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# Outcome of Nurse-Led Intervention in Prevention of Mother-To-Child Transmission of HIV/Aids Among Pregnant Women in Selected Primary Health Centres in Osogbo, Osun State

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### Abstract:

Mother-to-child transmission (MTCT) of human immunodeficiency virus is the largest route of transmission of this virus in children below the age of 15 years. Despite decades of sensitization and significant advances in its prevention and management, the pandemic continues to spread as an estimated 2 million global new HIV infections were recorded in 2019. The study investigated the outcome of nurse-led intervention on prevention of mother to child transmission of HIV among pregnant women attending antenatal clinic in selected primary health care centres in Osogbo, Osun State. This study utilized one group pre-test and posttest quasi experimental design. The study population comprised of pregnant women attending antenatal clinics at three selected primary health care centres in Osogbo, Osun State. The sample size of 253 was obtained from the population using Cochran formula. An instrument tagged test paper on knowledge of pregnant women on HIV was used for data collection. The instrument was validated by

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experts of Nursing Science and Tests & Measurement while reliability coefficient was 0.73. Data collection was carried out in three phases namely: pre-intervention phase, intervention phase and post-intervention phase while the data collected was subjected to descriptive and inferential statistics. The result of the findings revealed that the knowledge of prevention of mother-to-child transmission of HIV/AIDS at pre-test was moderate (51.2%) while it was good (100%) after intervention. It was concluded that the nurse-led intervention programme improved knowledge on prevention of mother-to-child transmission of HIV/AIDS. It was, therefore. recommended among others that educational intervention regarding prevention of mother-to-child transmission is required during the period of antenatal and postnatal visit.

**Keywords**: Outcome, Nurse-Led Intervention, Prevention, Mother-To-Child Transmission, HIV/AIDS, Pregnant Women,

2

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3

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#### Introduction

Mother-to-child transmission (MTCT) of human immunodeficiency virus is the main route of transmission of this virus in children below the age of 15 years. Although the main mode of human immunodeficiency virus (HIV) transmission is through unprotected sexual intercourse, a substantial number of straight down transmissions also occur from mother to child. Mother-to-child transmission (MTCT) occurs when HIV is transmitted from the mother to the child during pregnancy, childbirth, or breastfeeding (WHO, 2017). The human immunodeficiency virus (HIV) is a virus that weakens the immune system of an individual revealing the body to several opportunistic infections which has been one of the major global health problems especially in Sub-Saharan countries.

Despite decades of sensitization and noteworthy advances in its prevention and management, the virus continues to spread as an estimated 2 million global new HIV infections were documented in 2019, and there were about 38 million people living with HIV (PLWHIV) by the end of 2019 (WHO, 2020). The incidence of HIV/AIDS has rapidly increased since the 1980s in developing countries. As a result, it has led to several demographic, social and economic consequences such as stigmatization from family, friends and society at large (Getachew, 2018). Above 2 million children are living with HIV/ AIDS globally, out of which, 80% of them or more live in sub-Saharan African countries (Getachew, 2018). Though, countries in sub-Saharan Africa account for 13% of the world population, they are home to about 71% of people living with HIV globally. Although mother-to-child transmission of HIV has almost been eradicated in many developed countries, it is a significant source of new HIV infection in sub- Saharan African countries. According to the 2018 report of the Joint United Nations Programme on HIV/AIDS, sub-Saharan Africa accounted for 89% of the 1.5 million pregnant women living with HIV/AIDS and 91% of children living with HIV/AIDS globally (Case et al, 2019). Nigeria is one of 21 main countries in sub-Saharan Africa, together with India, that accounted for 90% of pregnant women infected with HIV.

The high death rate and fast transmission of human immunodeficiency virus (HIV) make it a global public health problem that is commonly spreading in developing countries (Bokharaei et al., 2018). It was estimated that the number of children newly infected with HIV globally declined by 47% from 2010 to 2016, as the rate of HIV positive pregnant women using antiretroviral therapy to prevent vertical transmission to their children rose from 47% to 76% (UNAIDS, 2017). However, the vertical transmission of HIV is occasional during early pregnancy and relatively recurrent in late pregnancy. In other words, transmission of HIV may occur during pregnancy, delivery and breast feeding (Mutabazi et al., 2017; Ndikom & Onibokun 2017).

HIV incidence among antenatal clients in Nigeria was 4.6%, while the number of pregnant women who received antiretroviral drugs (ARVs) for PMTCT was 32%, estimated number of HIV exposed infants at risk of MTCT yearly was 85,450 (Olugbenga-Bello et al., 2015). The virus has reversed the gains in child survival made in many of the worst affected countries and has dramatically reduced average life expectancy in those countries (Olugbenga-Bello et al., 2014). Thus, prevention of MTCT of an HIV infection is a politically and scientifically accepted approach to reduce the impact of HIV, especially on children (Olugbenga-Bello et al., 2017). Clinical trials have demonstrated that ARV prophylaxis, when



administered to mothers and their new-born babies, can lessen the risk of MTCT by approximately 75%. The Nigerian national aims for prevention of MTCT, as stated in the 2005 National Policy on HIV/ AIDS, were to reduce MTCT by 50% by 2010, and to increase access to quality, private counselling and testing services by 50% that same year (Suryavanshi, et al 2018).

Furthermore, the researchers visited Institute Of Human Virology, Nigeria (IHVN), UNIOSUN Teaching Hospital, Osogbo and it was discovered that there were children aged 8 months and above being treated for HIV/AIDS alongside their mothers. Following an interview, some gave account of unawareness of the causes and course of transmission because they were not tested for HIV during routine antenatal HIV testing due to lack of testing kits at the facilities where they received antenatal care. Also, some delivered at mission house and others at either traditional birth attendance places as well as primary health centre due to financial constraints. In view of this, the researchers were prompted to carry out a study on the outcome of nurse-led intervention on prevention of mother to child transmission of HIV/AIDS at selected primary health centre to educate pregnant women on prevention of transmission of HIV/AIDS to their babies during pregnancy, delivery and breastfeeding.

Therefore, prevention of Mother to Child transmission (PMTCT) of HIV is vital to the decline of death and illness as a result of HIV among children due to the fact that in developed countries, a 1-2 % transmission rate from mothers to their infant has been achieved through early access to HIV treatment by pregnant women, an elective Caesarian section and infant formula feeding (Schumann, et al, 2019). Thus, there is need for more effort to be made to prevent transmission of HIV in order to ensure their survival (WHO, 2017). However, considering the limited evidence on nurse-led intervention on prevention of mother-to-child transmission of HIV, this study aims at implementing nurse-led intervention on prevention of mother to child transmission of HIV among pregnant women attending antenatal clinic in selected primary health care centres in Osogbo and also to evaluate the outcome of the intervention. This study specifically:

- 1. determined the pre and post-intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS; and
- 2. pre and post-intervention mean score knowledge of pregnant women on prevention of mother-to-child transmission of HIV/AIDS

### **Research Questions**

The following research questions were raised for this study:

- 1. What is the pre and post-intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS?
- 2. What is the pre and post-intervention mean score knowledge of pregnant women on prevention of mother-to-child transmission of HIV/AIDS?

### **Research Hypotheses**

The following null hypotheses were postulated for this study:

1. There is no significant difference between pre and post intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS



2. There is no significant relationship between pre and post intervention mean score of pregnant women on prevention of mother-to-child transmission of HIV/AIDS

### Methodology

This study utilized one group pre-test and post-test quasi experimental design. This design was chosen for the purpose of determining the outcome of nurse-led intervention on prevention of mother-to-child transmission of HIV. The study population comprised of pregnant women attending antenatal clinics at Atelewo, Akogun and Enikan-Oyun primary health care facilities, Olorunda Local Government Area, Osun State. The number of pregnant women attending antenatal clinic on each clinic was 40-45 per clinic with average of 43 pregnant women at Atelewo, making total number of 86 pregnant women per week and 172 per month. Akogun receives average number of 20 pregnant women per clinic making total number of 40 per week and 160 per month, while Enikan-Oyun has average population of 30 pregnant women per clinic with total number of 240 per month. The sample size of 253 was obtained from the population using Cochran formula. Convenient sampling method was used to select participants from each facility which involve utilisation of pregnant women present at the time of collecting data until desired number of samples was taken.

An instrument tagged test paper on knowledge of pregnant women on HIV, mother-tochild transmission of HIV and prevention of mother-to-child transmission of HIV (PW-KPMTCT) was used to assess knowledge of pregnant women on HIV/AIDS, mother-to-child transmission of HIV and Prevention of mother-to-child transmission of HIV. To ensure the content and face validity of the instrument, structured questionnaire was given to experts of Nursing Science and Tests & Measurement for review, correction and appraisal. After the experts had appraised and ascertained that the instrument could elicit adequate information to achieve the stated objectives, necessary corrections were made. The corrected and validated version of the instrument was administered to 26 pregnant women attending antenatal clinic at Sabo Primary Health Centre. Reliability of the instrument was tested using Cronbach's Alpha statistics to ensure the internal consistency of the instrument. The reliability coefficient value yielded 0.73 which was adequate to make the instrument reliable for the study.

Data collection was carried out in three phases namely: pre-intervention phase intervention phase and post-intervention phase. The complete test questions collected for pre-test and post-test was coded and analysed using statistical package for social sciences (SPSS) version 23. Descriptive statistics was used to summarize the data which provided clear description of the data from sample using frequency distribution tables, percentages and mean. Inferential statistics was also used to test stated hypothesis at 0.05 level of significance and results was presented in tables.

### Results

6

**Research Question 1:** What is the pre and post-intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS?

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|     |   | Pr  | e-Inte | rventi | rvention |     |                |    |      |  |  |  |
|-----|---|-----|--------|--------|----------|-----|----------------|----|------|--|--|--|
|     |   |     | N=2    | 239    |          |     |                |    |      |  |  |  |
| S/N | Knowledge on HIV infection  | Cor | rect   | Inco   | rrect    | Co  | Correct Incorr |    |      |  |  |  |
|     |   | Ν   | %      | Ν      | %        | Ν   | %              | Ν  | %    |  |  |  |
| 1   | PMCT means Prevention of mother<br>to child transmission of HIV/AIDS                                    | 101 | 42.3   | 138    | 57.7     | 201 | 83.7           | 39 | 16.3 |  |  |  |
| 2   | HIV can be transmitted through various means  | 122 | 51.0   | 117    | 49.0     | 239 | 100.0          | -  | -    |  |  |  |
| 3   | It can be contacted during pregnancy  | 109 | 45.6   | 130    | 53.4     | 239 | 100.0          | -  | -    |  |  |  |
| 4   | It can be contacted through vaginal delivery  | 151 | 63.2   | 88     | 36.8     | 239 | 100.0          | -  | -    |  |  |  |
| 5   | It is contacted through breastfeeding   | 86  | 36.0   | 153    | 64.0     | 239 | 100.0          | -  | -    |  |  |  |
| 6   | Can be transmitted to baby when the viral load is high  | 159 | 66.5   | 80     | 33.5     | 239 | 100.0          | -  | -    |  |  |  |
| 7   | HIV can be transmitted when the<br>woman is not taking Anti-retroviral<br>drugs                         | 141 | 59.0   | 98     | 41.0     | 239 | 100.0          | -  | -    |  |  |  |
| 8   | HIV can be transmitted when a woman's nutrition is poor   | 111 | 46.4   | 128    | 53.6     | 239 | 100.0          | -  | -    |  |  |  |
| 9   | HIV is transmitted from mother-to-<br>child when her condition is poor                                  | 79  | 33.1   | 160    | 66.9     | 239 | 100.0          | -  | -    |  |  |  |
| 10  | It is transmitted when a woman is<br>not taking her routine antenatal<br>drugs                          | 176 | 73.6   | 63     | 26.4     | 239 | 100.0          | -  | -    |  |  |  |
| 11  | Contacted when the woman's viral load is low  | 80  | 33.5   | 159    | 66.5     | 239 | 100.0          | -  | -    |  |  |  |
| 12  | HIV is contacted when she has vaginal delivery  | 161 | 67.4   | 78     | 33.1     | 239 | 100.0          | -  | -    |  |  |  |
| 13  | HIV is contacted through Caesarean section delivery   | 139 | 58.2   | 100    | 41.8     | 239 | 100.0          | -  | -    |  |  |  |
| 14  | Sick baby is more prone to contact HIV  | 95  | 39.7   | 144    | 60.3     | 220 | 92.1           | 19 | 7.9  |  |  |  |
| 15  | A baby of an infected mother is<br>more prone to HIV transmission if<br>not taking Antiretroviral drugs | 167 | 50.8   | 72     | 30.1     | 239 | 100.0          | -  | -    |  |  |  |
| 16  | HIV is transmitted when a woman is giving her baby mixed feed   | 62  | 25.9   | 177    | 74.1     | 239 | 100.0          | -  | -    |  |  |  |
| 17  | When a baby is giving formula only,   | 113 | 47.2   | 126    | 52.7     | 239 | 100.0          | -  | -    |  |  |  |

## Table 1: Pre and post-intervention score of participants on knowledge of MTCT of HIV/AIDS

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| the baby can be infected  |    |    |  |      |    |  |
|---------------------------|----|----|--|------|----|--|
| Weighted percentage score | 49 | .4 |  | - 98 | .6 |  |

Table 1 showed the response of the participants to the question on knowledge of pregnant women on mother-to-child transmission of HIV/AIDS both at pre and post intervention level. The pre-intervention has an overall percentage score of 49.4% while the post intervention has an overall percentage score of 98.6%. This showed a difference in pre and post intervention level on knowledge of pregnant women on mother-to-child transmission of HIV/AIDS.

Table 2: Pre and post intervention categorization of mean score level of participants on knowledge of MTCT of HIV infection

| The knowledge of MTCT | <b>Category of scores</b> | Р      | re-     | Po           | st-    |  |
|-----------------------|---------------------------|--------|---------|--------------|--------|--|
| of HIV                |                           | interv | vention | intervention |        |  |
|                       |                           | Freq.  | %       | Freq.        | %      |  |
| Low                   | 1-10                      | 150    | 62.8    | -            | -      |  |
| Average               | 11-20                     | 26     | 10.8    | 11           | 4.6    |  |
| High                  | 21-34                     | 63     | 26.4    | 228          | 95.4   |  |
| Total                 |                           | 239    | 100.0   | 239          | 100.0  |  |
| Mean                  |                           | 8.38 ( | 49.3%)  | 15.92 (      | 93.6%) |  |
| Standard dev.         |                           | 3.     | 139     | 1.6          | 82     |  |
| Mean difference       |                           |        | 7.      | 54           |        |  |

Table 2 presents the pre and post intervention knowledge of pregnant women on mother-to-child transmission of HIV/AIDS. At the pre-intervention stage, 150 (62.8%) participants had low knowledge, 26 (10.8%) and 63 (26.4%) had average and high knowledge respectively on the knowledge of mother-to-child transmission of HIV/AIDS. At the post intervention, 228 (95.4%) had high knowledge and the remaining 11 (4.6%) had average knowledge. However, the participants' knowledge mean score of mother-to-child transmission of HIV/AIDS at pre-intervention was 8.38 which is equivalent to 49.3%. Thus, it could be said that the knowledge of mother-to-child transmission of HIV/AIDS before intervention was very low. After the intervention, the study revealed that participants' knowledge mean score of mother-to-child transmission of HIV/AIDS was 15.92, this translates to 93.6% knowledge at the post intervention level.

**Research Question 2:** What is the pre and post-intervention mean score knowledge of pregnant women on prevention of mother-to-child transmission of HIV/AIDS?

| Table  | 3:   | Pre    | and   | post    | intervention   | mean      | score   | of | participants' | knowledge | of |
|--------|------|--------|-------|---------|----------------|-----------|---------|----|---------------|-----------|----|
| prever | itio | n of n | nothe | er-to-c | hild transmiss | sion of H | HIV/AII | DS |               |           |    |

|     |                                   |      | Pre-Inte | rventio | n    | Post Intervention |       |       |   |
|-----|-----------------------------------|------|----------|---------|------|-------------------|-------|-------|---|
| S/N |                                   | Cor  | rect     | Wr      | ong  | Cor               | rect  | Wrong |   |
|     |                                   | Freq | %        | Freq    | %    | Freq              | %     | Freq  | % |
| 1   | Exclusive breastfeeding           | 74   | 31.0     | 165     | 69.0 | 239               | 100.0 | -     | - |
| 2   | Discourage mixed feeding          | 116  | 48.5     | 123     | 51.5 | 239               | 100.0 | -     | - |
| 3   | Delivery by Caesarean section can | 130  | 54.4     | 109     | 45.6 | 239               | 100.0 | -     | - |
|     | prevent transmission              |      |          |         |      |                   |       |       |   |

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| 4 | Give formula feeding if there is | 123 | 51.5  | 116 | 48.5 | 239 | 100.0 | -   | - |
|---|----------------------------------|-----|-------|-----|------|-----|-------|-----|---|
|   | increase viral load              |     |       |     |      |     |       |     |   |
| 5 | Give Nevirapine to the new-born  | 98  | 41.0  | 141 | 59.0 | 239 | 100.0 | -   | - |
| 6 | Encourage mother to eat balanced | 166 | 69.5  | 73  | 30.5 | 239 | 100.0 | -   | - |
|   | diet                             |     |       |     |      |     |       |     |   |
| 7 | Mother should take Anti-         | 239 | 100.0 | -   | -    | 239 | 100.0 | -   | - |
|   | retroviral drugs                 |     |       |     |      |     |       |     |   |
| 8 | Breastfeed if there is reduced   | 85  | 35.6  | 154 | 64.4 | 239 | 100.0 | -   | - |
|   | viral load                       |     |       |     |      |     |       |     |   |
| 9 | No breastfeeding at all          | 200 | 83.7  | 39  | 16.3 | 239 | 100.0 | -   | - |
|   | Weighted percentage score        |     | 51.   | 5%  |      |     | 100   | .0% |   |

Table 3 showed the response of the participants' knowledge of prevention of motherto-child transmission of HIV/AIDS at pre and post intervention knowledge level. The preintervention has an overall percentage score of 51.5% while the post intervention has an overall percentage score of 100%. This showed a difference in pre and post intervention mean score of participants' knowledge of prevention of mother-to-child transmission of HIV/AIDS.

| Table 4: Pre and post intervention    | categorization of mean so     | core of participants |
|---------------------------------------|-------------------------------|----------------------|
| knowledge level on prevention of moth | er-to-child transmission of l | HIV/AIDS             |

| Participants knowledge<br>level on prevention of | Category of<br>scores | Pı<br>interv | re-<br>ention | Post-<br>intervention |        |  |
|--|-----------------------|--------------|---------------|-----------------------|--------|--|
| mother-to-child                                  |                       | Freq.        | %             | Freq.                 | %      |  |
| transmission of HIV/AIDS                         |                       |              |               |                       |        |  |
| Low  | 1-3                   | 42           | 17.6          | -                     | -      |  |
| Average  | 4-6                   | 167          | 69.9          | -                     | -      |  |
| High   | 7-9                   | 30           | 12.5          | 239                   | 100.0  |  |
| Total  |                       | 239          | 100.0         | 239                   | 100.0  |  |
| Mean   |                       | 4.61 (5      | 51.2%)        | 9.0 (10               | )0.0%) |  |
| Standard dev.                                    |                       | 1.06 .93     |               |                       | 3      |  |
| Mean difference                                  |                       | 4.39         |               |                       |        |  |

Table 4 presents the pre and post intervention mean score knowledge level of pregnant women on prevention of mother-to-child transmission of HIV/AIDS. At the preintervention stage, 42 (17.6%) participants had low knowledge level of prevention of motherto-child transmission of HIV/AIDS, 167 (69.9%) and 30 (12.5%) had average and high knowledge of prevention of mother-to-child transmission of HIV/AIDS respectively. At the post intervention, 239 (100.0%) had high knowledge of prevention of mother-to-child transmission of HIV/AIDS. The participants knowledge level of prevention of mother-to-child transmission of HIV/AIDS at pre-test was 4.61 which is equivalent to 51.2%. Thus, it could be said that the participants knowledge level of prevention of mother-to-child transmission of HIV/AIDS before intervention was moderate. This is because their mean score was roughly 51%. After the intervention, the study revealed that mean score of participants knowledge level of prevention of mother-to-child transmission of HIV/AIDS was 9.0 (100.0%).

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### **Test of Hypotheses**

**Hypothesis 1**: There is no significant difference between pre and post intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS

| Table | 5: | Indepen | dent | t-tes  | st showing th | e di | fference in | the pre | and ] | post interventio | n  |
|-------|----|---------|------|--------|---------------|------|-------------|---------|-------|------------------|----|
|       |    | mear    | 1 S  | core   | knowledge     | of   | pregnant    | women   | on    | mother-to-chi    | ld |
|       |    | trans   | smis | sion ( | of HIV/AIDS   |      |             |         |       |                  |    |

|      | Ν   | Mean  | Std.      | Std. Error | df  | Т     | Mean | Sig  |
|------|-----|-------|-----------|------------|-----|-------|------|------|
|      |     |       | Deviation | Mean       |     |       | diff |      |
| Pre  | 239 | 8.38  | 3.139     | 1.10       |     |       |      |      |
| Post | 239 | 15.92 | 1.682     | 0.97       | 237 | 8.745 | 7.54 | .000 |

Result in Table 5 indicate a significant difference in the pre and post intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS (Knowledge gained = 7.54,  $t_{(237)} = 8.745$ , p = .000). Going through the knowledge mean scores as shown above, one can say that the mean score (15.92) at post intervention is significantly higher than the pre-intervention of (8.38). Hence the set hypothesis in the null form was rejected. It could be deduced from this findings that the difference observed in between pre and post intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS could not have been by chance but as a result of the educational intervention the participants were exposed to.

**Hypothesis 2**: There is no significant relationship between pre and post intervention mean score of pregnant women on prevention of mother-to-child transmission of HIV/AIDS

 

 Table 6: Independent t-test showing the difference in the pre and post intervention

 mean score knowledge of pregnant women on prevention of mother-tochild transmission of HIV/AIDS

|      | Ν   | Mean | Std.<br>Deviation | Std. Error<br>Mean | df  | Т      | Mean<br>diff | Sig  |
|------|-----|------|-------------------|--------------------|-----|--------|--------------|------|
| Pre  | 239 | 4.61 | 1.06              | 0.89               |     |        |              |      |
| Post | 239 | 9.00 | 0.93              | 0.93               | 237 | 11.033 | 4.39         | .000 |

Results in Table 6 indicate a significant difference in the pre and post intervention mean score knowledge of pregnant women on prevention of mother-to-child transmission of HIV/AIDS (Knowledge gained = 4.39,  $t_{(237)} = 11.033$ , p = .000). Going through the mean score knowledge of pregnant women on prevention of mother-to-child transmission of HIV/AIDS as shown above, one can say that the mean score (9.00) at post intervention is significantly higher than the pre-intervention of (4.61). Hence, the set null hypothesis was rejected. It could be deduced from this finding that the difference observed between pre and post intervention mean scores could not have occurred by chance but as a result of the educational intervention the participants were exposed to.

### Discussion

The knowledge of mother-to- child transmission of HIV/AIDS before intervention was very low. This showed that targeting pregnant women for the study is pivotal to the

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prevention of mother- to-child transmission of HIV, as it will reduce the incidence of HIV infection thus reducing HIV related morbidity /mortality and importantly relieving the associated financial burden especially in LMIC countries. This is in line with the study of Ndikom and Onibokun (2017) that maternal knowledge on MTCT plays a central role in the effective realization of these recommendations, as preventive strategies are largely hinged thereon. After the intervention, the study revealed that participants' mean score knowledge of mother-to-child transmission of HIV/AIDS was high. Hence, this showed the importance of HIV counseling and testing which provided an important entry point for most forms of HIV prevention and control including PMTCT. This is in accordance with the findings of Sibanda et al., (2019) that educating HIV pregnant women on mother-to-child transmission of HIV/AIDS is important as it helps to reduce the vertical transmission source of HIV infection in children that mostly occur in sub-Saharan Africa.

Results indicate a significant difference in the pre and post intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS (Knowledge gained = 7.54,  $t_{(237)}$  = 8.745, p = .000). It could be deduced from this findings that the difference observed in between pre and post intervention mean score knowledge of pregnant women on mother-to-child transmission of HIV/AIDS could not have been by chance but as a result of the educational intervention the participants were exposed to. This result is consistent with the findings of Balogun and Owoaje (2015) who conducted a study on enhancing knowledge of pregnant women on mother-to-child transmission of HIV/AIDS and helping communities in reducing mother-to-child transmission of HIV/AIDS based on intervention trial. Their results showed that those mothers exposed to educational information for about three months had an increase in knowledge of about 56%, which helped them seek more healthcare services and manage their health and pregnancy well. Their study also confirmed that WHO guidelines for the PMTCT programmes. Another study that gives support to this finding is that of Ezeokoli et al (2018) who conducted a study on effects of educational programme on HIV voluntary counselling and pregnancy care knowledge. Mother's knowledge was assessed through structured knowledge questionnaire. The result showed that after receiving education, the study group had a higher knowledge and behaviors score than that of the control group who received only placebo treatments until after intervention.

The participants' knowledge level of prevention of mother-to-child transmission of HIV/AIDS before intervention was moderate. This could be a factor associated with the steady rise in the rate of mother-to-child transmission of HIV/AIDS. This is in connection with Mahy et al. (2019) and WHO (2016) that mother-to-child transmission of HIV prevention is still very low on the part of the mothers themselves for issues best known to them. This is what led to the targeting of pregnant women attending antenatal clinics by providing a unique opportunity for implementing prevention of mother-to-child transmission (PMTCT) programs against HIV infection of newborn babies (WHO, 2016).

Results indicate a significant difference in the pre and post intervention mean score knowledge of pregnant women on prevention of mother-to-child transmission of HIV/AIDS (Knowledge gained = 4.39,  $t_{(237)}$  = 11.033, p = .000). It could be deduced from this finding that the difference observed between pre and post intervention mean scores could not have



occurred by chance but as a result of the educational intervention the participants were exposed to. This corroborates the findings of Mahy et al. (2019), who found an increase in the knowledge of prevention of mother-to-child transmission of HIV/AIDS among participants.

### Conclusion

This study achieved its initial objectives of assessing the outcome of nurse-led intervention on prevention of mother-to-child transmission of HIV/AIDS among pregnant women in selected primary health centres in Osogbo, Osun State, Nigeria. It is therefore concluded that the nurse-led intervention programme improved knowledge on prevention of mother-to-child transmission of HIV/AIDS. Prevention of mother-to-child transmission has been considered as not a simple intervention but a comprehensive set of interventions requiring reliable health workers. It starts with testing pregnant women for HIV, preferably during their first antenatal visit. When giving the test result, health care workers should provide good counselling, including information about PMTCT options

### Recommendations

In view of the findings stated earlier, it has been proven that proper implementation of prevention of mother-to-child transmission (PMTCT) services requires adequate knowledge of the HIV pregnant mothers . The following are hereby recommended:

- 1. Educational intervention regarding prevention of mother-to-child transmission is required during the period of antenatal and postnatal visit. Information, education and communication on prevention of mother-to-child transmission should be emphasized.
- 2. Nurses need to be more informed and be able to help HIV positive pregnant mothers on prevention of mother-to-child transmission.
- 3. The health system should ensure that HIV-positive women receive the PMTCT services that they choose and should provide postnatal care.

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13

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14