

## Utilization Of Prevention Of Mother-To-Child Transmission Of Hiv Services Among Expecting Mothers At The Federal Medical Centre, Gusau, Zamfara State, Nigeria

Ezenkiri, Nwankwo Justin<sup>1</sup>, Hamisu Mamman<sup>2</sup> & Ezeani, Ugoma Deborah<sup>3</sup>

<sup>1</sup>Department of Physical and Health Education, School of Science, Isa Kaita College of Education, P. M. B. 5007, Dutsin-Ma, Katsina State, Nigeria.

<sup>2</sup>Department of Science Education, Federal University, Dutsin-Ma, Katsina State

<sup>3</sup>Department of Human Kinetics and Health Education  
University of Nigeria, Nsukka  
Enugu State, Nigeria.

### Abstract:

**Background:** The utilization of prevention of mother-to-child transmission (PMTCT) of HIV services stands firm against the spread of the virus to babies. On this hint, this study examined utilization prevention of mother-to-child transmission of HIV services among expecting mothers at the Federal Medical Centre, Gusau, Zamfara State. Three hypotheses are tested in this study.

**Materials and methods:** The cross-sectional type of descriptive research design was used in this study. The sample size was 64 participants. Researchers' self-constructed questionnaire with two sections was used to collect information at a four-point Likert-Scale. After the validation of the instrument for the data collection, 0.74 reliability coefficient was obtained, using the split-half method of reliability. The frequency counts, percentage, Chi-square, t-Test and ANOVA are used to analyze the data. All hypotheses are tested at 0.05 level of significance.

**Results:** Expecting mothers significantly utilized the prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State ( $p = .003 < 0.05$ ). There is a significant age difference in the utilization of PMTCT of HIV services ( $p = .004 < 0.05$ ). However, there is no significant difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State based on their level of education ( $P = .837 > 0.05$ ).

**Conclusion:** It is concluded that the expecting mothers significantly utilized the available PMTCT services, recommending among others that the subjects should maintain their level of utilization PMTCT of HIV services.

**Keywords:** Utilization; Prevention; Mother-to-child transmission; HIV services; Expecting mothers.

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### I. Introduction

Utilization of prevention of mother-to-child transmission (PMTCT) of HIV/AIDS services is the feasible way of putting the spread of HIV/AIDS via mother-to-child transmission under check and control by the uptake of the stream of health services such as HIV test and counselling amongst others. Utilization of PMTCT services is the use of the PMTCT cascade of services by the pregnant women such as testing for HIV, receiving HIV test results and going for the counselling session especially when the result is positive for an advantageous pregnancy outcome<sup>14</sup>. The pregnant woman utilizes PMTCT services by taking all the necessary medical precautions, measures and interventions before, during pregnancy and after delivery at which the risk of transmitting HIV is reduced to 2 per cent or less<sup>1</sup>. In this light, PMTCT of HIV/AIDS services directly implies the precautions and interventions to halt or check the transmission of HIV/AIDS from an infected mother to her baby<sup>4, 6, 18, 24</sup>.

It is reported that a stable state of none spreading of HIV/AIDS was observed across the globe in 2015 among pregnant women due to the utilization of prevention of (mother-to-child transmission [MTCT]) of HIV/AIDS services<sup>20</sup>.<sup>3</sup> Reported that around 1.6 million new HIV infections among children have been prevented since 1995 due to the implementation of PMTCT services. Meanwhile, MTCT of HIV/AIDS is otherwise known as vertical or perinatal transmission which means the transferring of HIV infection from an infected mother to her baby during the pregnant period, labour, delivery and even breastfeeding<sup>1, 24</sup>.

In other words, it is reported that in the absence of utilization of health interventions, the risk of mother-to-child transmission (MTCT) of HIV infection ranges from 20 per cent to 45 per cent, but proper utilization of PMTCT of HIV/AIDS services can reduce MTCT to less than 2 per cent<sup>22, 24</sup>. Meanwhile, PMTCT

of HIV/AIDS services is primarily involved antiretroviral treatment for the mother and a short course of antiretroviral drugs for the baby against HIV transmission from mother to child<sup>24</sup>. Instead, a report has it that preventive services (interventions) against mother-to-child transmission of HIV/AIDS include HIV testing and counselling, HIV and infant feeding counselling, modification of obstetric practices and administration of antiretroviral (ARV) prophylaxis to mother-child pair<sup>20</sup>. It also recommended that PMTCT services should be given before conception, and throughout pregnancy, labour and breastfeeding. Meanwhile, <sup>5</sup> added that PMTCT of HIV/AIDS services include early infant diagnosis at four to six weeks after birth, testing at 18 months and/or when breastfeeding ends, and ART initiation as soon as possible for HIV-exposed infants to prevent HIV acquisition.

Following the above, there is perhaps a variation in the rate of MTCT of HIV/AIDS and the level of utilization of PMTCT services among pregnant women across the world. On this note, it is reported globally that in 2008, in about 430 000 children were freshly infected with HIV and virtually all of them contracted it through MTCT<sup>22</sup>. In discrepancy, in 2014, 0.9 per cent of 501,000 people who were estimated in China to have been infected with HIV/AIDS, contracted it through MTCT (National Health and Family Planning Commission of China, 2015), while the chance is higher in Sub-Saharan Africa particularly in Nigeria where pediatric HIV was up to 15 per cent to 30 per cent of the national population <sup>20, 22, 24</sup>. Besides, the finding of a study on PMTCT of HIV services in Uganda, revealed that the utilization of PMTCT services was suboptimal literally, poor as only 126 of 418 participants representing 30.1 per cent utilized the PMTCT services available for them<sup>14</sup>. In the same manner, the finding of a study in Ethiopia, revealed that only 18% and 9% of respondents attended the facility for HIV counselling and testing (HCT) and receiving antiretroviral prophylaxis, respectively out of 94% of the pregnant women who visited the health facility for ANC check-up<sup>21</sup>. However, a report stated that pregnant women utilized the PMTCT of HIV/AIDS services properly in Ukraine as the country had 99 per cent antenatal care (ANC) coverage <sup>23</sup>.

The expecting mothers use to attend the antenatal care (ANC) for the regular medical check-up which also contains PMTCT of HIV/AIDS services to have safe pregnancy outcomes. However, it is presumptuous that expecting mothers in Nigeria are not adequately utilize the available PMTCT services in their ANC units. For example, in Zaria, North-Western Nigeria, found in their study that there was poor utilization of PMTCT services among pregnant women<sup>16</sup>. In confirmation of this assertion, the researchers observed among others that the expecting mothers in the area disassociated themselves from all issues related to HIV/AIDS during their antenatal visits and there was no cue for the uptake of the intervention among them. Based on this context, the researchers investigated the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the Federal Medical Centre, Gusau, Zamfara State.

## **II. Research questions**

1. Do expecting mothers utilize the prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State?
2. Will there be an age difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State?
3. Will there be a difference among expecting mothers in the utilization of the prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State based on their level of education?

## **III. Hypotheses**

The following hypotheses are formulated to guide this study:

**H<sub>01</sub>**. Expecting mothers do not significantly utilize the prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State.

**H<sub>02</sub>**. There is no significant age difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State.

**H<sub>03</sub>**. There is no significant difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State based on their level of education.

## **IV. Methods**

The cross-sectional type of descriptive research design was used in this study. The whole population of this study consists of all expecting mothers registered with the FMC, Gusau Zamfara State which was estimated to be 427 expecting mothers, while the expecting mothers at their first trimester formed the target population in this study. The target population was 78 expecting mothers and the sample size of this study was 64 expecting mothers at their first trimester as of December, 2019. The simple random sampling was used to select the participants, while accidental sampling technique was used to reach the participants in this study. Researchers' self-constructed questionnaire called 'Utilization of Prevention of Mother-To-Child Transmission of HIV Services among expecting mothers' (UP-MTCT-HS) was used for the data collection in this study. The

instrument has two sections; A and B. Section A sought information on the demographic information of the participants, where Section B sought information on the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara at a four-point Likert-scale. The instrument was validated by three lecturers from the Department of Physical and Health Education, Faculty of Education, Bayero University, Kano, Kano State, Nigeria. Their corrections were imputed into the final copy before the pilot study at the FMC, Katsina State. The split-half method of reliability was used, where the first half of even numbers were used to correlate with the second half of odd numbers at which, 0.74 reliability index was obtained, using the Spearman-Brown Prophecy Formula.

Frequency counts, Chi-square, t-Test and analysis of variance (ANOVA) were used to analyze the data generated in this study, where the frequency counts and percentages were used to analyze the demographic profile of the participants. The chi-square, t-Test and ANOVA were used to test hypothesis 1, 2 and 3 respectively. All hypotheses were tested at 0.05 level of significance, using Statistical Package for Social Sciences SPSS, 23.00 version.

**Limitations of the study**

- a. It has a small sample size.
- b. Due to the sample size, the results cannot be generalized but limited to the expecting mothers at the FMC, Gusau Zamfara State only.

**V. Results**

The results of this study are organized and presented in Table 1-4.

**Table 1.** The demographic information of the participants

Variables	Frequency	Percentage (%)
Age		
Young mothers	42	65.60
Old mothers	22	34.40
Total	64	100.00
Level of Educ.		
No western Educ.	5	7.80
Primary Educ.	6	9.40
Secondary Educ.	25	39.10
Tertiary Educ.	28	43.80
Total	64	100.00
Home location		
Urban area	37	57.80
Rural area	27	42.20
Total	64	100.00

Table 1 shows that 42 (65.60%) of the participants are young mothers, while 22 (34.40%) of them are old mothers. It also shows that only 5 (7.80%) out of 64 expectant mothers have no western education, 6 (9.40%) have primary education, 25 (39.10%) of them have secondary education, while majority 28 (43.80) have tertiary education. Furthermore, it shows that 37 representing 57.80 per cent of them reside in the urban areas of the State and the remaining 27 (42.20%) reside in rural areas.

**H<sub>01</sub>.** Expecting mothers do not significantly utilize the prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State.

**Table 2.** Chi-square test on the utilization of prevention of mother-to-child transmission of HIV services

Variables	Observed N	Expected N	Df	$\chi^2$	p-value
Poor utilization	20	32.0	1	9.000	.003
Good utilization	44	32.0			
Total	64				

Table 2 shows that the p-value is less than the level of significance set in this ( $p < 0.05$ ). So, the hypothesis which stated that expecting mothers do not significantly utilize prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State is rejected. Thus, expecting mothers significantly utilize the prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State ( $p = .003 < 0.05$ ).

**H<sub>02</sub>.** There is no significant age difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State.

**Table 3.** t-Test analysis on the age utilization of preventive measures of MTCT of HIV/AIDS

Variables	N	Mean	St. Deviation	Std. Error Mean	t	df	p-value
Young mothers	42	31.19	6.975	1.076	2.974	62	.004
Old mothers	22	25.00	9.472	2.019			

Table 3 shows that the mean value of young mothers is high and greater than the mean value of the old mothers who could be more likely to use the interventions (31.19>25.00). It also shows that the p-value is less than the level of significance set in this study ( $p < 0.05$ ). Therefore, the hypothesis which stated that there is no significant age difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State is rejected. Currently, there is a significant age difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State ( $p = .004 < 0.05$ ).

**H<sub>03</sub>**. There is no significant difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State based on their level of education.

**Table 4.** One-Way ANOVA test on the utilization of preventive measures of MTCT of HIV/AIDS

Level of Educ.	Sum of Squares	Df	Mean Square	F	P-value
Between groups	11.467	19	.604	.659	.837
Within groups	40.283	44	.916		
Total	51.750	63			

Table 4 shows that the p-value is greater than the level of significance set in this study ( $P > 0.05$ ). Therefore, the hypothesis which stated that there is no significant difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State based on their level of education is retained. Hence, there is no significant difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State based on their level of education ( $P = .837 > 0.05$ ).

## VI. Discussion

The investigation of this study provides vital information on the utilization of PMTCT of HIV/AIDS services specifically on pregnant women at their first trimester at the FMC, Gusau Zamfara State. The finding of this study reveals that expecting mothers significantly utilized the prevention of mother-to-child transmission of HIV services at the FMC, Gusau Zamfara State ( $p = .003 < 0.05$ ). This finding collaborates with the finding of a study conducted on PMTCT of HIV among pregnant women in Abia State, Nigeria, which revealed that there was significant uptake of PMTCT of HIV services among participants ( $p < 0.05$ )<sup>10</sup>. It also tallies with the finding of Feyera, Megerssa, Legesse and Hailemichael (2017), in Ethiopia, which showed that majority of pregnant women utilized the available PMTCT of HIV services during the period of study 378 (83.8%). The finding of this study embraces the finding of a study in Nyanza Province Kenya, which revealed that the utilization of PMTCT services is high and significant as 82 per cent of the participants took PMTC ARVs and 87 per cent of the total sample of 405 went for HIV test<sup>12</sup>. It is also in line with the finding of a study in Tanzania, whose which revealed that there was a significant utilization of PMTCT as 90.30 per cent of the participants descriptively accessed PMTCT services at the booking of ANC unit<sup>15</sup>.

However, the finding of this study is in contrast with the findings of studies carried out in Ethiopia, which revealed that there was no significant utilization of PMTCT of HIV/AIDS services among pregnant women attending antenatal clinics<sup>9, 17</sup>. The researchers suggested that this finding is so because the participants are expecting mothers at their first trimester who are bold enough to keep their pregnancy safe.

Furthermore, the finding of this study shows that there is a significant age difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State ( $p = .004 < 0.05$ ). The finding descriptively shows that young mothers are less likely to utilize the PMTCT services to compare with old mothers. The finding of this study is congruent with the findings of studies conducted in Gondar, Northwest Ethiopia and, in Nigeria, which collectively showed that teenagers were less likely to utilize PMTCT service when compared with the older women<sup>2, 8, 13</sup>. This finding is also in line with the findings of two studies, one in Ethiopia and Feyera, et al. (2017), which revealed that there was an age difference in the utilization PMTCT services<sup>11</sup>.

However, the finding of this study is not in collaboration with the finding of a study in Ethiopia, which revealed that there was no age difference in the utilization of PMTCT services among pregnant women<sup>19</sup>. Despite that the result is significant, the researchers believe that the old pregnant mothers are more experienced that motivate their utilization of PMTCT services as age is a factor to predict declining or motivating for the uptake of PMTCT services.

Finally, the finding of this study reveals that there is no significant difference in the utilization of prevention of mother-to-child transmission of HIV services among expecting mothers at the FMC, Gusau Zamfara State based on their level of education ( $P = .837 > 0.05$ ). Although, the finding of this present study is

not in agreement with the finding of a study, which revealed that there is a statistically significant difference in the utilization of PMTCT services based on the women education level<sup>7</sup>.The researchers suggested that the finding of this study is so because health is the central and determinant of all pursuits and everyone irrespective of the social status wants to sustain it at all cost.

## VII. Conclusion

In the context of the findings of this study, it is concluded that the expecting mothers at the FMC, Gusau Zamfara State utilized the available prevention of mother-to-child transmission of HIV services, as a significant difference occurred based on age, but not in the educational level in the utilization of prevention of mother-to-child transmission of HIV services.

## VIII. Recommendations

To achieve the total utilization of prevention of mother-to-child transmission of HIV services the following recommendations are put forward:

1. The expecting mothers should maintain their level of utilization and also make the maximum use of the prevention of mother-to-child transmission of HIV services at the hospital.
2. More health campaign is required about the availability of such preventive services at the FMC among girls at child-bearing age and expecting mothers irrespective of the age and educational status.

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