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KNOWLEDGE AND ATTITUDE AS DETERMINANT FACTORS IN HIV CARE AMONG PREGNANT WOMEN IN RACHUONYO NORTH, HOMA-BAY COUNTY, KENYA
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KNOWLEDGE AND ATTITUDE AS DETERMINANT FACTORS IN HIV CARE AMONG PREGNANT WOMEN IN RACHUONYO NORTH, HOMA-BAY COUNTY, KENYA

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ABSTRACT

Background: **Mothers knowledge and attitude on PMTCT is a highly effective intervention with enormous potential to enhance access and utilization of PMTCT services**

Objective: **To assess knowledge, attitude and practices of HIV infected women on Prevention of mother to child transmission attending antenatal care clinics in Rachuonyo North, Homa- Bay County, Kenya.**

Design: **A cross sectional study**

Setting: **Twenty antenatal care clinics in Rachuonyo North, Homa-Bay County, Kenya**

Subjects: **HIV infected pregnant women.**

Results: **PMTCT coverage and utilization was 77%. Majority (71.2%, 95% CI: 66.7 – 75.7) of the respondents had positive health seeking behaviours. Approximately 65.5%, of respondents understood four prong approach of PMTCT whereas, 64.9% of the respondents attended ANC clinics > 4 visits which is standard with WHO. The reasons cited by respondents for PMTCT interventions included ARV prophylaxis with EBF (42.1%, 95% CI: 37.2 – 47.1) ARV prophylaxis with BM substitute (22.9%, 95% CI:18.9 - 27.3) among others. There was significant association between attitude on PMTCT and health seeking behaviour, (AOR = 1.57, 95%CI: 1.09 – 4.15) and p=0.004<0.05. Willingness to test for HIV had a significant association with attitude on PMTCT (AOR =1.90, 95% CI: 1.08 – 8.21) with p - value<0.001.**

Conclusion: **There was significant association between attitude on PMTCT and health seeking behaviour. Knowledge on when MTCT occurs in pregnancy and delivery is critical and key determinant to influence access and utilization of PMTCT services. Accurate information on the PMTCT service access and utilization significantly addresses psychosocial support services.**

INTRODUCTION

Mother- to- child transmission (MTCT) of human immunodeficiency virus (HIV) infection remains responsible route for most of the HIV infection in infants and young children below the age of 15 years, despite introduction of Prevention of mother to child transmission of HIV by WHO (1,2). In 2017, Kenya Adult HIV prevalence was estimated at 5.2% among women with geographical diverse ranging up to 20.7% and estimate transmission rate of 11.5% of HIV positive women with the scale up of PMTCT services (3).

Prevention of mother to child transmission of HIV provides an opportunity for preventing new paediatric HIV infections and the risk can be reduced to less than 2% as well as identifying HIV infected family members. More so when prevention programmes achieve heightened awareness significant changes in behaviour occur, hence value for reduction in the number of new HIV infections (4).

Effective PMTCT services require women and their infants to receive a cascade of interventions that focuses on free future generation from AIDS society participation, knowledge capital generation, gender inequity, stigma and discrimination in family and health facilities among other four prong approaches like including uptake of ANC services, HIV testing during pregnancy, use of ART by pregnant women living with HIV, safe child birth practices, appropriate infant feeding, uptake of infant HIV testing and other post-natal health services (5). These strategies promote comprehensive prevention of new HIV infection among women of childbearing age, prevent unintended pregnancies among women living with HIV, prevent HIV transmission from a woman living with HIV to her baby and provides appropriate treatment, care and support to mother living with HIV, their children and families (5,6).

The programme of prevention of mother to child transmission of HIV has been scaling up rapidly. In 2017, 53,236 HIV positive women in Kenya received ARVs prophylaxis to prevent transmission of HIV to their newborn. This represented about 77% and since 2004 about 132, 300 child HIV infection have been averted through to 2017 with Homa Bay incident rate of 0.82% (7).

The PMTCT coverage in 2017 was about 77% , this significantly shown the decrease in number of HIV positive women and is likely to be a function of several factors including reduced transmission (incidence) in young women leading to an aging of the HIV – infected population into lower fertility age groups and perhaps increase knowledge of status leading to better fertility choices (9).

Better knowledge of good attitude towards and practicing PMTCT is highly effective intervention and has an enormous potential to improve both maternal and child health. Therefore, we hypothesized that there were barriers towards elimination of mother to child transmission of HIV in the sub-County (11).

In 2017, there were approximately 52,800 new HIV infections across all ages with 8000 being children below 14 years. Of the estimated new infections Homa Bay County contributed 4,558 with an estimated 38.0% being children. For young women in the age bracket of 15 – 34 years accounted for a third of all new HIV adult infection. While the decline in HIV prevalence is encouraging, the total number of PLWH in Kenya was approximately 1.5 million in 2017, that included 105, 200 children, approximately 7% of all persons living with HIV (13).

To prevent the transmission of HIV from mother to child, World Health Organization (WHO) promotes a comprehensive strategic approach that includes four components, (i) the prevention of new infections in parents (ii) avoiding unwanted pregnancies in HIV infected women (iii) preventing transmission of HIV from an infected mother to her infant and (iv) care, treatment and support for mothers living with HIV, their children and families (14). It primarily includes the provision of anti-retroviral prophylaxis to the mother to reduce the risk of MTCT through rigorous PMTCT programme.

Success in prevention of HIV infection among children is squarely based on knowledge, attitude, practice and factors affecting PMTCT services among HIV infected pregnant women and mothers of highly exposed infants. It would also be an important tool in promoting effective relationship between the healthcare team and the client thereby significantly advocating for quality and efficient healthcare services to reduce children and mothers' morbidity and mortality. In summary, accurate information on risk of MTCT, availability of prevention options and effect of HIV on pregnancy outcomes to improve quality care and utility of the PMTCT services which are key to knowledge, attitude and practice to both mothers and care givers (15).

MATERIALS AND METHODS

Study area: The study was conducted in Rachuonyo North sub-county, Homa Bay county health facilities providing ANC services. The sub-county has an area of approximately 438 square kilometers, with two divisions (West and East Karachuonyo) each of which borders Lake Victoria.

Sampling size determination and strategy: The sample size was calculated using the formula by Mugenda and Mugenda, (2003).

$$n=\frac{z^2pq}{d^2}$$

The sample frame of respondents was drawn from 3,575 estimated numbers of pregnancies in the sub-county (KDHS, 2014).

n- Represents the sample size (if the target population is more than 10,000).
z- Represents the standard normal deviation at the required confidence level, in this cases its 1.96.
p- Represents the proportion in the target population estimated to have characteristics being measured and when there is no reasonable estimate 50% is used.
q- Represents (1-p) which is equal to 1-0.5=0.5.
d- Represents the degree of accuracy/ level of statistical significance set which is 0.05. 5% sample error
Therefore;

$$n=\frac{(1.96)^2 \text{ X } 0.5\text{X}0.5}{(0.05)^2}$$
$$=385$$

The sample frame of respondents was drawn from 3575 estimated numbers of pregnancies in the sub county, KDHS, 2014. From 20 health facilities offering PMTCT services, each facility was allocated 19 respondents with each Health Centre getting plus one participant. ANC and HEI registers were used by simple random to select 385 eligible HIV infected mothers/ mothers of HEI attending these clinics.

Sampling Procedure:

Inclusion criteria; Pregnant women who were HIV infected and were on follow up, either tested or known positive. HEI mothers willing to participate in the study and were on follow up.

Exclusion Criteria; Women who were not pregnant, but HIV infected and health care staff who had not been in the department for more than 6 moths and not in administrative level.

Data collection: The data were collected using structured interviewer administered pre-tested questionnaires. The questionnaires were prepared to address utilization of PMTCT of HIV as a practice, knowledge and attitude of PMTCT services among women attending antenatal care clinics. The questionnaires were administered on 385 pregnant women HIV infected and mothers of highly exposed infants who fulfilled the inclusion criteria while they were attending ANC clinic.

Data Analysis: Data was entered on MS Excel® (Microsoft, USA) and then exported to SPSS version 17® (IBM- Chicago model) for analysis. Descriptive statistics were used to analyze data which involved presenting results using text, proportions, percentages figures, graphics, tables and charts data as tables and texts. This help to assess the internal consistency and reliability analysis was done. Correlations between dependable variables were assessed using Pearson correlation. P –values less than 0.05 were statistically significant in all cases.

Ethical Consideration: Approval and clearance was sought from institutional Ethics Review Committee of Moi University Teaching and Referral Hospital. Further, the North Rachuonyo sub county health management team authorized the study to be undertaken. Informed consent of patients was obtained before participating in the study.

RESULTS

Majority (66%, 95% CI 61.3 – 70.7) of the respondents were knowledgeable of HIV based on fourteen variables that were tested. Over half (52.7%, 95% CI: 47.8 – 57.6) believed that drug compliance and adherence is key in ensuring their babies, whereas 22.1%, 95% CI: 18.2 – 26.2) significantly believed that in supporting good nutrition the mother is able to give birth to a healthy baby. However, good proportion to the respondents (11.4%, 95% CI: 8.3 -14.5) believed on healthcare supportive services as a bridge to having a healthy baby among HIV infected women.

On PMTCT interventions, most (42.1%, 95% CI: 37.2 – 47.1) had knowledge on ARV prophylaxis and exclusive breastfeeding as best option for PMTCT services. However, 11.4%, 95% CI: 8.6 – 15.0) of the respondents still practiced mixed feeding with ARV prophylaxis despite being knowledgeable on PMTCT prong approaches.

Table 1

Women knowledge of HIV on PMTCT interventions in antenatal care clinics in Rachuonyo North Sub- County

Variable	Frequency (n = 385)	Proportion (%)	95% CI
Category (0-8) not knowledgeable	131	34.0	29.3 – 38.7
Category (9-14) knowledgeable	254	66.0	61.3 – 70.7
How mothers ensured that their children are born healthy in essence to (KAPs)			
Taking drugs as ordered	203	52.7	47.8 – 57.6
Good nutrition for the mother	85	22.1	18.2 – 26.2
Attending clinics/ hospital delivery as scheduled	53	13.8	10.3 - 17.3
Others	44	11.4	8.3 - 14.5

Knowledge of PMTCT Intervention amongst respondents in Rachuonyo North: Most (42.1%, 95% CI: 37.2- 47.1) of the respondents had knowledge on use of ARV prophylaxis and exclusive breastfeeding as option1for PMTCT and approximately one third (22.9%, 95% CI: 18.9 - 27.3) of the respondents had knowledge on option 2 where use of ARVs and breast milk substitute as an intervention for PMTCT for HIV, whereas minority (11.4% ,95% CI: 8.6 - 15.0) of the respondents practiced mixed feeding with use of ARV prophylaxis which is not an advocated practice for PMTCT of HIV strategy.

Table 2

Knowledge of PMTCT intervention amongst respondents in Rachuonyo North Sub- County

PMTCT Interventions	Frequency (n = 385)	Proportion (%)	95% CI
Use of ARV prophylaxis (for mother and baby) and exclusive breastfeeding (option1)	162	42.1	37.2- 47.1
Use of ARV prophylaxis (for mother and baby) and breast milk substitute (option2)	88	22.9	18.9 - 27.3
Use of ARV prophylaxis (for mother and baby) and mixed feeding options (option3)	44	11.4	8.6 - 15.0
Mixed options 1,2 and 3	43	11.2	8.4 - 14.7
Options2 and 3 only	26	6.8	4.6 - 9.7
ARV only	22	5.7	3.8 - 8.5

Attitude of 385 women of reproductive age towards ANC and HIV screening in Rachuonyo North: In relation to ANC uptake, majority (51.4%, 95%; CI: 46.4 – 56.4) of the respondents stated that it was of a high benefit to them, while some (22.3%, 95% CI: 18.4 - 26.8) felt that it was of moderate importance. Majority (71.2%, 95% CI: 66.7 – 75.7) of the respondents were interested in attending ANC for PMTCT services. In

assessment of health seeking behavior, 37.1% of the respondents seek all their treatment in a legally designated health facilities while, 29.6% felt they also seek alternative treatment as a remedy to health care. Majority, (65.5%) of the respondents were still willing to retest for HIV, however (21%) felt no need and not willing to test again.

Table 3

Attitude of 385 HIV positive women of reproductive age in Rachuonyo North Sub- County

	Frequency (n=385)	***Proportion (%)***	***95% CI***
ANC Benefit			
High benefit	198	51.4	46.4-56.4
Moderate benefit	86	22.3	18.4-26.8
Low benefit	51	13.2	10.2-17.0
No benefit	28	7.3	5.1-10.3
No response	22	5.7	3.8-8.5
Interested in ANC			
Yes	274	71.2	66.7-75.7
No	91	23.6	19.3-27.9
No response	20	5.2	3.2-7.4
HIV positive health seeking behavior			
Seek treatment in health facilities	143	37.1	32.2 – 42.1
Conceal status	114	29.6	25.1 –34.1
Refuge from friends/relatives	27	7.0	4.5 – 9.5
Alternative medicine	54	14.0	10.5- 17.5
Don't know	47	12.2	8.6 - 15.5
What is the reaction to someone with HIV			
Well understood (positive)	203	52.7	47.8-57.6)
Full of regrets (negative)	122	31.7	27.2 – 36.4
I don't care (No response)	60	15.6	12.1 -19.4
Behaviour of someone living positively			
Apparently healthy	153	39.7	34.8 - 44.6
Very sick	95	24.7	20.4 – 29.0
Sickness and death	50	13.0	9.7 – 16.3
Don't know	35	9.1	6.2 – 12.1
No response	52	13.5	10.2 – 16.8
Willingness to test for HIV during attendance			
Yes	252	65.5	60.8 – 70.2
No	81	21.0	16.9- 25.1
No response	52	13.5	10.2- 16.8

Most (46.5%, 95% CI: 41.5-51.5) of the respondents had knowledge on immediate follow-up test of HIV for the babies should be done at 6 weeks with first immunization. However nearly one third (28.1%, 95% CI: 23.1- 32.8) understood that the HIV test for the baby should be appropriate before child reach 6 months of age, while some (7.5%, 95% CI: 5.3 - 10.6) had knowledge that a HIV confirmation test need to be done between 12-18 months of age.

Table 4

Highly Exposed Infants (HEI) mother knowledge on HIV follow-up tests as a practice on intervention of PMTCT amongst 385 HIV +V Women in Rachuonyo North Sub- County

HEI Test Interventions	Frequency (n =385)	Proportion (%)	95% CI
DNA- PCR test done at 6 weeks	179	46.5	(41.5-51.5)
PCR done at first contact before 6 months	108	28.1	(23.1- 32.8)
Antibody test done by 12 – 18 months of life	29	7.5	(5.3 - 10.6)
No need for test if given drugs	27	7.0	(4.8 -10.0)
Have not been told	24	6.2	(4.2 - 9.1)
Others (I do not know)	18	4.7	(3.0 - 7.3)

Association between ANC visit and attitude of women infected with HIV: The study also assessed the clinic visits and attitude of beneficiaries; it was revealed that respondents had positive health seeking behaviors ups more so in health facilities shown to have significant association with attitude towards PMTCT. (AOR=1.57, 95% CI (1.09, 4.15). In assessing the practices of PMTCT and ANC, among the respondent's majority of them, 273 (71%) and348 (91%) went through pre and post- test counseling of HIV. The study also showed significant association with practice towards PMTCT and ANC attendance (AOR = 1.14, 95% CI (1.21, 2. 59). On practices of women with regards ANC and HIV, Majority, 95% CI(6.77, 7.67) of the respondents showed that they attend ANC clinic more than 2 visits, most women are attended to at dispensaries and health centers which are government health facilities, 95% CI (4.55, 5.53),(2.19, 3.05) and(4.13, 5.11)

Table 5

Association between Antenatal clinic and attitude on PMTCT among women attending clinics in Rachuonyo North

	Attitude on PMTCT (1=Good, 0=Poor)				
Variable	Good	Poor	COR (95% CI)	AOR (95% CI)	P-value
ANC Health seeking behavior					
Alternative medical care/TBA	14	40	1	1	
Seeking treatment in health facility	112	30	6.28(2.13-21.2)	1.57(1.09-4.15)	0.004
Non-disclosure- keeping to self	96	18	8.17(1.99-15.7)	2.64(0.37-14.7)	0.754
Others	60	17	6.78(2.26-17.57)	1.36(0.39-17.56)	0.95

Willingness to attend clinic					
Yes	231	20	3.18(1.21-7.45)	1.90(1.08-8.21)	<0.001
No	81	52	1	1	__ <0.001

***Association is significant at the 0.05 level and below*
AOR (95% CI) = 1.00, COR (95% CI) =1.00, ANC, PMTCT

Table 6

Association between Antenatal clinic and Practices on PMTCT among women attending clinics in Rachuonyo North

Variable	Practice of PMTCT (1=Yes, 0=No)		**COR (**95% CI)	**AOR (**95% CI	P-value
	Yes	No			
Counselled for HIV test on first ANC visit					
Pre-test counselling	270	115	1	1	__
Post -test counselling	348	37	6.18(1.41-19.82)	2.9(1.13-4.72)	0.039
ANC during last Pregnancy					0.031
Yes	206	71	4.88(1.78-10.56)	1.88(1.18-4.58)	<0.001
No	61	46	1	1	__
Number of ANC visit for current pregnancy					<0.001
One	33	25	1	1	__
Two	81	11	1.4(1.12-23.53)	1.81 (0.35-11.7)	0.501
Three	85	43	1.82(0.22-23.27	3.5(0.57- 57.13)	0.003
Four and above	73	32	1.47(1.60-5.44)	1.14(1.21-2. 59)	<0.001
					<0.001

***Recommendations by respondents to Improve PMTCT care among women attending antenatal care services*:** The respondents (24.7%) felt that drug compliance and adherence are key in improving PMTCT care whereas (21.3%) noted that empowering women through trainings is important. About (11.9%) of the respondents stated that provision of prompt and quality healthcare services in more health facilities is important in improving PMTCT uptake.

Table 7

Recommendations made by respondents regarding Improving PMTCT care among women attending antenatal care services in Rachuonyo North Sub County

Recommendations	Frequency (n = 385)	Proportion (%)	95% CI
Drug compliance and adherence be monitored at convenient locations to ease access	95	24.7	(20.4 – 29.2)
Empowering women on HIV strategies by CHWs through training, home visits and social mobilization	82	21.3	(17.5- 25.7)
Health workers need to be more discrete with HIV status of clients	66	17.1	(13.7- 21.2)
Create more awareness through male involvement	50	13.0	(10.0 - 16.7)
Provide prompt and quality services in more health facilities respectively	46	11.9	(9.1- 15.6)
Train and deploy mentors' mothers for PMTCT programs in the community	26	6.8	(4.2 - 9.7)
No response/ suggestions	20	5.2	(3.4 – 7.9)

DISCUSSION

In order to achieve a global target on sustainable action towards zero new infection, zero AIDS related deaths and Zero discrimination scale up of evidence-based prevention intervention with knowledge and attitude identified as key factors influencing access and utilization of PMTCT services. Therefore, knowledge dissemination and knowledge capital generation are more likely to heighten awareness, significantly change attitude and enhancing PMTCT practice. This is expected to lead to significant reduction in the need of PMTCT as well as a reduction in the number of new HIV infections (10).

In the study, knowledge and attitude were identified as factors influencing utilization of PMTCT in Rachuonyo North as majority of the respondents attended ANC. Like other studies, there was a substantial number of respondents who were knowledgeable on basic PMTCT of HIV based on 14 indexes that were assessed (11,12). However, the findings were in contrast with the study done in southern Tanzania where only a quarter of the women had adequate knowledge on PMTCT of HIV infection. This difference can

be explained by the fact that majority of study participants in Rachuonyo North had positive health seeking behavior and were willing to test for HIV during ANC clinic attendance. It has been observed that being HIV positive raises concerns about one's health and that of unborn child. Most pregnant women who were interviewed were aware of the possibility of a HIV infected woman transmitting an infection to her unborn child. This may have been due to advocacy on HIV/ AIDS through public media, ANC pre and post counseling and the number of visits to the clinics. Our finding appears to contrast a study done in Southern Tanzania, where women were not aware of the possibility of an infected mother transmitting the infection to her child (13). Further, during counseling HIV positive pregnant women were provided with additional information on ARVs prophylaxis, infant feeding issues, disclosure and partner testing (14).

Our study revealed that mothers were keen on the first six-week post -delivery follow up for the highly exposed infants to HIV. Other Similar findings showed that early infant diagnosis of HIV provides critical opportunity to strengthen follow up of HIV exposed children. This knowledge and information on early identification of HIV exposed and infected infants, early linkage to prevention for the exposed and care and treatment, provide reassuring information to families of uninfected children and aid an evaluation of PMTCT interventions (15,16).

This study showed that majority of women had attended ANC clinic at least twice during pregnancy. This was a positive finding because missed opportunities could be explored in the subsequent ANC (15,16). A similar study done in Tanzania disclosed that HIV positive pregnant women with frequent visits to ANC for PMTCT services were two times more knowledgeable than those who attended ANC for PMTCT service less than two times (16). Emphasizing the need for HIV positive pregnant woman to attend ANC regularly is therefore mandatory. Currently HIV infected pregnant women start ARV prophylaxis as early as 14 weeks of pregnancy and continue up to one year of breast feeding (17).

The present study revealed that attitude towards PMTCT interventions such as ANC-HIV testing and counseling, referral and link-aging, follow ups, ARV prophylaxis and appropriate infant feeding choices were influenced by the knowledge of the respondents. In a similar study done in Kabeho –Rwanda, early initiation of ART, follow up and sustained appropriate feeding option were key to reduction of HIV reservoir (16,17).

New infections and high viral loads during pregnancy pose the greatest risk of transmission of HIV from mother to the unborn child. Thus, primary prevention, ARVs prophylaxis as well as treatment are highly recommended. In Kenya, 25% of women have unplanned pregnancy and there are 60% unmet needs for family planning among HIV positive women (13,14). This calls for strengthening of family planning services in counties with high HIV prevalence as this can offer a chance to further prevent MTCT of HIV.

This study further revealed that proper pre and post counseling on HIV infection during ANC visits are significantly associated with the level of knowledge and attitude on mother to child transmission of HIV. This may be contributed by the fact that women who were attending clinic well understood the status and were assumed to be responsible and can defend her status in a social context unlike the first clinic attendances whom were

exposed to different community perceptions of the pregnancy (15).We also found out that mothers were able to identify key information to improving PMTCT uptake. Women receiving treatment and those who declined treatment, community members and even health workers stated that the negative attitude of some health workers posed a barrier to participation in PMTCT services (KAIS, KDHS 2012). This contributes to an increase in the number of HIV positive women not linked to care and failure to prevent MTCT (18). A study done in Nairobi, Kenya showed long wait periods at the health facility, negative views about the program and program staff, and lack of clarity regarding ability to continue with services after several missed appointments were some reasons reported for patient dropout from services (19).

This study showed an association of health seeking behavior and ANC PMTCT practice among women living with HIV thus optimizing delivery of services. The findings were similar to a study done in health facilities in Ethiopia where healthcare workers were not enthusiastic about handling deliveries for women who are known to be HIV positive for fear of accidental infections (13). This stigmatizes and showed open discrimination of HIV positive women, thus calls for the need of training to health facility staffs in safety precautions and procedures (18).

Our study also revealed that attitude a person have on something may affect the interest of that person knowing or utilizing the service. Majority of the pregnant women perceived HIV testing for pregnant women to be important. These findings were similar with the study in Ethiopia where HIV testing in ANC was not well perceived owing to the threat it posed to family stability (19,20). This is a very positive and encouraging finding that pregnant women have a positive attitude towards PMTCT interventions. The study also showed that most of the respondents were able to live positive with their status and seeking treatment in health facilities. Therefore, it is important to comprehensively develop a health care policy empowering health care systems with efforts to improve PMTCT services in the rural areas. Furthermore, access and utilization of services resonates well with quality, acceptable and adequate resources (WHO 2012)

In our study several factors were found to be associated with non-utilization of PMTCT program. These included perceived discrimination and stigmatization by the public, protracted high cost of services and drugs, ignorance on person's status on HIV, denial, having weak perception in PMTCT as a service among mothers attending antenatal clinics and health care workers attitude in providing PMTCT services. This was similar with findings on towards universal access, scaling up in the health sector report, Kenya (22). The above findings are also similar to those done in Mbeya, Tanzania which showed that elimination of mother to child transmission of HIV can be done through advocacy on socio-economic, cultural and health factors that compel HIV positive pregnant women to stay away from health facilities when they are due to give birth (23,24).

CONCLUSION

In conclusion, knowledge on when MTCT occurs, the availability of preventive measures is critical and key determinant, and this may influence women to attend ANC clinics regularly for effective and efficient PMTCT interventions. Therefore, it is

important to deliver correct information on the PMTCT service access and utilization by promoting the facilitators and addressing the barrier factor due to limited information in their present and future pregnancies.

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