

Original Research Article

KNOWLEDGE AND ATTITUDE ON PREVENTION OF MOTHER TO CHILD TRANSMISSION OF HIV AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC AT KISII LEVEL FIVE HOSPITAL IN KISII COUNTY, KENYA.

KEY WORDS

Acquired Immunodeficiency Syndrome, Prevention of Mother to Child Transmission of HIV, Mother to Child Transmission of HIV, Human Immunodeficiency Virus, Care and Treatment Clinic.

ABSTRACT

Introduction: The acquired immunodeficiency syndrome (AIDS) epidemic is the greatest challenge to human kind in the 21st century. Over 35.5 million people are infected with Human immunodeficiency virus (HIV) worldwide and the majority of these infections are in the reproductive age group. Mother to Child Transmission (MTCT) of HIV infections is high especially in sub-Saharan Africa despite improvements in PMTCT services over the years. In 2006 there were 2.3 million children under 15 years living with HIV, and approximately 530,000 children were newly infected with HIV through mother to child transmission of the virus. A child dies of AIDS nearly every minute of every day.

Objective: To assess knowledge and attitude on **prevention of mother to child transmission** of HIV among pregnant women attending antenatal clinic in Kisii general hospital. **Methodology:** An institution-based cross-sectional study was conducted among pregnant mothers attending antenatal care clinic at Kisii general hospital from February to April, 2014. A systematic random sampling technique was used to select the 328 respondents. Data were collected through structured pre-tested questionnaire. The data were then summarized into SPSS version 20.0, for windows and analyzed. Chi-square was used to calculate the association between, education, Occupation and age against knowledge on **prevention of mother to child transmission**. **Findings:** The findings from the study showed that there was an association between the knowledge on PMTCT and Occupation ($P = 0.05$). A big number (52%) of the mothers did not know about PMTCT services which were being offered in the hospital. The study showed that the knowledge on PMTCT was associated to the age ($P = 0.02$). It was noted that respondents who had little or no knowledge of the services were mostly **below 25** years of age and those with low education levels ($P = 0.01$). On the attitude towards PMTCT services it was found that three-quarters (77%) reported that it is good to take on PMTCT services if reactive and quarter (23%) of respondents reported that PMTCT services are wastage of time because AIDS has no cure.

Challenges that affect the PMTCT program include stigma still surrounding HIV and AIDS as a disease, which has led to 210 (64%) of the mothers not willing to know their status. **Conclusion:** The utilization of the PMTCT services were affected by the low levels of HIV testing. The insufficient knowledge on PMTCT coupled with the negative attitude towards HIV testing, fear and stigma towards HIV and AIDS contributed to the low utilization of PMTCT services in Kisii level 5 Hospital in Kisii County.

Recommendation: The study recommends working in collaboration with all stakeholders to improve and increase on the sensitization and awareness to the communities on what PMTCT program is all about and what it entails. There is need to increase on the capacity building of the health workers in the PMTCT service provision especially in the areas of counseling and testing to avoid delays. Women need to be empowered in issues of socio-cultural so that they can make decisions in regards to their health and their children without causing conflicts in the family.

INTRODUCTION

The Acquired Immune Deficiency Syndrome (AIDS) epidemic is the greatest challenge to human kind in the 21st century, in 2009, around 400,000 children below 15yrs became infected with Human immunodeficiency virus (HIV) (UNAIDS, 2010), almost all of MTCT infections occurred in Sub Saharan Africa, and more than 90% were as a result of mother-to-child transmission (MTCT) during pregnancy, labor/delivery, and breastfeeding.

There is still fear of disclosing one's HIV status (or of learning it) because of the stigma that exists for people leaving with HIV/AIDS which hinders women from seeking PMTCT services and results in poor adherence to PMTCT interventions, in particular safer infant-feeding decisions. Being open about one's HIV status is one of the most powerful ways to reduce HIV-related stigma. Disclosing one's status also has other benefits, it can encourage partners to be tested for HIV and prevent the spread of HIV by allowing those infected to openly take appropriate prevention steps. Therefore knowledge and awareness on PMTCT of HIV has an impact on the practice of HIV testing, taking medication and attitude toward PMTCT interventions among pregnant mothers (UNAIDS, 2001).

PROBLEM STATEMENT

Despite improvements in PMTCT services over the years, MTCT of HIV infections is high especially in sub-Saharan Africa. In 2009 alone around 400,000 children less than 15yrs became infected with HIV and 1.3 million children and adults died of AIDS (UNAIDS, 2010).

Studies done in Uganda and Tanzania on awareness and knowledge about HIV and PMTCT in pregnant women, in southwestern Tanzania shows a low level of knowledge on MTCT during pregnancy and moderate knowledge on the risk of breastfeeding and MTCT (Gundel et al 2009).

The risk of MTCT can be reduced up to 2% if comprehensive approach of PMTCT will be put in place (De Cock KM et al 2000). Treating mothers with ART in late pregnancy and breastfeeding period has shown to result in low postnatal HIV transmission. However little information is available on pregnant women's knowledge and attitude towards PMTCT intervention, and whether there are educational and behavioral change impacts from antenatal HIV counseling.

JUSTIFICATION

The purpose of this study was to assess the knowledge and attitude towards PMTCT interventions among pregnant women after PMTCT counseling. Knowledge of the interventions of PMTCT is important, so that pregnant women can be aware and through motivation they can have a positive attitude towards PMTCT.

The **Broad objective** was to assess knowledge and attitude on PMTCT of HIV among pregnant women attending Antenatal clinic at Kisii level 5 Hospital in Kisii County, with Specific objectives as to investigate the pregnant women's knowledge of Prevention of Mother- to-Child Transmission of HIV (PMTCT) services, to examine pregnant women's attitude towards antiretroviral drugs in prevention of Mother-to-Child Transmission of HIV and to examine the role of the hospitals in the utilization of PMTCT services.

METHODOLOGY

Study Design

A cross sectional study was conducted from February to April, 2014 to establish pregnant women's knowledge on PMTCT and their attitude towards PMTCT.

Study Area

Kisii level 5 hospital is located within Kisii town in Kisii central district which is one of the Districts in Nyanza province, and it is the headquarters of Kisii County.

Sampling method and sample size determination

A sample size was determined using **Fisher et al 1998** formula by considering the following assumptions: Prevalence of knowledge on PMTCT a study done in Botswana (p=69), Level of significance (5%) and a 5% marginal error which gave the final sample size to be 328 respondents. **systematic random** sampling was used to select the respondents.

Data collection instruments and procedure.

Pre-tested structured questionnaire was prepared by reviewing previously done studies on the topic of interest. The data were collected using structured interviewer administered questionnaire prepared to address knowledge and attitude associated with PMTCT services. The questionnaires were administered to all the selected pregnant women who fulfilled the inclusion criteria while they were attending ANC clinic at the hospital.

Data Analysis

Data was entered into and analyzed using the SPSS database program version 20. Univariate and bivariate analysis were done for frequency computations and computing associations between variables respectively. Chi-square test was used to measure the strength of associations between variables where a p-value of = or <0.05 was considered to be statistically significant.

Ethical Consideration

Ethical approval and clearance was taken from Kisii level 5 Hospital administration committee, all selected respondents were communicated to about the objective of study in order to obtain their verbal consent before administering questionnaires. Participants were also informed their full right to withdraw or refuse to participate in the study. Information which was communicated with individual subjects was kept private and maintained confidential. Coding was used to eliminate names and other personal identification of respondents throughout the study process to ensure anonymity.

RESULTS

Socio-demographic characteristics of the pregnant women attending antenatal clinic in Kisii general hospital (N=328)

Socio-demographic variables N (%)

Age of the respondents

15-25	154(47%)
26-35	148(45%)
36-45	23(7%)
45-49	3(1%)

Marital Status of the respondents

Married	259(79%)
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120 Single 59(18%)

121 Separated 7(2%)

122 Widowed 3(1%)

123 **Level of Education**

124 Tertiary 140(42.8%)

125 Secondary 113(34.4%)

126 Primary 75(22.8%)

127 **Occupation of the Respondents**

128 Housewife 162(49.4%)

129 Farmer 70(21.4%)

130 Business 59(18%)

131 Employed 37(11.2%)

132 **Knowledge on PMTCT**

133 **Cross tabulation of respondents' age and knowledge on PMTCT**

134 Table 1: Association between the respondent's age and knowledge on PMTCT.

Age	Have you ever heard of Prevention of Mother To Child Transmission?				Total	
	Yes		No			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
15- 25	58	37.7	96	62.3	154	100.0
26- 35	81	54.7	67	45.3	148	100.0
35- 45	17	73.9	6	26.1	23	100.0
46- 49	2	66.7	1	33.3	3	100.0
Total	158	48.2	170	51.8	328	100.0

135

136 The findings from the study showed that the knowledge on PMTCT was associated to the age ($P = 0.02$)

137 of the respondents as it is clear from the table above that the higher the age, the more the more the

138 knowledge.

139 **Cross tabulation of respondents' occupations and their knowledge on PMTCT**

140 Table 2: Association between respondent's occupation and their knowledge on PMTCT

Occupation	Have you ever heard of PMTCT				Total	
	Yes		No			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Employed	37	100.0	0	0.0	37	11.0
Business	32	55.2	26	44.8	58	18.0
House wife	63	38.9	99	61.1	162	49.0
Farmers	26	36.6	45	63.4	71	22.0
Total	158	48.2	170	51.8	328	100.0

141

142 The findings from the study showed that there was an association between the knowledge on PMTCT and

143 the Occupation. ($P = 0.05$). All the employed respondents interviewed knew about PMTCT. Those

144 in business category followed at 32 (55.2%). However, only 26 (36.6%) farmers knew about

145 PMTCT.

146 **Cross tabulation of education levels of respondents and their knowledge on PMTCT**

147 Table 3: Association between respondents' level of education and knowledge on PMTCT

Education level	Have you heard of PMTCT				Totals	
	Yes		No			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Primary	7	9.3	68	90.7	75	23.0
Secondary	25	22.1	88	77.9	113	34.0
Tertiary	126	90	14	10	140	43.0
Totals	158	48.2	170	51.8	328	100.0

148

149 The study showed that the knowledge on PMTCT was associated to Education ($P = 0.01$). Majority (90%)

150 of the pregnant women with tertiary education had knowledge on PMTCT followed by the category of

151 those who were exposed to the secondary education (22.1%), however only 9.3% of those with primary

152 education knew about PMTCT.

153 **Source of information on PMTCT**

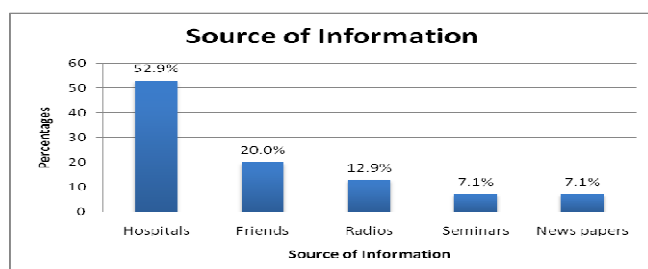


Figure 1: Source of information on PMTCT

Most (52.9%) of the women interviewed obtained the information about PMTCT from hospitals, 20% from friends and only 7.1% in the seminars or newspapers.

Pregnant women's knowledge on STIs and PMTCT

Table 4: Pregnant women's knowledge on STIs and PMTCT

Knowledge on STIs	Have you ever heard of PMTCT				Totals	
	Yes		No			
	Frequency	Percentages	Frequency	Percentages	Frequency	Percentages
Yes	158	53.2	139	46.8	297	90.5
No	0	0.0	31	100.0	31	9.5
Totals	158	48.2	170	51.8	328	100.0

Respondents who knew about STIs had knowledge about PMTCT 158 (53.2%) and those with no knowledge had less knowledge on PMTCT (100%).

Attitude(s) towards PMTCT services (N=328).

	Response	N (%)
Mothers who said it is important to have an HIV test while pregnant	Yes	253(77%)
	No	75(23%)
	Don't Know	36(11%)
Mothers who said reactive woman should have a baby	Yes	95(29%)
	No	197(60%)
	Don't Know	36(11%)
Mothers who said reactive women should breastfeed her Baby	Yes	85(26%)
	No	203(62%)
	Don't Know	40(12%)
Comments on time spent at ANC	Too much	203(62%)
	Just in Time	112(34%)

174		Too short	9(2.7%)
175		No comment	4(1.3%)
176	Utilization of PMTCT services by pregnant Mothers		
177	Mothers' comments on time spent waiting for the services	too much	203(62%)
178		Just in Time	116(35.3%)
179		Too short	9(2.7%)
180	Comments on the way of counseling	Comfortable	187(57%)
181		Not Comfortable	141(43%)
182	Mothers willing to take PMTCT services if found reactive	Willing	272(83%)
183		Not willing	56(17%)
184	Mothers HIV tested after counseling	did not test	210(64%)
185		Tested	118(36%)
186	Mothers willing to disclose their HIV status	No	230(70%)
187		Yes	98(30%)

188 **DISCUSSION**

189 **Knowledge on PMTCT**

190 Kisii Level 5 hospital MCH/FP clinic serves a wide range of clients whose level of education ranges from
 191 primary to tertiary and this is because it's located in an urban area. The respondents interviewed in the
 192 study had various levels of education ranging from primary to tertiary, with the majority (42.8%) having
 193 tertiary level of education, however only 158 (48.2%) of the respondents had knowledge on PMTCT.
 194 Majority of the respondents 297 (90.5%) had knowledge sexually transmitted infections (STIs) as they
 195 were more common because most of the people were free to talk about them, these findings concurred
 196 with previous studies done by (**Ekaneem E. E. and Moses O. et al, 2007**) at Lagos and rural Nigeria
 197 respectively.

198 The study findings also revealed that the higher the age, the more the knowledge. This association was
 199 confirmed by the Chi-square correlations whereby the P.V was (0.02) meaning that there was a significant
 200 relationship between age and the knowledge of PMTCT services. This was because those who were 26
 201 years and above were more exposed to different sources of information and had experience on antenatal
 202 issues since they always come for counseling in Health Centre. The other groups were those who marry
 203 when they are still young and therefore do not take antenatal issues serious and the under 25 years who
 204 get pregnant before marriage and do not disclose for fear from their parents and the society who are
 205 against having children out of marriage, these findings coincided with those previously found by (**Moth
 206 et al, 2005**) at Kakamega, Nakuru, Karatina and Thika district Hospitals in Kenya

207 An association between the respondents' occupation and the knowledge on PMTCT services ($P = 0.05$)
 208 revealed that those in formal employment were more knowledgeable about the services. The high level of
 209 knowledge about PMTCT by civil servants is attributed to their high education levels compared to other

categories. It was also found that the same group complained about the much time they spend waiting for the antenatal services, since they always have to report back to the work places. Those involved in business, and other occupations were the next big category who knew about PMTCT services. This group was also exposed to different media and they also interact with different levels of people when they are carrying out their activities. All Employed interviewed knew about PMTCT, Self-employed category followed. However, only 26 (36.6%) Farmers knew about PMTCT.

Sources of information about PMTCT included; interactions with friends, during antenatal visits, radios programs and seminars. It was also clear that the most reliable source among these was sensitization and counseling sessions at the hospital during antenatal visits.

Most stakeholders involved have knowledge on PMTCT, though others are not aware, especially those who are not involved in the program. Though sensitization is being done up to the grassroots to increase mothers awareness on PMTCT, there is still a long way to go. Sensitization should be done effectively not only to the mothers but also to all stakeholders i.e. fathers communities, health workers and NGO s that are involved. Health workers should all be equipped with firsthand information about PMTCT so that they are always in position to counsel and advice people accordingly. If all this is done, the PMTCT program will live to serve its intended purpose.

Attitude(s) towards PMTCT of HIV services.

Most pregnant mothers felt it is important to have an HIV test and know their status while few did not see the importance of knowing the HIV status this was because, some pregnant women still have a negative attitude towards HIV testing. The reason for this being fear and stigma associated with HIV/ AIDS as a disease, this demonstrates fear and stigma people have towards HIV and AIDS and the way People living with HIV/AIDS (PLWHA's) are stigmatized. However this is not only in Kenya but was also reported in Zambia in a study on PMTCT conducted by **UNAIDS in 2001** whereby the findings indicated that there is a high level of stigma against HIV/AIDS patients, the community tends to shun persons who are known to be reactive or have symptoms of AIDS.

Those who reported that a reactive woman should not have a baby gave a reason that this will shorten her already 'numbered days' since she loses a lot of blood in the delivery process. The other reason was that some respondents think it's obvious a reactive woman will infect the baby therefore are not convinced there is need for the baby. This indicates that there is a gap in knowledge as far as PMTCT is concerned.

On the other hand respondents who reported that an HIV positive woman should have a baby recommended it because few of them are aware the baby can be born free of HIV because of PMTCT services if the woman attends antenatal regularly and delivers from the hospital. Surprisingly, the other respondents looked at it in the cultural perspective that; it is the tradition for every woman to produce children irrespective of the HIV status.

The respondents who reported that reactive mother can breastfeed, at least knew that the baby born of an infected mother can still be safe if she is enrolled for PMTCT and also breastfeeding may not be dangerous when done exclusively. It was therefore found out during the study that it is not known by some people that a reactive mother if she decides to breastfeed exclusively, the baby can still be safe.

It was again found that among those who reported that the baby should be breastfed thought it was every mother's obligation to breast feed her baby. Others reported that there were mothers who cannot afford to buy other types of milk so breast milk is their only option. Among these however there are those who know about exclusive breastfeeding due to counseling got when they went for PMTCT program at the antenatal clinic.

254 On the issue of the husbands' and community's reaction when a wife/mother does not breastfeed her
255 child, it was found out that if the husband knows the wife is sick and was therefore advised by the health
256 workers not to breastfeed at all if she cannot do it exclusively, then he will support her, but if he does not
257 know, then this can cause problems.

258 The family members and community at large may not be in position to understand in case a woman is not
259 breastfeeding her child. This may pose a number of questions, some people may think the mother wants
260 to kill the baby and for this reason therefore she may be rejected and despised by society. It is not easy to
261 explain to the whole community what really is stopping a woman from breastfeeding.

262 The respondents' attitudes towards PMTCT services are affected by their lack of knowledge on what the
263 package entails and the advantages of these services to the reactive mothers. Much as it is true some
264 mothers are aware of detailed information on these services and others know bits of information, but a
265 good number of these pregnant mothers need more sensitization on this. The negative attitudes on the
266 PMTCT services were not only with the pregnant mothers who are supposed to be the beneficiaries of
267 these services in case they test and found to be sick, but also the communities where they come from.
268 These communities have to be sensitized about these services if they are to support these mothers and
269 encourage them access the services.

270 It is also not enough for people to know the PMTCT program and probably also get scanty information
271 about the program when there is a lot to be known about it. It is difficult for some people to accept getting
272 involved in something they are not convinced about.

273 Since there is a small group of mothers that know very well about the PMTCT services among the many,
274 therefore this big group of mothers who do not know cannot be left behind. They need to be sensitized,
275 convinced so that they also can come aboard and reduce Mother-to-Child Transmission of HIV.

276 **Utilization of PMTCT services by pregnant mothers**

277 The study found out that there were a number of things that affected the level of utilization of PMTCT
278 services; these include stigma about HIV and lack of sensitization etc. Though a big number of the
279 respondents reported that time spent waiting for antenatal services is too much, this may not stop them
280 from coming for the services, but however wish the time was less.

281 It was found that some of those who complained of the time being too much were public servants and
282 self-employed people who come for antenatal and yet have to go to work, so would not wish to wait for
283 long. Some of those who said the time was much come from very far places and need to walk back. Those
284 who were not comfortable with counseling said so basing on the arguments that counseling was done for
285 groups and not to individuals, this makes them uncomfortable to ask personal questions.

286 It was however noted that though many respondents reported they were willing to take up PMTCT
287 services, some were not willing to take an HIV test and yet this was the entry point of PMTCT services.
288 On the other hand the respondents who are not willing to take up PMTCT if found reactive gave a reason
289 that it was a wastage of time since AIDS has no cure while the others were not sure that a reactive woman
290 cannot have an HIV /AIDS free baby. However some respondents raised a concern why PMTCT should
291 target the children only without considering the mother.

292 **CONCLUSIONS**

293 The findings of the study indicated that some variables affect both the knowledge and the attitude of the
294 pregnant mothers. These included; age, education and occupation. The older the respondents, the higher
295 the education and the occupation, the higher the knowledge of PMTCT services.

People's attitude and utilization of PMTCT services were affected by the insufficient knowledge on what the PMTCT program entails and the benefits of the services as far as mother-to-child transmission of HIV is concerned. Other issues like lack of male participation affected the utilization of PMTCT services.

Social demographic characteristics of the respondents, the knowledge and attitude towards PMTCT influenced their behavior towards PMTCT services as the theoretical concepts explained. Indeed pregnant women felt that their unborn babies are susceptible to the HIV/AIDS infection and hence the need to protect the babies. This is in line with the Health Belief Model which asserts that people have got their own beliefs and in order for them to change behavior and perception on certain issues, these beliefs have to be put in consideration.

RECOMMENDATIONS

As much as there are mothers and people in the community who really know about the details of PMTCT program and services, a big number still do not know the program benefits in details. Therefore, measures should be put in place to make sure the correct and detailed information reaches the community.

Husbands and the community at large should also be sensitized on how they can support pregnant women in their communities by encouraging them to go for antenatal, advice them to deliver from the health Centre and attend seminars on antenatal education. This will enable them access all the necessary information on antenatal in general and PMTCT in particular, as well as reduce stigma among these women.

There is need to increase on the human resource to handle the PMTCT program in Kisii level 5 hospital. This can be done by training more PMTCT counselors to handle the big number of the pregnant women who seek antenatal services. The Government should implement the PMTCT Plus, so that the partner and other family members can access the HIV prevention, care and support services.

REFERENCES

1. Central Bureau of Statistics, Ministry of Health, ORC Macro. Kenya demographic and health survey 2003 (2004) Calverton, Maryland, USA: CBS, MOH, ORC Macro
2. Creek T, Ntuny R, Mazhan L, Galavotti C, Moore J, Smith M (2004). Knowledge, attitude and practices regarding PMTCT of HIV among antenatal and postnatal women, Botswana; International Conference on AIDS. 2004; Bangkok, Thailand
3. De Cock KM, Fowler MG, Mercier E, de Vincenzi I, Saba J, Hoff E. Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. JAMA. 2000; 283:1175–1182. PubMed
4. Delva W, Mutunga L, Quaghebeur A and Temmerman M (2006). Quality and quantity of antenatal HIV counseling in PMTCT in Mombasa, Kenya. AIDS care 18 (30) pp. 189-193
5. Ekaneem EE, Gbadegesin A, (2007). Voluntary counseling and testing for Human Immunodeficiency Virus; a study on acceptability by Nigerian women attending clinics, African Journal of Reproductive Health
6. Gundel H, Katja S, Ilaria M, Chris B and Paulina M (2009). Analyzing awareness and knowledge of Mother to Child Transmission and its prevention in Uganda and Tanzania. Available from [www. core.kmi.open.ac.uk/display/11307477](http://www.core.kmi.open.ac.uk/display/11307477). Accessed on 08/08/2014

- 335 7. Heidi W. Reynolds, Carmen Cuthbertson, Cindy Geary, Barbara Janowitz, Laura Johnson, Karen
336 Katz, Joshua Kimani, Maureen Kuyoh, Jennifer Liku, Ndugga Maggwa, Julius Munyao (2006).
337 An Assessment of services for adolescents in Prevention of Mother-to-Child Transmission
338 Programs, Nairobi Kenya: Family Health International publication. Youth Net Programme.
- 339 http://pdf.usaid.gov/pdf_docs/PNADH473.pdf. Accessed on 08/08/2014
- 340 8. Fisher, A. A., Laing, J. E. and Strocker, J.E. (1998). Handbook for Family Planning,
341 Operation Research Design in Sampling. Population Council, 40-45.
- 342 9. Leshabari S, Koniz-Booher P, Burkhalter B, K. Hoffman M, Jennings L (2005). Testing a
343 PMTCT infant feeding counseling programme in Tanzania. Journal of American Medical
344 Association.
- 345 10. Marten, T E and Burton A. (2010). Global programme on Acquired Immunodeficiency
346 Syndrome. Geneva: WHO publication
- 347 11. Moses O, Munir'deen A, Peter A, (2007). Awareness and Knowledge on MTCT of HIV among
348 pregnant women attending a federal medical center in Nigeria, Journal of National Medical
349 Association
- 350 12. Moth I A, Ayayo ABCO, Kaseje D O (2005) Assessment of utilization of PMTCT services at
351 Nyanza Provincial Hospital, Kenya. SAHARA J. PubMed; 2:244–50.
- 352 13. Peltzer Karl, Thabang Mosala, Olive Shisana, Ayanda Nqueko and Nolwandle Mngqundaniso
353 (2007) Barriers to prevention of HIV transmission from mother to child in a resource poor setting
354 in Eastern Cape, Southern Africa. African Journal of Reproductive Health. Vol. 11 (1) pp. 57-66
- 355 14. Risby J, Lindsay M. (1995). The effectiveness of HIV counseling on retention of knowledge in
356 Inner City prenatal population AM Journal of Obstetrics and gynecology.
- 357 15. Rutenberg (2002). Integrating HIV prevention and care into maternal and child health care
358 settings, USA. Published by USAID publication
- 359 16. Schwarendruber A, Msamanga G. (2000). Evaluation of the UNICEF-Sponsored PMTCT Pilot
360 Project in Tanzania,
- 361 17. UNAIDS (2010). Report on global AIDS epidemic: UNAIDS Geneva.
- 362 18. UNAIDS/WHO (2008). AIDS Epidemic Update. UNAIDS/WHO Geneva.