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Original Article

A Comparative Study on Awareness and Attitude Regarding HIV/AIDS Among Pregnant Women Attending Antenatal Clinic of Government Health Institutions in Kamrup (Metro) and Kamrup (Rural) District, Assam

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ABSTRACT

Objective: To compare the level of awareness regarding HIV/AIDS between pregnant women of Kamrup (Metropolitan) and Kamrup (Rural) district of Assam.
Methodology: For the present study, 360 pregnant women attending the ANC clinic of government health institutions were selected from both Kamrup (Metropolitan) and Kamrup (Rural) district by applying multi-stage sampling technique, thus making a total sample size of 720. Data was collected using a structured interview schedule and descriptive analysis was done using MS Excel and Instat Graphpad.
Results: In the present study, the proportion of study participants who had heard about HIV/AIDS was much higher in Kamrup Metro (81.4%) as compared to Kamrup Rural district (68.1%). However, out of all the study participants of Kamrup Metro and Kamrup Rural district who have heard about HIV/AIDS, only 13.34% and 8.61% had good comprehensive awareness on different aspects of HIV/AIDS.
Conclusion: There is an urgent need to increase the awareness about HIV/AIDS among women in both urban and rural areas by intensifying Information, Education and Communication activities.

Keywords*: HIV, ANC Clinic, Comprehensive awareness.*

INTRODUCTION

HIV is a retrovirus that replicates rapidly and breaks down the body's defense mechanism rendering the person vulnerable to fatal opportunistic infections, neurological disorders or unusual malignancies. AIDS is the end stage of the HIV infection.[2,3] HIV epidemic has claimed more than 32 million lives and infected around 74.9 million people up till now.[2,4] Globally the number of people living with HIV (PLHIV) was estimated to be 37.2 million in 2017 with majority were from Sub-Saharan Africa. Asia and the Pacific had the second largest HIV burden in the world with India alone accounting for 49 per cent of the total PLHIV in this region.[4]

India has adopted the Fast Track Strategy and stands committed towards achieving these targets by 2030 but there are still an unacceptably high number of new HIV infections and AIDS related deaths occurring each year.[9] Moreover, in states like Assam, Mizoram, Meghalaya and Uttarakhand the trend of new HIV infection is increasing.[8] In Assam , women accounted for 41 per cent of these new infections in 2017.[10] As more women are getting infected in the state, the prevalence of HIV in ANC attendees is increasing. As per the estimates, HIV prevalence among pregnant women has increased from 0.09 per cent in 2010-11 to 0.16 percent in 2016-17.[11] This raises the issue of MTCT of HIV and if no timely appropriate measures are taken, paediatric HIV is poised to become major public health problem in the state of Assam. there is an urgent need for revitalizing the existing prevention programmes especially the PPTCT programme. As women are more receptive during the period of pregnancy, keeping this in mind and realizing the need for a

community-based data, the present study on "Awareness regarding HIV/AIDS among pregnant women" was carried out in antenatal clinics of Government health institutions of Kamrup (Metropolitan) and Kamrup (Rural) districts of Assam.

MATERIALS & METHODS

Study design and study population: A descriptive cross-sectional study was conducted among Pregnant women attending the antenatal clinics of government health institutions in Kamrup (Metropolitan) and Kamrup (Rural) districts of Assam during August 2018 to July 2019.

Inclusion criteria for study population:
Pregnant women residing in Kamrup (Metropolitan) and Kamrup (Rural) District for the past 1 year and willing to participate were included in the study.

Exclusion criteria for study population:
Any pregnant women with disease or impairment that caused hindrance in communication and data collection procedure were excluded from the study.

Sample size Calculation: Since it is a comparative study, sample size was determined for two population proportion. As per NFHS-4 data, the percentage of women (15 – 45 years) who have comprehensive awareness about HIV/AIDS is estimated to be 28.1% in urban areas and 16.9% in rural areas of India.[79]Based on this, the percentage of pregnant women having comprehensive awareness about HIV/AIDS in Kamrup (Metropolitan) and Kamrup (Rural) district is anticipated to be 27% and 18% respectively. Considering Confidence Interval of 95% and power of 80% the sample size was calculated to be 359.

$$N = \frac{[Z_{1-\alpha/2}\sqrt{2p(1-p)} + Z_{1-\beta}\sqrt{p_1(1-p_1) + p_2(1-p_2)}]^2}{(p_1 - p_2)^2}$$

Where,
p_1 = 27%, percentage of pregnant women anticipated to have comprehensive awareness about HIV/AIDS in Kamrup (Metropolitan) district.

p_2=18%, percentage of pregnant women anticipated to have comprehensive awareness about HIV/AIDS in Kamrup (Rural) district.
$p= (p_1+ p_2)/2$
$Z_{1-\alpha/2} = 1.96$
$Z_{1-\beta}= 0.842$

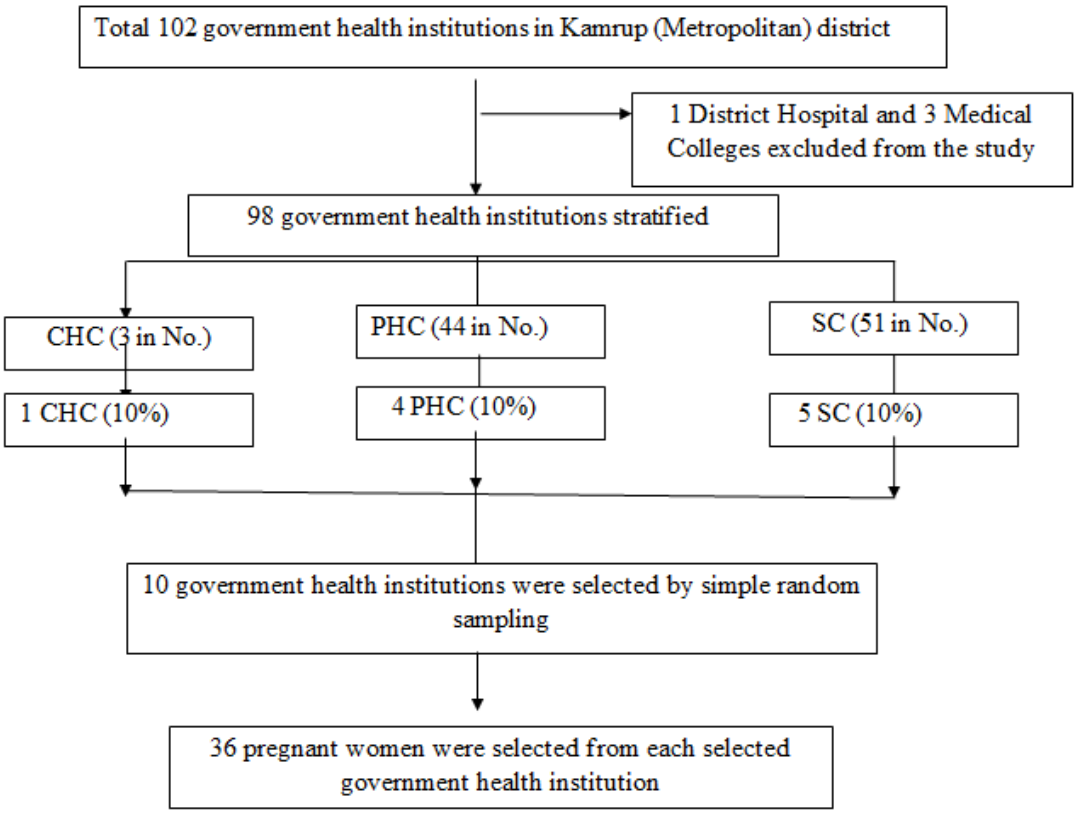
Thus, 360 pregnant women attending the antenatal clinic of government health institutions were selected from both Kamrup (Metropolitan) and Kamrup (Rural) district, thus making a total sample size of 720.

Sampling design:
Sampling frame consisted of all the government health institutions in Kamrup (Metropolitan) and Kamrup (Rural) district of Assam. A multistage sampling technique was applied.

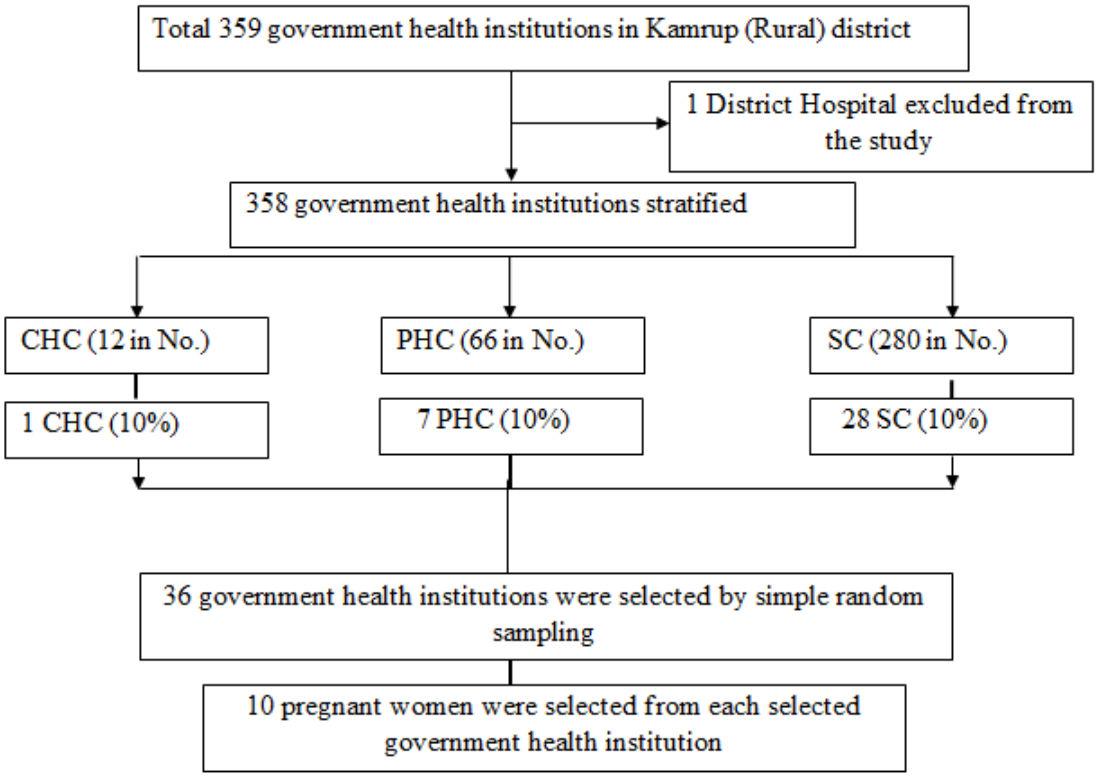
Stage I: All the government health institutions (excluding District Hospital & Medical Colleges) from the sampling frame were stratified into CHC, PHC and Sub-centre. By applying simple random sampling technique, 10 per cent of CHC, PHC and Sub-centers were selected for the purpose of the study.

Stage II: From each selected health institution required number of pregnant women attending the antenatal clinic were selected by systematic random sampling technique.

Flow chart showing number of government health institutions and pregnant women enrolled in the study from Kamrup (Metropolitan) district.



Flow chart showing number of government health institutions and pregnant women enrolled in the study from Kamrup (Rural) district.



Ethical approval obtained from the Institutional Ethics Committee, GMCH. Necessary permission was obtained from the Joint Director of Health Services, Kamrup (Metro) &Kamrup (Rural) district as well as respective authority of each selected government health institution.

Data collection tool and technique:
Predesigned and pretested structured schedule was used to assess the comprehensive awareness of the pregnant women regarding HIV/AIDS. A set of 12 questions was framed (certain questions in the set had multiple correct responses). Each correct response was given a score of 1 while a wrong or do not know response was scored 0 in order to get a minimum and maximum score of 0 and 22 respectively. The pregnant women who didn't give even a single correct response had a score of 0 and were categorized as having "No awareness" regarding HIV/AIDS. Scoring key is: good awareness: (≥ 70%), average awareness: (51% - 69%) and poor awareness: (≤50%).

Data analysis:
The data collected was compiled in Microsoft Office Excel and analysed by using INSTAT GRAPH PAD. For descriptive analysis, frequency distributions were computed for all categorical variables. The Chi-square test and Fischer's Exact test were applied for data analysis and p value <0.05 was considered to be significant.

RESULTS
Out of 360 pregnant women from Kamrup Metropolitan, 293 (81.4%) had heard of HIV/AIDS, whereas in Kamrup Rural, 245 (68.1%) out of 360 respondents were aware of HIV/AIDS. The difference is found to be statistically significant ($p < 0.05$).

Table I. Among the respondents from Kamrup Metro, 64.5% knew that HIV/AIDS spreads from person to person compared to 45.6% in Kamrup Rural. Lack of knowledge regarding transmissibility was higher in Kamrup Rural (54.4%) than in Kamrup Metro (33.6%). Only 1.9% respondents from Kamrup Metro incorrectly stated that HIV/AIDS does not spread from person to person. The difference between the two districts was statistically significant ($\chi^2 = 36.421$, $p < 0.0001$), indicating better awareness among pregnant women in Kamrup Metro.

Table 1: Distribution of pregnant women according to their awareness regarding transmissibility of HIV/AIDS

Does HIV/AIDS spread from person to person?	Kamrup (Metro) $N^1=360$		Kamrup (Rural) $N^2=360$		χ^2test p value
	No.	%	No.	%	
Yes	232	64.5	164	45.6	36.421
No	7	1.9	-	-	P value <
Do not know	121	33.6	196	54.4	0.0001

Figure 1 depicts the awareness of pregnant women regarding different modes of transmission of HIV/AIDS in Kamrup Metropolitan and Kamrup Rural districts. Awareness was higher among respondents from Kamrup Metro, particularly regarding unprotected sexual contact (61.4%), unsafe blood transfusion (50.3%), and sharing of needles or sharp instruments (34.7%). In Kamrup Rural, awareness was comparatively lower with 42.5%, 40.8%, and 33.6% respondents identifying unprotected sexual contact, unsafe blood transfusion, and sharing of needles or sharp instruments as different modes of transmission respectively. Overall, respondents from Kamrup Metro demonstrated better awareness regarding HIV/AIDS transmission.

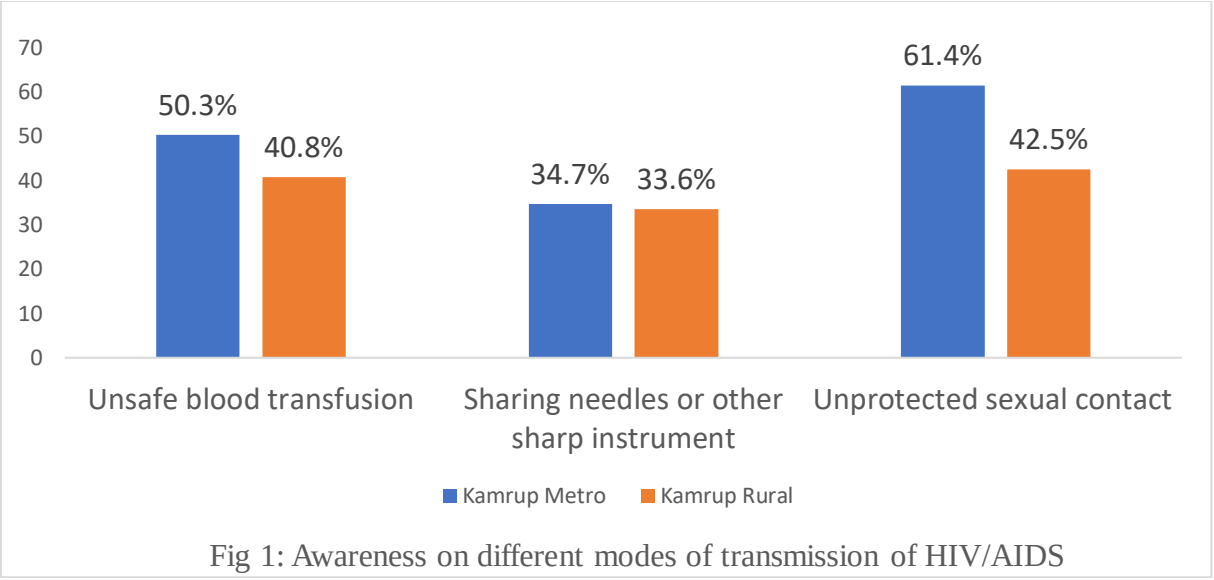


Fig 1: Awareness on different modes of transmission of HIV/AIDS

Table 2: Distribution of pregnant women according to their awareness regarding prevention, testing and treatment of HIV/AIDS.

Can people prevent themselves from acquiring HIV/AIDS	**Kamrup (Metro) N^1=360**		**Kamrup (Rural) N^2=360**		**χ^2 test p value**
	No.	**%**	**No.**	**%**	
Yes	201	55.8	156	43.3	11.381 P value = 0.0034
No	3	0.8	5	1.4	
Do not know	156	43.4	199	55.3	
Can HIV/AIDS be completely cured?	**Kamrup (Metro) N^1=360**		**Kamrup (Rural) N^1=360**		**χ^2 test p value**
	No.	%	No.	%	
Yes	84	23.3	32	8.9	29.587 P value < 0.0001
No	40	11.1	61	16.9	
Do not know	236	65.6	267	74.2	
Is there any medication available for treating HIV/AIDS?	**Kamrup (Metro) N^1=360**		**Kamrup (Rural) N^2=360**		**χ^2 test p value**
	No.	**%**	**No.**	**%**	
Yes	56	15.5	39	10.8	12.612 P value = 0.0018
No	42	11.7	21	5.8	
Do not know	262	72.8	300	83.4	
Is there any blood test to tell if a person has been infected with HIV?	**Kamrup (Metro) N^1=360**		**Kamrup (Rural) N^2=360**		**χ^2 test p value**
	No.	**%**	**No.**	**%**	
Yes	178	49.4	109	30.3	26.79 P value <0.0001
Do not know	182	50.6	251	69.7	
Have you ever heard of ICTC?	**Kamrup (Metro) N^1=360**		**Kamrup (Rural) N^2=360**		**χ^2 test p value**
	No.	**%**	**No.**	**%**	
Yes	5	1.4	3	0.8	0.1264 P value = 0.7222
No	355	98.6	357	99.2	

Table 2 Awareness regarding preventive measures against HIV/AIDS was higher among respondents from Kamrup Metropolitan (55.8%) compared to Kamrup Rural (43.3%), and the difference was statistically significant ($p = 0.0034$). Awareness that HIV/AIDS is incurable was low in both groups, only 11.1% of respondents in Kamrup (Metro) and 16.9% in Kamrup (Rural) knew that it is an incurable disease. The difference was statistically significant ($p < 0.0001$). Awareness regarding availability of medications for HIV/AIDS treatment was also poor in both districts, though comparatively higher in Kamrup Metro (15.5%) than Kamrup Rural (10.8%) ($p = 0.0018$). Nearly half of the respondents from Kamrup Metro (49.4%) were aware of HIV testing compared to 30.3% in Kamrup Rural, showing a statistically significant difference ($p < 0.0001$). Awareness regarding ICTC services was extremely low in both districts, with no significant difference observed between the groups ($p = 0.7222$).

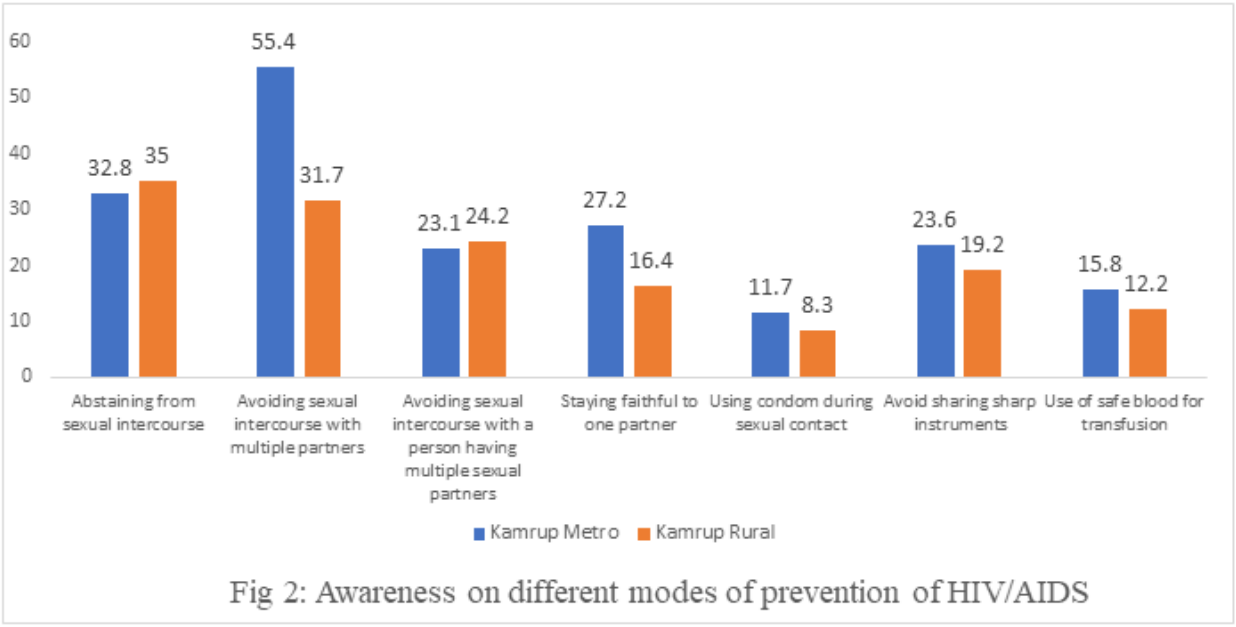


Fig 2: Awareness on different modes of prevention of HIV/AIDS

Figure 2: depicts awareness regarding different methods of prevention of HIV/AIDS among pregnant women from Kamrup Metropolitan and Kamrup Rural. Overall, respondents from Kamrup Metro demonstrated better awareness regarding preventive measures. In Kamrup Metro, the most commonly identified preventive measure was avoiding multiple sexual partners (55.4%), while condom use during sexual contact was the least recognized (11.7%). In Kamrup Rural, abstinence was the most commonly identified preventive measure (35%), followed by avoidance of multiple sexual partners (31.7%), whereas awareness regarding condom use was the lowest (8.3%).

Table 3: Distribution of pregnant women according to their awareness regarding mother to child transmission of HIV/AIDS

Can a woman infected with HIV/AIDS transmit the disease to her child?	**Kamrup (Metro) N^1=360**		**Kamrup (Rural) N^2=360**		**χ^2 test p value**
	No.	**%**	**No.**	**%**	
Yes	104	28.9	85	23.6	19.150
No	15	4.2	-	-	P value < 0.0001
Do not know	241	66.9	275	76.4	
Can the transmission of HIV from mother to child be prevented?	**Kamrup (Metro) N^1=360**		**Kamrup (Rural) N^2=360**		**χ^2 test p value**
	No.	**%**	**No.**	**%**	
Yes	55	15.3	31	8.6	6.986
Do not know	305	84.7	329	91.4	P value = 0.0082

Table 3: shows that awareness regarding mother-to-child transmission (MTCT) of HIV/AIDS was higher among respondents from Kamrup Metropolitan (28.9%) compared to Kamrup Rural (23.6%). However, the majority of respondents in both districts were unaware of MTCT, and the difference was statistically significant ($p < 0.0001$). Awareness regarding prevention of MTCT was also low, with only 15.3% respondents from Kamrup Metro and 8.6% from Kamrup Rural knowing that MTCT can be prevented. The difference between the two groups was statistically significant ($p = 0.0082$), indicating relatively better awareness among urban respondents.

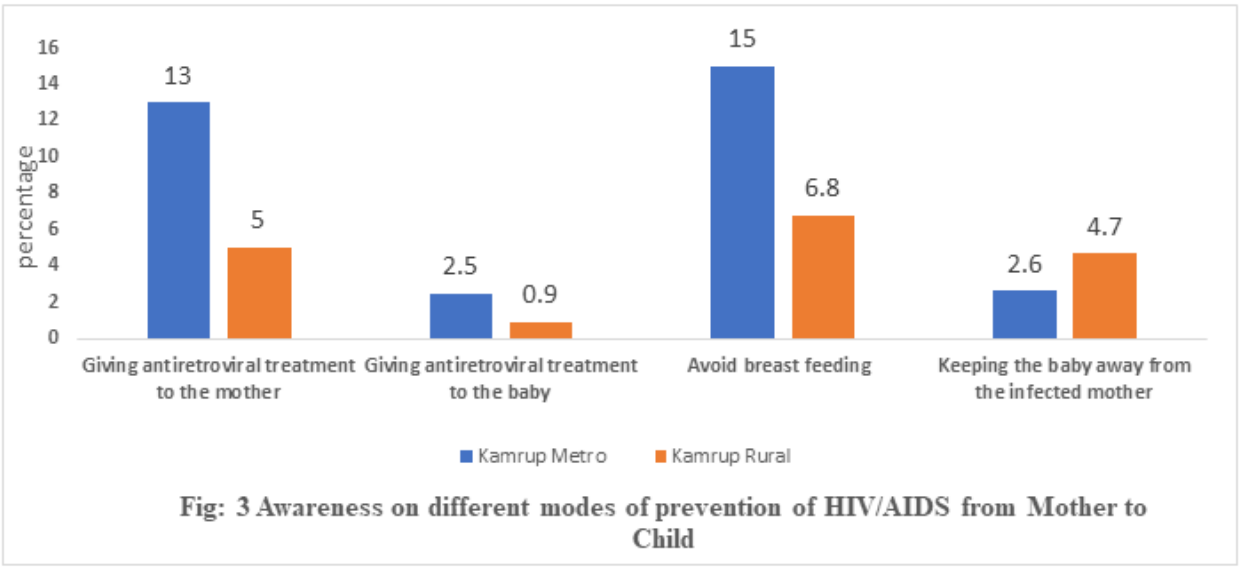


Fig: 3 Awareness on different modes of prevention of HIV/AIDS from Mother to Child

Figure 3: Findings show that overall awareness regarding prevention of mother-to-child transmission was limited in both districts although respondents from Kamrup (Metro) had relatively better knowledge. In Kamrup (Metro), 13% of the respondents were aware that giving antiretroviral treatment to the mother can help prevent transmission, while only 2.5% and 2.6% knew that antiretroviral treatment to the baby and avoidance of breast feeding can prevent MTCT. In Kamrup (Rural) only 5% respondents knew about ART for the mother as a preventive measure, while avoidance of breastfeeding as a preventive measure was reported by 6.8% respondents. Few respondents in both the districts, 2.6% in Kamrup (Metro) & 4.7% in Kamrup Rural had a misconception that keeping the baby away from the infected mother can prevent MTCT.

Table 4: Distribution of pregnant women according to their level of comprehensive awareness regarding HIV/AIDS

Level of comprehensive awareness	Place of Residence				χ^2 test p value
	Kamrup(Metro) N^2=360		Kamrup(Rural) N^2=360		
	No.	%	No.	%	
No awareness	67	18.61	115	31.94	
Poor awareness	98	27.22	106	29.44	**22.537**
Average awareness	147	40.83	108	30	**p < 0.05**
Good awareness	48	13.34	31	8.61	
Total	**360**	**100**	**360**	**100**	

Table 4: illustrates the level of comprehensive awareness regarding HIV/AIDS among pregnant women from Kamrup Metropolitan and Kamrup Rural. In Kamrup Metro, 18.61% respondents had no awareness, 27.22% had poor awareness, 40.83% had average awareness, and 13.34% had good awareness. In contrast, in Kamrup Rural, 31.94% respondents had no awareness, 29.44% had poor awareness, 30% had average awareness, and only 8.61% had good awareness. Overall, respondents from Kamrup Metro demonstrated comparatively better awareness regarding HIV/AIDS, and the association between place of residence and level of awareness was statistically significant ($\chi^2 = 22.537$, $p < 0.05$).

DISCUSSION

The present study assessed and compared the awareness regarding HIV/AIDS among pregnant women attending antenatal clinics of government health institutions in Kamrup (Metropolitan) and Kamrup (Rural) districts of Assam. The findings revealed that awareness regarding HIV/AIDS was comparatively better among respondents from Kamrup (Metro) than those from Kamrup (Rural), although comprehensive awareness remained unsatisfactory in both groups.

In the present study, a higher proportion of pregnant women (81.4%) from Kamrup (Metro) had heard about HIV/AIDS compared to pregnant women (68.1%) from Kamrup (Rural) which is comparable to the study done by Shree V et al15 & Jahan U et al 26. Similarly low level of awareness were reported more among rural women in study done by D. Balki, S. Lahiri in 13 State of India16. This difference may be attributed to better access to education, healthcare facilities, media exposure, and information dissemination activities in urban areas.

In the current study Urban respondents were found to possess better knowledge regarding HIV transmission than rural respondents. In both the study population, unprotected sexual intercourse was identified as main route of transmission followed by blood transfusion and sharing needle. Similarly, the study findings of Bhalge U et al8 and Lal P et al22 also mentioned sexual contact as major mode of transmission of HIV. The significantly higher proportion of respondents (54.4%) in rural areas who were not aware that HIV is a communicable disease, highlights the persistence of inadequate health education regarding HIV/AIDS.

More than half (55.8%) of the urban women have correct knowledge of HIV/AIDS prevention methods compared to more than two fifth (43.3%) of the rural women. However, detailed knowledge regarding preventive methods was lacking. Further, it is important to remind that about 55.3 percent rural women and 43.4 percent urban women did not know anything about HIV/AIDS preventive methods. Awareness regarding condom use, safe blood transfusion, and avoidance of sharing sharp instruments was particularly low in both the study groups. This finding is concerning because insufficient awareness regarding prevention can increase vulnerability to HIV infection. Similar observations have been documented in the study done by Yadav J. among reproductive age women, where awareness was mostly limited to sexual transmission while knowledge regarding other preventive methods remained inadequate.

Our study findings reveal that awareness regarding availability of treatment for HIV/AIDS was poor among the study participants. A large majority of pregnant women from both districts were unaware that HIV/AIDS is an incurable disease. On the other hand more than one fifth of the study population (23.3%) in Kamrup Metro & 8.9% in Kamrup Rural had misconception that this is a curable disease. This finding in our study is similar to the study conducted by Karir S et.al.

Though almost half of the respondents (49.4%) in Kamrup Metro & one third (30.3%) in Kamrup Rural knew that there is a test available for diagnosing HIV/AIDS, the awareness regarding ICTC services was extremely poor in both the groups. This is much lower than the awareness found in the study by Karir S et.al. Our study findings reflect insufficient promotion of counselling and testing services among pregnant women. Since antenatal care settings serve as important opportunities for HIV screening and counselling, strengthening awareness regarding ICTC and PPTCT services through such platform should be given due importance.

Awareness regarding mother-to-child transmission of HIV/AIDS was found to be particularly inadequate. Although some respondents knew that HIV can be transmitted from an infected mother to her child, the majority were unaware of the modes and prevention of transmission in both the districts. Only a small proportion of women in both the districts (15.3% in Kamrup Metro & 8.6% in Kamrup Rural) knew that mother-to-child transmission can be prevented through appropriate interventions such as anti-retroviral therapy. This is much lower than the awareness found in the study by Kallumkal MG et.al. Poor knowledge in this area is a matter of concern because this may hinder timely utilization of preventive services and contribute to paediatric HIV infection.

Despite a relatively higher level of awareness in urban respondents, comprehensive knowledge regarding HIV/AIDS was found to be poor in both districts, indicating major gaps in understanding of transmission, prevention, testing, treatment, and mother-to-child transmission. The statistically significant difference between urban and rural respondents suggests that place of residence plays an important role in determining awareness levels. Factors such as literacy status, socioeconomic condition, exposure to mass media, and accessibility of health services may influence the level of HIV/AIDS awareness.

CONCLUSION

The present study concludes that although awareness regarding HIV/AIDS was comparatively higher among pregnant women from Kamrup (Metro) than Kamrup (Rural), comprehensive awareness regarding various aspects of HIV/AIDS was inadequate in both groups. Knowledge regarding transmission, prevention, testing, treatment, and prevention of mother-to-child transmission was found to be limited, particularly among rural respondents. Awareness regarding ICTC services and preventive measures for mother-to-child transmission was especially poor.

The study highlights significant urban-rural disparities in HIV/AIDS awareness among pregnant women. Awareness about HIV/AIDS is the most important weapon against HIV/AIDS epidemic as it can reduce the risk of individuals contracting & spreading the disease. Inadequate knowledge among antenatal women may adversely affect timely utilization of HIV testing, counselling, treatment, and PPTCT services, thereby increasing the risk of transmission to both mothers and children.

Therefore, there is an urgent need to strengthen health education and awareness programmes related to HIV/AIDS, particularly in rural areas. Intensification of Information, Education and Communication (IEC) and Behaviour Change Communication (BCC) activities through antenatal clinics, community-based interventions, mass media, and frontline

healthcare workers is essential. Special emphasis should be given to improving awareness regarding prevention of mother-to-child transmission, availability of HIV testing services, and early treatment options. Strengthening counselling services during antenatal care can play a crucial role in improving knowledge and promoting positive health-seeking behaviour among pregnant women.

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