

Research Article

A study on cognizance of vertical transmission of HIV/AIDS among pregnant women attending antenatal clinic in a tertiary care hospital, Chennai

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ABSTRACT

Background: The prevalence of HIV infection among pregnant women in India is coming down and current prevalence is around 0.7%, but still India is one of the top ten countries with high prevalence of HIV among pregnant women and third largest country in HIV epidemic. Therefore the objective of the current study is to evaluate the cognizance of HIV/AIDS and its vertical transmission among pregnant women.

Methods: A cross-sectional study was conducted in a sample of 175 pregnant women of age 15-45 years attending antenatal clinic in Obstetrics department at SRMC&RI, Chennai for a period of 1 month by systematic random sampling method.

Results: The level of awareness among pregnant women attending antenatal clinic at SRMC&RI, was high (97.7%) and main source of information was television (84%). The knowledge on routes of transmission through sexual intercourse was (95%), blood transfusion was (88%), through infected needles was (87.42%), through vertical transmission was (84%). Around 84% of pregnant women had knowledge that HIV can be transmitted through vertical transmission. About 92.6% of pregnant women are aware that HIV is preventable. All respondents, who were educated above high school, were aware of HIV.

Conclusions: This study explains that overall level of awareness among pregnant women on HIV/AIDS was high. Still there is a need to increase the cognizance of HIV/AIDS and its vertical transmission among pregnant women who were less educated and belonging to low socio-economic class. This can be achieved by strengthening IEC activities (Information, Education, and Communication), encouraging female education and promoting women empowerment.

Keywords: Knowledge, HIV, Vertical transmission, Women empowerment

INTRODUCTION

AIDS (Acquired Immunodeficiency Syndrome) caused by Human Immunodeficiency Virus (HIV) is a major threat to the global health and development. WHO (World Health Organization) states that global HIV prevalence rate was approximately 35 million in 2013 which constitutes around 3.2 million HIV infected

children less than 15 years of age, among these children most of them were infected by their HIV positive mothers, either during pregnancy, labour, delivery or breast feeding i.e., through vertical transmission from infected mother to the child.² Therefore a global target has been launched to be achieved by the year 2015, which mainly focuses on elimination of new HIV infection in children and prolonging the lives of HIV

infected mothers.³ The prevalence of HIV infection among pregnant women in India is coming down and current prevalence is around 0.7%, but still India is one of the top ten countries with high prevalence of HIV among pregnant women and third largest country in HIV epidemic.⁴

In view of prevention of transmission of HIV infection among pregnant women, there emerges a need to assess the maternal knowledge on HIV and its vertical transmission for proper counseling about HIV infection. Therefore the purpose of the current study is to evaluate the cognizance of HIV/AIDS and to study the socio – demographic factors that influence the knowledge on vertical transmission of HIV among pregnant women.⁵

METHODS

A Descriptive cross-sectional study [Simple random sampling] conducted in the Antenatal clinic in SRMC Hospital for the period of one month – November, 2014.

Pregnant women of age 15-45 years were included in to the study. Total 175 subjects were included in the study.

Study conducted with the help of structured Interviewed Questionnaire. The investigators themselves have taken interviews of all study subjects.

Inclusion criteria: Pregnant women, 15 – 45 years of age, Voluntary participants.

Exclusion criteria: Non-Pregnant women, Non-Respondents.

Sample size calculation

According to reference article, knowledge regarding mother to child transmission of HIV among pregnant women was 64%, considering it as 'p' with desired level of relative precision at 12% and confidence interval of 95%, the sample size is calculated as: ⁶

$$N = Z^2 * p * q / L^2 = 1.96 * 1.96 * 64 * 36 / 7.86 * 7.86 = 150.$$

With 10% attrition i.e. 15, minimum sample size calculated is (150+15)=165

Hence sample size for our study will be 175 pregnant women.

Data collection and analysis

The random number was selected for systematic random sampling and it was 5. Hence every 5th pregnant woman coming to the ANC clinic was contacted and using pretested interview schedule, data was collected from 175 pregnant women.

The questionnaire contains:

Part 1-Socio-demographic characteristics of mother.

Part 2-Knowledge related to HIV/AIDS.

Part 3-Knowledge related to vertical transmission of HIV.

Statistical analysis: The Data was entered and analysed using SPSS version 16.0.

Statistical method: Descriptive statistical analysis done by calculating percentages and Chi-square test for selected demographic variables.

RESULTS

Table 1: Socio-demographic factors of pregnant women.

Characteristics	Number of pregnant women (%) (n=175)
Age (in years)	
15-19	6 (3.4%)
20-24	58 (33.1%)
25-29	85 (48.6%)
30-34	22 (12.6%)
>=35	4 (2.3%)
Education	
<=high school	55 (31.4%)
>high school	120 (68.6%)
Occupation	
Housewife	153 (87.4%)
Working	22 (12.6%)
Socio-economic status	
Class 1	53 (30.3%)
Class 2	92 (52.6%)
Class 3	17 (9.7%)
Class 4	11 (6.3%)
Class 5	2 (1.1%)
Family type	
Nuclear	87 (49.7%)
Joint	88 (50.3%)
Gravida	
Primigravida	90 (51.4%)
Multigravida	85 (48.6%)

The basic socio-demographic characteristics of 175 pregnant women are stated in Table 1. Nearly half of the participants (48.6%) belong to age group of 25-29 years, more than half of participants (68.6%) were educated above high school. Majority of participants (87.4%) were housewife and remaining (12.6%) were working women. The socio-economic status of the participants were classified into five classes in which more than half of the participants (52.6%) belong to class II socio-economic level.

Figure 1 illustrates the awareness and knowledge on HIV infection among pregnant women. A majority, 97.7% of

participants had heard about HIV. Regarding knowledge on routes of transmission, transmission through sexual contact, infected blood transfusion, sharing of infected needles were identified by 95%, 88%, and 87.42% of pregnant women respectively. Eighty four percent of pregnant women admitted that HIV is transmitted by vertical transmission.

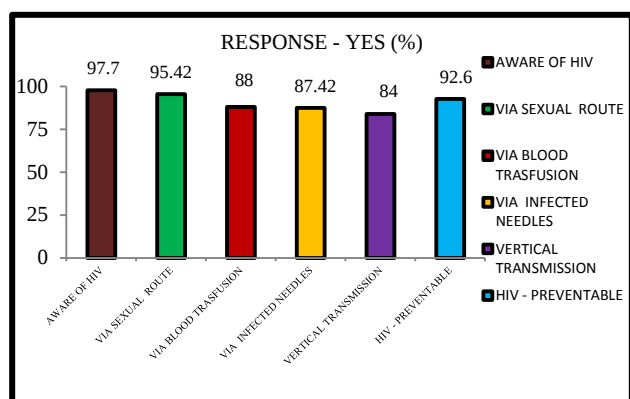


Figure 1: Knowledge on HIV infection among pregnant women.

Table 2: Knowledge on vertical transmission of HIV among pregnant women.

Questions	Number of pregnant Women (%) (answered yes)
Can pregnant women be infected with HIV?	139 (79.4%)
Can an infected mother transmit HIV to her child?	147 (84%)
Can a HIV infected mother transmit infection?	144 (82.3%)
During pregnancy	34 (19.4%)
Through vaginal delivery	86 (49.1%)
Through breast feeding	
How can vertical transmission of HIV be prevented?	
By HIV test done during pregnancy	146 (83.4%)
By ARV during pregnancy	105 (60%)
By performing LSCS	22 (12.6%)
By avoiding breast feeding by infected mother	85 (48.6%)
Have you received information on vertical transmission from health service care provider?	107 (61.1%)

Figure 2 describes the source of information about HIV/AIDS. Majority of participants (84%) responded

television as main source of information about HIV/AIDS, followed by lessons (22.9%), newspaper (12%), radio (7.4%), posters (5.7%), friends and relatives (5.7%).

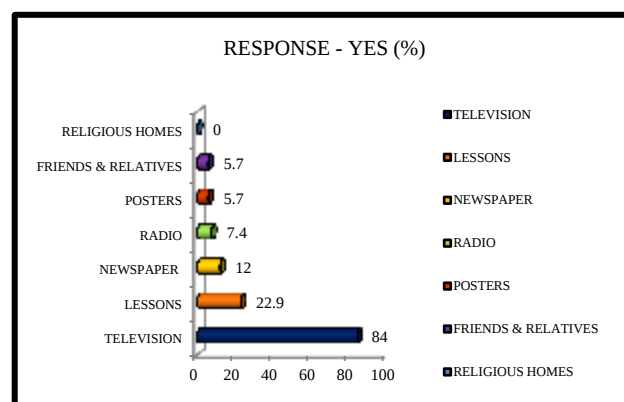


Figure 2: Source of information about HIV/AIDS.

Table 3: Association between level of education and knowledge on routes of vertical transmission.

Level of education	Number of pregnant women (%) (answered yes)		
	Mother to child (routes of vertical transmission)		
	During pregnancy	Through Vaginal Delivery	Through Breast Feeding
<=High school	36 (100%)	1 (2.8%)	18 (50%)
>High school	108 (97.3%)	33 (29.7%)	68 (61.3%)
P value	0.319	0.001	0.233

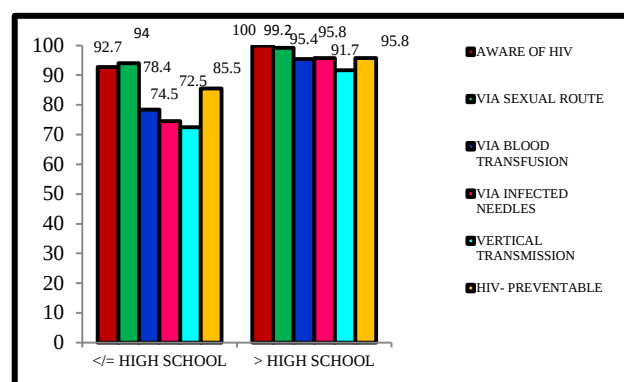


Figure 3: Association between the level of education and knowledge on HIV/AIDS.

Table 2 reveals the knowledge on vertical transmission of HIV among pregnant women. A majority 79.4% of participants were aware that pregnant women could be infected with HIV and 84% were aware of vertical transmission of HIV from mother to child, nearly half of the participants (49%) identified breast feeding as one of

the routes of vertical transmission and 19.4% mentioned vaginal delivery as route of vertical transmission of HIV by infected mother. Among all pregnant women, 83.4% knew that HIV could be prevented by doing HIV test during pregnancy, 60% believed that vertical transmission can be prevented by anti – retroviral therapy during pregnancy, 48.6% mentioned that vertical transmission of HIV can be prevented by avoiding breast feeding, 12.6% of pregnant women believed that vertical transmission of HIV can be prevented by conducting Lower Segment Caesarean Section (LSCS). Among women seeking antenatal care in SRMC hospital, nearly 61.1% had received information on vertical transmission from health care provider.

Table 4: Association between level of education and knowledge on modes of prevention of vertical transmission of HIV/AIDS.

Level of education	Knowledge on modes of prevention of vertical transmission Can MTCT be prevented?		
	By art during Pregnancy	By LSCS	By avoiding breast feeding
<=High school	19 (48.7 %)	0	18 (46.2 %)
>High school	86 (76.1%)	22 (19.5%)	67 (59.3%)
P value	0.001	0.003	0.154

Figure 3 states the association between the level of education and knowledge on HIV/AIDS. All participants (100%) who were educated above high school had heard about HIV/AIDS. Above 90% of participants who were educated above high school were aware of all routes of transmission and prevention of HIV infection and the difference in the knowledge of transmission and prevention of HIV among pregnant women is statistically significant ($p<0.05$) on basis of educational level.

Table 3 describes the association between the level of education and knowledge on routes of vertical transmission of HIV/AIDS. About 30% of the pregnant women with higher educational level (i.e. > high school) and only 2.8% of pregnant women with low educational level (i.e. <= high school) have identified vaginal delivery as a cause of vertical transmission of HIV. The difference in the knowledge on routes of vertical transmission of HIV among the high school educated pregnant women is statistically significant ($p<0.05$).

Table 4 describes the association between the level of education and knowledge on modes of prevention of vertical transmission of HIV/AIDS. Among pregnant women with education level more than high school, knowledge on prevention of vertical transmission by taking ART during pregnancy, by LSCS mode of delivery, were reported by 76.1%,19.5% of pregnant

women respectively whereas only 48.7%, 0% were reported by pregnant women with low level of education (i.e. <=high school) and this difference is statistically significant ($p<0.05$).

Table 5: Association between occupation and knowledge on modes of prevention of vertical transmission of HIV/AIDS.

Occupation	Knowledge on modes of prevention of vertical transmission Can MTCT be prevented?	
	By art during Pregnancy	By avoiding breast feeding
Homemaker	71 (54.2%)	88 (67.2%)
Working	14 (66.7%)	17 (76.1%)
P value	0.285	0.205

Table 5 describes the association between the occupation and knowledge on modes of prevention of vertical transmission of HIV/AIDS. HIV transmission can be prevented by taking anti-retroviral therapy during pregnancy and by avoiding breast feeding by HIV infected mother were identified by 76% and 66.7% of working pregnant women respectively.

Table 6: Attitude and practice among pregnant women on HIV/AIDS.

Question	Number of pregnant women (%) (answered yes)
Had discussion on HIV with husband during pregnancy	56 (32%)
Had tested for HIV	169 (96.6%)

Table 6 states that about 32% of participants had discussed about HIV/AIDS to their husbands during pregnancy and 96.6% of participants had tested for HIV.

Table 7 describes the association between socio-demographic characteristics and attitude of pregnant mothers towards HIV/AIDS prevention. Among pregnant women in the study, educated women (42%) [i.e. >high school], women belonging to high socio-economic class (75%), working women (60%) were able to discuss with their husband about HIV/AIDS compared to those pregnant women who were less educated (10.9%) [i.e. <=high school], women belonging to low socio-economic class (23.5%) and not working (28.1%) who discussed with their husband about HIV/AIDS.

DISCUSSION

This discussion is based on results of a cross sectional study conducted among 175 pregnant women attending

antenatal clinic at SRMC&RI, Chennai in view of evaluating the cognizance on HIV/AIDS & its vertical transmission.

Table 7: Association between socio – demographic of pregnant women characteristics and attitude of pregnant women towards HIV/AIDS.

Socio demographic characteristics	Number of pregnant women Discussed with husband about HIV (%) (answered yes)	P VALUE
Education		
< = High school (n=55)	6 (10.9%)	P = 0.000
>High school (n=120)	50 (41.7%)	
Socioeconomic		
Class:	24 (45.3%)	P = 0.026
Class i	28 (30.4%)	
Class ii	4 (23.5%)	
Class iii	0	
Class iv	0	
Class v		
Occupation		
Homemaker	43 (28.1%)	P= 0.004
Working	13 (59.1%)	

In the present study, 97.7% of pregnant women had heard of HIV/AIDS. This reflects a high level of awareness among pregnant women attending antenatal clinic at SRMC&RI, which was high when compared to the findings of Sebanti Goswami et al study.⁷ The main source of information on HIV/AIDS among pregnant women in our study was television (84%), which agrees with findings of Shrotri A et al.⁸ This underlines that television was an effective platform in educating the public about AIDS.

In the current study the overall knowledge on routes of transmission through sexual intercourse was 95%, blood transfusion was 88%, through infected needles was 87.42%, through vertical transmission was 84% and it is relatively higher than the study done by Jacqueline Firth et al which revealed, among pregnant women the knowledge on transmission through sexual intercourse was 73%, through blood transfusion was 67%, through infected needles was 67%, through vertical transmission was 64%.⁶ This implies the rising trend about knowledge on routes of transmission of HIV among pregnant women. These findings attest good knowledge on modes of transmission of HIV among pregnant women. Among the knowledge on routes of transmission, sexual transmission was mentioned by 95.42% of pregnant women, which is in regard with a worldwide trend in

which sexual intercourse is the route of transmission predominantly known to pregnant women.

The present study highlights that 84% of pregnant women had knowledge that HIV infected mother can transmit infection to her child i.e., through vertical transmission, the level of awareness on vertical transmission was very high when compared to Lal P et al study in which only 23.4% cited mother to child as route of transmission of HIV.⁹ About 49.1% of pregnant women agree that vertical transmission occur through breast feeding, this finding is similar to Jacqueline Firth et al study.⁶ Therefore the present study depicts that specific knowledge on vertical transmission among pregnant mothers were adequate compared to other studies.

In the current study about 92.6% of pregnant women are aware that HIV is preventable and around 83.4% of pregnant women stated that vertical transmission can be prevented by HIV testing during pregnancy, 60% of pregnant women said, by Anti-retroviral therapy during pregnancy, 48.6% mentioned by avoiding breast feeding by infected mother be and 12.6% stated that by performing lower segment caesarean section during delivery, which partially correlates with the findings of Rogers A et al.¹⁰

The present study reveals that around 61.1% of pregnant women have received information on HIV and its prevention from health service care providers which was high when compared to P Bibi et al study which stated that only 10.3% were informed through health service care providers.¹¹ Hence the present study suggests that health care providers guide to bring behavioural changes in view of HIV prevention.

When socio-demographic characteristics were compared with knowledge on HIV/AIDS and its vertical transmission, almost all respondents (100%) who were educated above high school had heard about HIV/AIDS. Above 90% of respondents who were educated above high school were aware of all routes of transmission and prevention of HIV infection. Majority (76.1%) of pregnant women who were educated above high school mentioned that vertical transmission of HIV can be prevented through anti-retroviral therapy during pregnancy. Above half of the pregnant women (59.3%) who were educated above high school, mentioned that vertical transmission of HIV can be prevented by avoiding breast feeding and 19.5% mentioned that vertical transmission can be prevented by LSCS, this is statistically significant (<0.05) and similar to Uday Kiran U. Bhalge et al study therefore it implies that education of female plays a vital role in disease prevention, moreover when education level increases, access to information also increases which promotes health seeking behaviour among women and prevents HIV.¹²

The present study highlights that about 32% had an attitude of discussing about HIV/AIDS to their husband

during pregnancy period. In this study socio-demographic characteristics and attitude of pregnant mothers were compared. Nearly half, 41.2% of pregnant women who were educated above high school had discussed about HIV/AIDS with their husband, which was high when compared to less educated pregnant women (10.9%) and statically significant ($p=0.000$). Pregnant women belonging to low socio-economic class had no discussion with their husband about HIV/AIDS. Nearly 60% of working pregnant women had discussion on HIV/AIDS with their husband during pregnancy, similar to Sing et al and Ambati et al studies, therefore it implies that not only education but also occupation and socio economic status of women also impacts on knowledge and prevention of HIV/AIDS.^{13,14} Knowledge towards HIV/AIDS and its prevention can be achieved by encouraging female education and placing them in work which in turn raises the income of the family and improve the socio-economic status.

CONCLUSION

In conclusion, the study explains overall high level of awareness among pregnant women on HIV/AIDS. Still there is a need to increase the cognizance of HIV/AIDS and its vertical transmission among pregnant women who were less educated and belonging to low socio-economic class. This can be achieved by strengthening IEC activities (Information, Education, and Communication) and encouraging female education. Moreover it is necessary to bring up interactive couple counselling programs on HIV/AIDS, hereby promoting spousal communication which aims in prevention of HIV/AIDS and its vertical transmission from mother to child. Overall women empowerment is a must to protect themselves from HIV/AIDS. Periodic assessment of knowledge on HIV among the pregnant women attending antenatal clinic also plays a vital role in HIV/AIDS prevention.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional PG Ethical Committee, SRMC & RI (SRU), Chennai (IEC Ref: CSP-MED/14/NOV/20/222)

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