

Factors Affecting the Utilization of Prevention of Mother-to-Child Transmission of Hiv Among Antenatal Clinic Attendees In Federal Medical Centre, Yola

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Abstract:-

➤ Background:

An important strategy in HIV prevention is the Prevention of Mother- to-Child transmission. This study investigates the factors affecting the utilization of Mother-to-Child Transmission of HIV among ANC Clinic attendees in Federal Medical Center, Yola.

➤ Methodology:

Descriptive survey design with validated interviewer administered questionnaires was used to gather Information from 96 participants. Ethical permission was sought for, from Taraba State Ministry of Health, and informed consent was obtained from participants. Data analysis was done using IBM SPSS version 21 and descriptive and inferential statistics presented. Questionnaire was tested for validity and reliability with Cronbach Alpha 0.705 computed.

➤ Results:

Respondents mean age was 41.89 ± 7.41 , Majority were married (81.3%), Civil servants (51%) of Islamic faith (60.4%). they were mostly of secondary educational level (53.1%) with 1-5 children (66.7%). Predisposing factors were tested on 18-points scale and reported $\bar{X} = 13.7 (0.09) \pm 0.85$, Reinforcing factors on 32-points scale, $\bar{X} = 15.0 (0.17) \pm 1.71$, Enabling factors on 32-points scale, $\bar{X} = 26.9 (0.22) \pm 2.13$ and Self-reported

Utilization of PMTCT services on 28-points scale, $\bar{X} = 10.7 (0.11) \pm 1.10$. However, the respondents' achievement of utilization prevalence rate was 38% away from the minimum adherence rate of 95%. From Regression analysis, predisposing factors accounted for 6.5% of utilization ($r = 0.251$; $R^2 = 0.065$; P-Value 0.00); Reinforcing factors, 4.0% ($r = 0.20$; $R^2 = 0.040$; P-value = 0.00) and Enabling factors, 2.5% ($r = 0.151$; $R^2 = 0.025$; P-value = 0.000).

➤ Conclusion:

Predisposing, reinforcing and enabling factors appear to be significant predictors to the utilization of PMTCT services. It is therefore, recommended that the trio should be put into consideration when implementing PMTCT programs and services.

Keywords:- Demography, Factors, Mother, Enabling, Utilization, Transmission

I. BACKGROUND TO THE STUDY

The greatest 21st century challenge to human kind is the epidemic of Acquired Immune Deficiency Syndrome (AIDs) (Waymack, Sundareshan, 2023), the causative organism being the Human Immune Deficiency Virus (HIV), discovered in 1981 (Greene, 2007). Over 55% of the people living with HIV are women of reproductive age who carry pregnancy with prevalence rate of 7.2% for pregnant women (Ozim, Mahendran, Amalan, & Puthussery, 2023).

Ozim, et al (2023) noted that because Women are vulnerable, HIV infections in their reproductive age increase perinatal HIV epidemic. It was further reported that about 39 million people globally live with HIV, out of which 2.58 million are children 0-19, and 1.8 million are from sub-Saharan Africa. Worldwide, over 270,000 children become infected (UNICEF, 2023).

In Nigeria, about 69,400 children became infected with HIV through mother-to-child transmission at the rate of 9.7% of HIV exposed infants (Itiola, Goga, & Ramokolo, 2019). This has led to a rise in the total number of children living with HIV in the country to an unprecedented 440,000 (UNICEF, 2020). Kassa (2018) reported that virtually all HIV infection in children occurs following mother to child transmission during the ante natal, intra-natal, delivery, and post natal periods. With effective interventions, such as use of anti – retroviral drugs and formula feeding, the risk of mother to child transmission has been shown to reduce by 5% (CDC, 2023). Primary prevention activities such as (preventing new infections, prevention of new pregnancies in women that are infected with HIV) and secondary prevention practices like (reducing mother to child transmission of HIV infected), are the three approaches in reducing mother to child transmission (MTCT) promoted by the world health organization (WHO), (USAID, 2022 & World Health Organization, 2009).

New approaches in preventing MTCT to less than 2% includes use of combined anti – retroviral prophylaxis, elective caesarean section, and by avoiding prolonged breastfeeding or mixed feeding (UNICEF, 2018). An estimated 66% of new HIV infections among children in 2015 and 63% of HIV related deaths occurred in West and Central Africa (WHO, 2021). Although the region has seen a 31% reduction in new child (sometimes referred to as pediatric) HIV infections between 2010 and 2015 (USAID, 2022), East and Southern Africa has achieved the largest decline in MTCT anywhere in the world, falling from 18% of infants born to mothers living with HIV in 2010 to 6% in 2015—a threefold decrease (John-Stewart, Peeling, Levin, et al., 2017). The Northern part of Africa and the Middle East progresses least among the regions of Africa, as nearly one third of women living with HIV passed the virus on to their children in 2015 (UNAIDS Global AIDS update, 2022). Responsible socio-economic factors as reported in the findings of Jumare (2019), including a stock-out of ARVs and test kits, inadequate health human resources, transport cost, distance, clinic cost for PMTCT and antenatal care as well as the high cost of formula feeding. Another study identified such factors as knowledge of sero status in pregnancy, home deliveries, inadequate partner support, sub optimal adherence, late commencement of ARV prophylaxis, practice of mixed breast feeding and inability to take zidovudine prophylaxis (Hussen R, Zenebe WA, Mamo TT, et al., 2022).

The aim of this study was to identify the Factors responsible for the Utilization of PMTCT of HIV services

among Antenatal Clinic Attendees in FMC, Yola. The specific objectives of the study include to:

- Determine the predisposing factors responsible for the utilization of PMTCT of HIV services amongst pregnant women in FMC, Yola.
- Ascertain the reinforcing factors responsible for the utilization of PMTCT of HIV services among pregnant women in FMC, Yola.
- Determine the enabling factors responsible for the utilization of PMTCT of HIV services among pregnant women in FMC, Yola.
- Evaluate the extent of utilization of PMTCT of HIV services among pregnant women in FMC, Yola.

II. METHODOLOGY

➤ Research Design

The research design used in this study was descriptive survey

➤ Population

The population for the study was all the pregnant women in Federal Medical Centre, Yola.

➤ Description of Study Area

Federal Medical Center, Yola is a 330-bed multi-specialist hospital located along Lamido Zubairu Way, Yola-Town on GPS coordinates, latitude: 9.2084, longitude: 12.4815, Adamawa state - north eastern part of Nigeria. It covers a total land mass of 39.59 hectares. FMC, Yola was established following an agreement between the Federal Ministry of Health and the then Adamawa State Government to take over the then Yola Specialist Hospital Yola in 1998 before relocating to its present permanent site in 2006. The hospital is a tertiary healthcare center established to service people from Adamawa, parts of Taraba, Gombe and Borno states in addition to those coming from the neighboring republic of Cameroun. Within the limits of available resources, the facility has been able to provide high standard of healthcare to its teeming clients; provided with state-of-the-art equipment in the theatres, laboratories, radio-diagnosis, Special Care Baby Unit (SCBU), obstetrics and gynecology unit, Dialysis Unit etc., which are intended to provide patient-friendly and conducive working environment for its staff.

➤ Sample Size Determination/ Sampling Technique

Multi-stage sampling method was adopted. First, a simple random sampling led to a selection of Yola South LGA and FMC, Yola respectively, followed by systematic random sampling with a selection of every fifth pregnant woman LWHA on the PMTCT register.

Sample size was determined using a sample size computation. According to Taro Yamani, he illustrates a formula mathematically as:

$$n = N / (1 + N(e)^2)$$

Where:

n = Sample size

N = Total population = 100
 e = Limit of tolerate error (0.05)

Substituting this formula,

$$n = \frac{N}{1 + N(e)^2} = \frac{100}{1 + 100(0.05)^2} = \frac{100}{1 + 100(0.0025)} = \frac{100}{1 + 100 \times 0.0025} = \frac{100}{1 + 0.25} = \frac{100}{1.25} = 80$$

Therefore, n = 80

The sample size for the study was 80 pregnant women living with HIV, who attended clinic from January to May, 2020. However, to cater for losses and incompleteness, about 15% was added=

15/80 x 100 = 18.75 + 80= 99 (100 was therefore, considered for sample size).

Bias: Sampling was systematically done from the sapling frame so that each participant had equal chances of being selected. There was a also a Careful framing of research questions.

➤ *Variables*

Both Primary and secondary dependent variables, the Utilization of PMTCT services were tested, including the independent and moderating variables, obtained from the constructs of the precede model. Demographic characteristics, predisposing, reinforcing, enabling and behavior practice of the utilization of PMTCT services were all measured.

➤ *Null Hypothesis Testing*

Study tested all Null Hypotheses to verify relationships among/ between variables.

➤ *Data Collection Methods and Instrument for the Study*

A validated interviewer administered questionnaire was designed which consisted of five main sections of socio-demographic characteristics, predisposing, reinforcing, enabling and behavior practice of the utilization of PMTCT services

In section A: Demographic information with seven items measuring the age, marital status, etc. Section B: Assessed a nine items constructs of the predisposing factor with yes or no response pattern. The third section was the measurement of construct of reinforcing factors (8 items) with response patterns strongly agreed, agreed, disagreed and strongly disagreed. The fourth section measured enabling factors with eight items and response pattern of strongly agreed to strongly disagree. The fifth section consisted of seven items measuring the utilization of PMTCT services. Response pattern were none of the Time, Some of the Time, Most of the Time and All of the Time.

➤ *Data Validity and Reliability*

Thorough literature review was done to identify the variables that constitute the questionnaire, followed by necessary adjustment to the instrument before the final

administration. The instrument for this study was also scrutinized by the researcher’s supervisor who made necessary corrections. A measurement scale was develop to ensure accuracy of the data collected using constructs from a suitable model, the precede model. This model unveiled the variables for designing the instrument.

Reliability was ensured by a pilot-test and by test retest of the developed instrument to ensure that consistency was maintained in the measurement of what was intended to measure. The questionnaire scales were sufficiently reliable (Cronbach Alpha 0.793), although it was noted that some scales could be improved.

• *Procedure for Data Collection*

Two research assistants were trained on how to administer the instrument for data collection. The health facility was accessed through the management of FMC, Yola to seek permission for the conduct of the study. The respondents were met at the ANC/PTMCT clinic. The questionnaires were administered to all the respondents available at clinic for a period of one (1) week duration.

• *Inclusion Criteria* was all pregnant women LWHAs and accessible at the time of this study while **Exclusion criteria included** all pregnant women who were not present or accessible at the time of this study and who declined study at any stage of the study.

• *Measures*

Questionnaire enabled data collection tool was structured on demographics, including Age, Sex, Marital status, Religion, Education, Occupation and the constructs of the Precede Model. Multiple-item summative scales were computed from these items to be measured. A scale of measurement for each of the constructs of the precede model was developed and the mean scores of responses converted to percentage of the maximum scores on scale and rated in quartiles. An example of this computation is being illustrated below: a mean score of 13.8 for a variable on

maximum scale of 14 was computed as $\frac{13.8}{14} \times \frac{100}{1} = 98.6\%$. After the computation, low scores were considered for percentages $\leq 25\%$; $\geq 25\%$ and $\leq 49\%$ as below average scores and $\geq 50\%$ of the maximum score based on the scale as average scores. Scores $\geq 75\%$ were seen as high (good) scores.

• *Data Management and Statistical Analysis*

Validated interviewer administered questionnaire was used for this study to collect information from participants. For better understanding of the questionnaire items and and for accurate response, a total of two (2) research assistants received training to be equipped with skills for data collection covering aspects of the study procedures: the objectives of the study; research ethics and conducts; participants’ rights, confidentiality, informed consent and identification of prospective respondents. Collation of the data collected was completed and analyzed with the use of

statistical software, Statistical Packages for Social Sciences (SPSS) version 21, so that an estimation of measures of central tendency and dispersion were done (Descriptive statistics and analytic/inferential statistics).

• *Validity and Reliability*

The instrument for this study was validated by examining the contents, constructs, and items followed by necessary corrections to ensure face validity. Literature contents related to the problem under review were also scrutinized and a scale of measurement developed to ensure accuracy of the data to be collected. Constructs from a suitable model, the precede model was used which unveiled the variables used in designing this instrument. To ensure reliability, pre-testing and test, retest of the developed instrument was done on similar population. This was to ensure the consistency of the measurement.

This was followed by a modification of the questionnaires, elimination of technical terms and reformulation of some items in clearer and every day vocabularies. Questionnaire were interpreted into local languages and the questionnaire scales sufficiently reliable (Cronbach Alpha 0.705), although it was noted that some scales could be improved.

➤ *Ethical Issues*

Ethical permission was sought for, from the management of FMC, Yola, who granted the permission to

carry out the research. The researcher introduced herself by presenting a copy of the letter of introduction obtained from the HOD nursing department to the management of the health facility and then to the Chief Nursing Officer in-charge of antenatal clinic. The research title was introduced to the respondents and instructions given on how the questionnaires should be completed. The researcher reassured the participants that all information must be only used for academic purpose and client’s names were omitted in order to maintain confidentiality and privacy.

The consent of the respondents was adequately gained by giving them adequate information to enable them to express their feelings.

III. RESULTS

➤ *Demographic Characteristics of Respondents*

A total of 100 eligible participants were considered in this study, who responded to the questionnaires with a return rate of 96%. Their ages ranged between 18 years to 50 years with a mean score of 41.98; standard deviation = 7.413. The self-employed represented a majority (47.9%) of respondents, most of whom were married (81.3%) and of Islamic faith (60.4%). The academic statuses of the majority of the respondents were of secondary educational level (53.1%). Most of them were Civil servants (51%) with 1-5 children (66.7%).

Table 1 Frequency Distribution of Demographic Characteristics of Respondents in this Study

Variables	*** (N = 96)	
	N	(%)
Occupation		
Unemployed	21	21.9
Self-employed	46	47.9
Civil Servant	29	30.2
Marital Status		
Single	7	7.3
Married	78	81.3
Separated	4	4.2
Widow	7	7.3
Religion		
Christian	37	38.5
Islam	58	60.4
Traditional Belief	1	1.0
Education		
Non-formal	4	4.2
Primary	8	8.3
Secondary	51	53.1
Tertiary	33	34.4
No. of Children		
None	7	7.3
1-5	64	66.7
More than 5	25	26.0
Husband Occupation		
Civil Servant	49	51.0
Self employed	40	41.7
Public figure	7	7.3

*** Respondents in this study

- *Predisposing Factors in the Utilization of PMTCT Services*

In this study, the predisposing factors necessary for the utilization of PMTCT services was measured as 9 items on 18-points scale to ask about some personal level factors like the knowledge of some PMTCT related information contributing to adherence. Results showed that respondents (95.8%) have some knowledge that Mothers on ARVs can still continue to breast feed their babies according to choice of feeding method, HIV viral load can significantly be suppressed by adherence to ART (99.6%), ART adherence protects mothers from developing opportunistic infections (OIs) (91.7%), and culture does not discriminate HIV patients (19.8%).

Predisposing factors in the utilization of PMTCT services on maximum score of 18-points scale reported a mean score of $13.7 (0.09) \pm 0.85$ being 76% of the maximum score (a high level of Predisposing factors in the utilization of PMTCT services). Even though all the groups scored high levels for predisposing factors, Holders of tertiary education scored the highest ($\bar{X} = 13.9 (0.2) \pm 0.5$) and lowest ($\bar{X} = 12.7 (0.1) \pm 0.7$) for non-formal education

- *Reinforcing Factors in the Utilization of PMTCT Services*

In this study, reinforcing factors in the utilization of PMTCT services was considered on 32-points scale. Respondents reported whether they were supported by immediate people around them such as family, Health care providers, spouse, etc, in the course of their treatment. About 99% of respondents reported receiving consistent support from family, Privacy from nurses and care givers (54.2%), Incentives for adherence and appointment keeping (21.8%), Assistance from support groups (24%), and Supports from religious group (0%).

- *Reinforcing Factors in the Utilization of PMTCT Services* on maximum score of 32-points scale reported a mean score of $15.0 (0.17) \pm 1.71$ being 47% of the maximum score (an intermediate level of **Reinforcing factors in the utilization of PMTCT services**). Even though all the groups scored high levels, Reinforcing factors scored highest for tertiary education ($\bar{X} = 15.9 (0.4) \pm 0.9$) and lowest ($\bar{X} = 14.0 (0.2) \pm 1.6$) for non-formal education.

- *Enabling factors in the utilization of PMTCT Services*

Enabling factors in the utilization of PMTCT services was measured in this section in terms of self-reported environmental factors that favor the utilization of PMTCT services. For this section, 32% of the respondents reported that distance to PMTCT clinic was not far, cost of drugs and services are not high (100%), waiting time to get attention is not long (21.9%), hospitable staff are skilled and professional (99%), Friendly and non-discriminatory (22.9%) and Clean and welcoming environment (100%). Enabling factors in the utilization of PMTCT services on maximum score of 32-points scale reported a mean score of $26.9 (0.22) \pm 2.13$ being 84% of the maximum score (high

level of enabling factors in the utilization of PMTCT services). Comparing Enabling factors, tertiary educational attainments scored highest ($\bar{X} = 27.7 (0.2) \pm 0.6$) and non-formal education, lowest ($\bar{X} = 25.5 (0.3) \pm 2.0$).

- *Utilization of PMTCT Services*

This section consisted of 8 items Self-Reported adherence measured on 32-point scale. It enquired how often respondents did certain activities that contributed to their **Utilization of PMTCT services**. In this study, (100%) of the respondents reported not forgetting to take their recommended ART medications. About 100% do not stop drugs because they experience side effects, 95% do not miss refill appointments, 93.7% reported not missing scheduled PMTCT clinic appointments and 99% do not forget carrying their medications along when they travel.

- *Self-reported utilization of PMTCT services* with maximum score of 28-points reported a mean score of $10.7 (0.11) \pm 1.10$ being 38% of the maximum score (meaning that there was a low level of utilization of PMTCT services). However, from this study, respondents achieved PMTCT services utilization prevalence rate of 38% away from the minimum adherence rate of 95%. Summary of Descriptive statistics for analysis of variables is shown in Table 4.7. Utilization of PMTCT services however, scored highest for non-formal education ($\bar{X} = 11.0 (0.2) \pm 1.5$) and lowest for primary educational attainments ($\bar{X} = 10.6 (0.1) \pm 0.2$). These scores were followed by nurses who measured their degrees in other fields other than nursing $\bar{X} = 21.0 (0.5) \pm 1.8$. This means that graduate nurses has better preparation for nursing roles than the diploma nurses and nurses who are degree holders in other allied fields.

➤ *Summary of Descriptive Statistics for Respondents in this Study*

Table 2 Summary of Descriptive Statistics for Respondents in this Study

Variable	Scale of measure	Mean \bar{X}	SE	\pm SD
Predisposing	18	13.7	0.09	0.85
Reinforcing	32	15.0	0.17	1.71
Enabling	32	26.9	0.22	2.13
Utilization	28	10.7	0.11	1.10

SE: Standard Error of Mean; SD: Standard deviation

Table 3 Mean Scores Comparisons for Knowledge, Attitude, Behavioral skills and Self-Reported practice of Universal Precaution according to type of Educational Attainments in Nursing in this Study

Variables	Max. Score	Non-formal (N=4)		Primary (N=8)		Secondary (N=215)		Tertiary		P-value
		\bar{X} (SE)	\pm SD	\bar{X} (SE)	\pm SD	\bar{X} (SE)	\pm SD	\bar{X} (SE)	\pm SD	
Predisposing	18	12.7 (0.1)	0.7	13.5 (0.1)	0.8	13.7 (0.3)	1.0	13.9 (0.2)	0.5	0.001
Reinforcing	32	14.0 (0.2)	1.6	14.8 (1.2)	1.7	15.7 (0.6)	1.9	15.9 (0.4)	0.9	0.213
Enabling	32	25.5 (0.3)	2.0	26.9 (0.2)	2.1	26.7 (0.9)	2.6	27.7 (0.2)	0.6	0.029
Utilization	21	11.0 (0.2)	1.5	10.6 (0.1)	0.2	10.3 (0.6)	0.7	10.8 (0.4)	0.8	0.016

SRA: Self-Reported Adherence; SE: Standard Error of Mean; SD: Standard Deviation

➤ *Summary of Outcome of Regression Analysis for Path Analysis (N=96)*

Table 4 Summary of Outcome of Regression Analysis for Path Analysis (N=96)

Variables	Utilization of PMTCT		P-Value
	R	R ²	
Predisposing factors	0.25	0.065	0.000
Reinforcing factors	0.20	0.040	0.000
Enabling factors	0.15	0.025	0.000

➤ *Hypotheses Testing*

Study had three null Hypotheses which were subjected to tests to determine which of the predictor variables produced higher changes on the outcome variable of Utilization of PMTCT services. Regression analysis at 0.05 level of significance was done with decision rule that if $P < 0.05$, then the Null Hypotheses will fail to be accepted in favor of alternative hypotheses and if $P \geq 0.05$, then the Null Hypotheses will fail to be rejected.

Ho: 1. There will be no significant relationship between predisposing factors and utilization of PMTCT services among participants in this study.

Results yielded a positive significant relation with correlation coefficient analysis of $r = 0.250$ and $R^2 = 0.065$ with P- Value of <0.000 . This is a significant relationship between predisposing factor and Utilization of PMTCT services in this study. Hence, we fail to accept the Null hypothesis.

Ho: 2. There will be no significant relationship between Reinforcing factors and Utilization of PMTCT services among participants in this study.

From results, a positive statistically significant relation exists between reinforcing factors and the Utilization of PMTCT services with correlation coefficient of ($r = 0.201$ and $R^2 = 0.040$), P-value of <0.000 . This showed that strong relationship exists between reinforcing factors and the

Utilization of PMTCT services in this study, hence, we fail to accept the Null hypothesis.

Ho: 3. There will be no significant relationship between Enabling factors in PMTCT Utilization and the Utilization of PMTCT services among participants in this study.

Study showed a statistically significant relation between Enabling factors and the Utilization of PMTCT services with coefficient of $r = 0.015$ and $R^2 = 0.025$ with P-value of 0.000. This showed that there is a relationship between enabling factors and the Utilization of PMTCT services in this study. We therefore, fail to accept the null hypothesis.

IV. DISCUSSION, CONCLUSION AND RECOMMENDATIONS

➤ *The Demographic Characteristics of Respondents in this Study*

The results of this study indicates a varied ages representation, ranging from ages of 18 – 50, being those with ages of accountability, and holding responsibilities for selves and for other dependents. 81.3% of the participants were married with 1-5 children (67%). Majority of the respondents (53.1%) had only a secondary school education, a reason likely to affect their understanding of PMTCT. This agreed with the point raised by Fabiyi, & Obaniyi & Olukosi & Oyawoye (2015), that one’s level of education affects his or her informed decision making. The study area is

predominantly dominated by the Islamic faith (60.4%) even though other religious faith too exists.

A good number of respondents (95.8%) were aware that mothers on ART can still breastfeed their children, 99.6% that adherence to ART can suppress HIV viral load and 91.7% believes that ART adherence builds immunity that protects the mother from opportunistic infections. However, most cultures within the study area still discriminate HIV patients with only 19.8% that do not discriminate them. Women in the study area are not fully represented in all PMTCT related decisions and at such only a negligible percentage has free access to ANC and HCT. The findings are similar to what Zegeye, Ahinkorah, Ameyaw, *et al* (2022) reported, that most women are not involved in PMTCT decision making due to cultural and religious beliefs held in those communities. Study reported high level of predisposing factors in the utilization of PMTCT services which contradicts the findings of Deressa, Seme, Asefa, Teshome, & Enqusellassie (2014) and Chalachew Genet Akal, Dessie Tegegne Afework (2018) concluding that predisposing factors involved in the utilization of PMTCT services such as knowledge of mothers on MTCT of HIV was high.

Reinforcing factors in the utilization of PMTCT services included receiving consistent support from family (99%), incentives for adherence and appointment keeping with health care providers (21.8%), and assistance from support groups (24%). This was also reported by the Mabachi, Brown, Sandbulte, Wexler, Goggin, Maloba, & Finocchiaro-Kessler (2020) who reported that an improvement in social support for the mother improved the uptake of PMTCT service. Others included, close watch from health care providers (82.3%), privacy from Nurses and care givers (54.2%), which were in line with the work of Nassali (2009), that health care workers and care givers plays important roles in PMTCT services. There was reported, an intermediate level of reinforcing factors in the utilization of PMTCT services which is consistent with the findings of Kassa (2018) who stressed the need for social and organizational supports, though he did not measure its levels in his study.

Enabling factors in PMTCT services Utilization had high scores in this study as 32% agreed that their distance is not far from the PMTCT clinic, 100% says drugs are cheap (99%), hospital staff are skilled (100%), environment is clean and welcoming (21.9%) and waiting clinic time is not long. On same note, Akal, & Afework (2018) noted that most health care centers were located in urban areas making it difficult for rural dwellers to gain access. The study also agreed with WHO (2008) where having skilled professionals and a friendly environment can improve access to PMTCT in our health centers. Contrarily, a report by Chalachew Genet Akal, Dessie Tegegne Afework (2018), noted a contrary result, showing low levels of enabling factors in terms of lack of materials and equipment for PMTCT services, hot temperature of the area, language barrier, and low number of PMTCT providers.

The utilization of PMTCT services in the study area recorded low scores, though respondents claim not forgetting to take their drugs, not stopping Drugs even when side effects occur, not missing refill appointment and not missing PMTCT schedules. The study has contradicted the report of Mabachi, Brown, Sandbulte, Wexler, Goggin, Maloba, & Finocchiaro-Kessler (2020), that there is increase coverage in the utilization of PMTCT in the country. However the Mustapha, Musiime, Bakeera-Kitaka, Rujumba, & Nabukeera-Barungi, (2018) agrees that utilization of PMTCT services was still very low, though this was better among the pregnant women living with HIV.

➤ *Lessons Learnt/ Contribution of Study*

In this study, evidence demonstrates that for optimal adherence to the behavioral practice of exclusive breastfeeding, adherence to ART while breastfeeding will go a long way to reduce the viral load of the disease and also provides protection to both the mother and child. It is worth mentioning too that keeping schedules for ANC, Refill and other appointments are roadmaps to living a healthier life that cannot be neglected on the part of the patient. And furthermore both predisposing and reinforcing factors play a vital role in the utilization of PMTCT services and therefore must be appreciated in the different phases of PMTCT uptake.

➤ *Conclusion*

The problem of access to ANC and PMTCT services is what this study tried to address. It found that when Health education and counseling components are inculcated in every PMTCT program there will be an improvement in predisposing, reinforcing and enabling factors to PMTCT services. It is therefore, recommended that health workers should pass health information across to the clients, adequately accompanied by motivational components to inspire behavioral practice of adherence, remove barriers and then optimize adherence. An application of the precede Model in PMTCT programs can produce immeasurable behavioral change.

➤ *Recommendation*

Many recommendations are drawn from the results of this study and are as follow

- Health workers should improve their counseling and educational skills.
- Government and/ or proprietors should motivational their staff to further motivate the behavior practice of adherence to health information.
- Health care providers should build a trusting relationship with community members.
- Health care leaders and stakeholders, Ministry of Health should ensure regular supervision of health institutions and collaboration with the community to ensure adherence to breast feeding information
- There should be collaborative resources identification and mobilization for exclusive breast feeding and adherence to PMTCT purposes between the government and non-governmental organizations; Community based organizations and faith-based organizations.

- PMTCT centers or clinics should be located at accessible sites in the community
- Long waiting time/hours should be avoided in all PMTCT centers or clinics

➤ *Limitations of Study*

Employer and philanthropists did not provide financial aid of any sort.

• *Generalizability:*

The responses given are true reflection of the situation with nursing in Nigeria, most importantly, the sample data was drawn from nurses in Adamawa State, Nigeria.

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