

Original Research Article

HIV/AIDS awareness and risk perception among youth in Jaintia hills, Meghalaya

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ABSTRACT

Background: The spread of HIV/AIDS continues to rise, particularly among youth populations. Understanding HIV/AIDS knowledge and risk perception is crucial. This study aimed to assess HIV/AIDS knowledge among indigenous youth in the remote hill area of Jaintia Hills, Meghalaya, India.

Methods: This cross-sectional study targeted youths aged 17-24 in the east and west Jaintia Hills districts of Meghalaya. HIV screening followed WHO-evaluated kit protocols, guided by NACO (National AIDS Control Organization) guidelines. A pretested interview schedule gathered detailed information on knowledge, attitude, perception, and behavior (KAPB), supplemented by focus group discussions (FGDs) and in-depth interviews.

Results: HIV prevalence was found to be 5.4%, with a higher infection rate among females than males. Gender exhibited significant associations with HIV/AIDS knowledge levels, including transmission and treatment ($p=0.01$). Qualitative interviews highlighted evolving risk perceptions, including knowledge and testing, and instances of “intentional exposure”, such as knowingly transmitting HIV through unprotected sex or sharing nonsterile intravenous drugs. Additionally, HIV-related stigma and discrimination emerged as prominent themes.

Conclusions: The study indicated insufficient access to HIV knowledge and education among the population, hindering testing and support services. Qualitative insights underscored internalized and community stigma and discrimination. Furthermore, higher HIV prevalence among females suggests increased vulnerability due to unprotected sexual practices with multiple partners. Urgent measures are needed to provide accessible, culturally sensitive, and community-based education and treatment for youth in the region.

Keywords: HIV/AIDS, Jaintia Hills, Knowledge, Perception, Prevalence, Stigma, Youth

INTRODUCTION

Since its identification in 1981, the global HIV/AIDS pandemic has tragically claimed countless lives worldwide.¹ By the end of 2018, the global burden of HIV/AIDS reached approximately 37.9 million individuals.² India, ranking third globally in HIV/AIDS prevalence after South Africa and Nigeria, recorded around 2.1 million cases in 2017, with a concerning 21% of affected individuals unaware of their HIV status.³ This lack of awareness, especially among young females, contributes to high infection rates. Understanding the

disease's causes, symptoms, transmission, and healthcare-seeking behaviors is crucial for communities.⁴⁻⁷

Various studies advocate for the implementation of life skills education and awareness initiatives to combat discrimination associated with HIV/AIDS. Notably, specific behavioral patterns are associated with a heightened risk of HIV transmission, highlighting the critical importance of comprehensive knowledge about transmission modes and the disease's personal and societal health implications.^{8,9} Attitudes and perceptions towards HIV/AIDS vary widely and include prevalent misconceptions, such as fear of transmission, social

stigma, and familial concerns.¹⁰ Data from the National Family Health Survey-3 reveal that only 17% of women and 33% of men in India possess comprehensive knowledge about the disease.¹¹ Additionally, awareness levels in Meghalaya lag behind the national average, with urban women, men, and rural women reporting lower rates of HIV/AIDS knowledge.¹² Limited information is available regarding HIV/AIDS prevalence and healthcare-seeking behaviors among tribal populations in Meghalaya. According to NACO's 2019 data, northeastern states such as Mizoram (2.32%), Nagaland (1.45%), and Manipur (1.18%) exhibit the highest adult HIV prevalence rates at the sub-national level.¹³ Furthermore, several other states and union territories surpass the national average prevalence, including Andhra Pradesh (0.69%), Meghalaya (0.54%), Telangana (0.49%), Karnataka (0.47%), Delhi (0.41%), Maharashtra (0.36%), Puducherry (0.35%), Goa (0.27%), Punjab (0.27%), Dadra and Nagar Haveli (0.23%), and Tamil Nadu (0.23%).¹⁴

A study from Manipur suggests that misleading socio-cultural and religious notions about HIV/AIDS have taken precedence over medical facts, leading to stigmatization and discrimination against people living with HIV/AIDS (PLHA) in society. These misconceptions arise from several factors, including the prevalence of HIV/AIDS among already stigmatized groups, the incurable nature of the condition leading to premature death, visible deterioration in the physical appearance of PLHA, socio-religious misinterpretation of its sexual transmission, and a lack of reliable sources of information. The observed inconsistencies between high knowledge of HIV/AIDS transmission and prevention and negative attitudes and behaviors result from these misconceptions having a greater influence on the community than scientific truth.¹⁴ There is a scarcity of information regarding the prevalence of HIV/AIDS and the health-seeking behavior of people living with HIV (PLH) among the tribal population of Meghalaya. Furthermore, there is a dearth of reliable data specifically for the Jaintia Hills district, which shares its southern border with Bangladesh. Considering the absence of data from the Jaintia Hills district and the heightened prevalence of certain risk factors such as migration and injection drug use (IDU), there is a pressing need for a targeted investigation into the tribal communities of this district.

Hence, this study aimed to assess HIV awareness, risk behaviors, exposure to interventions, and participation in HIV testing among youths aged 17-24 residing in the Jaintia Hills district. It is noteworthy to mention that the study in the Jaintia Hills district is crucial due to several reasons. Firstly, there's a significant lack of information about HIV/AIDS prevalence and healthcare-seeking behaviors among tribal populations in Meghalaya, especially in this district. Secondly, northeastern states like Mizoram, Nagaland, and Manipur have high adult HIV prevalence rates, indicating a regional concern.¹⁴

Moreover, the Jaintia Hills district's proximity to Bangladesh, along with factors like migration and injection drug use, increases the risk of HIV transmission. Additionally, focusing on youth aged 17-24 is strategic as they are particularly vulnerable to HIV/AIDS due to experimentation, peer pressure, and a lack of comprehensive knowledge about the disease. By understanding their awareness levels, risk behaviors, and participation in HIV testing, interventions can be tailored effectively.

Overall, the present study aimed to provide insights to design targeted interventions and policies to combat the spread of HIV/AIDS and reduce stigma within the community, bridging the knowledge gap among indigenous populations in Meghalaya.

METHODS

The present cross-sectional study was conducted among indigenous people (aged 14-24 years) of the east and west Jaintia Hills districts of Meghalaya, northeast India, utilizing a mixed-method design. The study period was from February 2016 to July 2018. Data were collected from twenty-five villages covering all five blocks of the districts. Since most people in the Jaintia Hills District belong to the Pnar Community, gathering data from various villages within the community allows for a more accurate assessment of their specific challenges and needs regarding HIV/AIDS. The Pnar people are natives of the East and West Jaintia Hills District of Meghalaya, India. They are mostly agriculturists, and coal mining is another thriving occupation in this area. Inclusion criteria for the study were individuals aged 14-24 years, residing in the East and West Jaintia Hills districts, and participants from the Pnar community, as well as other residents of the villages. Data were gathered from schools, colleges, and community settings. Exclusion criteria included individuals outside the 14-24-year age range, those not residing in the specified districts, and non-indigenous people or those not from the Pnar community if the study specifically targeted these groups. Additionally, individuals who did not provide informed consent or agree to participate were excluded.

The sample size of 1,200 youths aged 14-24 years from all sources (such as schools, colleges, and the community) was chosen for the present study. The sample size was calculated using the online sample size calculator (<http://www.surveysystem.com/sscalc.html>), giving prevalence estimates with a 95% confidence level and within a 3% confidence interval for the total population of the Jaintia Hills district, which is 392,852 as per census 2011. This helps ensure the statistical significance and reliability of the findings. By including a substantial number of participants within this age group, a more comprehensive understanding of HIV/AIDS knowledge, attitudes, perceptions, and behaviors can be obtained.

The main tool for data collection in the present study was a structured interview schedule. Qualitative data were also collected through an unstructured interview schedule based on in-depth interviews and focus group discussions (FGDs) at the grassroots level to know the various myths and misconceptions in the villages. The FGDs were carried out at educational institutions and villages. All the information/data were collected by the researchers and later analyzed. Additionally, conducting HIV screening using WHO-recommended kits (determine HIV rapid test) and following NACO guidelines ensures consistency and accuracy in the testing process, thereby enhancing the reliability of the study's results.

The data were collected by a team of trained researchers and fieldworkers who were familiar with the local context and culture. They visited the twenty-five villages in the east and west Jaintia Hills districts of Meghalaya, northeast India, and conducted face-to-face interviews. The interviews took approximately 30-40 minutes. Socio-demographic details were collected from all participants. The knowledge regarding HIV/AIDS among the participants was assessed through open-ended questionnaires such as "Have you heard of HIV or AIDS?" "If yes, what is your source of information?" "What are the ways of HIV transmission?" "What are the various protective measures?" etc. All the information/data were collected by the researchers and later analyzed.

Statistical analysis

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic and key variables. For inferential statistics, chi-square tests, odds ratios, and t-tests were employed to examine associations between HIV status and various factors. Correlation coefficients assessed relationships between variables. All quantitative analyses were conducted using SPSS version 26. Qualitative data were analyzed through thematic analysis, utilizing insights from unstructured interviews and focus group discussions.

Ethical permission

Prior to the study, approval was obtained from the institutional ethical committee at Amity University, Noida, following Indian Council for Medical Research guidelines. Written consent was obtained from participants in Khasi or English. Procedures adhered to approved guidelines. Participants were briefed on the study's purpose and confidentiality.

RESULTS

Demographic profile

The study focused on youths aged 17-24 years, divided into two groups: 17-20 years and 21-24 years. It was

observed that 75% of the youths were aged 17-20 years, while 25% were aged 21-24 years. Gender distribution showed that 57% of the participants were females and 43% were males. The majority belonged to the Pnar tribe (93.7%), with the remaining 6.3% belonging to the Baite tribe. Out of the total youths, 52.3% were Christians, 26.4% were Niamtres, and 21.3% were Hindus. Regarding education, 50.2% of the youths were studying in primary, middle, high school, higher secondary, or diploma courses, followed by 26.4% pursuing undergraduate programs, and 12.1% receiving informal education. Around 2% of the youths were enrolled in vocational courses, and nearly 9% were illiterate. Among the working youths, 14.5% were unskilled workers, 7.6% were semi-skilled, and only 1.7% were skilled workers. Additionally, 51.1% of the study population was from rural areas, while 48.9% were from urban areas. The majority of them belonged to nuclear families (78%), with the rest living in joint families (22%). Most of the youths were unmarried (85%). The two tribes (Pnar and Baite) surveyed are conservative in nature; therefore, the majority (92.5%) had never lived outside their community (Table 1).

Table 1: Level of knowledge and attitude about HIV among male and female youths.

Characteristic	Gender		P value [‡]
	Male N (%)	Female N (%)	
Knowledge			
Basic			
Good	10 (1.9)	54 (7.9)	<0.001
Average	492 (94.6)	595 (87.5)	
Poor	18 (3.5)	31 (4.6)	
HIV treatment			
Good	-	-	<0.001
Average	6 (1.2)	32 (4.7)	
Poor	514 (98.9)	648 (95.3)	
Mode of HIV transmission			
Good	-	-	0.015
Average	329 (63.3)	383 (56.3)	
Poor	191 (36.7)	297 (43.7)	
Mother-to-child transmission			
Good	-	-	<0.001
Average	416 (80.0)	564 (82.9)	
Poor	104 (20.0)	116 (17.1)	
Attitude			
Positive	289 (59.7)	391 (54.6)	0.080
Negative	195 (40.3)	325 (45.3)	
Risk perception			
Higher	4 (0.7)	9 (1.3)	0.188
Average	30 (5.8)	55 (8.1)	
Lower	486 (93.5)	616 (90.6)	

Good: score $\geq 75\%$; average: score 51%-74%; poor: score $\leq 50\%$; [‡]chi-square test; bold letters represent statistical significance at 5% level

Screening

Serological testing data from the present study revealed that approximately 5.4% (65 individuals) of the 1,200 surveyed youths were HIV-positive. Among the infected individuals, a majority (45) fell within the 21-24 age group, with the remaining (20) in the 17-20 age group. Furthermore, females constituted 57 of the HIV-positive cases, while males comprised only 8, showing a statistically significant association between gender and HIV status ($p < 0.01$) as depicted in Figure 1. Risk assessment indicated that individuals aged 21-24 were 7.7 times more susceptible to HIV infection compared to those aged 17-20, while females exhibited a 5.8 times higher risk than males. Factors such as illiteracy, residing in rural areas, and belonging to nuclear families showed statistical significance ($p < 0.05$) in association with HIV susceptibility after adjusting for confounding factors. Regarding education, a considerable number of HIV-positive youths were illiterate (36) or informally educated (10), with 6 having only primary education, while 13 were pursuing or had completed education beyond the primary level. In contrast, approximately 80% of HIV-negative youths had education beyond the primary level, with the remaining 20% being primary educated (19), informally educated (135), or illiterate (69), indicating a statistically significant difference ($p < 0.01$) in educational distribution between HIV-positive and negative individuals. Occupation analysis revealed that the majority of HIV-positive youths were unskilled workers (58), with only one semi-skilled worker and one youth engaged in business, demonstrating statistically significant differences ($p < 0.01$) between HIV-positive and negative individuals. Odds ratio analysis indicated that unskilled workers faced higher HIV risk compared to unemployed individuals, most of whom were students at the time of the interview.

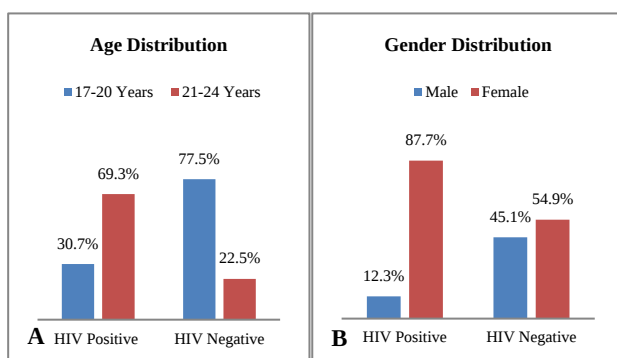


Figure 1 (A & B): Age and gender distribution among HIV infected and non-infected youths.

Rural youths exhibited a higher HIV prevalence (76.9%) compared to urban youths (23.1%), with statistically significant frequency variation ($p < 0.01$), and a threefold higher risk associated with rural areas compared to urban areas. Poverty emerged as a significant factor influencing

HIV/AIDS infection among youths, as the poor had limited access to healthcare, leading to under-registration and untreated cases at anti-retroviral therapy (ART) centers, contributing to further infection spread. Notably, many impoverished young women resorted to having multiple sexual partners as a means of livelihood, while injecting drug users (IDUs) from lower socio-economic backgrounds engaged in risky behaviors such as sharing needles to acquire drugs.

Knowledge on HIV/AIDS and its transmission

Table 1 provides a comprehensive analysis of HIV knowledge and attitudes among male and female youths, revealing significant disparities between genders. Notably, while males predominantly exhibit good knowledge about HIV (94.6%), females show a higher proportion of basic knowledge (7.9%). Statistical analysis indicates a significant difference ($p < 0.001$) in knowledge levels between males and females. Similarly, there were notable differences in HIV treatment knowledge, mode of transmission knowledge, and mother-to-child transmission knowledge, all of which were statistically significant ($p < 0.001$ for HIV treatment and mother-to-child transmission; $p = 0.015$ for mode of transmission). Attitudes towards HIV differ slightly between genders, with a higher percentage of males holding positive attitudes, although the difference was not statistically significant ($p = 0.080$). Additionally, while both genders perceive a lower risk of HIV transmission, this perception difference was not statistically significant ($p = 0.188$). Overall, these findings underscore the need for tailored HIV education programs to address knowledge gaps and promote positive attitudes among youths, particularly regarding treatment and transmission modes.

However, Table 2 presents insightful data on HIV-related sexual risk behaviors among youths, shedding light on various parameters and their corresponding responses. Notably, a minority of respondents (12.6%) reported receiving formal instruction on condom use, indicating potential gaps in sexual education. Moreover, while a significant percentage (15.3%) confirmed having a sexual partner, condom use during sexual encounters with regular partners was relatively low (23.9%), potentially increasing the risk of HIV transmission. Additionally, a notable proportion (22.3%) reported heavy alcohol consumption during sex, which can impair judgment and lead to risky behaviors. Furthermore, a considerable number of respondents admitted to having multiple sexual partners (28.3%), suggesting heightened vulnerability to HIV transmission. The suspicion of partners having other sexual partners further complicates risk assessment and prevention strategies. These findings underline the importance of targeted interventions to promote safer sexual practices, including condom use and awareness of partner behaviors, within youth populations to mitigate the risk of HIV transmission.

Table 2: HIV-related sexual risk behaviors among youths.

Parameters	Yes N (%)	No N (%)
Have you ever been formally instructed on how to use a condom? (n=1200)	151 (12.6)	1049 (87.4)
Do you have a sexual partner? (n=1200)	184 (15.3)	1016 (84.7)
The last time you had sex with your spouse or regular partner, did you or your partner use condom? (n=184)	44 (23.9)	140 (76.1)
Did you or your sexual partner drink alcohol heavily the last time you had sex together? (n=184)	41 (22.3)	143 (77.7)
Do you have more than one sexual partner? (n=184)	52 (28.3)	132 (71.7)
Do you think your sexual partner has other sexual partners? (n=184)	52 (28.3)	132 (71.7)
Have you had any sexual partners (aside from your spouse or regular sexual partner) in the past three months? (n=184)	47 (25.5)	137 (74.5)
If yes, the last time you had sex with this other sexual partner, did your or this partner use condom? (n=47)	39 (83)	8 (17)
Did you or other sexual partner drink alcohol heavily the last time you had sex together? (n=47)	37 (78.7)	10 (21.3)

Table 3: Prevalence of domestic/sexual violence and risk perception among youths.

Domestic/sexual violence (n=184)	Yes N (%)	No N (%)
Did your sexual partner ever force you to have sex when you didn't want to?	9 (4.9)	175 (95.1)
Have you ever been forced to have sex with someone by another person?	0	184 (100)
Did your partner ever hit, kicked, or hurt you physically?	17 (9.2)	167 (90.8)
Did your partner ever yelled at you, called you names, or said things to deeply hurt your feelings?	19 (10.3)	165 (89.7)
Are you afraid of your sexual partner or anyone else	9 (4.9)	175 (95.1)
Have you ever been the one to hit/ kick/ hurt your sexual partner	5 (2.7)	179 (97.3)
Have you ever been the one to yell at, called names, or said things to deeply hurt the feelings of your sexual partner?	0	184 (100)
Risk Perception (n=1200)		
Do you think that your current sexual behavior puts you at risk of infection with HIV	0	1200(100)
Do you think your partner's current sexual behavior puts you at risk of infection with HIV	13 (1.1)	1187 (98.9)

Table 4: Distribution of HIV positive and negative with respect to education.

Educational qualification	HIV Positive		HIV Negative		Odds ratio (95% CI)	P value
	N	%	N	%		
Illiterate	36	55.40	69	6.10	36.6 (18.5-72.2)	0
Informal	10	15.40	135	11.90	5.2 (2.2-12.1)	0
Primary	6	9.20	19	1.70	22.2 (7.6-64.5)	0
More than primary	13	20.00	912	80.30	Reference	

Table 3 presents concerning data on the prevalence of domestic and sexual violence among youths, as well as their risk perception regarding HIV infection. Notably, a minority of respondents reported experiencing sexual coercion (4.9%) or physical violence (9.2%) from their partners, highlighting the presence of intimate partner violence within this demographic. Similarly, a small proportion reported experiencing verbal abuse or emotional harm (10.3%), while some expressed fear of their partners or others (4.9%). Furthermore, a few respondents admitted to perpetrating physical violence against their partners (2.7%). These findings underscore

the need for interventions to address and prevent intimate partner violence among youths. Additionally, the data reveals concerning perceptions of HIV risk, with none of the respondents perceiving their current sexual behavior as risky for HIV infection. Moreover, only a small proportion (1.1%) believed that their partner's behavior could put them at risk, indicating potential misconceptions or lack of awareness regarding HIV transmission dynamics. This highlights the importance of enhancing HIV education and risk perception among youths to promote safer sexual behaviors and prevent HIV transmission.

Table 5: Distribution of HIV positive and negative with respect to occupation.

Occupation	HIV positive		HIV negative		Odd's ratio (95% CI)	P value
	Number	Percent	Number	Percent		
Unemployed	5	7.70	905	79.70	Reference	
Unskilled Worker	58	89.30	116	10.20	90.5 (35.6-230.2)	0
Semiskilled	1	1.50	90	7.90	2 (0.2-17.4)	0.53
Skilled	0	0.00	20	30.80	0	-
Businessmen	1	1.50	4	6.20	45.3 (4.3-479.7)	0.002

Table 6: Distribution of HIV status in different localities.

Locality	HIV positive		HIV negative		Odd's ratio (95% CI)	P value
	Number	Percent	Number	Percent		
Rural	50	76.90	563	49.60	3.4 (1.9-6.1)	0
Urban	15	23.10	572	50.40	Reference	

Table 7: Correlation of knowledge, attitude and perception with respect to age and gender.

Variables	Age	Sex	Knowledge score	Transmission score	Attitude score	Perception score	Stigma score	Prevention score
Age (years)	1	-0.024	0.144**	0.015	-.081**	-0.003	-0.024	-0.065*
Sex	-0.024	1	0.113**	-0.053	-0.046	0.05	0.031	-0.095**
Knowledge score	0.144**	0.113**	1	0.196**	-0.130**	-0.077**	0.023	0.153**
Transmission score	0.015	-0.053	0.196**	1	0.024	-0.018	0.066*	0.761**
Attitude score	-0.081**	-0.046	-0.130**	0.024	1	0.022	0.004	0.053
Perception score	-0.003	0.05	-0.077**	-0.018	0.022	1	-0.008	-0.038
Stigma score	-0.024	0.031	0.023	0.066*	0.004	-0.008	1	0.011
Prevention score	-0.065*	-0.095**	0.153**	0.761**	0.053	-0.038	0.011	1

000: Highly significant ($p \leq 0.01$). 0.001 to .025: Significant ($p \leq 0.05$). 0.068 to 0.916: Not significant ($p > 0.05$).

This table summarizes the correlations between different variables (age, sex, knowledge score, transmission score, attitude score, perception score, stigma score, prevention score). Correlations marked with 0.000 or 0.001 to 0.025 are statistically significant.

Table 4 highlights the significance of educational qualifications in relation to HIV status among individuals. The data underlines notable differences in HIV prevalence across various levels of education. The data reveals significant disparities in HIV prevalence among individuals with varying levels of education. Among the illiterate population, 55.4% tested positive for HIV, compared to only 6.1% of HIV-negative individuals, resulting in a substantial odds ratio of 36.6 (95% CI: 18.5-72.2), indicating a significantly higher risk of HIV infection among illiterate individuals. Similarly, those with informal education exhibited a higher HIV prevalence of 15.4% compared to 11.9% among HIV-negative individuals, with an odds ratio of 5.2 (95% CI: 2.2-12.1), signifying a notable association between informal education and HIV infection. The pattern persists among individuals with primary education, where 9.2% of HIV-positive cases were observed compared to 1.7% of HIV-negative cases, yielding an odds ratio of 22.2 (95% CI: 7.6-64.5), indicating a significantly elevated risk of HIV among those with primary education. Conversely, individuals with education beyond the primary level demonstrated lower HIV prevalence, with 20.0% of HIV-positive cases and 80.3% of HIV-negative cases, establishing them as the reference group.

The statistical significance of these associations was confirmed by the p values, all of which are less than 0.001, underscoring the strong relationship between education level and HIV status.

Table 5 presents the distribution of HIV-positive and negative individuals categorized by their occupation, highlighting significant associations between occupation and HIV status. Among unemployed individuals, the prevalence of HIV-positive cases was relatively low at 7.7%, while the majority (79.7%) were HIV-negative, serving as the reference group. In contrast, unskilled workers exhibited a substantially higher HIV prevalence of 89.3% compared to only 10.2% of HIV-negative individuals, resulting in a remarkably high odds ratio of 90.5 (95% CI: 35.6-230.2), indicating a significant association between being an unskilled worker and HIV infection. Semiskilled workers showed a lower HIV prevalence of 1.5% among positive cases, with 7.9% among negative cases, resulting in an odds ratio of 2.0 (95% CI: 0.2-17.4), though not statistically significant. Interestingly, skilled workers did not present any HIV-positive cases in the sample, contrasting sharply with the 30.8% HIV prevalence observed among HIV-negative individuals in this group. The odds ratio could not be

calculated for this group due to the absence of positive cases. Additionally, businessmen demonstrated a modest HIV prevalence of 1.5% among positive cases, with 6.2% among negative cases, leading to an odds ratio of 45.3 (95% CI: 4.3-479.7), indicating a significant association between being a businessman and HIV infection. The statistical significance of these associations is confirmed by the p values, with all values less than 0.05, underscoring the strong relationship between occupation and HIV status.

Table 6 presents the distribution of HIV-positive and negative individuals categorized by their locality, revealing significant variations in HIV prevalence between rural and urban areas. In rural areas, a substantial proportion of individuals tested positive for HIV, accounting for 76.9% of cases, while only 49.6% of individuals tested negative. This results in an odds ratio of 3.4 (95% CI: 1.9-6.1), indicating a significantly higher likelihood of HIV infection among individuals residing in rural localities compared to those in urban areas. Conversely, in urban areas, the prevalence of HIV-positive cases was notably lower at 23.1%, while the majority (50.4%) tested negative, serving as the reference group. The statistical significance of these associations was confirmed by the p value, which was less than 0.05, underscoring the substantial disparity in HIV prevalence between rural and urban localities.

In addition to this, Table 7 illustrates the correlation coefficients between various factors, including sex, age, knowledge score, transmission score, attitude score, perception score, stigma score, and prevention score, offering insights into their relationships in HIV-related contexts among youths. A weak negative correlation of -0.024 is noted between sex and age, but it lacks statistical significance. However, significant positive correlations were observed between knowledge score and sex (0.113), age (0.144), and transmission score (0.196), indicating that males, older individuals, and those with higher transmission scores tend to possess greater HIV-related knowledge. Additionally, transmission score correlates positively with both knowledge and prevention scores, with coefficients of 0.196 and 0.761, respectively, suggesting that individuals with better understanding of HIV transmission are more likely to engage in preventive measures. Conversely, attitude score exhibited weak negative correlations with age (-0.081) and perception score (-0.077), implying that older individuals and those with lower perception scores tend to harbor more positive attitudes towards HIV. Moreover, perception score demonstrates a weak positive correlation with knowledge score (0.077), indicating that individuals with higher knowledge tend to have more accurate perceptions of HIV. Lastly, stigma score showed weak positive correlations with age (0.031) and prevention score (0.011), suggesting that older individuals and those with higher prevention scores may experience increased levels of HIV-related stigma. These findings emphasize the multifaceted nature of HIV-related factors among youths,

highlighting the need for tailored interventions to address knowledge gaps and mitigate stigma while promoting preventive measures.

The evaluation of HIV/AIDS comprehension among the 65 infected youths unveiled that all were familiar with the HIV or AIDS abbreviation and its implications. However, a concerning 58.5% were unaware of anti-retroviral drug therapy, and alarmingly, 95% were not undergoing such therapy. While a majority (87-96%) were knowledgeable about sexual modes of transmission, including unprotected sex, homosexual intercourse, and anal intercourse, nearly 80% recognized that untested blood transfusions and contaminated needles, injections, or sharp objects could also spread HIV. Most infected youths were acquainted with various HIV prevention methods, such as faithfulness to partners, avoidance of unprotected sex, and condom use. Focus group discussions among high-risk groups like injecting drug users and individuals with multiple sexual partners revealed contrasting perceptions regarding HIV/AIDS infection. Injecting drug users attributed infection to multiple sexual partners, while those with multiple partners identified unsafe sexual practices as the primary risk factor. Many youths began substance abuse at ages 15-16 due to factors like depression, peer pressure, addiction, and coercion by partners.

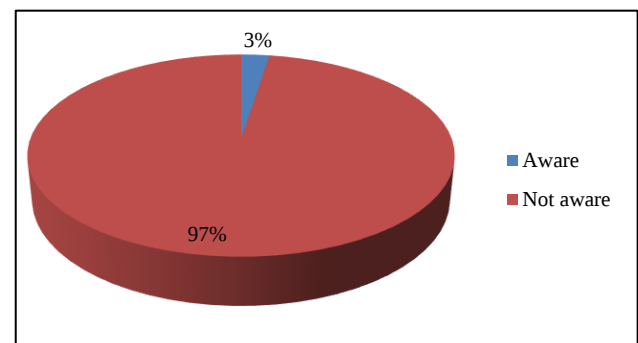


Figure 2: Awareness status among all the youths for programs or activities towards prevention of HIV in Jaintia Hills conducted by Government of India.

Despite government initiatives, only 1% of youths were aware of HIV/AIDS prevention programs, with 3% reporting knowledge of local government-led initiatives (Figure 2), yet none had direct involvement. The National AIDS Control Organization (NACO) and Meghalaya AIDS Control Society (MACS) were recognized by some, alongside an NGO called Mihmyntdu Community Social Welfare Program, West Jaintia Hills, Meghalaya, and a targeted intervention program for female sex workers, each known by a handful of youths. Approximately 90% had not witnessed or heard of any HIV prevention activities in their localities, with 7% uncertain of program existence. Additionally, when queried about five operational schemes in the study area, roughly 6.8% of youths exhibited awareness (Figure 3), predominantly with knowledge of the school AIDS

education scheme, while approximately 4% were familiar with the targeted intervention scheme, although uncertain of its presence in Jaintia Hills, Meghalaya. Merely 1% were informed about the National AIDS helpline and tele-counseling scheme, with no recognition of the community care and support scheme or relief scheme for HIV/AIDS.

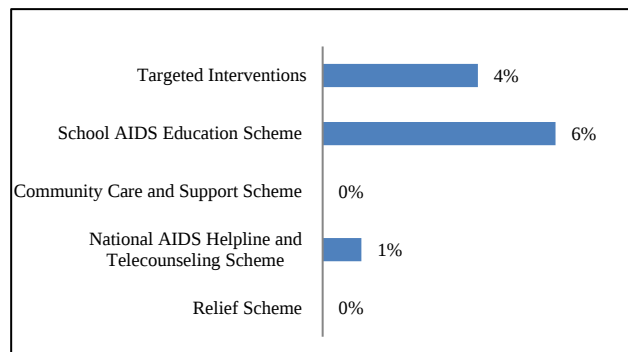


Figure 3: Awareness status among youths for HIV related schemes in Jaintia Hills

Focused group discussions (FGDs) were employed to gather qualitative insights from local populations residing in Jaintia Hills, aimed at assessing their awareness of HIV/AIDS policies and schemes. The findings highlighted a notable lack of awareness concerning initiatives intended to mitigate HIV/AIDS risks. NGOs, alongside government efforts albeit to a lesser extent, were identified as active entities in the region striving to reduce HIV/AIDS infections. Participants emphasized the government's role in enhancing HIV awareness and providing financial support to those afflicted. Additionally, they highlighted the necessity of training healthcare staff to uphold confidentiality for HIV/AIDS patients visiting health facilities. The discussions also illuminated unsafe practices such as unprotected sex, needle sharing, untested blood transfusions, and mother-to-child transmission as primary modes of HIV transmission. Proposed preventive measures included faithfulness to partners, regular HIV testing, and the use of sterilized objects. Notably, school-going youths exhibited greater knowledge regarding HIV/AIDS transmission and prevention services compared to unmarried community youths aged 17-23, attributed to their higher educational attainment levels. Further examination revealed that school-going youths aged 15-18 demonstrated superior understanding compared to their unmarried counterparts, likely due to their ongoing education. The dissemination of HIV/AIDS knowledge was reported to have occurred through various channels, including television, newspapers, schools, NGOs, and health workers, indicating a multifaceted approach to information dissemination within the community.

DISCUSSION

The present research aimed to evaluate the understanding, stigma, perception, and attitudes concerning HIV/AIDS,

alongside conducting HIV/AIDS screening, among the young population residing in Jaintia Hills, Meghalaya. This study holds significant implications for policymakers in devising targeted interventions to address the burgeoning HIV epidemic among youth populations, both locally and globally.

Worldwide, a significant proportion of new HIV infections occurs in individuals under the age of 25. Approximately four million individuals aged 15 to 24 are living with HIV globally, with 670,000 new infections reported in this age group in 2015 alone.¹⁵ In Meghalaya, particularly among tribal youths, HIV prevalence is alarmingly high compared to the national average.¹⁶ Similarly, injecting drug users in Northeast India exhibit disproportionately high HIV positivity rates, particularly among women.¹⁷ Conversely, the low prevalence among the wives of rural migrant workers in Bihar highlights the variability of HIV risk factors across different populations.¹⁸ The transition to adulthood brings about biological and psychological changes, increasing susceptibility to HIV.¹⁹ Females are disproportionately affected, being 20 times more likely to contract HIV compared to males. This gender disparity is consistent globally, with young women in Sub-Saharan Africa acquiring HIV infection earlier than men, largely due to social and biological factors.²⁰ Similarly, in the present study, disparities in knowledge levels were observed between genders, with males having higher knowledge scores but lower perception scores compared to females. Condom use during sexual encounters was relatively low, and a notable proportion of youths reported engaging in risky sexual behaviors, such as having multiple sexual partners and heavy alcohol consumption during sex. Social and biological factors, including limited access to education and job opportunities, contribute to this disparity, illustrating the intersection of HIV/AIDS with broader structural issues.

The findings of limited knowledge about HIV/AIDS, misconceptions regarding transmission, and stigma among youths in Jaintia Hills, Meghalaya, underscore the urgent need for comprehensive HIV education and awareness programs.²¹ Furthermore, the disparities in HIV knowledge across different regions of India highlight the importance of tailored interventions to address specific community needs.²²⁻²⁴ However, schools and television emerge as primary sources of HIV/AIDS information for youths, emphasizing the pivotal role of sexual education and mass media campaigns in raising awareness and reducing stigma associated with the disease.^{23,28}

In summary, this study provides valuable insights into the HIV epidemic among youth populations, offering evidence-based recommendations for policymakers to develop targeted interventions that address knowledge gaps, mitigate transmission risks, and combat stigma. By implementing these recommendations, policymakers can effectively allocate resources and implement strategies to

curb the spread of HIV and improve the health outcomes of young people in Meghalaya and beyond.

There are some limitations of the study. The study's focus on indigenous tribes in specific districts of Meghalaya may limit the generalizability of the results to other regions or populations. The limited availability of health facilities and resources for HIV testing and treatment within the district might have affected the accuracy of HIV prevalence estimates. Additionally, while the study offers valuable insights into HIV awareness and related challenges, the recommendations for improving health infrastructure and implementing targeted interventions may need further validation through longitudinal studies and broader geographic coverage.

CONCLUSION

The study elucidated a concerning prevalence of HIV infection within the tribes of Jaintia Hills, Meghalaya, notably impacting females more than males. Factors such as rural residency, nuclear family structures, and marital status were identified as associated with this incidence. Additionally, the overall knowledge and perception regarding HIV/AIDS among youths and children fell below satisfactory levels across various variables, including understanding the consequences, modes of transmission, and prevention of AIDS-causing virus spread, alongside encountering HIV-related stigma. Compounding these challenges is the limited availability of health facilities for HIV testing, counselling, and treatment within the district. In light of these findings, the study advocates for a multifaceted approach to HIV awareness initiatives, leveraging platforms such as social media, multimedia, street plays, workshops, and religious gatherings to educate the community effectively. Targeted interventions, tailored to specific socio-demographic characteristics, are deemed essential. Moreover, enhancements in health infrastructure, such as the installation of Elisa machines for HIV testing, the establishment of confidential counselling rooms, and the development of anti-retroviral therapy centers within the district, are recommended to promote health-seeking behavior among the tribal population. Continuous monitoring and assessment of HIV status are proposed as integral components to alleviate the burden of HIV/AIDS infection until the overarching goal of achieving an HIV-free society is realized. However, despite efforts to combat the spread of HIV/AIDS, individuals living with the disease continue to cope with stigma and societal reluctance to accept them. The escalating number of HIV cases highlights the collective concern of government bodies, civil societies, healthcare institutions, and society at large. Specifically, within Meghalaya, heightened attention is warranted for districts like East Khasi Hills and Jaintia Hills (East and West), identified as vulnerable areas necessitating immediate intervention. However, the study underlines the imperative for comprehensive awareness programs, destigmatization efforts, positive counselling for HIV-infected individuals, and targeted

initiatives to enhance employment and education opportunities within the region.

Recommendations

The findings of the present study underscore a significant prevalence of HIV/AIDS, particularly among certain demographic groups such as females, individuals with lower levels of education, those residing in rural areas, and those belonging to nuclear families. To address these concerning trends, several recommendations are proposed.

Firstly, efforts should be directed towards enhancing the educational attainment of tribal communities, with a particular emphasis on improving educational opportunities for rural women. This could involve the implementation of specific programs and initiatives aimed at achieving universal literacy in the region.

Additionally, there is a need for the government bodies to introduce schemes mandating HIV screening, thereby ensuring early detection and intervention. Furthermore, it is imperative to prioritize individualized counseling sessions for HIV-positive individuals, utilizing spiritual coping techniques to foster a more positive mindset and encourage risk reduction behaviors.

A comprehensive strategy should be developed to address the multifaceted needs of individuals living with HIV, encompassing medical, psychosocial, and financial support. This could involve the creation of tailored transition plans to facilitate access to holistic care services.

Furthermore, efforts to raise awareness about HIV/AIDS should be intensified at both the individual and community levels. This could be achieved through the implementation of social and behavior change communication campaigns, utilizing locally relevant written and visual materials in easily understandable language. Emphasizing culturally appropriate imagery and messaging can enhance the effectiveness of these campaigns in engaging with the target population and raising greater awareness and understanding of HIV/AIDS.

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