



## Awareness and knowledge about mother to child transmission of HIV/AIDS among antenatal women attending tertiary care hospital

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### Abstract

*The vast majority of HIV-positive children worldwide acquire the infection through vertical transmission. The transmission of HIV from a HIV-positive mother to her child during pregnancy, labor, delivery, or breastfeeding is called Mother-To-Child Transmission. Awareness and attitude towards HIV and the prevention of MTCT in antenatal women is important in reducing the incidence of HIV in children. The study was conducted to evaluate the cognizance of HIV/AIDS and to study the influence of socio-demographic factors on the knowledge of vertical transmission of HIV among pregnant women. The data was collected using a well-structured and interviewer administered questionnaire. The study showed the overall low level of knowledge among pregnant women on HIV/AIDS especially regarding it' MTCT. From the study, education proved to be the major weapon that can improve the knowledge among pregnant women. Our study even shows that there is less effort of health providers towards educating the antenatal women regarding HIV. Even spouse testing for HIV is low. There is a need to increase the cognizance of HIV and MTCT among pregnant women who were less educated and belonging to lower socio economic status.*

**Keywords:** KAP study, MTCT, Antenatal Women.

### Introduction

HIV infection has become a major threat to the global health and development in recent times. According to WHO more than 70 million people have been infected with HIV and about 35 million died of HIV<sup>(1)</sup>. The total number of people living with HIV in India is estimated to be 21.17 lakh in 2015 out of which children [(15 years) accounts

for 6.54%, while two fifth (40.5%) of total HIV infections are among females. In 2015 Andhra Pradesh and Telangana have shown 0.66% prevalence<sup>(2)</sup>.

The transmission of HIV from a HIV-positive mother to her child during pregnancy, labor, delivery, or breastfeeding is called Mother-To-Child Transmission [MTCT]. In the absence of

any intervention, transmission rates range from 15% to 45%. This rate can be reduced to below 5% with effective interventions during the periods of pregnancy, labor, delivery, and breast feeding<sup>(3)</sup>. With the HIV epidemic showing a shift towards women and young people, the increasing sero-prevalence among women will result in an increase in the MTCT of HIV. The vast majority of HIV-positive children worldwide acquire the infection through vertical transmission. To achieve this low rate, primary prevention of HIV infection in parents-to-be, early identification of sero-positivity in pregnant women, prevention of unwanted pregnancies, prevention of MTCT of HIV by appropriate antiretroviral therapy, special interventions in maternal management during labor, appropriate care and follow up of the newborn, all play an important role<sup>(4)</sup>. Awareness and attitude towards HIV and the prevention of MTCT in antenatal women is important in reducing the incidence of HIV in children.

#### **Magnitude of the problem**

In India, about 28 million deliveries occur annually, of which 84,000 deliveries would occur in HIV-positive women. Without any intervention, about 30-45 per cent of these babies will become infected with HIV. In the high prevalence states of Maharashtra, Tamil Nadu, Andhra Pradesh, Karnataka, Manipur, and Nagaland, with more than 1 per cent HIV prevalence amongst pregnant women, there could be a much higher number of vertically infected babies being born annually<sup>(4)</sup>.

#### **Efficacy of transmission**

MTCT is by far the most significant route of transmission of HIV infection in children below the age of 15 yr<sup>(5)</sup>. This can occur during pregnancy especially in the last trimester, during delivery, and postnatally during breastfeeding. The foetus can get infected in-utero through maternal blood, transplacental hemorrhage, and infection via umbilical cord or via the gastrointestinal mucosa while swallowing infected amniotic fluid<sup>(4)</sup>. Contact with the mother's blood and/or secretions during labor and delivery increases the risk of HIV transmission to the

infant. The efficiency of transmission through breast milk ranges between 16-29 per cent. Of the 30% of babies who get infected vertically, the relative frequency of timing of transmission is said to be as follows: 2 percent early in gestation, 3 per cent late in gestation, 15 percent during labor, 5 percent in early postpartum period, and 5 per cent in late postpartum period<sup>(5)</sup>. In the absence of any intervention, rates of MTCT of HIV-1 can vary from 15 to 30 per cent in developed countries and can reach as high as 30 to 45 per cent in developing countries<sup>(5)</sup>.

The purpose of the current study is to evaluate the cognizance of HIV/AIDS and to study the influence of socio-demographic factors on the knowledge of vertical transmission of HIV among pregnant women. Incorrect beliefs about HIV transmission can lead to increase infection rates. In the view of prevention of MTCT of HIV infection, there is a need to access maternal knowledge on HIV which helps clinicians, public health professionals and policy makers for proper and effective counseling about infection for further prevention and elimination of new cases of HIV, improving quality and prolonging lives in infected mothers.

#### **Aim**

To study the awareness, knowledge and attitude in pregnant women attending tertiary care hospital on mother to child transmission [MTCT] of HIV/AIDS

#### **Objectives**

- 1) To assess the knowledge of mothers regarding HIV/AIDS and its vertical transmission.
- 2) To compare the association of knowledge of mothers regarding mother to child transmission of HIV/AIDS with demographic variables.
- 3) To determine the attitude towards HIV, MTCT and voluntary testing and counseling for HIV/AIDS among pregnant mothers during antenatal visits.

## Methodology

### Type of study and Duration

An institutional-based descriptive cross-sectional study was conducted at ante-natal clinic at a tertiary care hospital in Secunderabad for a period of two months.

### Study Population and Area

The study recruited 100 pregnant women attending for ante-natal checkup at tertiary care hospital.

### Inclusion Criteria

All the antenatal women attending antenatal OP and wards at a tertiary care hospital who gave their consent to participate in the study. The study included both HIV Positive and HIV Negative pregnant women.

### Exclusion Criteria

Non-respondents and those who didn't give consent for study were excluded from the study

## Data Analysis

### Study Tool

The questionnaire was prepared after reviewing relevant literature. The questionnaire contains socio-demographic characteristics of mother, knowledge related to HIV/AIDS, knowledge about MTCT of HIV/AIDS.

### Data Collection

Interviewers were the medical students who are the investigators themselves and were trained about interviewing techniques by the principal investigator. Then the consent was taken about their voluntary willingness in the participation of study using consent form.

### Statistical Analysis

The data was entered in Microsoft Excel and analyzed in SPSS version 20.

### Statistical Methods

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

## Results

**Table -1** Socio-demographic factors of pregnant women

<b>Characteristics</b>	<b>No. of pregnant women (n=100)(%)</b>
<b>Age in years</b>	
15-20	12
21-25	66
26-30	19
31-35	3
<b>Residential area</b>	
Urban	77
Rural	23
<b>Religion</b>	
Hindu	74
Muslim	19
Christian	6
Others	1
<b>Level of education</b>	
Illiterate	7
Primary school	2
Middle school	20
High school	39
Intermediate	12
Graduate/PG	20

<b>Occupation</b>	
Professional	1
Semiprofessional	7
Clerical	5
Skilled	6
Semiskilled	5
Unskilled	9
Unemployed	67
<b>Total monthly income</b>	
>20142	14
10071-20141	21
7553-10070	40
5036-7552	14
3021-5035	4
1017-3020	7
<b>Socio economic status</b>	
Upper	2
Upper middle	22
Lower middle	40
Upper lower	33
Lower	3

<b>Parity</b>	
Nulliparous	28
Gravida 1	30
Gravida 2	29
Gravida 3	12
Gravida 4	1

The basic socio-demographic characteristics of 100 pregnant women are stated in Table 1. More than half of the participants (66%) belong to age group of 21-25years. Most of them (77%) are from urban areas. Hindus (74%) constitutes majority of the participants. More than 1/3<sup>rd</sup> (39%) of them had education till High school. Majority (67%) of them are unemployed and less than half (40%) were having total family income of 7553-10070/- per month. The socio-economic status of the participants was classified into 5 classes in which nearly 40% of them belong to Lower middle class.

A majority, 89% of participants had heard about HIV. 74% of them were aware of MTCT.

**Fig-1** Source of information about HIV/AIDS

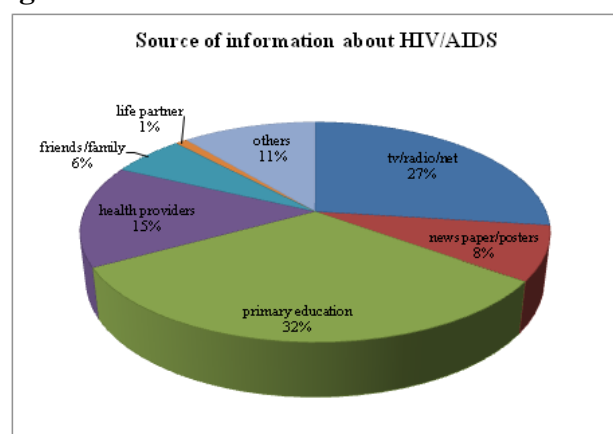


Figure 1 depicts source from which participants got to know regarding HIV. Majority of them (32%) responded education as main source of information about HIV/AIDS, followed by television (27%), from health providers (15%), newspaper/posters (8%) and discussion with partner (1%). Remaining 11% have got information from other sources.

**Fig.2** Knowledge on Routes of transmission

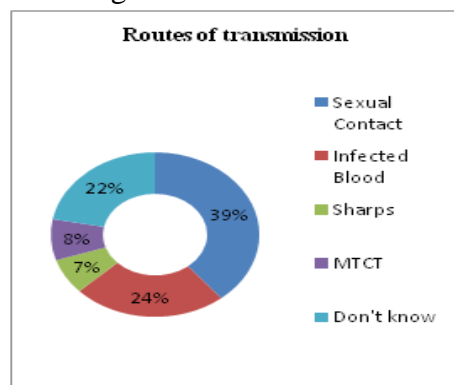


Figure 2 illustrates the knowledge regarding routes of transmission of HIV among pregnant women. Almost 39% of participants agree with sexual route as main route followed by infected blood (24%), mother to child transmission (8%), sharing infected sharps (7%). 22% of the participants did not know about route of transmission of HIV.

**Table 2**

Questions	No. of Pregnant women (% answered yes )
Can pregnant women be infected with HIV?	61%
Can an infected mother transmit HIV to her child?	67%
Can infected mother transmit infection :-	
During pregnancy	38%
Through vaginal delivery	29%
Through Breast feeding	16%
How can be MTCT prevented?	
ART during pregnancy	41%
ART to newborn	9%
Delivery by C-section	6%
Avoid Breast feeding	17%
Have you received counseling on MTCT from health provider?	36%

A majority 61% of participants were aware that pregnant women could be infected with HIV and 67% were aware that vertical transmission of HIV can occur from mother to child, nearly 38% of the participants identified pregnancy as one of the period of transmission and 29% mentioned vaginal delivery as the route of vertical transmission. Among all the pregnant women, 41% knew that HIV can be prevented by giving Anti-Retroviral Therapy [ART] to the infected mother during pregnancy, 17% believed that avoiding breast feeding to the newborn can prevent MTCT of HIV, followed by 9% of women who responded that vertical transmission of HIV can be avoided by giving ART to newborn after birth and 6% of them believe that delivery by C-section can avoid MTCT. Among women seeking Antenatal care from the tertiary care hospital, nearly 36% had received information regarding MTCT of HIV from Health Care providers.

All participants [100%] who are educated till primary school and graduation are aware of HIV and its MTCT. Illiterates constitute about 57.1% and 28.6% who knows about HIV and its vertical transmission respectively. The difference in the knowledge of HIV and MTCT among pregnant women is statistically significant ( $p=0.01$ ) on the basis of educational level.

**Fig.3. Attitude towards testing of spouse for HIV in different socioeconomic status**

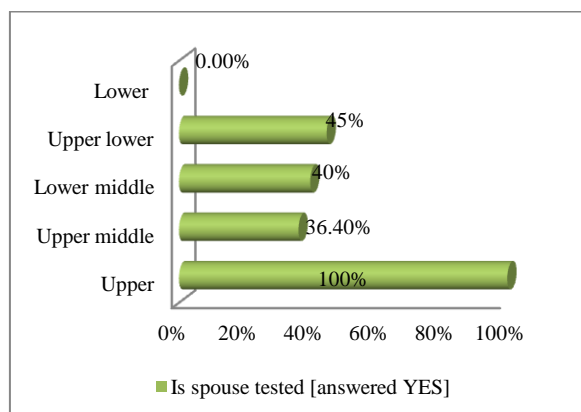
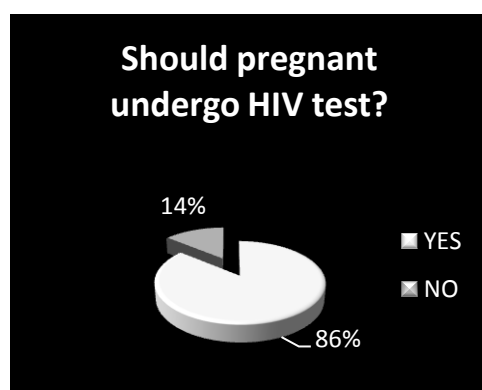


Fig.3 depicts attitude towards testing of spouse for HIV in relation with socioeconomic status. All the spouses of pregnant women belonging to the upper class were tested for HIV, followed by upper lower class [45%], lower middle [40%] and upper middle class [36.4%]. But none of those belonging to lower class were tested.

**Fig. 4- Information about HIV testing [a&b]**

(a)



(b)

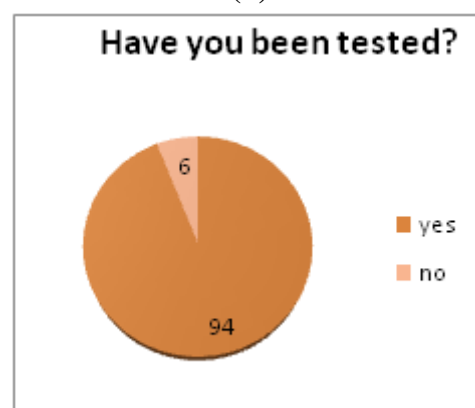


Figure 4 (a) shows the response of antenatal women about whether they should undergo HIV test during pregnancy. 86% of them agreed that they should undergo testing, while remaining 14% disagree with it. (b) depicts the number of women who were tested for HIV during their pregnancy. 94% of the women were tested and remaining 6% weren't undergone test for HIV.

**Fig 5 Misconceptions regarding HIV transmission**

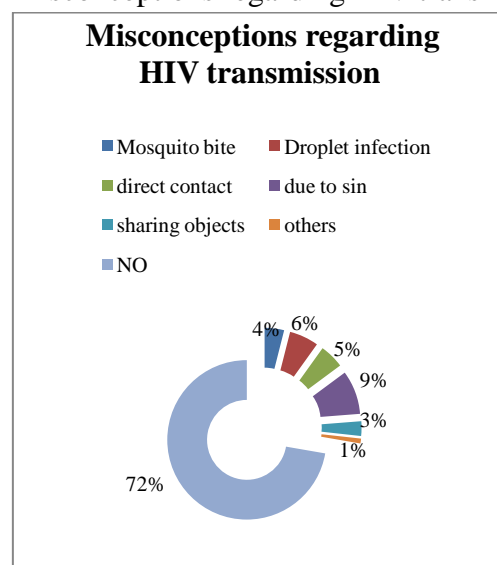


Fig.5 describes the misconceptions among pregnant women regarding HIV transmission. Most of them (72%) don't have any misconceptions. 9% of participants think that HIV occur due to sin. Followed by 6% of them who assume that HIV occur due to droplet infection, 5% of them told that direct contact is the main route, 4%, 3%, 1% of them think that HIV transmission occur due to mosquito bite, sharing objects, others respectively.



## Discussion

The cross sectional study was conducted among 100 pregnant women attending antenatal clinic at a tertiary care hospital in Secunderabad in view of evaluating the cognizance on HIV/AIDS and its vertical transmission.

In the present study, 89% of pregnant women had heard of HIV/AIDS. This reflects that fairly good number of antenatal women attending the hospital is aware about HIV/AIDS. However, it is comparatively less than the study conducted at SRMC hospital, Chennai<sup>(6)</sup>. The main source of information on HIV/AIDS among pregnant women in our study is education, followed by Television, through Health providers, Newspapers & posters which are quite different from other studies conducted at Olabisi Onabanjo University in Nigeria<sup>(7)</sup> and at Chennai where the television is the main source of information, followed by others. This shows that education forms a very effective platform for creating awareness in public along with other media like TV, radio, newspapers, posters, etc

The current study reveals the overall knowledge of antenatal women on the routes of transmission of HIV was 39% for sexual intercourse, 24% for blood transfusion, 7% for infected needles and 8% for vertical transmission, which is very less correlated with other studies at Chennai and Nigeria. However, sexual route was identified by most of them as the most common route of transmission of HIV which is in line with a worldwide trend. However it is amazing that 22% of respondents were not aware of route of transmission of HIV, which portrays a great danger to these pregnant women and their community. Lack of accurate information about sexual health has permitted perpetuation of certain myths and misconceptions. It is also of interest that only 8% of respondents identified MTCT as the means of transmission of HIV/AIDS. This indicates that more work needs to be done on Preventive educative programs for our pregnant women.

All the literates were aware about this and almost half of the illiterates were having knowledge regarding MTCT. Majority (28%) of them responded that trans-placental route, followed by vaginal delivery and breast feeding as the route of vertical transmission of HIV. But 48% of them don't know about route of vertical transmission which indicates the greater requirement of awareness programs regarding HIV.

In current study, about 73% of pregnant women were aware that MTCT of HIV can be prevented out of which 41% of women stated that by giving ART during pregnancy, 17% of them responded that avoiding breast feeding is the best method of prevention followed by 9% of them responded that ART to new born can be an effective method, 6% of them considered delivery by C-section as the reliable method.

The present study reveals that only 36% of pregnant women have received information on HIV and its prevention from health care providers which is very low. Thus the study suggests there is a requirement of initiative from health providers and hospital management to educate pregnant women regarding HIV. The guidance can bring behavioral changes in view of HIV prevention.

When socio demographic factors are compared with knowledge regarding HIV and MTCT, almost all the respondents (100%) who are educated till primary school and graduation are aware of HIV and its vertical transmission, almost 3/4<sup>th</sup> of those who were educated till middle, high school and intermediate were aware of HIV and MTCT. Among graduates, more than 75% considered sexual intercourse as the main route of transmission of HIV and almost half of them mentioned ART during pregnancy can prevent MTCT of HIV. More than half of the illiterates have heard about HIV and its vertical transmission. These results partially correlates with other studies conducted at Chennai and Nigeria. Our study shows an association between level of education and knowledge about HIV and MTCT which is statistically significant [ $p < 0.05$ ].

Among 100 pregnant women, 94 were tested, but only 41 members are there whose spouses were tested for HIV. Thus this indicates a requirement for partner counselling towards HIV testing along with antenatal mothers, which can significantly reduce the incidence of HIV.

### Conclusion

The study explains overall lower level of knowledge among pregnant women on HIV/AIDS especially regarding it MTCT. From the study, education proved to be the major weapon that can improve the knowledge among pregnant women. Our study even shows that there is less effort of health providers towards educating the antenatal women regarding HIV. Even spousal testing for HIV is low.

### Recommendations

There is a need to increase the cognizance of HIV and MTCT among pregnant women who are less educated and belong to lower socio economic status. It is important to provide adequate counselling regarding HIV and MTCT prevention in our antenatal clinics (ANC). Periodic assessment of level of knowledge and impact of interventions are also required for re-evaluation of counselling program. Focus should be on information regarding risk of transmission, specific routes of mother-to-child transmission and various interventions available to prevent MTCT of HIV.

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