% were not aware, majority of whom were unmarried/widowed (>90%).

Sexually Transmitted Infections (STIs)/Reproductive Tract Infections (RTIs)

Around 17% PLHIV had STI/RTI during last year, 4% PLHIV who were homosexual had high frequency of sex, but HIV status of partner was not known and condom usage was poor.

Sexual Intercourse while Outside City/State for Job or some other Work

Almost 16% PLHIV had sexual intercourse while they were outside city or state for work, but HIV status of partner was not known and condom usage was poor (29%); 35% of PLHIV had sex prior to marriage and 95% of them had sex with other than to be spouse, majority being males (82%) and had sex 1-2 times a month (71.2%) but only 16.6% were aware about HIV status of partner and 75% never used condoms. Nearly 16% PLHIV had debt (55% males), among which 35% females have sex to reduce debt.

Qualitative

Majority of PLHIV in 'at risk, non-HRG' category are migrants, construction workers, agricultural labourers or employees in catering industry. Themes identified were given below.

A. Individual:

1. Under this theme, sub-themes identified were:
2. Age and sexual orientation: adolescent & adults, bisexual and MSM are most commonly affected
3. Occupation: migrants, construction workers, agricultural labourers or employed in catering industry are vulnerable
4. Increased MSM activities: casual single sex encounters on dating apps without revealing identity, exploitation at work were major responses
5. Attitudes & beliefs: Inquisitiveness, curiosity, unmet sexual needs were major responses

- Multiple sexual partners peer pressure, occasional sexual encounters for experience 6. Perception regarding usage of condom: Interfere with pleasure in anal sex, get less money if use condoms so they don't use condoms every time, customer does not bring many times, condom is not comfortable, many MSM as they are already positive so do not worry about partners were common responses.

"People use tinder and others apps in which MSM meet activities going on without disclosure of their identity and it is one-time meeting and never meet after the sexual encounter" (TINDER)

B. Peer & family:

Under this theme, sub-themes identified were:

- Stigma and discrimination is still a part of societal behaviour. Points highlighted were fear of privacy in testing and go to quacks for treatment not to doctors.
- Partner support was poor and they did not accept their status. It also showed gender bias in community.
- HIV testing in partner is less, because of stigma and discrimination and they don't want to disclose their status in community.

"Fear of privacy of HIV status in rural area"

"Because of stigma they go to quacks and don't go to doctors"

C. Media:

Under this theme, sub-themes identified were:

- Media and connectivity have very important part in spreading of HIV fast in community. Because of easy accessibility to internet in mobile, porn sites, you tube etc. has created curiosity and inquisitiveness. Interviewee also informed that because of exposure to these sites' maturity comes early in teenagers.

"Everything is available on internet blue film, web series. In this age there is tendency to do experiment"

D. Environment:

Under this theme, sub-themes identified were:

- Service quality & resources: Many times when the patient is asymptomatic and with undetectable viral load don't accept HIV status
- Provider-patient relationship patient does not provide sexual history many times
- Occupational work: Industries like GIDC migrants, Outstation activities, Extra money high profile clients, Work exploitation by employer, both male and female affected, Agricultural labourers
- Migration: It was contributory factor for transmission of infection due to multiple sexual partners because of migration also observed increased MSM activity as male stays together due to migration.

"Patient does not provide sexual history on counselling, sometimes get irritated when asked."

E. Community & Society:

Under this theme sub-themes identified were:

- Health service awareness: Increase awareness in schools, colleges, training of teachers, IEC, advertisement in theatre, partner testing, compulsory testing before employment in migrant construction workers
- "sex education should be started from 5th standard so that when they reach to 12th standard they are having idea about it."
- Economic access: smart phones are easily available on EMI
- Community support & social Networks: Improved LGBTQIA+ law.
- Culture & tradition: Buying brides for marriage Verbatim: "In Mehsana district, the number of girls is less, so from Poshina village they buy the girls by giving fifty thousand or one lakh rupees and get them married. Then the girl stays for 6-12 months and after coming back again takes the money (theft) and marries someone else."
- Place of meeting: Discotheques, Party, Pub, Spa, Hotel, Guest house, House of single female, construction site, Hostels/ PGs, Beneath over-bridge, Beauty parlour/massage parlour, mela, secluded places like near lake/river in village

F. Interpersonal and Psychological factors

Under this theme, sub-themes identified were:

1. Recent life stressors: illness/ deaths of Relatives, relationships, breakups, loss of friendships, financial / work stress etc.

"If they pick up pots or lifting weight and get 50-60 rupees, but sometimes if don't get work, they indulge in this work for money."

Conclusion

Non-HRG PLHIV belong primarily to diverse occupations (unskilled / semi-skilled / skilled/ home makers) and usually have first sexual inter course before age of 20 years. Most of the PLHIV were married at young age and were tested on advice of doctors. Awareness of routes of HIV transmission was high among PLHIV following ART care, yet 60% of PLHIV used condom during sex and common reasons for refraining condom use were "did not like condoms". Almost 28% PLHIV had sex with other than spouse / regular partner prior to marriage with poor condom usage, 30% PLHIV were not aware about status of their partners. 16% of PLHIV had RTI / STI in last 1 year and similar proportion had sex while they were out of city or state for work; 35% PLHIV had sex prior to marriage with other than to be spouse with poor usage of condoms. Only 18% of PLHIV first sought care in private sector.

Recommendations

HIV and safe sexual practice awareness among young adolescents require strengthening across occupations especially migrants, construction workers, and agricultural labourers or employed in catering industry. Regular and consistent condom usage among PLHIV requires improvement, especially homosexuals and those having sex with other than regular partners. Tracking of sexual partner among 'at risk non-HRG' PLHIV requires demand generation and awareness especially unmarried/separated/widowed PLHIV. Awareness among private practitioners and collaboration will facilitate early detection and treatment. Association of PLHIV with self-help groups will improve safe sexual practices.

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Determinants of High Prevalence of HIV Infections in Vijayapura, Bagalkot and Belagavi districts of Karnataka

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Introduction

India is home for around 24 lakh people living with HIV infection. The second largest country with PLHIV [1]. The National level estimated adult HIV prevalence (15-49 years) has declined since the epidemic's peak in 2000 where prevalence was estimated at 0.55% in 2000, to 0.32% in 2010, and 0.21% in 2021 and 0.20% in 2023. The northeast region States have the highest adult HIV prevalence, followed by southern States (0.67% in Andhra Pradesh, 0.47% in Telangana and 0.46% in Karnataka). Southern States have the largest number of PLHIV viz. Maharashtra, Andhra Pradesh and Karnataka being the top three [2]. Nevertheless, this downwards trend at the national level masks the variations at the regional, state and district levels in the country [3]. The spread of HIV epidemic in a defined geographic region is known to be influenced by the interaction of socio-demographic, economic, cultural and behavioural factors [4-5].

Studies done in different parts of India had shown the association of lower literacy, higher urbanisation, and socio-economic development with higher HIV prevalence levels. Few studies have also brought out low levels of HIV awareness and condom use in India as one of the reasons for high HIV infection [6-9].

However, most of these studies have been carried out in other states of India, and there have been sparse studies done in high prevalence districts of Karnataka viz., Vijayapura, Bagalkot and Belagavi. Hence, this study was planned to identify the determinants of high prevalence of HIV in these districts which have consistently shown high HIV prevalence in Karnataka and to determine whether various sociodemographic characteristics, economic factors, levels of awareness about HIV or sexually transmitted infections (STIs) and prevalent condom use at the population level are associated with consistently high HIV prevalence in these districts. The study also assessed whether there are any differences between association of these factors with consistently high HIV prevalence in these districts.

Objective

To determine social, economic and behavioural factors associated with high incidence and prevalence of HIV/AIDS infections in past three years in Bagalkot, Vijayapura and Belagavi Districts of Karnataka.

Methodology

A cross-sectional study was conducted to investigate the social, economic, and behavioural factors associated with the high HIV/AIDS prevalence in the districts of Bagalkot, Vijayapura, and Belagavi, Karnataka. The study was carried out in Integrated Counselling and Testing Centres (ICTCs) and Designated STI/RTI Clinics (DSRCs) across these districts. They were chosen as they are as the primary data collection centres due to their role in HIV testing, counselling, and treatment.

There are 22 ICTCs in Vijayapura, 17 in Bagalkot, and 35 in Belgaum, total 74 centres in three districts. For the study, 30% of the total ICTCs (24 centres) were selected for data collection using a simple random sampling technique through the lottery method. The selected centres were distributed as follows: 7 ICTC centres from Vijayapura, 7 ICTC centres from Bagalkot, 10 ICTC centres from Belgaum. Additionally, all three DSRCs located in these districts were included in the study. Data was collected from the records which were obtained from ICTCs and DSRCs to analyse factors associated with high HIV prevalence. The records contained demographic details, socioeconomic status, and

behavioural information of HIV-positive individuals, allowing for a detailed examination of the contributing factors. Only individuals whose records were available at these centres were included in the study.

Ethical approval was obtained from the institutional review board. Confidentiality of individual records were maintained throughout the study. No personal identifiers were used in the analysis, and data was anonymised prior to analysis.

The data obtained was entered in a Microsoft Excel sheet, and statistical analysis was performed using statistical package for the social sciences (Version 21) and JMP SAS.

Results were presented as frequencies and percentages. Categorical variables were compared using statistical tests like Chi-square test. $p < 0.05$ will be considered statistically significant.

Findings

Analysis was done using data from 7 centres from Vijayapura (District Hospital, BLDE, AMCH, Bagewadi, Muddebihal, Indi and DSRC Bagewadi), 7 centres from Bagalkot (Hunagund, Badami, R-Banahatti, Mahalingapura, Jamakhandi, Mudhol, SNMC, District Hospital DSRC & ICTC) & 10 centers from Belgaum (Bailongal, Kittur, Gokak, District Hospital, JNMC, Hirebagewadi, ESI, Khanapur, Nandagad, Ramdurga). Total study population was 2501 records of previously diagnosed HIV/AIDS patients who were registered in the aforementioned centers.

In the total sample of 2501 PLHIV, 57.01% were males and 42.99% females. Notably, a significant proportion of cases originated due to referrals from government hospitals (69.5% males, 65.4% females), followed by private clinics (22.5% males, 22.7% females).

Table 1 shows statistically significant difference in the gender distribution among the three regions ($p < 0.00045$). In Belagavi, a higher proportion of males (61.1%) was observed compared to Vijayapura (56.0%) and Bagalkot (51.5%). Bagalkot had a more balanced gender distribution, with 51.5% males and 48.5% females. Female representation was highest in Bagalkot (48.5%) and lowest in Belagavi (38.9%).

The age distribution showed statistically significant variation across the regions ($p < 0.0001$). The majority of participants in Vijayapura were aged 35–49 (41.9%), which was higher compared to Bagalkot (31.3%) and Belagavi (28.9%). Belagavi had the highest proportion of participants aged 25–34 (29.5%) compared to the other regions. Bagalkot had a higher percentage of younger participants in the 15–24 age group (21.7%), whereas Belagavi had a smaller proportion (18.8%). The representation of participants under 14 years of age was relatively low across all regions, with Belagavi having the smallest proportion (3.9%). There was no statistically significant difference in the distribution of marital status among the regions ($p = 0.226$). Across all regions, single individuals made up the largest group, particularly in Belagavi (32.1%) and Vijayapura (34.4%). Married individuals accounted for the second largest group, with Bagalkot having the highest proportion (32.7%). The proportion of widowed and divorced/separated individuals was similar across the three regions, with slightly higher percentages in Belagavi for divorced/separated (22.2%) and widowed participants (17.8%).

Table 1 Socio-Demographic Profile of PLHIV in Three Districts

VARIABLES	VIJAYAPURA (799)	BAGALKOT (648)	BELAGAVI (1054)	CHI- SQUARE TEST	
	N (%)	N (%)	N (%)	P VALUE	
GENDER	MALE	448 (56.0)	334 (51.5)	644 (61.1)	<0.00045*
	FEMALE	351 (44.0)	314 (48.5)	410 (38.9)	
AGE (YEARS)	<14	37 (4.6)	35 (5.4)	41 (3.9)	<0.0001*
	15–24	100 (12.5)	141 (21.7)	198 (18.8)	
	25–34	189 (23.6)	131 (20.2)	311 (29.5)	
	35–49	335 (41.9)	203 (31.3)	305 (28.9)	
	>50	138 (17.3)	138 (21.3)	199 (18.9)	
MARITAL STATUS	MARRIED	238 (29.8)	212 (32.7)	294 (27.9)	0.226
	SINGLE	275 (34.4)	202 (31.2)	338 (32.1)	
	DIVORCE / SEPA- RATED	158 (19.8)	131 (20.2)	234 (22.2)	
	WIDOWED	120 (15.0)	103 (15.9)	188 (17.8)	

Table 2 shows the distribution of education levels among the three regions which showed a statistically significant difference ($p < 0.0001$). The highest proportion of illiterate participants was in Belagavi (12.8%), followed by Bagalkot (10.0%) and Vijayapura (6.1%). Belagavi had the largest percentage of participants with primary school education (52.8%), followed by Bagalkot (46.7%) and Vijayapura (44.0%). Vijayapura had the highest percentage of participants with secondary school education (40.2%), while Belagavi had the lowest (20.1%). A higher proportion of participants in Belagavi (14.2%) had attained college education or higher, compared to Vijayapura (10.7%) and Bagalkot (8.5%).

There was a statistically significant difference in occupation across the three regions ($p < 0.0001$). The majority of participants in all three regions were engaged in daily wage labour, but this was more prominent in Vijayapura (59.2%) and Bagalkot (56.2%), while Belagavi had a lower percentage (48.3%). Belagavi had a significantly higher percentage of salaried workers (28.1%) compared to Vijayapura (23.0%) and Bagalkot (18.8%). Bagalkot had the highest percentage of participants engaged in business (13.1%), followed by Belagavi (10.2%) and Vijayapura (8.01%). The proportion of housewives was highest in Belagavi (13.4%), followed by Bagalkot (11.9%) and Vijayapura (9.8%).

Table 2 Socio-Economic Determinants of PLHIV in Three Districts

VARIABLES		VIJAYAPURA (799)	BAGALKOT (648)	BELAGAVI (1054)	CHI SQUARE TEST
		N (%)	N (%)	N (%)	P VALUE
EDUCATION	ILLITERATE	49 (6.1)	65 (10.0)	135 (12.8)	<0.0001*
	PRIMARY SCHOOL	352 (44.0)	303 (46.7)	557 (52.8)	
	SECONDARY SCHOOL	321 (40.2)	225 (34.7)	212 (20.1)	
	COLLEGE & ABOVE	77 (10.7)	55 (8.5)	150 (14.2)	
OCCUPATION	DAILY WAGES	473 (59.2)	364 (56.2)	508 (48.3)	<0.0001*
	SALARIED	184 (23.0)	122 (18.8)	296 (28.1)	
	BUSINESS	64 (8.01)	85 (13.1)	108 (10.2)	
	HOUSEWIFE	78 (9.8)	77 (11.9)	142 (13.4)	

*Note: * shows statistically significant at 95% confidence level with $p < 0.05$*

Table 3 shows that there is a statistically significant difference ($p < 0.005$) in the proportion of individuals reporting multiple heterosexual partners across the three regions. The highest percentage was observed in Belagavi (91.6%), followed by Vijayapura (89.1%) and Bagalkot (86.3%). There was no statistically significant difference in the proportion of individuals reporting multiple homosexual or bisexual partners across the regions. Bagalkot had the highest percentage (10.2%), followed by Vijayapura (8.6%), while Belagavi had the lowest proportion (5.1%).

There was no statistically significant difference observed in the rate of parent-to-child HIV transmission across the regions. Belagavi had a slightly higher proportion (3.3%) compared to Bagalkot (3.5%) and Vijayapura (2.3%).

When newly detected discordant couples (where one partner is HIV-positive and the other is HIV-negative) were assessed, it showed a statistically significant difference ($p < 0.0001$) across the regions. The highest proportion of discordant couples was observed in Bagalkot (18.4%), followed by Vijayapura (16.6%) and Belagavi (12.2%). Among couples where the husband/male partner is negative and the wife/female partner is positive, Bagalkot had the highest percentage (39.4%), followed by Vijayapura (37.3%) and Belagavi (33.7%). Conversely, among couples where the husband/male partner is positive and the wife/female partner is negative, Belagavi had the highest percentage (39.4%), followed by Vijayapura (38.2%) and Bagalkot (33.6%). The number of newly detected concordant couples (both partners HIV-positive) was highest in Belagavi (14.7%), followed by Bagalkot (8.6%) and Vijayapura (7.9%).

Table 3 Behavioural Factors Associated with PLHIV in Three Districts

VARIABLES		VIJAYAPURA (799)	BAGALKOT (648)	BELAGAVI (1054)	CHI SQUARE TEST
		N (%)	N (%)	N (%)	P VALUE
MULTIPLE SEXUAL PARTNERS (HETEROSEXUAL)		712 (89.1)	559 (86.3)	965 (91.6)	<0.005*
MULTIPLE SEXUAL PARTNERS (HOMOSEXUAL / BISEXUAL)		69 (8.6)	66 (10.2)	54 (5.1)	
TRANSMITTED FROM PARENT TO CHILD (FOR CHILDREN)		18 (2.3)	23 (3.5)	35 (3.3)	
HIV STATUS OF SPOUSE/PARTNER OF HIV POSITIVE PERSON	NUMBER OF NEWLY DETECTED DISCORDANT COUPLES/PARTNERS	133 (16.6)	119 (18.4)	129 (12.2)	<0.0001*
	NUMBER OF COUPLES WHERE HUSBAND / MALE PARTNER IS NEGATIVE AND WIFE / FEMALE PARTNER POSITIVE	298 (37.3)	255 (39.4)	355 (33.7)	
	NUMBER OF COUPLES WHERE HUSBAND / MALE PARTNER IS POSITIVE AND WIFE / FEMALE NEGATIVE	305 (38.2)	218 (33.6)	415 (39.4)	
	NUMBER OF NEWLY DEFECTED CONCORDANT COUPLES (BOTH POSITIVE)	63 (7.9)	56 (8.6)	155 (14.7)	

Note: * shows statistically significant at 95% confidence level with $p < 0.05$

Study Limitation

This study has certain limitations. As HIV risk factors such as intravenous drug use and the bridge population (e.g., migrant workers, truck drivers) were not assessed, as they were not reported by the study population at the ICTCs.

Conclusion

This study aimed to determine the social, economic, and behavioural factors associated with the high HIV/AIDS infections in Bagalkot, Vijayapura, and Belagavi districts of Karnataka. The findings reveal significant regional disparities in demographics, education, occupation, and behavioural patterns among PLHIV.

Belagavi showed a higher proportion of males, younger individuals, and multiple heterosexual partners, indicating a potential correlation between these factors and increased HIV transmission rates. In contrast, Bagalkot reported a higher number of discordant couples and business professionals, emphasising the importance of targeted interventions for these populations.

Educational attainment and occupational status varied across districts, suggesting that socio-economic conditions significantly influence HIV risk. The need for tailored, region-specific prevention strategies is evident, particularly in enhancing access to education and promoting safe sexual practices.

Addressing these social and economic factors is crucial for reducing the incidence of HIV/AIDS in these regions. By focusing on high-risk groups and strengthening support systems, stakeholders can effectively mitigate the impact of HIV and improve health outcomes for affected individuals.

Recommendations

- Increase the access to educational materials, about HIV transmission and prevention for adolescents at Anganwadi and Sub centres, particularly in areas with lower levels of educational attainment, to improve their knowledge and reduce stigma
- Strengthen the Integrated Counselling and Testing Centres (ICTCs) to better accommodate and reach at-risk individuals like IDUs, migrants' population, truck drivers who may not regularly access these facilities through mobile testing unit camps
- Advocate for policies that address the broader socio-economic factors influencing HIV risk, such as employment opportunities and social support for marginalised populations

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Attitude towards Condom Usage among Adult Population at Designated STI/ RTI Centres in Dimapur District

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Introduction

In India, unprotected sexual intercourse remains one of the primary modes of Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome (HIV/AIDS) transmission. This highlights the crucial importance of condoms, as it can greatly help in reducing the potential consequences of risky behaviour. In Northeast India, the HIV Sentinel Surveillance (HSS) report 2021 reveals that the HIV prevalence rate among pregnant women is increasing, with Nagaland showing a higher rate, despite a national decline in HIV prevalence [1]. The report also indicates that 50% of people living with HIV are in the age group of 15-35 years, further highlighting the need to improve knowledge and awareness about HIV/AIDS.

Despite the ongoing challenge of unsafe sexual practices, condom use remains relatively low. According to the NFHS-5 survey, although more than half of the population in Nagaland is aware that consistent condom use can reduce the risk of HIV/AIDS transmission, only 48.4% reported using a condom during their last high-risk sexual encounter, and only 31.6% used a condom during their first sexual experience [2]. Despite having good knowledge, risky behaviour persists, this highlights the need for promoting safe sex practices and improving the perception of condoms. The acceptance and regular use of condoms are influenced by several factors, including awareness, knowledge, attitudes towards condom, and the accessibility and availability of condoms.

While condom use varies across cultures [3], attitudes toward condoms are a significant factor influencing usage [4]. Attitudes play a crucial role in the acceptance of condoms, especially among adults who are sexually active. In addition to attitudes, understanding the level of knowledge about condoms in the adult population is essential, as knowledge shapes and informs attitude formation. Therefore, this study aims to assess attitudes toward condom use and knowledge about condoms among the adult population in Dimapur district, Nagaland.

Methodology

A descriptive research design was employed to examine attitudes toward condom usage among 150 adults (aged 18-49 years) in Dimapur, Nagaland. The study was conducted at the designated STI/RTI Centre in Dimapur Civil Hospital. Data was collected with the assistance of a counsellor at the Dimapur Sexual and Reproductive Health Clinic (DSRC), from patients who visited the centre during the study period and consented to participate. The collected data was analysed using SPSS, and appropriate descriptive statistics were applied to assess the findings.

Findings

Socio Demographic Profile of Respondents

Table 1 shows that of the 150 respondents, 76.7% were in early adulthood, falling within the age group of 18-35 years, while 23.3% were in middle adulthood, aged 36-49 years, with a mean age of 41.3 years. The sample consisted of 58% male and 42% female respondents. A little over two-thirds (66.7%) were married, followed by 28.7% who were unmarried. In terms of educational attainment, 31.3% had completed high school, 18.7% had completed higher secondary education, 17.3% were graduates, 15.3% had attended middle school, and 5.3% had completed only primary school. Additionally, 7.3% of the respondents identified as illiterate.

Regarding the occupation of respondents, 29.3% reported being housewives, followed by 21.3% who were unemployed. About 10.7% were government employees, while 8.7% worked in the private sector, 4.7% were self-employed, and 2.7% worked as artisans. The remaining 19.3% fell under the "other" category, which included wage laborers,

street hawkers, etc. The findings suggest that a higher percentage of respondents are dependent on their families. Specifically, 54% of respondents were categorised as dependents, while 46% were earners. Among the dependents, students, housewives, and the unemployed made up the majority. Within the earner category, government employees represented the highest proportion at 10.7%, while other earners were in the single-digit percentages.

In terms of ethnicity, two-thirds (66.7%) of respondents identified as belonging to the Scheduled Tribe (ST) category, followed by 30.7% from the General category. A small percentage, 2.0%, were from the Other Backward Classes (OBC), and 0.7% were from the Scheduled Caste (SC). Regarding religion, just over two-thirds (66.7%) identified as Christians, 22% as Hindus, and 9.3% as Muslims.

Table 1 Socio-Demographic Profile of the Respondent

Sl. No	Characteristics	Total N=150	
		Frequency	Percent
I	Age		
	Early Adulthood (18-35)	115	76.7
	Middle Adulthood (36-49)	35	23.3
	Mean Age	41.3±10.6	
II	Gender		
	Male	87	58.0
	Female	63	42.0
III	Marital Status		
	Married	105	70.0
	Unmarried	43	28.7
	Divorced or Separated	1	.7
	Widower	1	.7
IV	Educational Status		
	Illiterate	11	7.3
	Primary (1-5)	8	5.3
	Middle School (6-8)	23	15.3
	High School (9-10)	47	31.3
	Higher Secondary (11-12)	28	18.7
	Graduate	26	17.3
	Post Graduate	7	4.7
V	Occupation		
	Student	5	3.3
	Housewife	44	29.3
	Unemployed	32	21.3
	Govt. Service	16	10.7
	Private Service	13	8.7
	Self Employed	7	4.7
	Artisans	4	2.7
	Others (Please specify)	29	19.3
VI	Earner/ Dependent		
	Earner	69	46.0
	Dependent	81	54.0
VIII	Social Group		
	ST	100	66.7
	SC	1	.7
	OBC	3	2.0
	General	46	30.7
IX	Religion		
	Christianity	103	68.7
	Hindu	33	22.0
	Islam	14	9.3

Knowledge on Condom

Each respondent was asked 13 questions related to their knowledge of condoms, their use, types, and availability. Responses were recorded as either 'yes' or 'no'. The majority of respondents knew that condom use could offer protection against HIV/AIDS (97.3%), sexually transmitted infections (STIs) (97.3%), and pregnancy (98%). A total of 109 respondents (72.7%) were aware that condoms are available free of charge. However, slightly more than half (53.3%) were not aware that there are separate condoms for males and females, while 46.7% were aware of this. Further probing revealed that respondents were generally less aware of female condoms.

Regarding the reuse of condoms, 144 respondents (96%) demonstrated sufficient knowledge that condoms should not be reused. When asked about where condoms can be found, the majority of respondents indicated that condoms are available at hospitals (96%), clinics/healthcare facilities (94.7%), and from healthcare providers (92%). Furthermore, 100% of respondents were aware that condoms can be purchased from pharmacies. However, fewer respondents were aware of condom availability at other locations: 37 respondents (24.7%) indicated that condoms could be found at drop-in centres, 25 respondents (16.7%) believed condoms could be bought from convenience stores, and only 4 respondents (2.7%) said condoms were available at gas stations.

Table 2 Level of Knowledge on Condom

STATEMENTS	YES (%)	NO (%)
CONDOM SAFEGUARD AGAINST HIV/AIDS	146 (97.3)	4 (2.7)
CONDOM SAFEGUARD AGAINST STIS	146 (97.3)	4 (2.7)
CONDOM SAFEGUARD AGAINST UNWANTED PREGNANCY	147 (98)	3 (2)
CONDOMS ARE AVAILABLE AT NO COST	109 (72.7)	41 (27.3)
THERE IS CONDOM FOR BOTH MALE AND FEMALE	70 (46.7)	80 (53.3)
CONDOM CAN BE REUSED	6 (4)	144 (96)
CONDOM IS AVAILABLE AT CONVENIENCE STORE	25 (16.7)	125 (83.3)
CONDOM IS AVAILABLE AT GAS STATION	4 (2.7)	146 (97.3)
CONDOM IS AVAILABLE AT PHARMACY	150 (100)	0 (0)
CONDOM IS AVAILABLE WITH HEALTH WORKERS (ASHA, ETC.)	138 (92)	12 (8)
CONDOM IS AVAILABLE AT HOSPITAL	144 (96)	6 (4)
CONDOM IS AVAILABLE AT CLINICS/ HEALTH CARE CENTRES	142 (94.7)	8 (5.3)
CONDOM IS AVAILABLE AT DROP-IN-CENTRE (NGOS)	37 (24.7)	113 (75.3)

Attitude towards Condom

The findings in Table 3 indicate that the majority of respondents have a positive attitude towards condom usage. Most respondents believed that condoms are suitable for casual sex and that their use should not be limited to married couples only. This suggests that safety and protection are prioritized, and that respondents recognise the importance of condom use in preventing health risks associated with unprotected sex. The general acceptance of condoms is further reflected in the fact that the majority of respondents reported that they did not feel embarrassed to use condoms, which implied towards the general acceptance of condoms among the respondents.

Additionally, more than half of the respondents considered condoms to be affordable, which is a positive sign for increasing accessibility and encouraging more widespread use. However, some respondents expressed uncertainty regarding certain statements, such as "condoms reduce sexual pleasure", "condom use has harmful effects on health", and "the quality of condoms is low".

These responses may reflect a lack of sufficient information, personal experience, or a tendency to provide socially acceptable answers. This suggests that while awareness about condom use is generally high, there may still be misconceptions or gaps in knowledge that need to be addressed to improve attitudes and behaviours surrounding condom use.

Table 3 Attitude towards Condom

Statements	SDA	DA	NS	A	SA
Condoms are suitable for casual sex	4 (2.7)	34 (22.7)	41 (27.3)	62 (41.3)	9 (6)
Condom should be used only by married couples	28 (18.7)	98 (65.3)	19 (12.7)	4 (2.7)	1 (0.7)
Condom provides safe sex	1 (0.7)	15 (10)	31 (20.7)	85 (56.7)	18 (12)
Condoms are embarrassing to use	38 (25.3)	77 (51.3)	28 (18.7)	7 (4.7)	0 (0)
Condom use has some harmful effects on health	9 (6)	54 (36)	77 (51.3)	8 (5.3)	2 (1.3)
Condoms reduced sexual pleasure	4 (2.7)	56 (37.3)	69 (46)	20 (13.3)	1 (0.7)
Supplied of condoms (freely distributed) are of lower quality	3 (2)	38 (25.3)	66 (44)	40 (26.7)	3 (2)
Condoms are expensive to buy	9 (6)	79 (52.7)	56 (37.3)	6 (4)	0 (0)

Figures in parentheses are percentages

SA= Strongly Agree, A= Agree, DA= Disagree, SDA= Strongly Disagree

Conclusion

In the present study, good knowledge of condoms and a positive attitude towards their use were identified as major findings among participants. Respondents were well aware of the three primary functions of condoms: preventing STIs, HIV/AIDS, and unwanted pregnancies. The majority of participants opined that using condoms was not embarrassing, and the acceptability of condoms was also high among their sexual partners. Affordability and the easy availability of condoms were cited as major reasons for the positive and accepting attitude towards condom use. The availability of condoms at pharmacies and through healthcare service providers, such as hospitals, clinics, and health workers, was also seen as an important factor in promoting condom use.

However, a high level of trust in partners was identified as the main barrier to condom use. It is crucial to raise awareness about the potential drawbacks of not using condoms during sexual intercourse. The overall findings suggest that future health interventions should focus on increasing awareness and expanding access points for condoms.

Recommendations

- Health programmes should prioritise advocating healthy sexual behaviour with the promotion of condoms as an integral part of public health strategy.
- Creating awareness about the potential drawbacks of blindly trusting a partner. Addressing trust-related issues and their implications must be incorporated into sexual health education.
- There is a need to expand the reach of condom through creating awareness on different points where people can easily access condom.

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HIV Risk Assessment among various Unexplored Populations in Selected Districts of West Bengal: A Mixed Methods Study

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Introduction

HIV is a potentially deadly virus that attacks the T cell lymphocytes or CD4 cells and in turn weakens the body's immune system [1]. The National AIDS Control Programme under the Government of India has implemented targeted interventions (TIs) and link worker schemes (LWS) to screen HRGs, bridge populations, and other vulnerable groups in both urban and rural areas [2]. Still, a considerable proportion of unorganised sectors and migrant population is missed out.

As per NACP V the burden of HIV among the HRG, bridge and other vulnerable population was reported to be 81.8 lakh in the year 2020-21 [2]. There is a paucity of research on HIV risk assessment among various unexplored migrant populations, such as brick kiln workers and tea garden workers, especially in the eastern part of India. However, a few studies have assessed HIV risk among other unexplored populations [4, 5, 6, 7].

Hence, this study is relevant. According to Census 2011 data, Bengal ranked fourth among Indian states in outbound migration for employment [3]. Apart from migration, the hazardous working and living conditions of these workers, who are often away from their families, further increase their vulnerability. Therefore, there is a need to assess the risk within this population. This research will help identify evidence, gaps, and provide recommendations to promote universal access to quality services for vulnerable populations, such as brick kiln workers and tea garden workers, as outlined under the NACP V [2]. With this background, a study was conducted to assess the perceptions and care-seeking behaviours of brick kiln workers in Purba Bardhaman and tea garden workers in Jalpaiguri District regarding HIV and other RTIs, to explore high-risk behaviours related to HIV among the participants, and to assess their risk of developing HIV.

Methodology

A convergent mixed-method, cross-sectional study was conducted over four months across two sites of brick kiln workers in the Purba Bardhaman district and two sites of tea garden workers in the Jalpaiguri district. The study population included adult brick kiln workers from Santi Brick Field and Modern Brick Field, as well as tea garden workers from Damdin Tea Estate and Meenglass Tea Estate. Participants were adults (≥ 18 years) who had been working at the sites for at least one year. Individuals with diagnosed psychiatric illnesses and those who refused to provide informed written consent were excluded from the study.

Quantitative: Assuming a 50% risk for both brick kiln and tea garden workers, an effective sample size of 106 was calculated for each group using Cochran's formula, with an additional 10% added to account for non-response. Two brick kiln sites from a list of 198 in Purba Bardhaman district and two tea garden sites from a list of 119 in Jalpaiguri district were randomly selected.

Qualitative: In-depth interviews were conducted with 24 participants, including 12 brick kiln workers and 12 tea garden workers. Study tools included a pre-designed, pre-tested structured schedule, an in-depth interview (IDI) guide, and an audio recorder.

Study Technique: After obtaining IEC permission, the schedule and IDI guide were designed. Subsequently, authorities from the brick kiln and tea garden sites in the two districts were contacted. Face-to-face interviews were conducted after obtaining informed written consent, followed by in-depth interviews.

Statistical Analysis: Data was entered into MS Excel and analysed using SPSS version 22. Continuous data were presented as mean ($\pm$ SD) or median (IQR), and categorical data was presented as numbers and percentages, along with suitable diagrams. Data from the IDI were transcribed, and inductive thematic analysis was conducted using N-VIVO software.

Findings

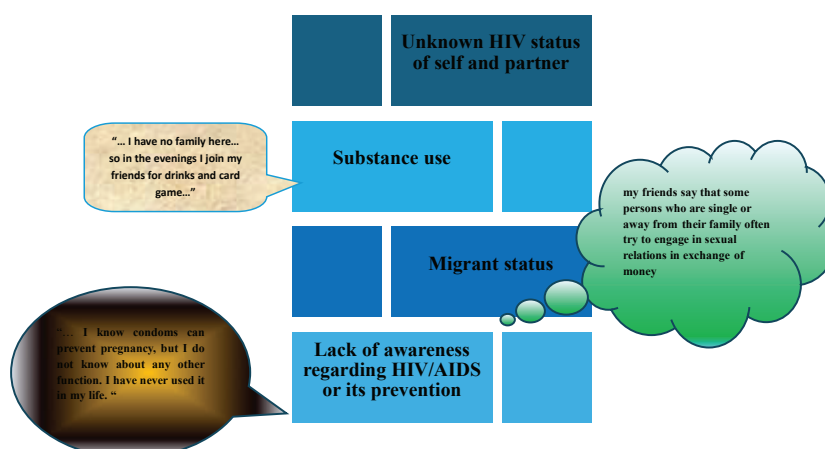
Most participants in both study areas were in the 20–40 years age group. In Purba Bardhaman, 58.5% were male, and in Jalpaiguri, 59.4% were male. About 46.2% in Purba Bardhaman and 17.9% in Jalpaiguri were illiterate. Approximately 68.9% in Purba Bardhaman and 50.9% in Jalpaiguri were heavy workers. In Purba Bardhaman, 91.6% and in Jalpaiguri, 84% of participants were married. Regarding BMI, 48.1% in Purba Bardhaman and 42.5% in Jalpaiguri had a normal BMI. In Jalpaiguri, 47.2% had working experience of more than 15 years, compared to 11.3% in Purba Bardhaman. Around 68.9% in Purba Bardhaman and 97.2% in Jalpaiguri lived with their family, 47.7% in Purba Bardhaman and 57.24% in Jalpaiguri were addicted to smokeless tobacco.

Regarding high-risk behaviours, 1.9% of participants in both areas used injectable drugs, all of whom used new syringes each time. In Purba Bardhaman, 5 (4.7%) participants and in Jalpaiguri, 6 (5.7%) participants had sexual partners other than their spouses. Among these, three participants in each area (60% in Purba Bardhaman and 50% in Jalpaiguri) had two or more sexual partners. Among them, 3 (60%) in Purba Bardhaman and 1 (16.7%) in Jalpaiguri never used condoms during intercourse with partners other than their spouses. One participant from each area reported paying cash for sex. Four (3.8%) participants in Purba Bardhaman and 3 (2.8%) in Jalpaiguri had a history of same-sex or transgender (TG) sexual encounters. Additionally, 4.7% in Purba Bardhaman and 1.9% in Jalpaiguri had a history of anal sex.

Regarding health-seeking behaviour, 13 (12.3%) participants in Purba Bardhaman had undergone HIV testing, with 6 testing positive. In Jalpaiguri, 27 (25.47%) participants were tested for HIV; 13 were negative, and 14 did not disclose their result. In Purba Bardhaman, 13 (12.26%) participants were tested for Hepatitis B, with only 1 testing positive. In Jalpaiguri, 26 (24.52%) participants were tested for Hepatitis B; 10 were negative, and 16 did not disclose their result.

In Purba Bardhaman, 11.3% of male participants experienced a burning sensation while urinating, 4.8% had genital rashes, 3.2% had swelling in the groin, and 1.6% had infertility. In Jalpaiguri, 12.7% of males had a burning sensation during urination, 4.8% had genital sores, and 4.8% had penile discharge. In Purba Bardhaman, 25% of female participants had abnormal vaginal discharge, 13.6% had a burning sensation in their urine, 9.1% had lower abdominal pain and dysmenorrhea, and 6.8% had symptoms of dyspareunia. In Jalpaiguri, 25.6% of females had burning sensation during urination, 18.6% had lower abdominal pain and abnormal vaginal discharge, and 9.3% had dyspareunia.

The qualitative findings also speak about the HIV status, substance use and migrant status of the brick kiln and tea garden workers. Some of the brick kiln workers expressed the following:



On the other hand, the tea garden workers expressed that,



Conclusion

The perception and care-seeking behaviours regarding HIV and other RTIs among brick kiln workers in Purba Bardhaman and tea garden workers in Jalpaiguri District were found to be low. Only a few participants had been tested for HIV and Hepatitis B. Despite experiencing genital symptoms, only 7.5% of participants in Purba Bardhaman and 17.9% in Jalpaiguri had undergone testing.

Some brick kiln workers in Purba Bardhaman and tea garden workers in Jalpaiguri District exhibited high-risk behaviours related to HIV. These behaviours included the use of injectable drugs, having multiple sexual partners, and not using condoms consistently. Additionally, some participants reported engaging in same-sex/TG sexual activities and had a history of anal sex.

Recommendations

1. Repeated awareness generation programmes (Role play, video shows, puppet show etc.) regarding modes of HIV transmission and measures of prevention & control of HIV can improve health-seeking behaviour and reduce the risk of HIV among those unexplored high-risk groups.
2. Promotion of correct and consistent use of condoms, having low-risk sex, choose less risky sexual behaviours, use of lubricants along with condoms for anal sex.
3. Inclusion of these unexplored population under TI services as far as practicable.
4. More operational research are needed over time.

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