

**MALE INVOLVEMENT AND INFLUENCE ON ADHERENCE TO ANTI-
RETROVIRAL THERAPY AMONG HIV POSITIVE WOMEN ATTENDING
ANTENATAL CLINIC IN EGBE, KOGI STATE**

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**A DISSERTATION IN THE DEPARTMENT OF EPIDEMIOLOGY AND MEDICAL
STATISTICS SUBMITTED TO THE FACULTY OF PUBLIC HEALTH, COLLEGE
OF MEDICINE, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
THE DEGREE OF**

MASTER OF PUBLIC HEALTH

(FIELD EPIDEMIOLOGY)

OF THE

UNIVERSITY OF IBADAN

DECEMBER, 2016.

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DEDICATION

To God my Father in Heaven

The God of all grace

The Almighty God

A very present help in time of need

For making this dream comes to pass

To Him alone be all the glory.

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ACKNOWLEDGEMENT

I thank God Almighty Who has counted me the most unqualified and the least of all worthy by unleashing His immeasurable love, grace and unending provisions which enabled me complete this study. May His Name be praised forever.

I am greatly indebted to a role model, competent, hardworking and brilliant supervisor, Dr (Mrs.) Ikeoluwapo O. Ajayi whose creative contributions brought shape to this work. I appreciate the exceptional, professional and motherly guidance she gave me throughout the conduct of this study. Despite her busy schedules, she was always ready to listen, advise and make constructive criticisms. May God Almighty reward her accordingly. I equally appreciate unreserved motherly love and spiritual discipleship of Dr. (Mrs) Adeoye J. May the Lord God of heaven strengthen you the more.

I wish to express my profound gratitude to Dr. F Fagbamigbe, my co-supervisors, Dr. Adebayo. M.A. of Department of Community Medicine, for their invaluable and multifarious insights played vital role in the shape and the content of this work. Beyond academic contributions to this work, I also thank other lecturers in the department especially, Dr Dairo M.D, Dr. Bello, Dr. Adedokun B.A, Prof. Ayeni, Dr. Akpa, Dr. Adebowale, Dr. Akinyemi, Mr. Nathaniel, and Mr. Aduroja, whose technical and moral support helped me in completing this study. I appreciate the love and support of Dr. Vincent Jason, Dr. Okedare A.A, Dr. Ilesanmi, Dr. Nelson Igwe, Dr. Vitalis C. Okwor and Dr. Ossaai E. N. I must not forget to thank to Prof. Fawole, the Head of Department of Epidemiology and Medical Statistics for her contributions to this work. A heartfelt appreciation to Mr. Ademola Ogunlabi, Elder Oladotun Olusanya and the entire staff of Department of Epidemiology and Medical Statistics. I sincerely acknowledge all the authors whose works were used as reference materials for this study.

Special thanks are due to my spiritual Fathers and mentors, Bishop David O. Oyedepo, Pastor Princewill Ndubueze, Pastor Sylvester Ogedi and Pastor & Deaconess Marvelous Ofem whose impactful teachings, support and mentoring serves as a springboard for the realization of this dream. I would like to thank all the management team and staff of ECWA Hospital Egbe, Spring of Life Department, my friends and colleagues, who contributed in one way or the other to the success of this research work. Special tributes need to paid to Dr. Mike Lawani, Loveth, Ifeoma, Aderonke Poopola, and Samson Owolabi. I acknowledge the love

and support Dr. Ike Ugwoke, Oluwayemisi, Mark Efosa, Seunayo Oluwasanmi, Sunday Nwonu, Ikechukwu Nwokpo, Jonathan Oke, Faith Agu, Francis, Peter, and Egbe Godfrey.

I am eternally grateful to my wonderful parents, Mr. & Mrs. F. Nweri, who God has been using as sources of blessing and joy to my life. I deeply appreciate their ceaseless prayers, encouragement and love. I want to appreciate my lovely siblings: Francis, Austin, Jeoma, Chinyere and Uche. We did it together.

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ABSTRACT

Mother-to-child transmission of HIV (MTCT) is responsible for 90.0% of new paediatric infections. Prevention of mother-to-child transmission of HIV (PMTCT) is a major strategy targeted at reducing paediatric HIV infections. However, adherence to anti retroviral therapy (ART) is poorer among HIV positive women who lack social support especially from their male partner. Thus, the success of PMTCT services is largely hinged on male partner participation. Male involvement in the utilization of PMTCT services in Kogi State is widely undocumented. Therefore, this study was carried out to assess male involvement in the utilization of PMTCT services and its influence on adherence to anti retroviral therapy (ART) by HIV positive women attending ECWA Hospital, Egbe, Kogi State.

This study was a cross-sectional survey which employed mixed methods of data collection from HIV-positive women attending antenatal and postnatal clinic. A two-stage random sampling technique was used to select three facilities out of seven public secondary health facilities within Kogi West and Central Senatorial district. Purposive sampling was used to serially recruit three hundred and ninety-nine (399) respondents attending PMTCT programme in all selected health facilities (355 HIV positive pregnant women and 44 positive women within early postpartum period). A pre-tested interviewer administered questionnaire was used to obtain information on socio-demographic characteristics, male involvement, adherence to ART and factors influencing male involvement in PMTCT utilization. A 12-point ad-hoc male involvement index was used to determine overall male involvement. Male involvement scores of 0 was classified as none, 1-5 as low and >6 as high. Scores of <2 and ≥ 2 were classified as low and high adherence due to male involvement respectively. Data were analyzed using descriptive statistics, Chi-square and logistic regression at $p=0.05$.

Age of respondents was 33.8 ± 7.6 years and mean age in marriage was 8.2 ± 6.8 years with monogamy (82.5%) as the commonest type of marriage. About 60.5% had at least secondary education and (67.2%) were from urban and semi-urban areas. Only 85.2% of the respondents were employed while 88.7% of their male partners were employed. Good knowledge of MTCT and PMTCT was reported by 63.9% of the respondents, and their main source of information was from health workers (79.6%). About 69.2% of male partners had couple testing for HIV together with spouse during pregnancy. Concordant couple (28.1%) is currently on antiretroviral therapy whereas discordant couples were 71.9%. Only 84.2% of the respondents have disclosed their HIV status to their partners. About 38.9% of male partners do not accompany spouse to PMTCT clinic due to partner not aware of their HIV status. Respondents currently on ART are 95.5%. Most 51.9% of the respondents commenced ART treatment during pregnancy whereas only 48.1% had their ART initiation during Labor/delivery and early post-partum. Only 18.8% of the HIV positive women had previous PMTCT experience. About 84.2% knew their partner HIV status, 83.7% and 84.7% supported financially on PMTCT clinic and jointly planned current pregnancy partners respectively. 74.7% of husbands were willing to bought formula milk for their babies, 81.0% reminded spouse to take ART drug. Male involvement in ART adherence was high (81.0%). Most (60.2%) respondents attained good ART adherence due to male partner involvement, and reasons for missing medication included being away from home and forgetfulness. Family disharmony 10.8% and pregnancy related problems 10.8% represents mostly reported reasons male partners restrict their spouse from taking ART drugs. Women who are currently married were four times more likely to have good ART adherence due to male partner involvement than the previously married and the single (AOR = 5.3, 95% CI: 2.4,

11.7, $p < 0.001$). Spouse's in ART group were about three times more likely to be involved in ART adherence due to male partner participation than those who are not in their spouse's group (AOR = 2.7, 95% CI: 1.30, 5.38 $p = 0.004$). Spouse of discordant couples were two times more likely to achieved good ART adherence of $\geq 95\%$ optimal adherence due to male partner involvement than those of concordant couples (AOR = 0.7, 95% CI: 0.43, 1.12, $p = 0.133$).

Male partners involvement in antiretroviral therapy (ART) uptake was found to be associated with high adherence. Policies that integrates male partners in the care of HIV positive women may improve adherence to anti retroviral therapy (ART).

KEYWORDS: HIV positive women, PMTCT utilisation, ART adherence

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TABLE OF CONTENTS

Pages	
Title page.....	i
Certification.....	ii
Dedication.....	iii
Acknowledgement.....	iv
Abstract.....	v
Table of content.....	vi
List of Tables.....	vii
List of Figure.....	vii
Glossary of Abbreviations/Acronyms.....	ix
Operational definition of terms.....	x
Chapter one Introduction	
1.1 Background of the study.....	1
1.2 Statement of the problem.....	3
1.3 Justification.....	4
1.4 Research questions.....	5
1.5 Objectives of the study.....	5
1.5.1 Broad Objectives.....	5
1.5.2 Specific Objectives.....	6
Chapter two Literature Review	
2.1 Prevention of Mother-To-Child Transmission of HIV.....	7
2.2 PMTCT Program in Nigeria.....	8
2.3 Knowledge of HIV/AIDs, PMTCT and ART among HIV Positive Pregnant Women...9	
2.4 Barriers to Effective PMTCT Program.....	10
2.5 Male Partner Involvement.....	11
2.6 Lack of Male Involvement in PMTCT in Sub- Saharan Africa.....	12
2.7 Reason for Lack of Male Involvement in PMTCT program.....	13
2.8 Health System Factors.....	14
2.9 Socio-Economic factors: Issues of Waiting Time.....	14
2.10 Cultural Beliefs.....	15
2.11 Women Attitudes and Perception towards Male Participation in PMTCT.....	15

2.12	Adherence to Anti-retroviral Therapy.....	17
2.13	Measurement of Adherence.....	18
2.14	Conceptual framework.....	19
Chapter three		
3.1	Description of the Study Area.....	22
3.2	Study design.....	23
3.3	Study Population.....	23
3.3.1	Inclusion Criteria.....	23
3.3.2	Exclusion Criteria.....	24
3.4	Sample size estimation.....	24
3.5	Sampling Technique.....	25
3.5.1	Quantitative Data.....	25
3.5.2	Allocation of sampling proportion per facility.....	25
3.5.3	Qualitative Data.....	26
3.6	Data Collection Technique Employed.....	26
3.6.1	Quantitative Data.....	26
3.6.2	Qualitative Data.....	27
3.6.3	Measures of ART Drug Adherence.....	28
3.6.4	Training of Research Assistants.....	28
3.7	Data Analysis Plan.....	29
3.7.1	Quantitative Data.....	29
3.7.2	Qualitative Data.....	30
3.8	Measures and Study Variables.....	30

3.8.1	Dependent Variables.....	30
3.8.2	Independent Variables.....	30
3.9	Ethical considerations.....	31

Chapter Four: Research Results

4.1	Respondents' Socio-demographic characteristics.....	32
4.2	Source of information about MTCT and PMTCT.....	34
4.2.2	Knowledge of MTCT and PMTCT.....	36
4.3	Perception of respondent's partners regarding HIV screening.....	38
4.3.2	Reasons most partners do not accompany their spouse to PMTCT clinic.....	40
4.3.3	Male partners HIV Characteristics.....	42
4.4.1	Prevalence of antiretroviral therapy (ART) uptake among HIV Positive women and their male partners.....	44
4.4.2	Period of ART treatment initiation by HIV positive women.....	46
4.4.3	Drug counts, Adherence counseling & Reasons for adherence counseling.....	48
4.5	Prevalence of Adherence to ART by HIV positive women.....	50
4.5.2	Prevalence of male involvement in adherence to ART by HIV positive women.....	52
4.5.3	How often male partners remind spouse to take ART drugs.....	54
4.5.4	Respondents' reasons for missing medication.....	56
4.5.5	Reasons male partners restrict their spouse from taking ART drugs.....	58
4.6	Levels and Patterns of Male Involvement in HCT, PMTCT utilization, Infant Feeding Decision and ART Adherence among the Respondents.....	60
4.7	Factors associated with knowledge of MTCT and PMTCT.....	62
4.7.1	Association between Knowledge of MTCT/PMTCT and some social Demo-graphic Characteristics of Respondents.....	62

4.7.2 Association between Male Involvement in ART Adherence and some Social Demographic Characteristics among Respondents.....	64
4.7.3 Association between Overall Male Involvement (VCT, PMTCT, ART and Infant Feeding) and some Social Demographic Characteristics among Respondents.....	66
4.8 Binary Logistic Regression Analysis of factors Associated with the Dependents variables and some social demographic variables.....	68
4.8.2 Binary Logistic Regression Analysis of factors Associated with Male Involvement in ART adherence.....	70
4.8.3 Binary Logistic Regression Analysis of factors Associated with Overall Male Involvement in ART adherence (VCT, PMTCT, ART and Infant Feeding).....	72
4.9 Qualitative Analysis.....	74
4.9.1 Socio-demographic Characteristics of the Focus Group Discussion (FGD) Participants.....	74
4.9.2 Knowledge about HIV/AIDS, PMTCT and ART.....	76
4.9.3 Perception of respondent's partners regarding HIV screening.....	78
4.9.4 Perception of respondent's partner towards accompanying their spouse to PMTCT clinic.....	80
4.9.5 Male involvement in adherence to ART by HIV positive women.....	82
4.9.6 Barriers to male involvement in adherence to ART by HIV positive women.....	84
4.9.7 Key Informants' Information on Male involvement in ART Adherence in Pregnancy.....	86
5.0 Discussion, Conclusion And Recommendation.....	89
5.1 Discussion.....	89
5.1.1 Knowledge of the Modes of HIV Transmission, MTCT and PMTCT.....	89

5.1.2 Prevalence of Male involvement in VCT, PMTCT, Infant feeding decisions and ART adherence.....	91
5.1.3 Male involvement in Voluntary Counseling and Testing.....	91
5.1.4 Male involvement in PMTCT uptake and utilization.....	92
5.1.5 Prevalence of Male involvement in adherence to ART by HIV positive women.....	93
5.1.6 Factors Influencing Male involvement in adherence to ART by their HIV positive women.....	94
5.1.6a. Barriers to male involvement in ART adherence.....	94
5.1.6 b. Motivating factors to Male Involvement in ART adherence.....	96
5.1.7 Limitations.....	98
5.2 Conclusion.....	100
5.3 Recommendations.....	100

References

1. LIST OF TABLES

Table	page
3.5.2 Allocation of sampling proportion per facility	25
3.7.1 The quantitative data analysis plan	29
4.1 Respondents socio-demographic information	34
4.2.1 Knowledge of MTCT and PMTCT	37
4.3.1 Women's report of their partners' perception on HIV screening	39
4.4.1 Prevalence of antiretroviral therapy (ART) uptake among HIV Positive women and their male partners	44
4.4.2 Duration of uptake of ART treatment by HIV positive women	46
4.4.3 Drug counts, Adherence counseling & Reasons for adherence counseling	48
4.5.2 Prevalence of male involvement in adherence to ART by HIV positive women	52
4.5.4 Respondents' reasons for missing medication	56
4.6.1 Levels and Patterns of Male Involvement in HCT, PMTCT utilization, Infant Feeding Decision and ART Adherence among the Respondents	60
4.6.2 Male Involvement Score on HCT, PMTCT utilization, Infant Feeding Decision and ART Adherence	62
4.7.3 Association between Knowledge of MTCT/PMTCT and some social Demo-graphic Characteristics of Respondents	68
4.7.4 Association between Male Involvement in ART Adherence and some Social Demographic Characteristics among Respondents	70
4.7.5 Association between Overall Male Involvement (VCT, PMTCT, ART and Infant Feeding) and some Social Demographic Characteristics among Respondents	72
4.7.6 Association between Overall Male Involvement (VCT, PMTCT, ART and Infant Feeding) and some Social Demographic Characteristics among Respondents	74
4.8.1 Binary Logistic Regression Analysis of factors associated with knowledge of MTCT/PMTCT among respondents	76

4.8.2 Binary Logistic Regression Analysis of factors Associated with Male Involvement in ART adherence.....	78
4.8.3 Binary Logistic Regression Analysis of factors Associated with Overall Male Involvement in ART adherence (VCT, PMTCT, ART and Infant Feeding).....	80
4.9.1 Socio-demographic Characteristics of FGD Participants.....	82
4.9.2 Knowledge of MTCT and PMTCT	84
4.9.3 Reported male partners' perception regarding HIV screening.....	86
4.9.4 Reasons most partners do not accompany their spouse to PMTCT clinic.....	88
4.9.5 Male involvement in adherence to ART by HIV positive.....	90
4.9.6 Barriers to male involvement in adherence to ART by HIV positive women.....	92
4.9.7 Key Informants' Information on ART Adherence in Pregnancy.....	94

LIST OF FIGURES

Figure	page
2.14 Conceptual framework on factors affecting male involvement and ART adherence..	21
4.3.2 Reasons partners do not accompany spouse to PMTCT clinic.....	42

4.5.1	Prevalence of Adherence to ART by HIV positive women.....	50
4.5.3	How often male partners remind spouse to take ART drugs.....	54
4.5.5	Reasons male partners restrict their spouse from taking ART drugs.....	58

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LIST OF APPENDIX

Appendix

1. English version of informed consent and Semi-structured Interviewer Administered questionnaire on male involvement in ART adherence during pregnancy.....115-121
2. Yoruba version of informed consent and Semi-structured Interviewer Administered questionnaire on male involvement in ART adherence during pregnancy.....122-127
3. Focus-group discussion guide on male involvement in ART adherence128
4. Key Informant interview guide on male involvement in ART adherence129
5. Approval letter from ECWA Hospital Egbe Ethical Review Committee130

1.0: LIST OF ABBREVIATIONS

1. AIDS: Acquired Immune-Deficiency Syndrome.
2. ANC: Ante- Natal Clinic
3. ART: Antiretroviral therapy
4. CART: Combination Antiretroviral therapy
5. FGD: Focused Group Discussion
6. HIV: Human Immunodeficiency Virus.
7. HCT: HIV Counseling and Testing
8. ICPD: International Conference on Population and Development
9. MTCT: Mother- To- Child Transmission of AIDS.
10. MCH: Maternal Child Health
11. NACA: National Agency for Control of AIDS.
12. PLWHIV: Persons living with HIV.
13. PMTCT: Prevention of Mother –To- Child Transmission of HIV
14. PNC: Postnatal Care
15. PCR: Polymerase Chain Reaction
16. TBA: Traditional Birth Attendant
17. UNAIDS: Joint United Nations AIDS Program
18. UNICEF: United Nations Children Fund
19. WHO: World Health Organization

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16. TBA: Traditional Birth Attendant
17. UNAIDS: Joint United Nations AIDS Program
18. UNICEF: United Nations Children Fund
19. WHO: World Health Organization

20. WAD: World AIDS Day

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DEFINITION OF KEY CONCEPT/ TECHNICAL TERMS

The terms and concepts identified as being central to the research topic are defined below:

ROLE: is the degree to which male partners are involved in PMTCT program

MALE PARTNER: is the respondent, an adult male (of age 18 years and above) sexual partner of a woman who is currently or previously enrolled into PMTCT program who may or may not be in a spousal relationship with the woman, but is responsible for the index pregnancy.

MALE INVOLVEMENT: Is any man (husband /sexual partner) who supported the HIV positive wife financially, physically, materially, or emotionally ,accompanied her to ANC, obtain HIV test together, engage in status disclosure, partake, in delivery, support in infant feeding options, encourage ART uptake and adherence by HIV positive women.

ADHERENCE: Is the fixed or strict way in which a HIV positive pregnant woman on PMTCT program receiving antiretroviral therapy (ART) adhered to the treatment due to involvement of their male partners. Adherence was considered optimum if greater than or equal to 95%.

MOTHER-TO –CHILD TRANSMISSION OF HIV: Also called vertical transmission of HIV is the transmission of HIV infection from a HIV positive pregnant woman to her infants. This can occur during pregnancy (intra uterine), delivery (intra- partum), or afterwards (post-partum) during breast feeding.

PREVENTION OF MOTHER –TO-CHILD TRANSMISSION OF HIV (PMTCT): This is health program or intervention that is aimed at reducing the transmission of HIV infection from the mother to the child during pregnancy, delivery, and in the post-natal period. These interventions include primary prevention of HIV infection in women, HIV counseling and testing for pregnant women, provision of antiretroviral drugs for (the mother and the child), adherence counseling, and adoption of safe infant feeding method as well as provision psychological support (WHO,2010).

HIV INFECTION: Is an infection caused by Human Immune-deficiency Virus as diagnosed by a positivity of a rapid HIV antibody test, confirmed by a second HIV rapid antibody test, relying on different antigens or of different operating characteristics (Tshibumbu,2006).

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Globally, over 300 thousand children acquired new HIV infection, more than 90% of these children live in sub-Saharan Africa with main route of transmission being from infected mother to child (UNAIDS, 2012). However, in Nigeria, mother-to-child transmission of HIV (MTCT) accounts for about 10% of new HIV infections annually (NACA, 2012). Mother-to-child transmission (MTCT) of HIV is described as the transmission of the HIV virus from a HIV positive mother to her child during pregnancy, labour, delivery, or after birth during breast-feeding leading to established HIV infection in the child (WHO, 2010). The risk of MTCT has dropped to as low as 2% in developed countries since the introduction of antiretroviral drugs (Newell, 2001; Phoolcharoen et al, 2002). Transmission rates of HIV from mother to child in the absence of prophylactic intervention ranges from 20-45%, but can be reduced to below 5% when effective PMTCT interventions are employed (WHO 2010).

The prevention of mother –to-child transmission (PMTCT) program is an intervention designed to reduce infants infection through vertical transmission, without which about 25-30% of children born to HIV- infected mothers will be infected with the virus (Read, 2006). PMTCT also involves medication with antiretroviral agents for the mother during, and after pregnancy and eventually for the new born to prevent viral transmission or infection of the child, without which about 25-30% of children born to HIV- infected mothers will be infected with the virus (Read, 2006). If well implemented, a comprehensive PMTCT program can potentially decrease transmission rate to less than 5% (Peltzer et al, 2010; Adeleke, 2013) and theoretically below 2% (Lindgren, 2006).

Globally, about 53% of HIV-infected pregnant women received anti-retroviral (ARV) drugs to prevent mother-to-child transmission (WHO 2009, Mscillati 2009). While coverage is increasing in sub-Saharan Africa, ranging from 8% in some settings to 54% in others (Ezcgbugue et al, 2012), PMTCT coverage in sub-Saharan Africa has increased from 45% in 2009 to 59% in 2012 (UNAIDS, 2012). PMTCT program coverage is still limited in Nigeria with only 4.7% of ANC facilities in Nigeria offer PMTCT services. Currently, there are over 1,320 PMTCT services point across the country (FMOH, NACA, 2013). The number of pregnant women counseled and

tested for HIV in the country has increased from 18,554 (2004) to 1,733,175 in 2010. Also, the number of HIV positive pregnant women receiving complete course of ARV prophylaxis increased from 645 (2004) to 45,842 in 2010 (NACA, 2012 W, AD). Over 229,480 pregnant women were found to be HIV positive, just as an estimated 57,000 infants are exposed to the virus yearly (FMOH, 2012).

Antiretroviral therapy (ART) are medications that treat HIV. However, when taken in combination they can prevent the replication of the virus and equally slow down the disease. Antiretroviral therapy consists of the combination of antiretroviral (ARV) drugs to maximally suppress the HIV virus and stop the progression of HIV disease. Some of the effective therapy against HIV includes, the nucleoside reverse transcriptase inhibitors (NRTI) e.g. zidovudine (AZT), abacavir, lamivudine, emtricitabine, and tenofovir, the NNRTIs e.g. nevirapine, efavirenz, etravirine and rilpivirine, the protease inhibitors such as lopinavir, atazanavir, and darunavir among others (WHO, 2013). However, the combination antiretroviral drugs usually consist of three drugs from at least two different classes. Fixed-dose combinations are multiple antiretroviral drugs combined into a single pill which allows several options that combine 3 drugs into one pill taken once daily. This greatly increases the ease with which the ARV drugs can be taken, and in turn positively influence the consistency with which the medication can be taken. Early and complete use of ART results in better clinical outcomes for people living with HIV compared to those who delayed treatment (WHO, 2015).

Adherence to an effective PMTCT program therefore provides the country with an opportunity to curb the continuing spread of virus, while protecting its young and future generation from the rampage. For any antiretroviral roll out treatment initiative to be successful, those affected must adhere to the treatment regimen with adherence level above 95%. Pregnant mothers undergoing PMTCT may have issues of poor adherence to treatment even after pre-treatment initiation counseling.

Men are important decision makers in utilization of PMTCT services and adherence to antiretroviral treatment by HIV positive women. Men play a vital role in acceptance of antiretroviral therapy (ART) by HIV positive women. This in turn promote effective use of facility-based delivery where improved obstetric practices are offered. Most men should engage in proper supervision of ART for mother and newborn. This further ensure adherence to "take-

home” ART for mother and newborn when given to HIV positive women at ante-natal clinic (ANC). Adherence counseling and support is an appropriate intervention measures that can improve overall adherence to antiretroviral PMTCT treatment. Male involvement in adherence counseling and infant feeding support can enhance recommended levels of antiretroviral PMTCT treatment adherence by HIV positive women.

This study investigated male involvement and influence on adherence to antiretroviral treatment by HIV positive women, and ascertained the factors influencing male involvement in ART adherence by HIV positive women.

1.2 Statement of the Problem

Mother-to-child transmission of HIV (MTCT) accounts for about 10% of new HIV infections annually in Nigeria (NACA, 2010; UNAIDS, 2011). This can be attributed to poor design and implementation of PMTCT program which does not include male participation which has proved to be a major gap in achieving the success of the program. Lack of male involvement in antenatal care and in PMTCT programs have been identified among others as the major bottlenecks to effective program implementation (Horizons, 2002; Adeleke, 2013). Nigeria currently lacks a coordinated system of reporting the data required to calculate male partner’s gap in PMTCT services utilization and adherence to antiretroviral therapy. However, in Nigeria, male involvement in PMTCT is low and in some cases is unknown.

Current evidence suggests that improving male partner participation in PMTCT program has the potential to address this problem. Male partners’ involvement in PMTCT interventions has been associated with an increase in uptake of PMTCT services by women but no clearly documented evidence on complete adherence to antiretroviral treatment due to their involvement. However, various PMTCT sites, including most secondary health facilities continue to experience low level of involvement by men. The adherence level to PMTCT program due to male partner involvement by pregnant women receiving ante-natal care in those health facilities in Egbe and Kogi State at large was currently unknown. Exploring the role of male partners on adherence to antiretroviral therapy by HIV positive women is an important factor if appropriate recommendations are to be made.

1.3 Justification

Adherence to PMTCT services and antiretroviral therapy has proved to be a major predictor of the survival of individuals living with HIV/AIDS (Mill et al, 2006) and poor adherence to treatment remains a major obstacle in the fight against HIV/AIDS worldwide. Low or incomplete medication adherence has been associated with detectable viral load (<500 viral RNA copies/ml of plasma) (Ruthbun et al, 2005) with the development of cross resistance to other antiretroviral of the same class (Tchetgen et al, 2011). In several countries in North America and sub-Saharan Africa, varying levels of adherence have been reported (Mill et al., 2006)

Different levels of adherence also have been reported in earlier studies in Nigeria. For instance, a study in Kano (northern Nigeria) by Mukhtar et al., 2006 revealed 80% ART adherence. However, studies in Niger Delta and Benin city (South-South Nigeria) by Idigbe et al., 2005 revealed 85% whereas that of Erah and Arute, 2008 revealed 58% adherence respectively. Nwauche et al., 2006 in South East Nigeria reported 49.2% adherence whereas Olowookere et al., 2008 and Bello 2011 in Southwest Nigeria reported 70% and 73% adherence respectively.

Consequently, significant proportions of HIV infected patients do not reach high levels of adherence and this can lead to devastating public health problems.

Male partners as decision makers need to be involved in maternal health services such as PMTCT and ART adherence. Low male involvement in PMTCT services results in low utilization of PMTCT, poor ART uptake, and poor adherence to ART leading to increased new HIV infection in children and high maternal and infant morbidity and mortality (Aluisio et al., 2011, Dyogo, 2011). Partner attendance at antenatal clinic has been associated with reduced risk of infant HIV transmission as well as decrease infant mortality, independent of the maternal HIV viral load (Aluisio et al., 2011). Men accompanying HIV positive women to PMTCT clinic presents an opportunity to the health workers to health educate them on the PMTCT utilization and ART adherence empowering men to make appropriate decisions and take actions that may influence the outcome of the pregnancy (Gctu 2011). Bassett (2002) argues that men need to

encouraged to care for their families, and therefore to support their partners in getting comprehensive pregnancy care, including antiretroviral therapy adherence.

The aim of this study was to provide better understanding of the factors that enhance male involvement in VCT, PMTCT, Infant feeding decisions, ART uptake and ART adherence. Information generated would guide decision-making by policy makers, program planners, care-providers and further lead to positive actions that would increase male involvement in PMTCT services and infant feeding choices. Increased male involvement in PMTCT services would equally lead to increased utilization of PMTCT/maternal health services by the HIV positive pregnant women and adherence to ART contributing to reduction in maternal and infant mortality in Egbe, Kogi state and Nigeria at large.

1.4 Research Questions

1. What proportion of male partners are involved in VCT, fertility and infant feeding decisions, and adherence to antiretroviral therapy?
2. What proportion of HIV positive pregnant women completed over 95% prescribed doses of antiretroviral drugs due to the support from their husband/ male partners?
3. What is the association between male partners' involvement on adherence to antiretroviral therapy?

1.5 Study Objectives

1.5.1 Broad Objectives

To assess the role of male partners' involvement and influence on adherence to antiretroviral therapy by HIV positive women attending Antenatal clinic in secondary health facilities in Kogi State.

1.5.2 Specific Objectives

1. To determine the knowledge of MTCT, PMTCT and ART among HIV positive pregnant women.
2. To determine male involvement in voluntary counseling and testing (VCT) by HIV positive pregnant women.
3. To determine the level of male involvement in infant feeding decisions
4. To determine the level of male involvement in adherence to antiretroviral therapy among HIV positive pregnant women.
5. To determine factors influencing male involvement and the adherence to antiretroviral treatment by HIV Positive women.

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The Nigeria prevention of mother-to-child transmission (PMTCT) of HIV program is one of the national health sector responses to the HIV/AIDS epidemic in the country. The initiative for the establishment of PMTCT program in Nigeria started with the inauguration of the PMTCT National task team (NTT) in December 2002. Actual PMTCT services in Nigeria commenced as a pilot project in July 2002 with the support of WHO and UNICEF in six tertiary health facilities including University College Hospital Ibadan (Agboghroma et al, 2013). The goal, objectives and targets of the PMTCT program have undergone some review over time in line with national realities and international demands such as the global initiative for the elimination of MTCT by the year 2015 (UNAIDS, 2011). The overall goal as documented in the 2010-2015 scale-up plan is to contribute to improved maternal health and child survival through accelerated provision of comprehensive and integrated PMTCT services (FMOH, 2010).

The PMTCT services outlets have increased from 67 in 2004, 670 in 2009, and 684 in 2010 (NACA 2011). Currently, there are about 1,320 PMTCT services point across the country (FMOH, NACA, 2012). Also, the number of HIV positive pregnant women receiving complete course of ARV prophylaxis increased from 645 (2004) to 45,842 in 2010 accounting for 17% ARVs coverage in Nigeria (NACA, 2012 WAD). At the end of 2011 in Nigeria, about 229,480 pregnant women were found to be HIV Positive, with MTCT rate of 30%, followed by an estimated 57,000 new HIV infections among children which is the highest incidence reported in a single country all over the world (FMOH, 2012, UNAIDS, 2013b).

The fact that ARV drugs are given free to all HIV positive patients nationwide through the support of the President's Emergency Plan for AIDS Relief (PEPFAR, a United State government initiative to fight HIV/AIDS globally, especially in Africa) has largely contributed to wider coverage of PMTCT services which in turn led to increased access and utilization by those of low socio-economic background. A study in Northern and South-Western Nigeria has shown increase in awareness of PMTCT services (Moses et al, 2009, Owoaje et al, 2012).

However, low awareness and poor knowledge of the benefits of the program by the gate-keepers and some religious leaders was identified as factors responsible for poor acceptance and use of the program (Arelogun et al, 2009). Meanwhile, no or limited involvement of private health sector which contributes largely in the provision of health services in Nigeria was a major factor affecting the success of the program (Agboghroma et al, 2013).

The Nigeria National guidelines for prevention of mother- to- child transmission of HIV developed in 2010 recommends that the use of the prophylaxis (ART) in an infected pregnant woman, that it will lead to significant reduction in mother- to child transmission of the virus (FMOH,2010). The choice of ARV depends on the clinical staging. The use of Anti-retroviral drugs to treat HIV Positive pregnant women requires strict compliance to the eligibility criteria as contained in the national guideline (FMOH, 2010).

2.3 Knowledge of HIV/AIDS, PMTCT and ART among HIV Positive Pregnant Women.

According to the Nigeria National Demographic Health Survey (2013) report that the knowledge of HIV is universal, revealing that almost all Nigerians have heard of AIDS. More than half of women and about 70% of men know that the risk of getting HIV can be reduced by using condoms and limiting sex to one faithful, uninfected partner. Sixty five percent of women have a good knowledge that HIV can be transmitted through breastfeeding; whereas about half of women demonstrated a good knowledge that the risk of MTCT can be reduced by the mother take specially recommended ART drugs during pregnancy. Almost half of women have good knowledge of the key messages about PMTCT of HIV. The Knowledge of HIV prevention methods was found to be higher in urban than rural areas and increases with increase in level of education and economic status among women with more than secondary education and higher economic status (NDHS 2013).

Lamina (2012) observed that even though 78% of pregnant women knew that HIV infection could coexist with pregnancy and only 40.4% of the pregnant women in the study identified mother-to-child transmission as a means of transmission of HIV/AIDS infection. This revealed a low level of knowledge of methods of prevention of mother-to-child transmission of HIV among pregnant women booking for antenatal care in that area. Thus, this calls for the need for adequate counseling about HIV/AIDS and other specific part of prevention of mother-to-child transmission in our antenatal clinics with the design of more suitable preventive educative programs for our pregnant women. Moses et al, (2009) in a survey revealed a high level of knowledge on modes of transmission, risks behaviors and prevention of HIV and other sexually transmitted infections among the pregnant women. However, the use of breast milk substitute (BMS) by HIV positive nursing mothers and use of condom during sexual intercourse did not receive very encouraging responses from 42 (24.4%) and 58 (33.7%) of the women respectively. Those that do not encourage use of BMS indicated "Spouse dislike on the use of BMS and the

fact that the community places higher premium on breastfeeding than BMS was the major reasons identified for discouraging the use". Most pregnant women accepted PMTCT as a veritable means of preventing infants from HIV infection as well as an opportunity to know ones HIV status through voluntary testing. Majority implored greater involvement of their male partners and other significant family members during PMTCT counseling sessions to guard against ejection, stigma and discrimination if tested HIV positive.

2.4 Barriers to Effective PMTCT Program

Service uptake often turned out to be the critical point of PMTCT program, with women dropping out of the service at various points. It could be during: HIV- counseling, HIV-testing, post-test counseling ,program enrolment, drug intake of the mother, drug administrating to the child, adherence to feeding recommendations and follow-up visits (Theuring et al.,2009, Oladokun,2010).

The acceptability of PMTCT in urban areas in Africa, has been impeded by disbelief in its effectiveness, negative attitudes of health workers and lack of male support: economic affordability constrained by distance and transport costs; and social affordability hampered by stigma, discrimination and the fear of abuse and divorce after partner disclosure (O'Gorman et al.,2010; Peltzer,2007; Theuring et al,2009).

As Theuring et al., (2009) has argued that key decision makers in questions of sexual and reproductive health in many societies, especially male partners are attributed to a high potential of impact on pregnant women 's behavior and unsupportive partner attitudes which are likely to create a barrier to women 's program participation. Lack of male partner involvement has been consistently shown to be one of the major barriers to the success of PMTCT program in Sub-Saharan African (Auvinen et al, 2010; Dahl et al. 2008; Peltzer, and Jones, 2011). As the South Africa experience has shown, success in preventing PMTCT will not depend solely on widespread use of antiretroviral prophylaxis, but also on continuing support for the nursing mother during the postnatal period from key stakeholders in the community, especially their male partners.

2.5 Male Partner Involvement

The understanding of the concept of male partner involvement varies with the context in which it is used and its definition differs from source in the literature. According to Ntabona (2002), male involvement is dependent on the socio-cultural context and there are yet clear-cut guidelines on how far the partner /husband's participation: attending women's health education session; attending counseling session; using condoms; acting as community-based volunteer. For Rutenburg et al., (2002), male involvement may mean that men choose to come to the clinic with their partners, be counseled and get tested for HIV, support their partners in coping with HIV infection and support them financially or with transport to the clinic. In this study, the focus was on male involvement and influence on adherence to antiretroviral therapy among HIV positive women attending antenatal/PMTCT clinic in secondary health facilities. This study considers male partners' readiness to provide support to their female partners in core PMTCT interventions which include counseling and testing, use of prophylactic antiretroviral drugs, participation in fertility decisions, involvement in delivery and as well as the choice of baby's feeding options (De Cook et al, 2000,). Male partner's involvement according to this study was defined as the proportion of male partners counseled and tested or actually having been counseled and tested for HIV together with the female partner in a PMTCT setting, male who accompany their wives to PMTCT clinic, financially support or provide support in delivery, serve as adherence counselors or treatment supporter to their female partners taking ARVs ensuring complete adherence, and male partners who support their female partners in the choice of infant feeding options. The overall *ad-hoc male involvement index* was constructed based on 10 questions and the ad-hoc male involvement index in ART adherence was also based on 3 questions. The survey was complemented by three focus group discussions and 10 in-depth interviews.

Involving men is a recognized and advocated measure in PMTCT. Reports have shown poor uptake of PMTCT services by women with low involvement of men. This lack of male involvement denies the woman the care and support of her partner in coping with HIV infection (Okagbue, 2010, Karen, 2012). According to a study done in Nigeria by Moses et al(2009) observed that for PMTCT to be successful, above optimal levels, involvement of male partners

must be recognized as a necessary component. The male partner is to be involved, and educated together with his spouse, to provide necessary support whenever the need arise. Involving the partner will not only provide support and encouragement, but will also improve adherence to program ethics.

In the same study it was realized that community awareness on PMTCT programs is paramount as it can assist the male partner together with the family to successfully fight against stigma and discrimination for desired results (Moses et al, 2009). Involvement of male partners may increase adherence to ART and improve outcomes to prevent mother -to -child HIV transmission (PMTCT). These known risks can be the same as in PMTCT programme. In PMTCT, use of nevirapine in pregnancy and the issue of resistance, add to the fear of participation and this programme may be viewed with suspicion (Moses et al, 2009).

Samuel et al., (2006) identified that possible future failures of previously effective therapies due to viral evolution or social disorganization can also affect male participation in PMTCT, this can be so because male fear to be victims of that failure rate. According to Samuel et al., (2006) in a study carried out to determine the influence of HIV positive parents on the use of Zidovudine (AZT) reveal that despite potential benefits of ZAT, parents are not actively participating in preventing prenatal transmission. The man may discourage the women, not to accept the recommended drug therapy.

Taking of ZAT was greater appreciated to women who believe together with their husbands that ZAT was effective in treating HIV, ZAT prevents prenatal transmission of HIV and that their care provider viewed taking ZAT positively. It was then concluded that the evaluation of health care practitioners' attitude about the taking of ZAT, significantly influenced the intent to take ZAT. In this study, health care practitioner's role is crucial through the cited perception and their subsequent participation in PMTCT.

2.6 Lack of Male Involvement in PMTCT in Sub- Saharan Africa

PMTCT programs have focused primarily on women, and there is call for the need to examine men's, and particularly male spouses' engagement in PMTCT in order to fulfill the objective of

those programs (Reece, Hollub, Nangami, & Lane, 2010). Studies that have examined male partner involvement in PMTCT in Africa have reported low level of male participation.

Studies in Kenya reveal that only 5% pregnant women attending a Nairobi Council Clinic in Uganda receive HIV counseling with their male partner (Farquhar et al., 2004). Peltzer, Mosala Dana, and Fomundam (2008) HIV positive women from 5 sites in the OR Tambo district of the Eastern Cape Province of South Africa, only 14.9% of them reported that their male partner accompanied them to their antenatal care clinic visits.

In Mbale district, Uganda, Byamugisha et al. (2010) found that only 5% of men accompanied their spouses to antenatal clinics. Similarly, despite instituting a program targeted at encouraging male partner participation in PMTCT and antenatal programs, the observed percentage of men participating in such activities in a facility in Cameroon was 18% Nkuoh, Meyer, Nkfusai,(2010). Falnes et al also noted that very few men joined their partners for PMTCT or antenatal activities in five health clinics studied in northern Tanzania.

Study in Ibadan on Service uptake and performance of the prevention of mother –to child transmission PMTCT programme: a review of antenatal and delivery records of women enrolled between July 2002 in Nigeria revealed that partners of positive patients who accepted HIV testing were 361 (16.7%) with 87 (18.6%) testing positive . This accounts for 16.7% testing rate among men in Ibadan (Oladokun et al, 2010). A study among Community Gate Keepers' on awareness and perception of Prevention of Mother-to Child-Transmission of HIV Services in Ibadan, Nigeria identified low knowledge of mother to child transmission, lack of knowledge of the PMTCT services, inadequate community sensitization, and inadequate health care facilities as some key factors which affects PMTCT utilization (Arulogun et al, 2007).

2.7 Reason for Lack of Male Involvement in PMTCT program

With the increasing recognition of the crucial role of male partners in PMTCT, it is not surprising that the quest for the reasons for their participation have been a subject of interest for researchers. Byamugisha et al., (2010) identifies three main barriers to male participation in PMTCT; poor health system, socio-economic factors and cultural beliefs. Findings from other

studies fit into these categories. These barriers to male partner involvement in PMTCT utilization and antiretroviral therapy (ART) adherence as found in literature shall be briefly discussed below.

2.8 Health System Factors

Generally research shows that service related factors are more important than user related factors in affecting male involvement in maternal health care services (Dyogo, 2011). Some of the health system factors identified by Byamugisha et al., (2010) in a cross-sectional study conducted in Eastern Uganda include the fact that health care workers in some instances do not allow men to enter the antenatal clinic with their pregnant partners. The men also complained about the structure design of antenatal clinics which are often congested, with no space to accommodate the women and their partners. This is similar to the situation in Mbeya region of Tanzania where some of the men who have followed their wives to the antenatal care were in fact refused access by health care providers (Theuring et al., 2009). In Durban, South Africa, Moodley, and Groves (2011) reported that some men expressed the view that they do not feel welcomed and comfortable in prenatal clinics, and in some settings, there are policies that restrict men's access to clinics. The organization of the PMTCT program in Moshi district, northern Tanzania inhibited men from participating, and several fathers did not attend the antenatal clinic owing to fear of the reactions of other men and also feeling uncomfortable about the idea of being the only men present (Falnes et al., 2011).

2.9 Socio-Economic factors: Issues of Waiting Time

In most of the studies, the main socio-economic reasons for failure of male participation in PMTCT is the fact that most of the men were too busy trying to make ends meet and were not willing to wait for endless hours in queues at the antenatal/ PMTCT Facilities (Byamugisha et al., 2010; Maman et al., 2011; Nkuoh et al., 2010; Theuring et al., 2009)(Reccc,2010). To accommodate this problem, it has been suggested to offer services after working hours or on weekends and to reduce waiting time for men /couples (Bolu et al., 2007) as cited in Theuring et al.(2009).

2.10 Cultural Beliefs

Cultural beliefs have been identified and reported in most of the researches conducted on the involvement of male partners in PMTCT as one of the key factors that affect gender role plays in influencing men's behavior towards antenatal and PMTCT services. Several deep-seated socio-cultural ideas constitute a hindrance to male involvement in PMTCT, where pregnancy is seen as the sole responsibility of women, and antenatal clinic was perceived to be a female arena not acceptable for a man to enter (Adeleye et al. 2007, Falnes et al., 2010). In another study, 30.6% of men interviewed in a health facility in Cameroon responded that it was not good to go to the antenatal clinic (ANC) with their partners (Nkuoh et al., 2010). The primary reason identified by these men was the belief that pregnancy is a woman's affair and that it was not their custom to participate in ANC. Some of them felt they will be viewed by their community as being over-protective if they go to the clinic with their wives.

One of the men interviewed in Uganda responded (Byamugisha et al., 2010): "If I accompanied my wife to hospital every time she goes for her antenatal check-up, my friends would think I am a weakling. They would laugh at me". A study in Nigeria revealed that majority of the participants perceived it is a good idea to accompany their wife to antenatal care but putting this into practice is a problem due to societal norms and cultural barriers (Adelekan, 2014).

2.11 Women Attitudes and Perception towards Male Participation in PMTCT

It has been noted that women's perceptions of men influence whether they disclose their HIV status to their partners during pregnancy or not. These perceptions include the fear of abandonment, loss of economic support, being stigmatized, rejection, discrimination, and violence, upsetting family members, and avoiding accusations of infidelity (Reece et al., 2010). In a study conducted in public health centres in Blantyre, Malawi, majority of women reported that they believed their spouse would attend at least one antenatal clinic visit if invited by the health workers, but only 5% had ever been accompanied by their husband (Tadesse, Muula, & Misiri, 2004).

Most of the women interviewed in Tanzania did not feel empowered to request their partners to undergo HIV test and several of them expressed the wish that their partners be invited by others (Falnes et al., 2011). It was noted by Tadesse et al.(2004)as well as Falness et al., (2011) that the majority of the women they interviewed will chose their partner as their primary confidants if they tested HIV positive. However, other studies have found that there are some women who will not disclose their status to their partners. Kilewo et al cited in Moodley et al., (2009) found that 77.8% of HIV –positive women participating in a prenatal trial had not shared their HIV results with their partners eighteen months after diagnosis. (Reece et al., 2010) reported that most of the women participants in a qualitative study conducted in Kenya to assess male spousal engagement in PMTCT, described engaging their spouses in HIV care as being particularly challenging if they were unaware of their status, refused to be tested, or were in denial about their HIV status.

HIV related stigma was also described by some women as being a significant factor preventing them from being able to secure the help of their husbands with basic activities such as going to clinics to get formula; subsequently women suggested that they were less likely to adhere to a formula- based regimen (Reece et al., 2010). According to Peacock et al as cited in Reece et al.(2010),women perceive that men's lack of involvement in antenatal care is due to the belief in tradition gender roles, that childbearing is a women 's affair, and the fear that their involvement would create perception that one or both were living with HIV.

A study in Cameroon showed that most women (83.8%) were receptive to their partners' involvement in antenatal care and identified increased partner participation over the past 5 years. Women (98.2%) said men's primary role was payment for obstetric care .Although pregnancy has traditionally been viewed as a women's affair, the majority of women wanted their partner s to participate in their care, including receiving HIV counseling and testing. Women identified men's involvement as an individual belief, saying that many in their community were not supportive of male participation in antenatal care. Cultural and gender –based attitudes and beliefs were identified as barriers to HIV testing of men (Nkuoh et al, 2013).

2.12 Adherence to Antiretroviral Therapy

The development and widespread use of antiretroviral therapy ART as the treatment of choice in HIV has improved significantly the health condition of HIV positive individuals who could have untimely death. The ART however, has transformed the perception of HIV /AIDS from a fatal incurable disease to a manageable chronic illness (Palella et al., 1998). The treatment causes improvement in immunologic status and reduction in the viral load which consequently reduce the incidence of hospitalization and mortality (Paterlla et al., 2000). However, incomplete medication adherence is the most important factor in treatment failure and the development of resistance. Adherence is the term use to describe the patient's behavior of taking drugs correctly in the right dose, with the right frequency and at the right time. Antiretroviral treatment success depends on sustainable high rates of adherence to medication regimens of ART (Mill et al., 2006). On the other hand, ART regimens are habitually complicated with variable dosage schedules, dietary requirements, and adverse effect (Ferguson et al., 2002). Treatment success can be precarious with missing of few doses of antiretroviral medication which leads to drug resistant strains of HIV (Bangsberg et al., 2000)

An adherence patient is defined as one who takes 95% of the prescribed doses on time and in the correct way, either with or without food. Adherence to PMTCT services and antiretroviral therapy is a major predictor of the survival of individuals living with HIV/AIDS (Mill et al., 2006) and poor adherence to treatment remains a major obstacle in the fight against HIV/AIDS worldwide. Low or incomplete medication adherence has been associated with detectable viral load (<500 viral RNA copies/ml of plasma) Ruthbun et al., 2005) with the development of cross resistance to other antiretroviral of the same class (Tchetgen et al., 2001). Although, more potent antiretroviral regimens can allow for effective viral suppression at moderate levels of adherence (Knafl et al 2008), none or partial adherence can lead to the development of drug-resistant strains of the virus.

Cross-resistance however can potentially interfere with future therapeutic regimens for HIV – infected patients undergoing treatment and for those who subsequently become infected with resistant strain of HIV (Karl et al., 2010).

Osterberg and Blaschke (2005) defined adherence to medication generally as the extent to which patients take medications as prescribed by their healthcare providers. The rates of adherence for individual patients are usually reported as the prescribed doses of the medication actually taken by the patient over a specified period. For successful treatment, an adherence level of over 95% is usually expected for optimum viral suppression in an HIV infected individual on antiretroviral therapy (Mannheimer, Friedland, Matts, Child & Chesney, 2002). It therefore follows that the importance of adherence to antiretroviral medication cannot be over-emphasized. There are many barriers to adherence and many reasons why patients do not adhere to medication. The factors affecting the adherence to antiretroviral therapy has been outline and ranges from patient variables such as social and demographic factors, psychosocial factors, socio-cultural factors to factors relating to the type of treatment regimen involved, disease characteristics, clinic setting, and relationship between patient and health care provider (Edward et al., 2005; Ogenyi; Moyo; Ekezie; Moroka, 2006; Olowookere et al., 2007, Igwegbe, 2010, Adelckan, 2014).

2.13 Measurement of Adherence

The need to develop adherence measurement and monitoring systems which should preferably be built into treatment protocols is very important because the provision of free medicines do not guarantee patient adherence to the drugs provided (Kartikyan, et al, 2007). Measuring adherence to medication involves the frank cooperation of the patient and the healthcare worker or researcher. This is because obtaining values that describe adherence do not observed therapy, which is often not applicable in most setting where chronic medication is involved such as treatment of HIV and AIDS.

There have been attempts however, to device workable adherence measurements and the most common methods are those outlined by Edward et al (2005). They include the use of computerized software systems such as the MEMS Caps which involves the use of a computer chip embedded on the medication cap which records the number of times the medication is opened to be accessed, use of the pill count system, use of biological markers, and analysis of pharmacy dispensing records. Other tools for measuring adherence include pill identification

tests, issuing pill calendars, adherence partner, using recall questionnaires (Kartikayan et al. 2007), and other self reporting systems such as the visual analogue scale.

The pill count and the visual analogue self reporting system have been adopted by studies to evaluate adherence. The pill count basically compares a patient's actual drug consumption with the expected consumption within a given periods or since the medication was last dispensed to the patient. The records and data obtained from the pill count have been used to calculate the pill count adherence measures, Chalker, et al (2009). However, several studies has adopted pill count and the visual analogue scale to measure adherence to antiretroviral therapy (Ochigbo, 2013; Bello 2011; San Lio, et al., 2008; Amico, et al., 2006; Ogenyi, 2006).

The visual analogue scale was described by Reips and Funke (2008) to be a psychometric response scale which can be used in questionnaires to measure subjective characteristics or attitudes that cannot be directly measured, by utilizing a continuous line between two end-points or scales, where respondents can specify their level of agreement to a statement by indicating a position along the continuous line or analogue scale. In this research, the participants indicated self assessed level of adherence to PMTCT therapy over the past one month.

2.14 Conceptual Framework

The conceptual framework which guided the design and analysis of this study is shown in Figure 1 below. It combines elements of another problem analysis diagram addressing coverage, problem in medicines use, ART adherence and factors affecting male involvement in uptake of the services. The development of this framework is based on applying the available literature on the problem of utilizing PMTCT, adherence to ARVs treatment and identifying several factors which serves as the core problems of medicine use as described by Dyogo, 2011. The outcome in the framework reveals low utilization of the PMTCT and ART adherence.

The factors that affect male involvement in maternal health care services especially PMTCT and adherence to ART may be categorized into cultural factors, socio-economic, health facility factors, inter-spouse communication and perceptions most men have on maternal health services in the study area. Cultural Factors include; Polygamy, this has been associated with family

disharmony which was identified as barrier to male partner participation in PMTCT utilization and ART adherence. Health facility factors included; lack of privacy, comfort and lack of confidentiality. Poor attitude of health workers adversely affect men's capacity to be involved in maternal health services.

Inter spouse communication: absence of inter-spousal communication and discussion can hinder male involvement in PMTCT services and ART adherence. This prevents men from taking appropriate maternal health decisions.

The perceptions men have on maternal health care services offered in the area is poor and that services could be very expensive and long patient waiting time for both spouses to access simultaneously. Low male involvement in PMTCT services might lead to low utilization of these services and poor/non- adherence to ART by the pregnant women, mothers and their children, which will in turn lead to high maternal and infant morbidity/mortality due to HIV infection.

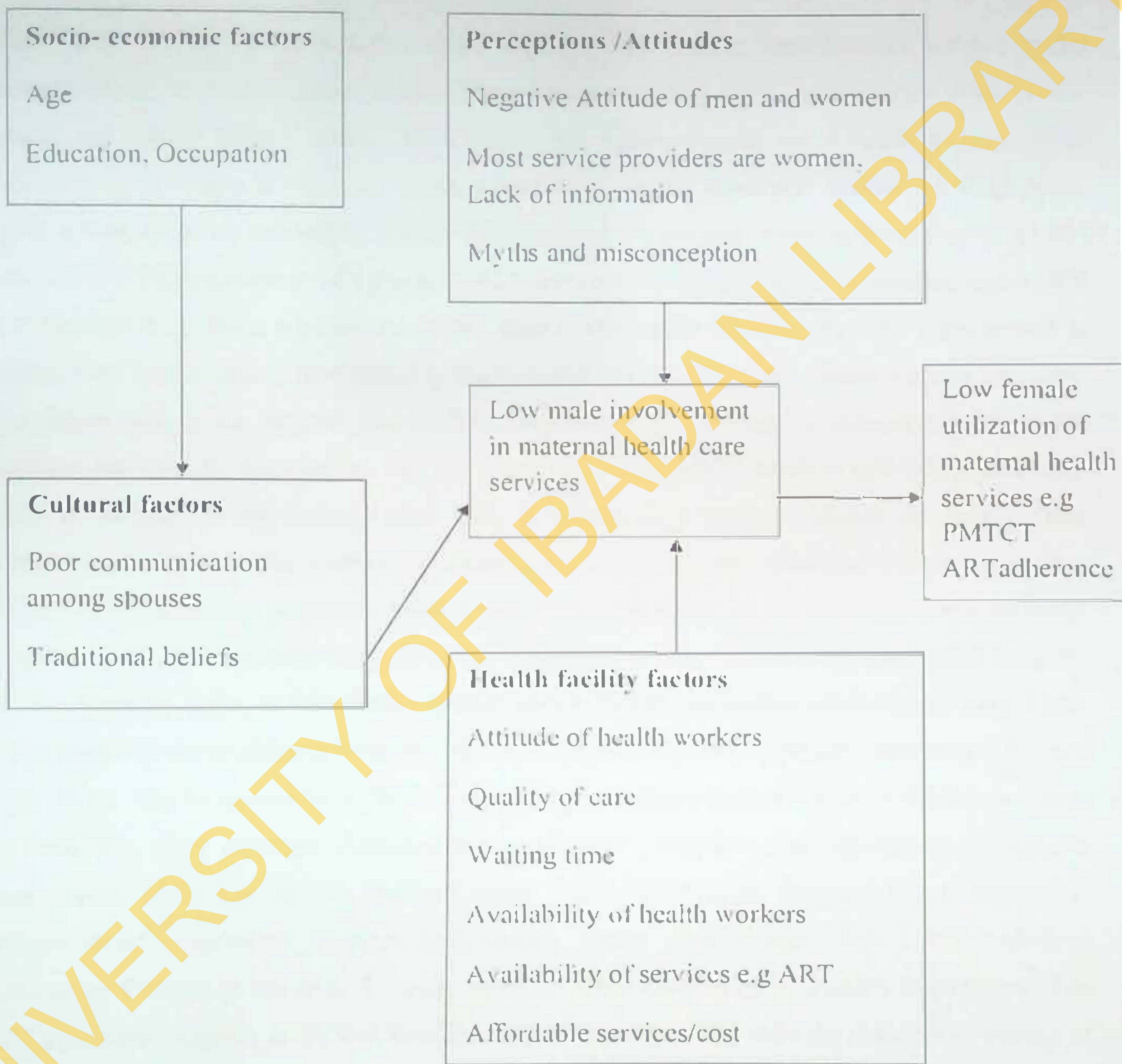


Figure 2.14 Conceptual framework on factors affecting male involvement in PMTCT and ART adherence adapted from Dyogo, 2011.

CHAPTER THREE

METHODOLOGY

3.1 Description of Study Area

This study was carried out in three major PMTCT sites located in three junction towns (border towns) in Kogi State (confluence State). These towns includes; Egbe (rural area), Kabba (semi-urban) and Okene (urban area). Both Egbe and Kabba-Bunnu are located in Kogi West senatorial zone, where as Okene is located in Kogi central senatorial district of Kogi State. Egbe; a historic town located in Yagba West Local Government Area is bordering Kogi and Kwara State. The population of Egbe is 17,612, which is 0.01% of Nigeria population and 0.49% of 3,595,789 Kogi State populations (NPC, 2006). The major dialect spoken by Egbe people is Yagha, they have ancestry root linked to the Yoruba's in Nigeria as they speak Yoruba language. The family unit is an integral part of this community, as marriage is encouraged within the younger populace by the elderly. The existence of the extended family is still being practiced. Egbe is located on the federal road axis, it serves as a central location to access other communities. There is long history of commercial and agricultural activities; People come from far and near for trading purposes, while some other inhabitants of the land were civil servants. Christianity is the dominant religion in the area, followed by Islamic and traditional religion. ECWA Hospital Egbe, is 121 beds capacity health facility located in rural area of Kogi State. These hospitals serve patients from Kwara, Ekiti, Ondo, Osun, Oyo, Benue, Nasarawa, Edo, and Niger State. The hospitals have the following Departments where different healthcare services are rendered. They includes: Administrative, Account, Accident and Emergency, Outpatient Department, Male and female Medical ward, Male and Female Surgical Ward, Maternity/Labour Ward, Operating Theatre Department, Under Five Clinic, Eye Clinic, Medical Laboratory, Pharmacy, Medical Records, Security, Maintenance and Laundry Department. The HIV treatment program in ECWA Hospital Egbe started in 2007 with the creation of Spring of Life Department. In addition ECWA Hospital Egbe runs educational and training programs such as: Residency training in Family Medicine with about six residents' doctors in training, ECWA School of Nursing and Midwifery. The average HIV positive pregnant women attending PMTCT clinic in this study sites was 158 and the total number of patient on ARVs was 472.

Kabba is an ancient town in Kabba-Bunnu local government Area of Kogi State. It can be classified as one of the gateway regions to Federal Capital Territory (Abuja). Kabba serves as a junction of seven major roads from different parts of the country. The town is largely made up of Okun people, a Yoruba descendant and a smaller tribe comprising of 18% of Kogi State population. Their language is generally called Okun, whereas they speak varied dialects: owe, and Bunu. Their dialects are influenced by several factors which include that Kogi State shares boundaries with Kwara, Ondo, Ekiti, Niger, Benue, Nassarawa, Anambra, Enugu, Edo and Abuja. In Kabba is located an upgraded 130-bed Kabba Specialist Hospital where this research was carried out. The HIV treatment program in Kabba Specialist Hospital started in 2007. The average HIV positive pregnant women attending PMTCT clinic in each of the study site was 134. This hospital shares similar departments with the hospital stated above.

Okene is a local government Area and the administrative centre of the Ebira speaking people, a second to the largest tribe accounting for 34% of Kogi State population. The local government Area has an area of 328km² and population of 320,260 (NPC, 2006). Okene is a junction town located on the A2 highway. There is a lot of commercial activities in the area, with many brothels which harbor commercial sex workers which can lead to high prevalence of HIV in the area. The HIV treatment program in Okene General Hospital where this study was carried out started in 2006. The average HIV positive pregnant and post-partum women attending PMTCT clinic in this study site was 170. This hospital equally has similar departments with the hospitals stated above.

3.2 Study Design

The study was a descriptive cross sectional survey which employed mixed methods (quantitative and qualitative) methods of data collection.

3.3 Study Population

The target population in this study includes all HIV positive pregnant women attending ANC/PMTCT and the postnatal positive women recently delivered and within the early post-partum period.

3.3.1 Inclusion Criteria

- All the respondents who consented to partake in the study.
- HIV positive women attending ANC/PMTCT clinic.
- Recently delivered HIV positive women within early post-partum period of six weeks.
- All HIV positive women previously enrolled into PMTCT and currently receiving antiretroviral therapy.

3.3.2 Exclusion Criteria

- All HIV positive pregnant women who were too ill and could not sustain the interview.

3.4 Sample Size Estimation. Formula for estimating single proportion will be used to calculate sample size.

- $N = Z_{\alpha}^2 Pq/d^2$

Where

- "N" is minimum sample size
- " Z_{α} " is standard normal deviate corresponding to level of significance (usually 5% at 95% confidence interval = 1.96)
- "P" is the prevalence of outcome of interest (59% is the expected proportion of men involved in maternal health/PMTCT utilization and ART adherence. This is the proportion of men in Egbe/Kogi expected to accompany or support their partners to ANC/PMTCT clinic or for delivery (Msuya et al, 2006, Kartz et al, 2009, Larsson et al, 2010, WHO, 2011).
- "q" is $1 - p$ ($1 - 0.59 = 0.41$)
- "d" is the level of precision (0.05).

$$N = (1.96)^2 * 0.59 * 0.41 / (0.05)^2 = 372$$

Assuming Attrition or a non-response rate (NR) of 5% of Sample size (372) was added to increase the sample

$$100/100-NR * \text{Sample size} = 100/100-5 * 372 = 395$$

3.5 Sampling Technique

The sampling technique adopted in this study was a non-probability sampling technique. This was used to purposively select the three secondary health facilities within three main junction town covering rural, semi-urban and urban areas, which are the major provider of PMTCT services in Kogi State. The PMTCT sites were (i) ECWA Hospital, Egbe (ii) Kabba Specialist Hospital, Kabba (iii) Okene General Hospital, Okene.

Bearing in mind that HIV positive women constitute a hard to reach group therefore, all eligible and consenting women in these facilities were enrolled into the study on clinic days. All HIV positive pregnant women attending ANC/ PMTCT clinic, and those recently delivered within the early post-partum period that met the inclusion criteria and consented to participate in the study were serially recruited until the required sample size was attained. The questionnaire was used to generate information from HIV positive women about male involvement in adherence to antiretroviral therapy.

3.5.1 Quantitative Data

A total of three hundred and ninety-nine consenting positive pregnant and post-partum positive women within early weeks of delivery accessing PMTCT services and who met the inclusion criteria were enrolled into the study. All the respondents were serially and consecutively selected on the clinic days between 6th June to 30th November, 2014 till the required sample size was attained.

3.5.2 Allocation of sampling proportion per facility

PMTCT sites	No of Eligible HIV positive pregnant women on ART for 6 months of the study per site	No of Eligible HIV positive women within early post partum period on ART per facility.	Estimated proportion of both HIV positive pregnant women and women within early post partum period on ART	of HIV Proportion positive pregnant women on ART allocated per facility	Proportion of HIV positive women within early post partum period on ART allocated per

			allocated per facility.		facility.
ECWA Hospital Egbe	158	13	131	121	10
Kabba Specialist Hospital, Kabba.	134	20	118	103	15
Okene General Hospital, Okenc.	170	25	150	131	19
Total number of Eligible and Allocated participants in the three facilities.	462	58	399	355	44

3.5.3 Qualitative Data

Eighteen consenting husbands/male partners of HIV positive women were selected from a PMTCT study sites using a convenient sampling technique due to limited number of male partners/husbands who accompany spouse to PMTCT clinic on clinic days. Nine participants from urban and rural PMTCT study site was selected for each focus group discussion.

3.6 Data Collection Technique Employed

3.6.1 Quantitative method

A semi structured interviewer- administered questionnaire (Appendix I) was used to collect quantitative data from the consenting respondents. The utilization of PMTCT Services and adherence to antiretroviral therapy questionnaires used by (Tshibumbu, 2006; Bello 2011; Ochigho, 2013) was adopted for this study with slight modifications. The semi-structured interviewer administered questionnaire comprises a section which captures information on (i) socio-demographic characteristics, (ii) Awareness and knowledge of MTCT and PMTCT services, (iii) male involvement in HCT, status disclosure and PMTCT. (iv) Adherence to ART

treatment by their spouses. (v) Factors influencing level of male involvement. The questionnaire was translated to local language “Yoruba” (Appendix II) and back translated to English. The questionnaire was pre-tested and administered by trained three female and two male research assistant under careful supervision and involvement of the researcher. Both versions of the questionnaire were available for the participants. The nature of the study including consent forms and the questionnaire was communicated to the participants with the interview conducted in the language of their choice. The questionnaire was pre-tested by the investigator with two female nursing students among 50 pregnant women attending antenatal clinic in Cottage Hospital in Egbe and Odo-Ere, all located in Yagba-west local government in Kogi State. Both hospital share similar characteristics with ECWA Hospital Egbe, Specialist Hospital Kabba, and Okene General Hospital, Okene. Also both institution offers antenatal and HIV care services.

3.6.2 Qualitative method

Focus-Group Discussion (FGD) and Key Informants Interview (KII) were used to collect qualitative data. Two FGD sessions were carried out in one of the health facilities due to an easier access to participants within a given time. There were nine participants in each group that comprised of the male partners/husband of HIV positive pregnant women assessing PMTCT services in rural or urban PMTCT study sites. The materials used for data collection include; an FGD guide, note pad and a digital audio recorder were used during the session. The session was carried out in a quiet and discreet location within the hospital ART clinic. Each discussion lasted for about 45 minutes and was recorded in English language following informed consent. The following thematic areas were investigated:

- Knowledge and perception on HIV/AIDS, PMTCT and ART
- Male involvement in PMTCT utilization
- Male partners involvement in ART adherence
- Perceived barriers and facilitators to male involvement in ART adherence in pregnancy

The FGD was carried out by a trained moderator using the FGD guide (Appendix III) containing probes based on the objectives of the study. The investigator served as the note taker. The

session was audio recorded and later transcribed for analysis. To have a better understanding of key informant interview from the FGDs, six key informant interviews, two per each PMTCT facility were conducted with health care providers (a medical officer, two nurses, a monitoring and evaluation officer and two Pharmacist focal persons) in these facilities using an interview topic guide. Areas explored included information about antiretroviral therapy (ART) in the PMTCT programme and ART adherence in pregnancy including barriers and motivating factors to adherence.

3.6.3 Measures of ART Drug Adherence

Using a self-report from the consenting respondents, the adherence to PMTCT therapy over the past one month was estimated.

3.6.4 Training of Research Assistants.

Three female and two male research assistants were recruited and trained in each study site. The training focused on the objectives and the importance of the study, the sampling process, how to administer the study instruments, how to secure the respondents informed consent and other general interviewing skills.

3.7 Data Analysis Plan

3.7.1 Quantitative Data

The quantitative data was cleaned, sorted, entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 19.0. Descriptive statistics was used to summarize the socio-demographic characteristics and knowledge score was computed to determine good knowledge of HIV, PMTCT and ART, male involvement, ART adherence. The knowledge section included eleven questions with 0 and 11 as the attainable lowest and highest scores respectively. A score of one mark was assigned to each correct answer and a score of < 6 indicated poor knowledge.

The ad-hoc male involvement index used in this study consists of twelve questions covering role of men in VCT, PMTCT, Infant feeding choices and ART adherence. A score of ≤ 6 and ≥ 6 indicated low and high comprehensive male involvement in VCT, PMTCT, Infant feeding choices and ART adherence. The ad-hoc male involvement index in ART adherence consists of three questions. A score of ≤ 2 and ≥ 2 in the ad-hoc male involvement index was the cutoff for defining poor and good male involvement in ART adherence in pregnancy. Bivariate analysis was used to determine the factors associated with male involvement in adherence during pregnancy. Chi square test was used to summarize differences in proportion (prevalence of risk factors by socio-demographic variables). Binary logistic regression was used to adjust for confounding and determine factors statistically significantly associated with male involvement in ART adherence during pregnancy. Hence, a P-value of less than 0.05 was used to indicate statistical significance. The data analysis plan was summarized in the table below:

Objectives	Variables	Statistical test
1. To determine the knowledge of HIV positive women on PMTCT services.	Mode MTCT transmission, ways to reduce PMTCT.	Univariate analysis: frequency and percentage
2. To determine male involvement in VCT, fertility decision, infant feeding decision, and adherence to ART.	The proportion of men who discussed and made a fertility decision with their partners, accompanied their partners for ANC/PMTCT, delivery and postnatal care services, assist them financially and encourage them to take their drugs.	Univariate and Bivariate analysis
3. To determine the prevalence of ART adherence among positive women.	Proportion that take the over 95% of the prescribed doses of ART due to male partner encouragement/support.	Univariate analysis
4. To determine the association between male involvement and ART adherence.	Relationships between male involvement and socio-demographic characteristics, couple characteristics, and adherence to ART.	Bivariate and multivariate analysis

Table 3.7.1 the quantitative data analysis plan.

3.7.2 Qualitative Data

The qualitative data obtained from the FGDs were transcribed verbatim. The transcripts were reviewed using the side note and ideas noted. Also thematic content analysis was carried out to categorize participants' responses into domains that represent common themes. Similarities and differences among data sets was identified and noted. The qualitative result was in a narrative form with supporting quotations in line with the categorized responses.

3.8 Measures and Study Variables

3.8.1 Dependent Variables: The dependent variables in this study include:

- i. Adherence to ART by pregnant women.

3.8.2 Independent Variables: In this study, the following independent variables will be measured:

- I. The socio-demographic characteristics: Age, educational status, residence, marital status and occupation.
- II. Knowledge and awareness, of HIV/AIDS and PMTCT.
- III. Male involvement in VCT, fertility decision, infant feeding decision and ART adherence.

3.9 Ethical Issues

1. Ethical consideration/ Ethical Approval

Ethical considerations that was addressed are

Ethical approval was being obtained from the ECWA Hospital Egbe Ethical Review Board (EHEERB) and a verbal permission was obtained in Kabba Specialist Hospital, Kabba and Okene General Hospital, Okene.

2. **Informed Consent:** Informed consent was obtained from participants prior to study. Verbal or written informed consent was obtained from all consented HIV positive pregnant women. There was no any form of coercion of participants into the study.
3. **Confidentiality:** All information from the subject was kept confidential. Two Female Research assistants were trained on adequate data collection procedures and on the ethical issues. HIV positive women who has never disclosed their status to their male partner where assured of confidentiality since they are willing to participate in the study. All the information gathered were strictly for academic purposes.
4. **Beneficence:** Male involvement in PMTCT was observed to promote joint decision making among couples, promote care and support, increase the uptake, and reduce pediatric HIV prevalence therefore it is of great benefit to the individuals concerned. Male partner involvement would promote good relationship and overall ART adherence.
5. **Non-maleficence:** The study was in no way a source of harm to participants. This is because only interviewer administered questionnaire was used as the data collection tool, and in all cases only the consented women was interviewed.
6. **Voluntariness:** The participants were not coerced into the study; decision to take part was solely that of the participant. Respect for the study subject was observed no matter the economic status.
7. **Scientific accountability:** Scientific accountability was observed as much as possible through proper cross- referencing and by listing all sources used and authors cited in the study.

CHAPTER FOUR

4.0

RESULTS

4.1 Respondents' Socio-demographic characteristics

A total of three hundred and ninety nine HIV positive pregnant women assessing the PMTCT services were interviewed from three different facilities. The mean age of respondents was 33.8 ± 7.6 years. About two thirds of the respondents (67.2%) were from urban and semi-urban areas. Most respondents (76.9%) were married of which monogamy (82.5%) was the commonest type of marriage. About a third (34.1 %) of the respondents had been married within four years prior to this study of which about three quarters (75.2%) of them had at most three children.

About 340 (85.2%) of the respondents were employed while 354 (88.7%) of their male partners were employed. More than three quarter of the respondents (77.7%) were Christians, and 310 (72.2%) were of the Yoruba ethnic affiliation. About three quarters of the respondents (75.9%) had attained at least secondary level education (Table 1).

Most respondents 307 (76.9%) were informed about PMTCT by the health workers while the community leaders 5 (0.5%) least informed respondents about PMTCT (Figure 4.1).

Table 4.1 Respondents socio-demographic information

N = 399

Characteristics	Number n = 399	(%)
Age in (years)		
15-24	69	17.3
25-34	180	45.1
35-44	150	37.6
Marital status:		
Single	49	12.3
Currently married	307	76.9
Previously married*	43	10.8
No. of years in marriage		
0-4	136	34.1
5-9	117	29.3
10+	146	36.6
Types of marriage		
Monogamy	329	82.5
Polygamy	70	17.5
Number of children		
0-3	300	75.2
4+	99	24.8
Wife's occupation		
Unemployed	59	14.8
Selfemployed	202	50.6
Civil servants	138	34.6
Husband's occupation		
Unemployed	45	11.3
Self employed	208	52.1
Civil servants	146	36.6
Ethnic groups		
Yoruba	288	72.2
Non-Yorubas*	111	27.8
Women education		
No formal education	22	5.5
Primary	74	18.5
At least secondary	303	75.9
Husband education		
No education	77	19.3
Primary	105	26.3
At least secondary	217	54.4
Religion		
Christianity	310	77.7
Islam	86	21.6
Traditional	3	0.8
Location		
Urban (Okene)	150	37.6
Semi-urban (Kabba)	118	29.6
Rural (Egbe)	131	32.8

*Previously married: divorced, widowed and separated.

*Non-Yoruba: Igbo, Hausa, Urhobo, Efik.

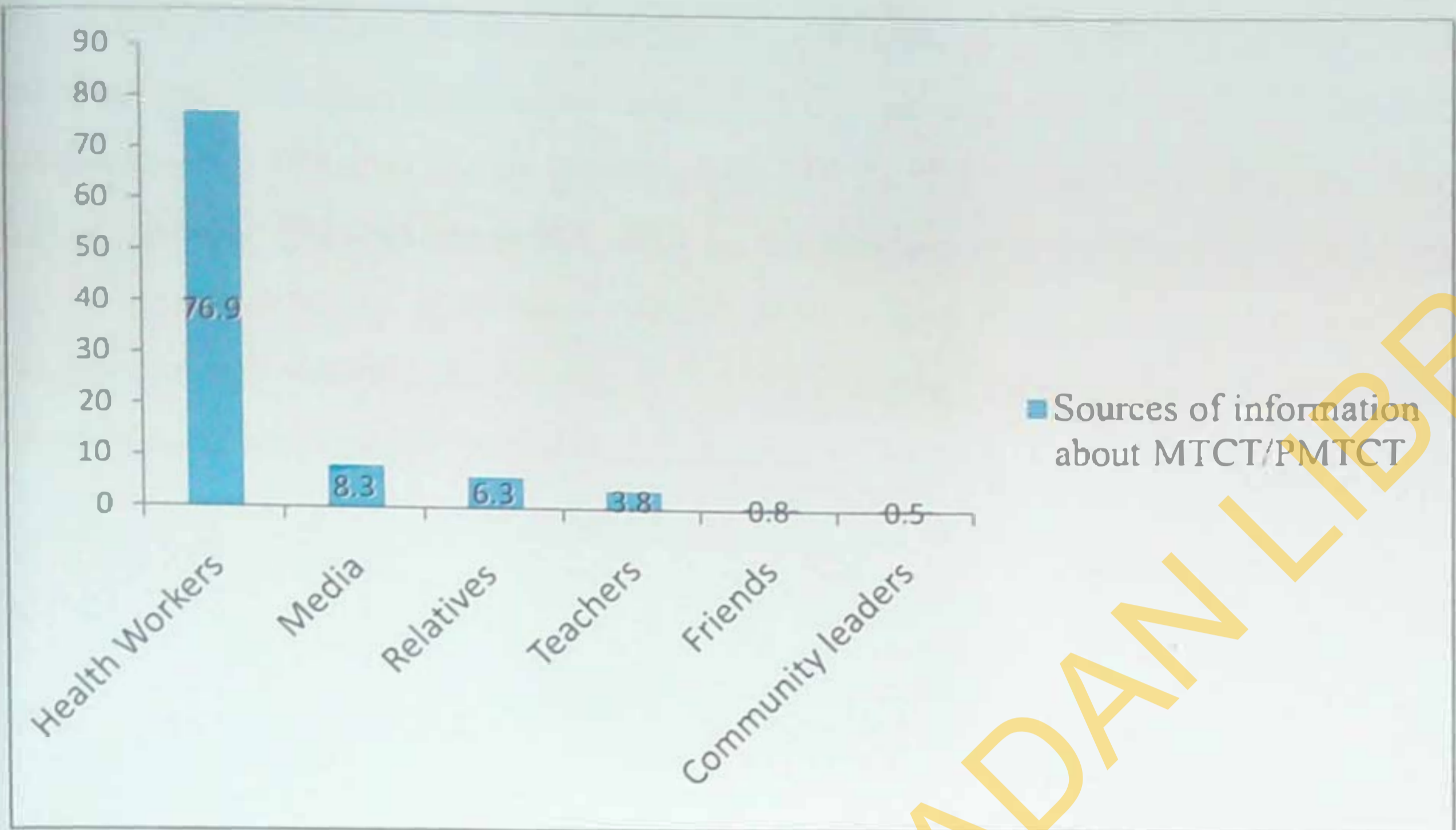


Figure 4.1. Source of information about MTCT/PMTCT

4.2.1 Knowledge of MTCT and PMTCT

More than half of the respondent (63.9%) had good knowledge of MTCT and PMTCT. Three hundred and fifteen (81.8%) knew that HIV can be transmitted from mother-to-child during pregnancy, 321 (83.4%) during delivery and 324 (84.2%) during breast feeding. Three hundred and sixty-eight (95.6%) identified ART as an antidote to the mother-to-child transmission of HIV. One hundred and forty-seven (38.2%) still believe that a child can contract HIV from the mother through sexual intercourse, 66 (17.1%) through sharing sharp objects and 33 (8.6%) through unscreened blood transfusion (Table 4.2.1).

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Table 4.2.1 Knowledge of MTCT and PMTCT

N = 385		
Variable	Frequency(n)	Percentage (%)
Correct Mode of MTCT of HIV*		
(when the virus is transmissible to infant)		
During pregnancy	315	81.8
During delivery	321	83.4
Breast feeding	324	84.2
Misconceptions on Mode of MTCT of HIV*		
(when the virus is not transmissible to infant)		
During sexual intercourse	147	38.2
Sharing sharp objects	66	17.1
Unscreened blood transfusion	33	8.6
Correct ways of PMTCT of HIV*		
Giving antiretroviral drugs	368	95.6
Delivery by caesarean section	299	77.7
Avoiding breast feeding	244	63.4
Formula feeding	256	66.5
Wrong way of PMTCT of HIV*		
Exclusive breast feeding	226	58.7
Knowledge score on MTCT and PMTCT		
Poor ≤ 6/11	139	36.1
Good > 6/11	246	63.9

*Only correct responses are given

4.3 Perception of respondent's partners regarding HIV screening.

Most respondents partners would want couple testing. However, 276 (69.2%) women reported that their partners supported testing for HIV together with spouse during pregnancy. Meanwhile, 52 (13.0%) would only prefer their wife to be tested alone (Table 4.3.1).

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Table 4.3.1 Women's report of their partners' view on who should be screened for HIV.

Variables	Number	(%)
Want couple testing	276	69.2
Want me to be tested alone (Wife tested alone)	52	13.0
Did not want me to be tested (No one tested with each other)	29	7.3
Felt not important	6	1.5
Don't know	36	9.0

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4.3.2 Reasons most partners do not accompany their spouse to PMTCT clinic.

Some of the reported reasons most male partners' do not accompany their spouse to a PMTCT clinic includes; male partner not aware of HIV status (38.9%), husband busy at work (35.9%), fear of stigmatization (12.2%), health workers not male friendly (6.9%), and 6.1% complained about lack of money (Figure 4.3.2).

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Reasons partners do not accompany spouse to PMTCT clinic

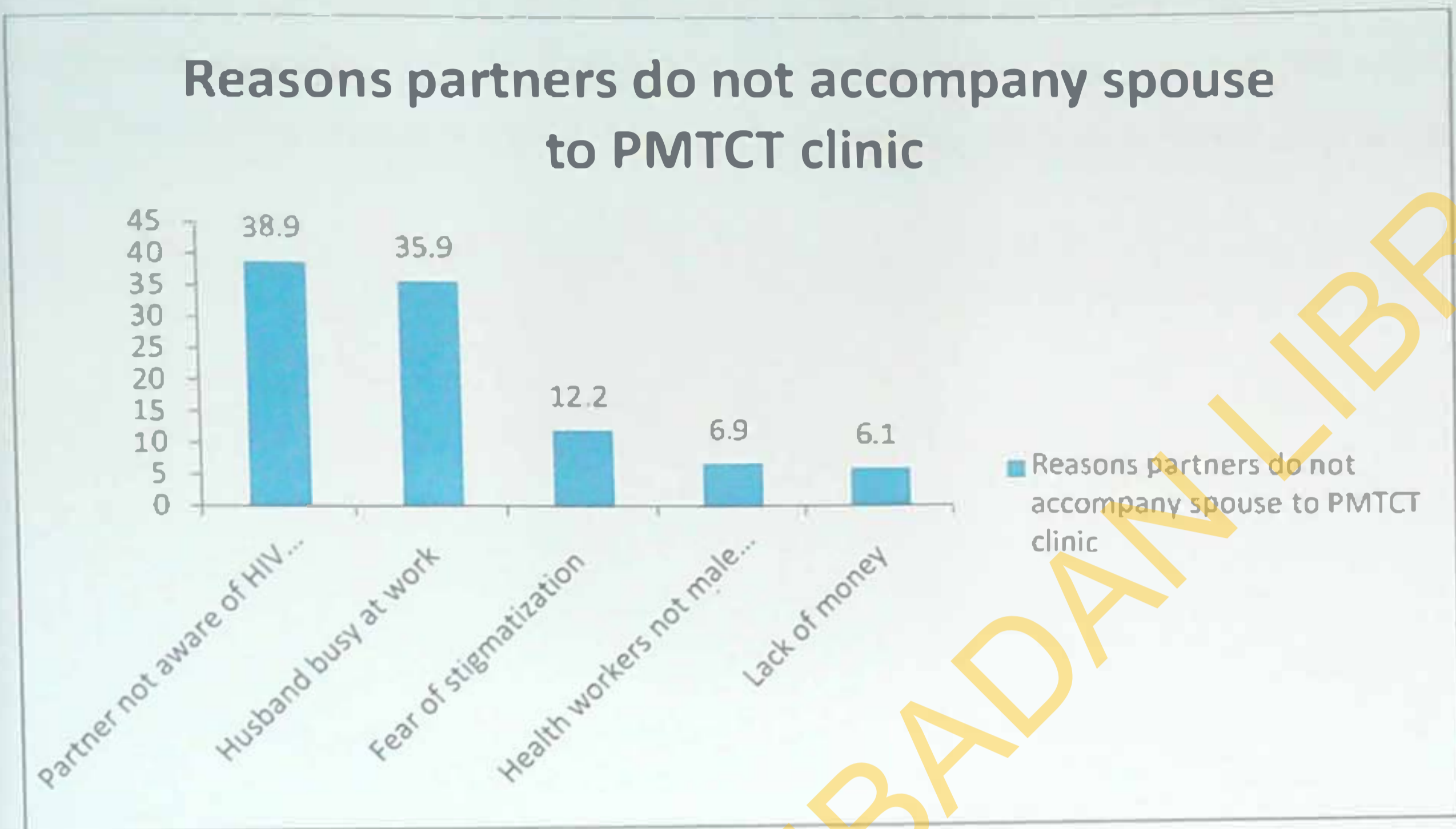


Figure 4.3.2 Reasons partners do not accompany spouse to PMTCT clinic

4.3.3 Male Partners HIV- related Characteristics

One hundred and twelve 112 (28.1%) concordant couple was on antiretroviral therapy (ART) while 244 (71.9%) discordant couple was reported in this study. However, 84.2% of the respondents have disclosed their HIV status to their partners. Meanwhile 38.9% of male partners do no accompany spouse to PMTCT clinic due to partner not aware of their HIV status.

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4.3.3 Male Partners HIV – related Characteristics

Disclosure of status and ART status of partner	Concordant couple	Discordant couple/unknown status	Total
HIV status known to partner	112	224	336
Currently on ART	112	244	356

4.4 Prevalence of antiretroviral therapy (ART) uptake among HIV positive women and their male partners.

The prevalence of antiretroviral therapy (ART) uptake among HIV positive women was 95.5%. About 112 (28.1%) of the partners of the HIV positive women are currently on ART drug. Majority of the respondents (95.0%) reported that they were counseled on how to use ART regimen (Table 4.4.1).

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Table 4.4.1 Prevalence of antiretroviral therapy (ART) uptake among HIV Positive women and their male partners.

Variables	Frequency	Percentage
Respondents currently on ART	381	95.5
Respondent's partner currently on ART	112	28.1
Counsel on how to use ART	379	95.0

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4.4.2 Period of ART treatment Initiation among HIV positive women.

Table 4.4.2 below summarized the period of ART treatment initiation among HIV positive women. About 207 (51.9%) of the respondents commenced ART treatment during pregnancy whereas only 48.1% had their ART initiation during Labour/delivery. The later 48.1% comprises of lately hooked HIV positive women and those referred by TBAs/maternity homes who were initiated with ART delivery and after pregnancy. Out of 207 respondents who had ART initiation during pregnancy, only 39 (18.8%) of the HIV positive women had previous PMTCT experience.

Table 4.4.2 Period of ART treatment initiation among HIV positive women.

Variables	Number	(%)
How long have you been on ART treatment		
During pregnancy	207	51.9
After pregnancy*	192	48.1
Previous PMTCT Experience	39	18.8

* These are largely unbooked, pregnant women tested first time during labour/delivery, and maternity homes/TBAs referred HIV positive pregnant women who have not been enrolled into PMTCT services previously.

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4.4.3 Drug counts, adherence counseling and reasons for adherence counseling.

The respondents who reported ART drugs were counted by the Pharmacist/ Health workers when they came for drug re-fill were 87.0%. Majority 93.5% of the respondents have never been referred for adherence counseling after drug count during clinic visit. The main reason for adherence counseling after drug count was that the respondents do not understand how to use the drugs 3.0%, followed by missing clinic appointment 2.0% and missing drugs 1.5% (Table 4.4.3).

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Table 4.4.3 Drug counts, adherence counseling and reasons for adherence counseling

Variables	Number	(%)
Pharmacist counted your drugs on each visit to the clinic	347	87.0
Ever referred for adherence counseling after drugs count	57	14.3
Reasons for adherence counseling		
Did not understand how to use the drugs	12	3.0
Missed drugs	6	1.5
Missed clinic appointment	8	2.0
Non response*	373	93.5

*These are HIV positive women who have not been referred for adherence counseling

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4.5 Prevalence of Adherence to ART by HIV positive women

Higher adherence prevalence was reported in this study with most 80.5% of the respondents never missed taking ART drugs, whereas more 82.5% of the HIV positive women reported never missed taking ART drugs in last three days (Figure 4.5.1).

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Prevalence of Adherence to ART by HIV positive women

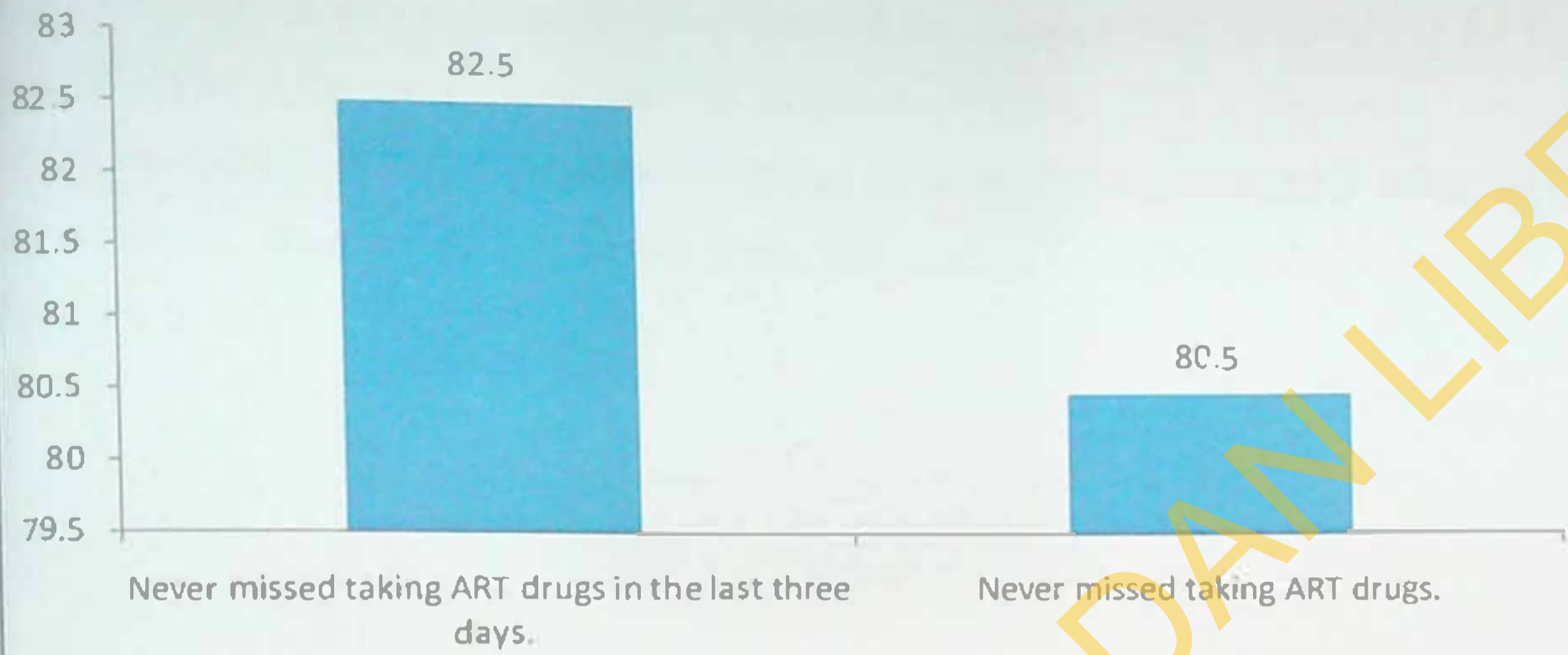


Figure 4.5.1 Prevalence of Adherence to ART by HIV positive women

4.5.2 Prevalence of male involvement in adherence to ART by HIV positive women

The prevalence of male involvement in ART adherence as reported in this study was found to be high. However, most (81.0%) male partners remind spouse to take their drugs. About 38.3% of the respondents' reported no husbands' encouragement on ART adherence in the last three days. Only 9.3% of the respondents reported husband has stopped them from taking ART drugs (Table 4.5.2). The adherence score due to male involvement was categorized as good or poor. However, most (60.2%) respondents attained good/ $\geq 95\%$ optimal ART adherence due to male involvement, whereas 39.8% respondents had poor ART adherence due to male involvement (Table 4.5.2).

Table 4.5.2 Prevalence of male involvement in adherence to ART by HIV positive women.

Variables	Frequency	%
Does your husband remind you to take your drugs	323	81.0
Male partner encouraged you to take ART drugs in the last three days	246	61.7
Husband ever stopped you from taking ART drugs	37	9.3
Category of ART Adherence due to Male Involvement		
Poor Adherence $\leq 1/3$	159	39.8
Good Adherence $\geq 2/3$	240	60.2

4.5.3 How often male partners remind spouse to take ART drugs.

Majority 86.4% of the respondents reported that they received daily ART adherence support from their male partners. Meanwhile 6.2% non-response were majorly respondents who has not disclosed their HIV status to partners and most lately booked patients who may not want partner to know they are on ART (Figure 4.5.3).

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How often male partners remind spouse to take ART drugs



Figure 4.5.3 How often male partners remind spouse to take ART drugs.

4.5.4 Respondents' reasons for missing medication

The two major reasons for missing ART medication by respondents were away from home 41.0% and forgetfulness 38.8%. Meanwhile lack of food 7.7%, too busy 5.1%, high pill burden 3.8% and fear of medication side effects 3.8%, respectively were other reported reasons for missing medications (Table 4.5.4).

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Table 4.5.4 Respondents' reasons for missing medication

Variables	Number	(%)
Reasons for missing medication		
Away from home	32	41.0
Too busy	4	5.1
Forgetfulness	30	38.5
High pill burden	3	3.8
Fear medication side effects	3	3.8
Lack of food	6	7.7

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4.5.5 Reasons male partners restrict their spouse from taking ART drugs

Family disharmony 10.8% and pregnancy related problems 10.8% represents mostly reported reasons male partners restrict their spouse from taking ART drugs (See Figure 4.5.5).

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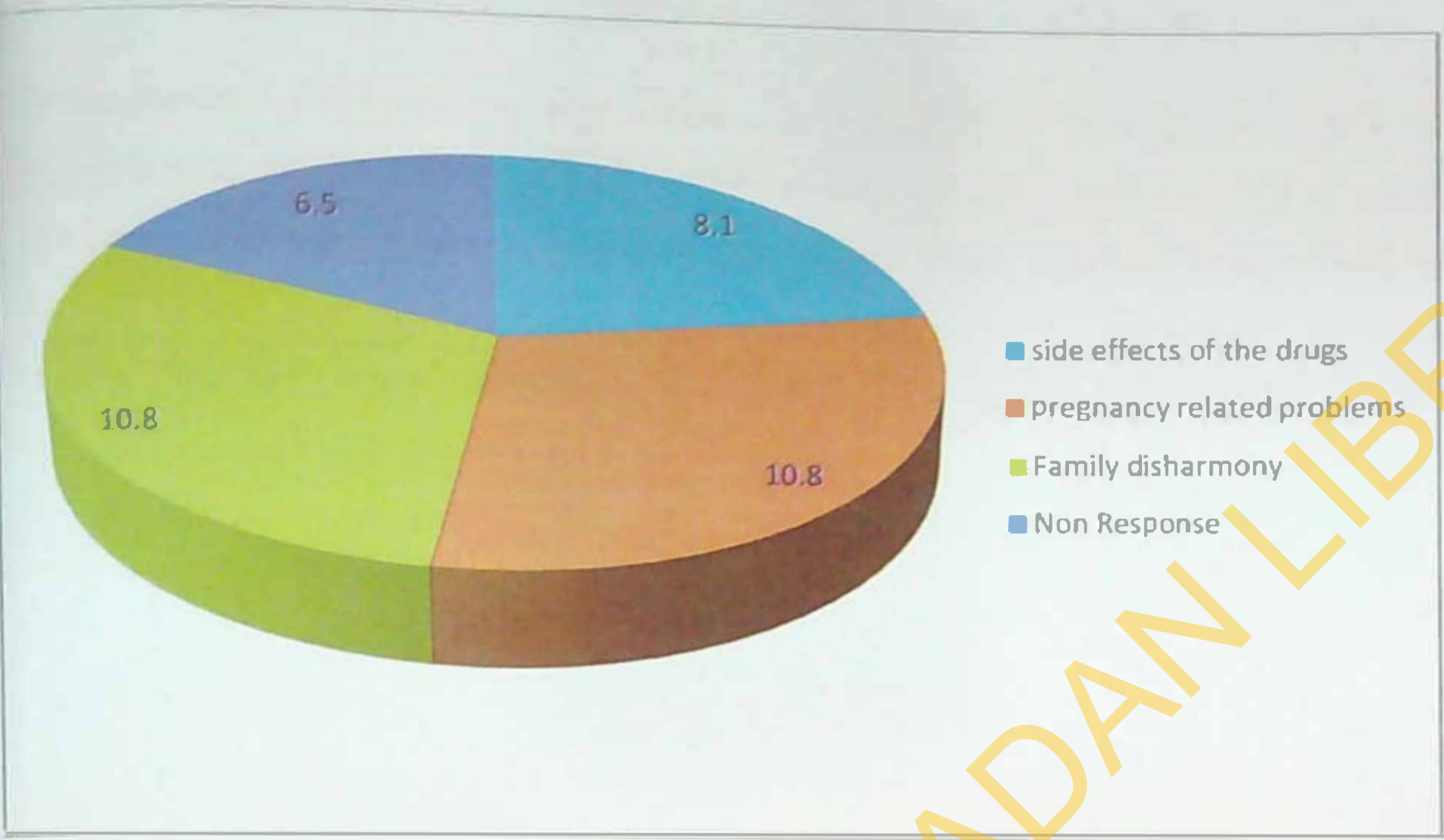


Figure 4.5.5 Reasons male partners restrict their spouse from taking ART drugs.

4.6 Levels and Patterns of Comprehensive Male Involvement in HCT, PMTCT utilization, infant feeding decision and ART adherence among the respondents

Comprehensive 81.7% of male partners had high involvement in HCT, PMTCT utilization, infant feeding decision and ART adherence among the respondents. Eighty four percent 84.2% respondents partners knew their spouse HIV status, 83.7% and 84.7% supported financially on PMTCT clinic and jointly planned current pregnancy partners respectively, 74.7% of husbands were willing to buy formula milk for their babies. 81.0% reminded spouse to take ART drug and 9.3% stopped spouse from taking ART drugs.

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Table 4.6.1 Levels and Patterns of Comprehensive Male Involvement in HCT, PMTCT utilization, infant feeding decision and ART adherence among the Respondents.

Levels and Patterns of male involvement		N = 399	Percentage
		Frequency (n)	(%)
Involvement in VCT			
Husband knows your HIV status		336	84.2
Ever discussed HCT with partner over last one month		322	80.7
Involvement in PMTCT Utilization			
Ever gone together with male partner to a PMTCT clinic		267	66.9
Partner supports you financially on PMTCT clinic visit		334	83.7
Jointly decided on current pregnancy with your partner		338	84.7
Partner likely to accompany to hospital during delivery		317	79.4
Involvement in Infant feeding decision			
Husband willing to buy formula milk for the baby		298	74.7
Involvement in ART Adherence			
Husband reminds spouse to take ART drug		323	81.0
Husband support spouse while taking ART drug		37	9.3
Husband encourage taking of ART in the last three days		246	61.7
Overall Male Involvement Score			
Low	< 6/10	73	18.3
High	≥ 6/10	326	81.7

3.7 Factors associated with knowledge of MTCT and PMTC

3.7.1 Knowledge of MTCT/PMTCT and some social demo-graphic characteristics of respondents.

The association between knowledge of MTCT/PMTCT and some social dcemo-graphic characteristics of respondents is shown in Table 4.7.1. Statistically significant factors associated with knowledge of MTCT/PMTCT were marital status ($p = 0.003$), place of residence ($p = 0.018$) and occupation ($p = 0.036$). Respondents who were currently married (67.9%) had better knowledge than those who were single (58.3%) and those who were previously married. More respondents whose place of residence is semi-urban had good knowledge of MTCT/PMTCT than those whose place of residence is urban (63.0%) and rural (56.2%) respectively. Likewise respondents who were civil servant (72.4%) had better knowledge than those who were unemployed (62.1%) and self- employed (58.5%). Level of education of respondents ($p= 0.082$) and ages of respondents ($p = 0.139$) were not statistically significant associations with MTCT/PMTCT.

Table 4.7.1 Knowledge of MTCT/PMTCT and some social demo-graphic characteristics of respondents.

Variables	Knowledge of MTCT/PMTCT			X ²	P-value
	Poor ≤6	Good >6	Total		
Ages group (years)					
15-24	23 (35.9)	41 (64.1)	64	3.94	0.139
25-34	54 (31.2)	119 (68.8)	173		
35-44	62 (41.9)	86 (58.1)	148		
Marital Status					
Single	20 (41.7)	28 (58.3)	48	11.65	0.003*
Currently married	95 (32.1)	201 (67.9)	296		
Previously married	24 (58.5)	17 (41.5)	41		
Place of residence					
Urban	54 (37.0)	92 (63.0)	146	8.08	0.018*
Semi-urban	29 (26.1)	82 (73.9)	111		
Rural	56 (43.8)	72 (56.2)	128		
Occupation					
Unemployed	22 (37.9)	36 (62.1)	58	6.67	0.036*
Self employed	80 (41.5)	113 (58.5)	193		
Civil servants	37 (27.6)	97 (72.4)	134		
Level of education					
None	12 (54.5)	10 (45.5)	22	5.00	0.082
Primary	29 (41.4)	41 (58.6)	70		
At least secondary	98 (33.4)	195 (66.6)	293		
Type of care					
Antenatal	126 (36.5)	219 (63.5)	345	0.25	0.616
Post-natal	13 (32.5)	27 (67.5)	40		
Number of children					
≤ 3	107 (37.0)	182 (63.0)	289	0.43	0.514
> 3	32 (33.3)	64 (66.7)	96		
Spousal's occupation					
Unemployed	18 (41.9)	25 (58.1)	43	1.23	0.542
Self employed	75 (36.9)	128 (63.1)	203		
Civil servants	46 (33.1)	93 (66.9)	139		

*Statistically significant at p<0.05

4.7.2 Association between Male Involvement in ART Adherence and some social demographic characteristics among respondents

Most respondents who were currently married (69.1%) had good ART adherence due to their male partner's involvement than the single (34.9%) and those who were previously married (25.6%). This association was statistically significant ($p < 0.001$). Spouse in monogamous type of marriage (61.4%) achieved good ART adherence due to male partner participation than those polygamous (54.3%). The association was not statistically significant ($p = 0.0284$).

Women whose husband was self-employed (64.9%) had good ART adherence than unemployed (57.8%) and civil servant (54.1%) respectively. This association was not statistically significant ($p = 0.117$). Educational qualification of both husbands and wife influenced good ART adherence in this study. Spouse of male partners with primary education (75.2%) had good ART adherence than those with at least secondary (53.9%) and no education (57.1%). However, most women with primary education (73.0%) achieved $\geq 95\%$ optimal adherence due to male partner involvement than those with at least secondary education (58.7%) and no education (36.4%). Both male partner ($p = 0.001$) and spouse ($p = 0.005$) educational level is statistically significant.

Most spouses in ART group (62.9%) had good adherence to ART due to male partner involvement than women not in ART group (39.1%). However, this relationship is statistically significant. Majority (66.4%) of discordant couple's spouse was revealed to have achieved $\geq 95\%$ optimal adherence due to male partner involvement than the spouse of the concordant couples. This association is statistically significant ($p = 0.001$).

Table 4.7.2 Male Involvement in ART adherence and some social demographic characteristics among respondents

Variable	Male Involvement in ART Adherence			N ^a	P-value
	Poor	Good	Total		
Ethnicity					
Yoruba	118 (41.0)	170 (59.0)	288	13.8	0.495
Non-Yoruba	41 (36.9)	93 (83.8)	111		
Religion					
Christianity	53 (17.1)	257 (82.9)	310	3.43	0.064
Islam	23 (25.8)	66 (74.2)	89		
Marital status					
Single				44.8	0.00i*
Currently married	32 (65.3)	17 (34.9)	49		
Previously married	95 (30.9)	212(69.1)	307		
	32 (74.4)	11 (25.6)	43		
Marriage type					
Monogamy				1.2	0.0284
Polygamy	127 (38.6)	202 (83.0)	329		
	32 (45.7)	38(54.3)	70		
Husband's occupation					
Unemployed				4.3	0.117
Self-employed	19 (42.2)	26 (57.8)	45		
Civil servant	73 (35.1)	179 (86.1)	208		
	67(45.9)	107 (73.3)	146		
Women's Edu. Level					
None				0.52	0.005*
Primary	14 (63.6)	8 (36.4)	22		
At least Secondary	20 (27.0)	54 (73.0)	74		
	125 (41.3)	178 (58.7)	303		
Husband's Edu. Level					
None				13.8	0.001*
Primary	33 (42.9)	44 (57.1)	77		
At least Secondary	26(24.8)	79 (75.2)	105		
	100 (46.1)	117 (53.9)	217		
Spouse in ART Group					
Yes				9.6	0.004*
No	131 (37.1)	222 (62.9)	353		
	28 (60.9)	18(39.1)	46		
Type of couple					
Concordant				10.21	0.001*
Discordant	77 (49.7)	78 (50.3)	155		
	82 (33.6)	162(66.4)	244		

*Statistically significant at p<0.05

4.7.3 Comprehensive Male Involvement and some social demographic characteristics among respondents.

Male partner of respondents who were currently married (89.3%) were more involved comprehensive (VCT, PMTCT, ART and infant feeding) than male partner of those who were single (59.2%) and those who were previously married (53.5%). This association was statistically significant ($p < 0.001$). Male partner of respondents who were monogamous (83.9%) were more involved comprehensive (VCT, PMTCT, ART and infant feeding) than male partner of those who were polygamous (71.4%). This association was statistically significant ($p=0.014$). Male partner of respondents who were in spouse's ART group (83.6%) were more involved comprehensive (VCT, PMTCT, ART and infant feeding) than male partner of those who were not in their spouse's ART group (67.4%). This association was statistically significant ($p=0.008$). Also type of couple had a statistically significant association with comprehensive male involvement in ART adherence ($p < 0.001$), discordant couples (87.3%) had more male involvement comprehensive (VCT, PMTCT, ART and Infant Feeding) than concordant couples (72.9%) (Table 4.7.3)

Table 4.7.3 Comprehensive Male Involvement and some social demographic characteristics among respondents.

Variable	Comprehensive Male Involvement			X ²	P-value
	Low	High	Total		
Ethnicity					
Yoruba	47 (16.3)	241 (83.7)	288	2.71	0.100
Non-Yoruba	26 (23.4)	85 (76.6)	111		
Religion					
Christianity	52 (16.8)	258 (83.2)	310	2.15	0.142
Islam	21 (23.6)	68 (76.4)	89		
Location					
Urban (Okene)	26 (17.3)	124 (82.7)	150	0.32	0.851
Semi-urban (Kabba)	21 (17.8)	97 (82.2)	118		
Rural (Egbe)	26 (19.8)	105 (80.2)	131		
Marital status					
Single	20 (40.8)	29 (59.2)	49	51.22	0.001*
Currently married	33 (10.7)	274 (89.3)	307		
Previously married	20 (46.5)	23 (53.5)	43		
Marriage type					
Monogamy	53 (16.1)	276 (83.9)	329	6.00	0.014*
Polygamy	20 (28.6)	50 (71.4)	70		
Husband's occupation					
Unemployed	8 (17.8)	37 (82.2)	45	5.24	0.073
Self-employed	30 (14.4)	178 (85.6)	208		
Civil servant	35 (24.0)	111 (76.0)	146		
Husband's Edu. Level					
None	18 (23.4)	59 (76.6)	77	1.73	0.421
Primary	17 (16.2)	88 (83.8)	105		
At least Secondary	38 (17.5)	179 (82.5)	217		
Spouse in ART Group					
Yes	58 (16.4)	295 (83.6)	353	7.13	0.008*
No	15 (32.6)	31 (67.4)	46		
Type of couple					
Concordant	42 (27.1)	113 (72.9)	155	13.13	0.001*
Discordant	31 (12.7)	213 (87.3)	244		

*Statistically significant at p<0.05

4.8 Binary Logistic regression analysis of factors associated with the dependents variables and some social demographic variables.

After adjusting for confounders, marital status, place of residence and occupation had statistically significant association with knowledge of MTCT/PMTCT among respondents. Respondents who are currently married were three times more likely to have good knowledge of MTCT/PMTCT than those who were previously married (AOR = 3.0, 95% CI: 1.48, 6.04, $p=0.002$). Respondents whose place of residents is semi-urban were about two times more likely to have good knowledge of MTCT/PMTCT than those whose place of residence is rural (AOR = 2.1, 95% CI: 1.17, 3.75, $p=0.013$). Respondents who are self employed were about two times more likely to have poor knowledge of MTCT/PMTCT than those who are civil servant (AOR = 2.5, 95% CI: 1.15, 5.55, $p=0.021$) (Table 4.8.1).

Table 4.8.1 Binary logistic regression analysis of factors associated with knowledge of MTCT/PMTCT among respondents

Variables	OR	95% Confidence Interval		P- value
		Lower	Upper	
Ages group				
15-24	1.3	0.69	2.55	0.391
25-34	1.6	0.99	2.60	0.057
35-44 (Ref)	1			
Marital Status				
Single	1.9	0.77	4.66	0.162
Currently married	3.0	1.48	6.04	0.002*
Previously married (Ref)	1			
Place of residence				
Urban	1.2	0.72	2.03	0.475
Semi-urban	2.1	1.17	3.75	0.013*
Rural (Ref)	1			
Occupation				
Unemployed	0.7	0.36	1.52	0.414
Self employed	0.6	0.35	0.99	0.044*
Civil servants (Ref)	1			
Level of education				
None	0.8	0.29	2.50	0.770
Primary	8.9	0.49	1.62	0.893
At least secondary (Ref)	1			

*Statistically significant at $p < 0.05$

4.8.2 Binary logistic regression analysis of factors associated with Male Involvement in ART adherence.

Husband's level of education, marital status, spouse in ART group, and women's level of education had statistically significant associations with male involvement in ART adherence among respondents. Respondents whose male partners highest level of education is primary and none were about two/three times more likely to have good ART adherence than those whose partners highest level of education is at least secondary (AOR = 3.4, 95% CI: 1.6, 5.2, p= 0.001).

Most women who are currently married were four times more likely to have good ART adherence due to male partner involvement than the previously married and the single (AOR = 5.3, 95% CI: 2.4, 11.7, p< 0.000).

Majority of spouse's in ART group were about three times more likely to be involved in ART adherence due to male partner participation than those who are not in their spouse's group (AOR = 2.7, 95% CI: 1.30, 5.38 p= 0.004). Discordant couples spouse were about two times more likely to achieved good ART adherence of $\geq 95\%$ optimal adherence due to male partner involvement than those of concordant couples (AOR = 0.7, 95% CI: 0.43, 1.12, p= 0.133). (Table 4.8.2).

Table 4.8.2 Determinants of Male Involvement in ART adherence.

Variables	OR	95% Confidence Interval		P- value
		Lower	Upper	
Husband's Level of education				
None	3.4	1.6	6.9	0.001*
Primary	2.8	1.5	5.2	0.001*
At least secondary (Ref)	1			
Women's Level of education				
None	0.23	0.78	0.65	0.006*
Primary	1.2	0.59	2.3	0.657
At least secondary (Ref)	1			
Husband's occupation				
Unemployed	1.9	0.70	1.4	0.871
Self employed	1.5	0.82	2.82	0.180
Civil servants (Ref)	1			
Marital status				
Single	1.1	0.43	3.0	0.832
Currently married	5.3	2.44	11.7	0.001*
Previously married (Ref)	1			
Spouse in ART Group				
Yes	2.7	1.30	5.38	0.004*
No (Ref)	1			
Type of couple				
Concordant (Ref)	0.7	0.43	1.12	0.133
Discordant	1			
Marriage type				
Monogamy	1.49	0.75	2.94	0.254
Polygamy (Ref)	1			

4.8.3 Binary logistic regression analysis of factors associated with Comprehensive Male Involvement in ART adherence.

After adjusting for confounders, marital status and spouse in ART group had statistically significant associations with comprehensive male involvement in ART adherence (VCT, PMTCT, ART and infant feeding) among respondents. Male partner of respondents who are currently married were about six times more likely to have high level of comprehensive involvement in ART adherence (VCT, PMTCT, ART and infant feeding) among respondents than those who were previously married (AOR = 5.8, 95% CI: 2.70, 12.48, $p < 0.001$). Male partner of respondents who are in spouse's ART group were about two times more likely to have high level comprehensive involvement in ART adherence (VCT, PMTCT, ART and infant feeding) among respondents than those who are not in their spouse's ART group (AOR = 2.34, 95% CI: 1.07, 5.10, $p = 0.032$). (Table 4.8.3).

Table 4.8.3 Binary logistic regression analysis of factors associated with Comprehensive Male Involvement in ART adherence.

Variables	OR	95% Confidence Interval		P- value
		Lower	Upper	
Ethnicity				
Yoruba	1.0	0.51	1.95	0.991
Non-Yoruba (Ref)	1			
Religion				
Christianity	1.8	0.86	3.95	0.119
Islam (Ref)	1			
Husband's occupation				
Unemployed	2.1	0.80	5.76	0.130
Self employed	1.0	0.54	1.93	0.954
Civil servants (Ref)	1			
Marital status				
Single	1.1	0.45	2.61	0.857
Currently married	5.8	2.70	12.48	0.001*
Previously married (Ref)	1			
Spouse in ART Group				
Yes	2.34	1.07	5.10	0.032*
No (Ref)	1			
Type of couple				
Concordant	0.62	0.34	1.11	0.109
Discordant (Ref)	1			
Marriage type				
Monogamy	1.44	0.73	2.85	0.297
Polygamy (Ref)	1			

4.9 Qualitative Analysis

4.9.1 Socio-demographic Characteristics of the Focus Group Discussion (FGD)

Participants

A total of sixteen husbands of HIV positive pregnant women participated in the two FGDs. Their ages ranged from 29 to 44 years with mean of 37.8 and SD 4.3 years. There were seven Muslims (43.8%) and nine Christians (56.8%); six degree holders (37.5%) and ten ND holders (62.5%). About nine (56.2%) were self-employed while seven (43.8%) were civil servants. About thirteen (81.2%) had at least two children. There were eleven concordant couples (61.1%) and seven discordant couple (38.9%) (Table 4.9.1).

Table 4.9.1 Socio-demographic Characteristics of FGD Participants

Characteristics	N = 18 Frequency (n)
Age in years	
29-34	4
35-40	8
>40	4
Religion	
Islam	7
Christianity	9
Level of Education	
Degree	6
ND	10
Occupation	
Self employed	9
Civil servant	7
Location	
Rural	8
Urban	8
Parity	
0-1	3
2-3	9
4-5	4
Type of couple	
Concordant	11
Discordant	7

4.9.2 Knowledge about HIV/AIDS, PMTCT and ART

Table 4.9.2 displays the knowledge level of the FGD participants. Most of the participants had a good knowledge of MTCT and PMTCT. Most participants reported that HIV can be transmitted from mother child-to-child during pregnancy, delivery and breast feeding.

However, some participants still had poor knowledge about mother child-to-child transmission of HIV as they believed that their HIV positive spouse must breast feed their children. These are reflected in the following excerpts:

"It is only man that is not interested in the future of the baby and the woman stop her from breastfeeding her baby. Most important thing is that our culture promotes breast feeding." (38 years old, civil servant, Higher National Diploma).

"Culturally, breast feeding is a right thing so men should support it" (Concordant, 40 years old, lawyer, LLB).

"Yes, Breast feeding is the best food for the new born, hence should be given at all cost" (Discordant, 33 years old, Miner, National Diploma).

Table 4.9.2: Knowledge of MTCT and PMTCT

Knowledge	HHPPW
Correct Mode of MTCT of HIV	
During pregnancy	++
During delivery	++
Breast feeding	++
Correct ways of PMTCT of HIV	
Giving antiretroviral drugs	++
Delivery by caesarean section	+
Avoiding breast feeding	++

Source: Field survey by Author, 2016.

Key

HHPPW – Husbands of HIV Positive Pregnant Women

++ - Where most of the participants expressed their opinion

+ - Where few participants expressed their opinion

- - Where no opinion was expressed at all

4.9.3 Perception of respondent's partners regarding HIV screening.

Table 4.9.3 shows the various perceptions of respondent's partners regarding HIV screening. Most of the participants supported that their partners should be tested for HIV. However, few of them supported been tested for HIV at the same time with their wife.

These are described in the excerpts below:

"Yes, it will help the couple to make a decision on how to take ART. It will bring unity and peace in the family even when only one of them is HIV positive" (Concordant, 39 years old, politician, Higher National Diploma).

"Yes, because the couple counseling after testing helped I and my wife to ensure that our children are not infected" (Discordant, 42 years old, civil servant, Higher National Diploma).

Table 4.9.3 shows reported male partners' perception regarding HIV screening

Perceptions	HHPW
Want couple testing	++
Want me to be tested alone	+
Did not want me to be tested	+

Source: Field survey by Author, 2016

Key

HPPW- Husbands of HIV Positive Pregnant Women

++ -Where most of the participants expressed their opinion

+ -Where few participants expressed their opinion

- -Where no opinion was expressed at all

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4.9.4 Perception of respondent's partner towards accompanying their spouse to PMTCT clinic.

Most of the participants supported that husbands should accompany their wives to PMTCT clinic. These were given in the following quotations:

"Yes, if the woman notify the man on time so that he will plan for it." (Discordant, 44 years old, civil servant, Bachelor of Sciences).

"It is very good because she will enjoy more support from her partner. I see it as my duty as a man" (Discordant, 33 years old, Politician, Higher National Diploma).

"When attended ANC clinic with my wife. I became aware of most of the activities in the clinic" (Concordant, 42 years old, civil servants, Higher National Diploma).

Table 4.9.4 Reasons why respondent's partners do not accompany their spouse to PMTCT clinic.

Reasons	HHPPW
It is my duty as husband	++
Gives me better knowledge about the ANC	+
It makes my wife happy	+

Source: Field survey by Author, 2016

Key

HHPPW- Husbands of HIV Positive Pregnant Women

++ -Where most of the participants expressed their opinion

+ -Where few participants expressed their opinion

- -Where no opinion was expressed at all

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4.9.5 Male involvement in adherence to ART by HIV positive women

Most participants encouraged their spouses to take the ART drugs. This was shown by the following quotations:

"My wife takes her drugs at convenient time as I encourage her" (Discordant, 40 years old driver, School certificate)

"Yes we remind each other. Also, we usually go to the clinic together to refill our ART" (Concordant, 38 years, civil servant, Higher National Diploma).

Most respondents said that their wives have not complained about any side effect since they started taking the ART drugs. Nevertheless, very few said their wives complained of side effects. This is shown in the following excerpts:

"My wife usually suffer depression because of pill burden" (Discordant, 44 years old, civil servants, Bachelor of sciences).

"She complained of rashes and I reported to the clinic" (Concordant, 38 years old, banker, Higher National Diploma).

Table 4.9.5 Male involvement in adherence to ART by HIV positive women.

Variables	HHPW
Remind your wife to take her ART drugs	++
Encouraged take ART drugs in the last three days	++
Inquiry if she has complication	++
Accompany your wife to the PMTCT clinic	++

Source: Field survey by Author, 2016

Key

HPPW- Husbands of HIV Positive Pregnant Women

- ++ -Where most of the participants expressed their opinion
- + -Where few participants expressed their opinion
- -Where no opinion was expressed at all

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4.9.6 Barriers to male involvement in adherence to ART by HIV positive women.

Most respondents mentioned various barriers that hindered their full involvement in ensuring that their wives adhere to the ART. These were shown in the following excerpts:

"Distance to the clinic and long waiting time is my greatest challenge" (Concordant, 40 years old, driver, Senior Secondary School Certificate).

"Some health workers are not male friendly and lack of confidentiality" (Discordant, 38 years, civil servants, Higher National Diploma).

"I lack money for transportation" (Concordant, 31 years, Artisan, Senior Secondary School Certificate).

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Table 4.9.6 Barriers to male involvement in adherence to ART by HIV positive women.

Barriers	HHPPW
Finances	++
Poor attitudes of health workers	++
Long distance to the clinic	++
Busy at work	+
It's a woman affairs	+

Source: Field survey by Author. 2016

Key

HPPW- Husbands of HIV Positive Pregnant Women

- ++ -Where most of the participants expressed their opinion
- + -Where few participants expressed their opinion
- -Where no opinion was expressed at all

4.9.7 Key Informants' Information on Male involvement in ART Adherence in Pregnancy

This section presents the information given by key informants involved in providing services to the HIV positive women in the PMTCT program. The information obtained from the interviewed was to gain a better understanding of male involvement in ART Adherence in Pregnancy.

a. Key Informants' Information on male involvement in ART adherence in pregnancy.

Table 4.9.5 shows the key informants' responses. Most male would prefer to assist their wives financially than accompanying them to visit the PMTCT clinic to collect their drugs. This was seen in the excerpts below:

"Yes, most men see ANC/PMTCT services as women matter only" (Key Informant, Pharmacist Focal Person, Kabba).

"Due to cultural barriers, some men are afraid to be called "women rapper". some prefer to support their wife financially than physical presence in the clinic" (Key Informant, Medical Officer).

b. Key Informants' Information on barriers to male involvement in ART adherence in pregnancy.

Barriers affecting male involvement in ART adherence in pregnancy are presented in Table 4.9.7. Barriers to ART adherence as reported by most key informants were the desire for secrecy, fear of stigmatization and not wanting to be identified in HIV support group meetings and negative influences by husbands or partners and lack of finance. This is seen in the excerpts below:

"Most men finds it difficult to accompany their HIV positive to come for their appointment at the PMTCT clinic due to Financial and transport challenge, long waiting time". There should be financial support to encourage male participation (Key Informant, Nurses Focal Person).

“Some HIV negative men find it difficult to accompany their HIV positive wives to PMTCT for treatment due to stigmatization by others (Key Informant, Pharmacist Focal Person, Okene).

Table 4.9.7 Key Informants' Information on ART Adherence in Pregnancy

Information on ART Use and Adherence	MDFP	NFP	PFP	MEFP
Participation in PMTCT clinic				
Husbands accompany their spouses	+	+	++	++
Consistency in taking the ART drug	-	++	++	++
Attending HIV support group meeting	-	+	+	++
Barriers to male involvement in ART adherence				
Desire for secrecy/confidentiality	-	++	++	-
Negative influences from spouse	-	-	++	++
Faith in spiritual healing	-	-	-	-
Finances	++	++	++	++
Long distance to the clinic	++	++	++	++
Motivating Factors				
Desire to protect the unborn baby	++	++	++	++
Desire Living longer	+	++	+	++
Advice from adherence counselors	++	+	+	+
Husband as treatment supporter	++	++	++	++
Previous PMTCT experiences	++	++	++	++
Spouse in ART support group	++	++	+	+
Living close PMTCT clinic	+	++	+	+
Measures of Promoting Male Involvement ART adherence				
Letter of invitation	++	++	++	++

Phone calls / SMS to male partners

Partners notification slip	++	+	-	+
Partners as treatment supporters	+	+	-	+
Home visit	++	+	+	-
Partners as members of ART support group.	+	-	-	+
	+	+	+	

Source: Field survey by Author, 2016

Key

MDFP - Medical doctor Focal Person

PFP - Pharmacist Focal Person

NFP - Nurses Focal Person

++ - Where most of the key informants expressed their opinion

+ - Where few key informants expressed their opinion

- - Where no opinion was expressed at all

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATION.

5.1 DISCUSSION

This study was designed to investigate male involvement and influence in uptake and adherence to ART among HIV positive women accessing PMTCT services at three major PMTCT sites in two senatorial- district of Kogi State, Nigeria using mixed methods for data collection.

This study specifically assessed the knowledge of HIV positive women on the modes of HIV transmission and PMTCT, prevalence of ART uptake and adherence, prevalence of male involvement in voluntary counseling and testing (VCT), PMTCT utilization, fertility, delivery and infant feeding decisions, and ART adherence and the association between barriers and facilitators to male involvement in ART adherence. The prevalence of high overall Male involvement in VCT, PMTCT services, Infant feeding options, and ART adherence (defined as a score of > 6 on the Ad-hoc male involvement index measure) was reported by almost eighty-two percent of the positive women, whereas the prevalence of high male involvement in ART adherence (defined as a score of ≥ 2 on the Ad-hoc male involvement in ART adherence Index measure) was reported by eighty-one percent of the HIV positive women. About sixty percent of the positive women attained good ART adherence due to male partner involvement. Marital status, marriage type, husband's occupation, husband's education level, spouse in ART group, and type of couple was found to be statistically associated with male involvement in ART adherence. However, there is no significant association between overall male involvement (VCT, PMTCT, ART and Infant Feeding) and location/place of residence of the respondents.

5.1.1 Knowledge of the Modes of HIV Transmission, MTCT and PMTCT.

The respondent's knowledge of modes of Mother -to-Child transmission of HIV was generally high. However, almost all the respondents knew that MTCT of HIV can occur during pregnancy, delivery and breastfeeding. This suggests a high level of MTCT awareness among pregnant

women attending antenatal clinic in the study area. The evidence is consistent with the findings from previous studies in Southwest Nigeria among women attending antenatal/PMTCT clinic (Olugbenga-Bello et al, 2013; Lamina M.A, 2012). Even though the awareness of MTCT reported in this study is high, certain misconceptions about MTCT of HIV were also identified such as sexual intercourse, unscreened blood transmission and use of unsterilized sharp instruments. This finding reveals inadequate knowledge of MTCT among the respondents. A study by Owoade et al, 2012 in Ibadan supported this finding. Almost all the respondents know that ART can reduce the risk of HIV infection in positive women and their children as consistent with previous studies (Abiodun et al 2007, Adelekan et al, 2013, Boateng et al, 2013, Ochigbo et al, 2014, Balogun et al, 2015). About two-third of the respondents knew that vertical transmission of HIV can be prevented during delivery through caesarean section (CS). The findings in this study are comparable to the finding reported by Moses et al, 2009, NDHS, 2013, Adelekan et al, 2014). Studies have reported a poor knowledge of caesarean section C/S as a means of preventing MTCT. However, Caesarean section (CS) could be recommended as an option for PMTCT in resource limited settings, HIV positive women must be aware of this as elective caesarean delivery before labour and rupture of the membranes reduces the transmission risk by approximately half (Lamina M.A, 2012, Boateng et al, 2013). Avoiding breastfeeding and use of formula feeding has been reported by majority of the respondents in this study as a way of preventing MTCT, but in several populations where breastfeeding is a cultural requirement and sometimes continues into the second year, the risk of transmission through breastfeeding increases by an additional 15% to 20% (Boateng et al, 2013). The risk of transmission may likely continue as long as breastfeeding continues at the rate of approximately 1% per month of breastfeeding (WHO, 2010b). The knowledge regarding PMTCT is high in this study and increased with increasing in age, education, occupation and in different place of residence. This is consistent with NDHS, 2013 finding. Although, a fifth of the respondents and fourth of their male partners in this study had no formal education or with primary education as the highest level of education attained, both the illiterate and literate populations are aware of MTCT and PMTCT indicating that national and health workers efforts to raise awareness through various means has been effective (Lamina M.A, 2012, Igwegbe et al, 2005). A study has identified knowledge as an important determinant in decision making and change of behavior in most Africa setting. Therefore, the success of PMTCT services is largely hinged on quality HIV

prevention education through quality HIV counselling (Alusio et al. 2011; Byamugisha et al 2010; Moses et al. 2009).

5.1.2 Prevalence of Male involvement in VCT, PMTCT, Infant feeding decisions and ART adherence

Male partner's involvement in this study entails the proportion of male partners/husbands counseled and tested or actually having been counseled and tested for HIV together with the female partner in a PMTCT setting, male who accompany their wives to PMTCT clinic financially support or provide support in delivery, serve as adherence counselors or treatment supporter to their female partners taking ARVs ensuring complete adherence, and male partners who support their female partners in the choice of infant feeding options. An overall male involvement index was constructed based on 10 questions, whereas male involvement index for ART adherence was constructed using 3 questions. The survey was complemented by two focus group discussions and six key informant interviews. This study revealed low (28.1%) concordant couple rate and a high discordant couple rate (71.9%) with a 84.2% HIV status disclosure rate. The overall prevalence of male involvement in VCT, PMTCT, Infant feeding decisions and ART adherence in this study is high (81.7%). Hence, male partner ART initiation rate reported in this study is low (28.1%).

5.1.3 Male involvement in Voluntary Counseling and Testing

Male partners' involvement in VCT is a major entry point in the uptake of the services by their spouses, this is because men are important in the decision making regarding their partners' access to and utilization of health care services. Even though a high (76.9%) level of male involvement in VCT were reported, a fourth male partner of the respondents were not involved in VCT. However, majority of the respondents admitted that the easiest way get their husband involved in HCT and PMTCT is to discuss about HIV counseling and testing (VCT) with them. A study in Nigeria by Okonkwo et al., (2007) revealed that the acceptance of voluntary counseling and testing (VCT) by pregnant women will increase if they are tested simultaneously with their partners. Male partners/ husbands perception of VCT can influence male involvement in uptake of HIV services by their spouses (Msuya et al, 2008). This is consistent with the findings in this study where most (69.2%) of the respondents reported that their male partners

want couple testing after prior discussion about VCT. Encouraging factors that that will increase men willingness to involve in VCT, such as simultaneous testing of male partners; perceived willingness of the husband to accompany his wife to the antenatal clinic; increased ease of being tested as a couple; having a partner who had been tested for HIV; and improve the woman's perception that her husband would approve of her testing for HIV will promote male involvement (Shah et al, 2007)

5.1.4 Male involvement in PMTCT uptake and utilization

Adequate male partner involvement in VCT can positively promote PMTCT uptake by their spouses. With low male partner involvement in VCT, the positive women enrolled into PMTCT, are left to carry the burden of their HIV status and the new lifestyles proposed to them by the programme and are obviously denied the very important psycho-social support by their partners and families. Hence, these women tend to shy away from the programme therefore promoting MTCT of HIV (Tshibumbu, 2006). In this study, the prevalence of male involvement in PMTCT utilization is high. A fourth of the male partners accompany their wife to a PMTCT clinic, meanwhile a sixth of male partner financially support spouse during PMTCT clinic visit and jointly planned current pregnancy with spouse.

However, the prevalence of male partner who accompany spouse to hospital during delivery is high (79.4%). The reasons most male partners' do not accompany their spouse to a PMTCT clinic includes; male partner not aware of HIV status, husband busy at work, fear of stigmatization, health workers not male friendly, and lack of money. This reveals that HIV status disclosure rate among couples is still a challenge. Even though the disclosure rate (84.2%) reported in this study is high but still need to be improved. Financial dependence on the part of HIV positive women meant male partners were an indispensable source of income. However, lack of financial independence on the part of women was a major facilitator of male involvement in this study with 83.7% of the respondents received financial support from their male partners.

A study in South Africa by Brittain, (2014) revealed high rates of male partners involvement, with most (85%) of the participants enjoyed partners financial support for their antenatal visits; knew when their antenatal visits were (95%); discussed with them what happens during the visits (96%); and had discussed with them ways to prevent MTCT (89%). Fewer participants reported

that their partners accompany them to antenatal/ PMTCT clinic visits (35%) and this is about two times lower than the proportion (67%) reported in our study

Male participation in infant feeding options can be affected by financial constraint. The prevalence of male partners' involvement in infant feeding options is high with about 74.7% of the respondent's male partners were ready to buy formula milk for their baby. The above finding is higher than the 64.5% of male partners of pregnant women who are willing and ready to buy formula milk for their new born babies as revealed by (Tshibumbu, 2006) in Zambia. Also reported in this study is a high level of male partner involvement in fertility decision and delivery in the study sites where PMTCT services are provided.

5.1.5 Prevalence of Male involvement in adherence to ART by HIV positive women

A high (81.0%) prevalence of male involvement in adherence to ART was reported in this study. Majority (60.2%) of respondents had good ART adherence due to male partner involvement whereas only 39.8% had poor ART adherence due to male partner participation.

Some other studies conducted in different countries in Sub Saharan Africa have shown that women who are supported by unbiased partners are most likely to accept HIV testing services and adhere to advice from health personnel if they are diagnosed HIV positive (Akanro, Deonisia & Sichona, 2010). This finding is contrary to that reported by Tshibumbu, 2006 in Zambia with moderate level of male involvement among respondents and that knowledge had a positive influence on male involvement, while socio-cultural factors had a negative influence. A similar study has revealed that when male partners are involved, it provides moral and financial support to their spouses to utilize and adhere to antenatal care and PMTCT guidelines (Morfaw et al, 2012). A recent study conducted in Mpumalanga South Africa found that 61% of pregnant women and 85.9% of postpartum women reported complete adherence to AZT in the four days before they were interviewed or in the four days before delivery, and that only 26% of antenatal women had never missed a dose of AZT during their pregnancy (Villar-Loubet et al, 2013). The major reasons for missing ART medication by respondents were away from home and forgetfulness, followed by lack of food, too busy, high pill burden and fear of medication side effects and this consistent with the finding by (Olowokere et al, 2007).

5.1.6 Factors Influencing Male involvement in adherence to ART by their HIV positive women.

Several factors as identified in this study were barriers and facilitators to male partner involvement in ART adherence by HIV positive women. The barriers to male involvement (reasons most male partners' do not accompany their spouse to a PMTCT clinic) as reported in this study includes; male partner not aware of HIV status (problem of non-disclosure), husband busy at work, fear of stigmatization, health workers not male friendly, and complained about lack of money, family disharmony, pregnancy related problems.

a. Barriers to male involvement in ART adherence

Non-Disclosure of Status: The disclosure of HIV sero-status to a partner is always seen as the main gate to progress in PMTCT uptake and that it has pose a great challenge among the respondents because most of them express lack confidence, due to the fear of negative reactions they will face from their husbands and relations (Madiba, et al.2013). Study has shown that HIV-positive pregnant women who disclosed their HIV status to their partners were more likely to adhere to antiretroviral regimens in PMTCT services (Salami et al, 2010). Studies has shown that women were more likely to be accepted and supported by their male partners after couple counseling and testing, leading to improved access to care and adherence to treatment However, 38.9% respondents reported that not spouse HIV status as the reason male partners do not accompany spouse to a PMTCT clinic and this was identified in this study as one of the factors which may negatively affect adherence to ART. A recent study by Brittian, (2014) supported this finding which further revealed that 74% of the respondents had disclosed their status to their partner. Meanwhile, disclosure was significantly more likely among participants who knew their partner's status and those who reported higher levels of HIV related discussion with their partner.

Husband Busy Work Schedule: Several barriers to male partner involvement in PMTCT utilization and ART adherence have been identified at various levels, ranging from individual to societal and structural factors. A study in Kenya has identified difficulties in attending antenatal/PMTCT clinic appointments due to work commitments and lack of understanding among men regarding the importance of participating in PMTCT programmes (Reece et al

2010). This finding is consistent with that reported by the respondents in this study in which male partners advocate for reduction in waiting time during clinic visit.

Fear of Stigmatization: The fear of stigmatization, fear of knowing ones HIV status and socio-cultural factors were among the perceived obstacles to male partners' involvement reported by Adeleke, (2013) in South Africa and this result is similar to the report in this study. HIV-related stigma with traditional cultural norms and gender roles was reported as the reason most men are reluctant to share HIV status with sexual partner. A study by Gombingo, 2012 in Zimbabwe reported lack of male participation and stigma as one of the major reasons for poor adherence to ART. Other studies has shown that some women who tested HIV positive do not return to ANC/PMTCT clinic for follow up visits or fail to take their ART drugs which they have received due to fear that their husband/ partner might see them with the drugs and may want to know what they are for (Skovdal, Campbell, Nyamukapa & Gregson, 2011).

Health Workers Not Male Friendly: Factors relating to health care systems as reported by Adeleke, (2013) in South Africa and studies from other countries has been identified as one the major barrier to male partner involvement in PMTCT and adherence to ART and this finding was found to be consistent with this results from this study (Theuring et al,2009). Study has also revealed that perceived negative attitudes of clinic staff were identified as the barrier to male involvement in PMTCT and ART adherence and this is similar to that reported in this study (Reece et al, 2010).

Family Disharmony: Studies has identified family type and the nature of relationships as the predictors of male partner's involvement. Women who are in stable relationships appear to be more likely to disclose their HIV status and to receive support from their partners (Kalembo et al, 2012). The nature of relationships between man and woman has been found to improve communication within couple who serve as treatment supporter to their spouse (Koo et al, 2013). Studies also revealed that unstable relationships may lead to family disharmony and lack of male partner involvement (Holborn et al, 2011, Kalembo et al, 2012). However, women in unstable type of relationship often do not inform their partners of antenatal care or PMTCT services, or might choose to not involve their partners in these activities, often from fear of their partner's reaction (Morfaw et al, 2013). As reported in this study, family disharmony is as a result of unstable relationship and has been identified as one of the barriers' to male partner involvement.

7Desire to protect the unborn child or newly delivered child is one of the greatest motivations of HIV positive women for adhering to ART as also revealed by focused group discussion and key informant interview in this study. However, medication side-effect has been reported by studies as a barrier to ART adherence as most male partners tends to restrict their spouse from taking ART pills leading to non-adherence to medication (Wasti et al, 2012). The fear of medication side-effect in pregnancy and pills burden was reported in this to be a reason male partners restrict their spouse from adhering to ART.

In this study, the qualitative data from focused group discussion among husbands/ male partner of positive pregnant women and Key Informant Interview among health workers in the study sites revealed several barriers to male partner involvement in ART adherence. These include: fear of stigmatization and discrimination, lack of knowledge of partners HIV status, Financial constrains to accompany spouse PMTCT/ART clinic, High transport cost due to far distance to the clinic affect drug re-fill, forgetfulness, travelled/away from home, male partners not allowed to refill ART for their spouse, family disharmony, side-effects, male partner not on ART, and long waiting time in the ANC/PMTCT clinic. This observation is consistent with finding reported by other studies (Olowokere et al,2007, Nkuoh,G.N. et al, (2010), Byamugisha,R. et al(2010), Auvinen, J. et al (2010), Ochigbo, B. 2013 Adeleke O.A ,2013).

b. Motivating factors to Male Involvement in ART adherence

These factors includes male partners/maternal characteristics, ART support group status, and knowledge level

Marital status, place of residence and occupation has been associated with good knowledge which is the facilitator of male involvement in adherence to ART in this study (Boateng et al, 2013, Adelekan et al, 2013, Ochigbo et al, 2013, Falnes et al, 2010, Moses et al, 2009). Positive women who are currently married demonstrated good knowledge of MTCT/PMTCT than those previously married. Currently married were three times more likely to have good knowledge of MTCT/PMTCT than those who were previously married which facilitates male partner involvement in adherence to ART and this is similar to finding by Owoaje, 2012, Ekama et al, 2012. Tshibumbu, 2006.

In this study, semi-urban area positive women were two times more likely to have good knowledge of MTCT /PMTCT than positive women whose place of residence is rural and urban areas. Occupation has been reported to have influenced the knowledge of MTCT/PMTCT. This study revealed that those self-employed were about two times more likely to have poor knowledge of MTCT/PMTCT than those who are civil servant. Good knowledge of MTCT/PMTCT was associated with counselling before commencement of ART. This is a clear indication that knowledge about HIV/AIDS has grown over the years due to continuous awareness campaign by several stakeholders in communities.

Overall male partner involvement is statistically associated with marital status, spouse in ART group and type of couple. Husbands of married women were four times more likely to be involved than the male partner of singles. Meanwhile, men in monogamous type of relationship were two times more likely to be involved than those in polygamous type of marriage (Ochigbo et al, 2013).

One of the motivating factors for overall male partner involvement in this study is spouse on ART group. Male partners who are on ART group were eight times more likely to be involved in VCT, PMTCT, ART adherence and infant feeding choices than the spouse not ART group. The HIV status of the couple has been identified in this study as a facilitator of male involvement in this study. The finding revealed that most discordant couple has more overall male partner involvement than the concordant couple.

The factors influencing male involvement in ART adherence as reported in this study were husband's level of education, husband's occupation, marital status, spouse in ART group, type of couple and marriage. Husbands with no/primary education are five times less likely to be involved in ART adherence when compared to husband's who had at least secondary education. Married men currently living with their spouse are eight times more likely to be involved in ART adherence than the male partners of women who are previously married and the single women.

Male partners on ART and spouse on ART support group have been associated with adherence to ART by pregnant women. Spouse who were on ART group are six times more likely to adhere to ART.

Husbands/ male partners knowledge of HIV status is vital in order that pregnant women access the appropriate treatment and care for themselves and their unborn infants (Mkwanazi M. B et al, (2008). Partners not knowing one's HIV status act as a barrier to PMTCT services. A study found that voluntary HIV testing and counselling and couple testing was widely accepted among women already attending antenatal clinics (95%) but low among those who were not (37%) (Urban. M et al (2004). The knowledge of HIV status of couples is also identified as facilitator/motivator of male partner involvement in ART adherence (WHO, 2016). In this study, male partners who were concordant couples are three times more likely to be involved in ART adherence than the discordant couples.

The qualitative data in this study also revealed some facilitators of male involvement in ART adherence which include; educational qualification, knowledge of spouse HIV status, couple testing, couple on ART, couple living together, good couple communication, partners that jointly planned current pregnancy, protection to unborn baby, partners who are treatment supporters, home visits by ART support group members and good health workers-clients relationship (Blatt C.R,et al,2009, Olugben-Bello A.et al ,2013, Morfaw, F. et al .2013).

5.18 Limitations

Some limitations are peculiar in this study. The larger sample size was difficult to attain because current low HIV incidence rate in Kogi State, hence fewer HIV positive pregnant and postnatal women were studied.

The ad-hoc male involvement index might not include all the variables or questions necessary to test the actual male involvement in VCT, PMTCT, ART adherence and Infants feeding options which could affect the classification into low and high male partner involvement in VCT, PMTCT, Infant feeding decisions, and ART adherence by the respondents.

There are chances that overall male partner involvement may be over-estimated due to self-reporting and social desirable response bias. However, positive women who knew that high male partner involvement is recommended and good ART adherence is important in pregnancy may falsely report high male partner involvement and good ART adherence when it is not real. Also the use of self-report to measure adherence and male involvement in ART adherence is not a gold standard. There could be limitation of recall bias of male involvement in adherence to ART.

Although the CASE adherence index tool has been reported to be sufficient in clinical settings as an alternative method where pill counting and electronic devices for ARV blood measurement are not feasible (Mannheimer et al, 2006, hence ad-hoc male involvement in ART adherence index tool are yet to established by studies.

The limitations of knowledge index. The knowledge index used in this study might not include all the variables or questions necessary to test the knowledge of MTCT/PMTCT which could be classified into true poor and good knowledge by the respondents. The knowledge level of respondents can also be influenced by adherence counselling.

5.2 CONCLUSION

Vertical transmission of HIV (mother-to-child transmission of HIV) can be prevented through effective PMTCT program implementations, particularly by male involvement in achieving 95% optimal adherence to ART among pregnant women. The knowledge level of positive women on the modes of HIV transmission, PMTCT and ART was high in this study. Good knowledge was an important facilitator of ART adherence and male partner involvement in ART adherence. However, the knowledge of the respondents is inadequate due to some misconceptions indicating the need to continuously educate and improve the understanding of the people on HIV/AIDS.

The prevalence of male involvement in VCT, PMTCT and ART adherence reported in this study was high with most male partners daily remind spouse to take their drugs. Male involvement in PMTCT utilization is high. However, male partner who financially support spouse on PMTCT clinic visit and jointly planned current pregnancy with spouse are higher than those who accompany spouse to hospital during delivery. Effort to increase male partner participation during PMTCT clinic visit and hospital delivery where PMTCT services are obtained should be intensified by the stakeholders involved so as achieve the goals of the program.

Over sixty percent of the respondents achieved good ART adherence of $\geq 95\%$ optimal adherence due to male partner involvement. Reasons for missing ART medication were away from home, forgetfulness, lack of food, busy work schedule, high pill burden and fear of medication side effects. The identified factors influencing non-adherence to ART in pregnancy were more of individual, cultural and economic related. The common barrier to male involvement in ART adherence is family disharmony (unstable relationship) whereas advice

from adherence counselors, pregnancy related problems facilitate male involvement with aim to protect the unborn child from medication side-effects.

Factors influencing male partner involvement in ART adherence include: husband level of education, husband's occupation, marital status, type of couple and spouse in ART group. Therefore achieving 95% optimal ART adherence and reducing new HIV infections among children requires in-depth understanding of these factors which will guide effective integration of male partner participation into PMTCT program.

5.3 RECOMMENDATIONS

Due to the sensitivity of this study and based on the findings, the following recommendations will be helpful in promoting male involvement in ART adherence in pregnancy.

1. Male partners should be involved as treatment supporters and adherence counselors by health workers. This would improve male partner knowledge on the health status of their spouse, prevent fear of stigmatization, reduce non-disclosure of status and promote optimal ART adherence in pregnancy.
2. Male partner/spouses of clients targeted health promotion messages aimed at increasing male involvement and community awareness, thus educating community members as to reduce discrimination and stigma.
3. Regular Community health education and male involvement campaign targeted at promoting male involvement in ANC/PMTCT services utilization and hospital delivery by their spouse should be carried out by health workers, non-governmental organizations and government agencies involved. This would address the cultural barriers of wrong attitudes men and change their culture influenced perception that ANC/PMTCT services is 'Women's Affair'. There is need for further studies to explore effective strategies that would enhance more male involvement in PMTCT and adherence to ART.
4. Health care providers should provide male partner notification slip/invitation letter to spouse whereas the adherence counselors should give adequate information to male partners during PMTCT clinic visit on treatment support on ARV drug use and timing, as well as correcting common misconceptions. This would improve the knowledge and understanding of male

partners on ART and further, improve adherence to ART and prevent mother-to-child transmission of HIV.

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APPENDIX I

Consent Form

MALE INVOLVEMENT AND INFLUENCE ON ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV POSITIVE WOMEN ATTENDING ANTENATAL CLINIC IN EGBE, KOGI STATE, NIGERIA.

Dear Respondent,

My name is Nweri Chukwuma Hyacinth. I am a post graduate student of the Department of Epidemiology and Medical Statistics, Faculty of Public Health, University of Ibadan. I want to learn from you about the issues related to prevention of mother-to-child transmission of HIV services. This interview is important because it will help us to understand the role of male involvement in acceptance, utilization of PMTCT services, and adherence to antiretroviral therapy treatment by HIV Positive women in Nigeria.

Kindly answer the questions as honest as possible. The questionnaire will take about 30 minutes and you are free to withdraw from the interview at any point you wish to without any repercussion. Whatever is learnt from this study will be used for research purpose only. Your name is not required; SO DO NOT WRITE YOUR NAME ON QUESTIONNAIRE and be assured that your responses will be kept confidential. For your information, necessary ethical approval has been obtained from ECWA Hospital Egbe Ethical Review Committee.

Detailed Contact Information

If you have any questions about your participation in this research, you can contact the principal investigator, NWERI CHUKWUMA HYACINTH, at the Department of Epidemiology and Medical Statistics, Faculty of Public Health, University College Hospital, Ibadan. The phone and email are; 09058882110 and chuksnweri@yahoo.com. You can also contact the supervisor of this project at the Department of Epidemiology and Medical Statistics on 08094988108 and adeoyeikeola@yahoo.com

Statement of STUDY PARTICIPANT giving informed consent:

The study has been thoroughly explained to me and I fully understand the content of the study, I hereby agree to participate in the study.

Signature/Thumb Print:

Date: ___/___/___

Statement of research assistant obtaining informed consent

I have fully explained this research to the respondent and have given sufficient information including about risk and benefits to make an informed decision.

Name: _____

Signature: _____

Date: ___/___/___

Questionnaire No: _____

Facility/PMTCT centre: _____

SECTION 1: Socio demographic information

Interviewer: Please Tick () the appropriate answers in the boxes [] provided.

1. Age of respondent as at last birthday in years.....
2. Marital status: a. Single [] b. Married [] c. Divorced [] d. Widowed [] e. Separated []
3. Number of years in marriage.....
4. Type of marriage a. monogamy [] b. Polygamy [] Other (Specify)
5. Number of children you have
6. Occupation a. Trading [] b. Artisan [] c. Farming [] d. Student [] e. Civil servant [] f. Unemployed [] g. Other (specify).....
7. Husband's occupation
8. Religion a. Christianity [] b. Islam [] c. Tradition []
9. Ethnic group a. Yoruba [] b. Igbo [] c. Hausa [] d. Others (specify).....
10. Education Level: a. No formal education [] b. Primary [] c. Secondary [] d. Tertiary [] e. Other (specify).....
11. Husband/Male partners Education Level: a. No formal Education [] b. Primary [] c. Secondary [] d. Tertiary [] e. Others (specify)

SECTION 2: Awareness of PMTCT among HIV Positive Women

Interviewer: Please Tick () the appropriate answers in the boxes [] provided.

12. Ever heard of Mother to Child transmission of HIV: a. yes [] b. No []

13. Ever heard about a program called Prevention of Mother to Child Transmission of HIV (PMTCT). a. Yes b. No []

14. Where did you hear about the MTCT and PMTCT? a. Relative [] b. Friends [] c. School teachers [] d. Health workers [] e. Radio [] f. Television [] g. Poster [] h. Newspaper [] i. Internet [] g. others (specify).....

SECTION 3: Knowledge of PMTCT among HIV positive women.

Interviewer: Please Tick () the appropriate answers in the boxes [] provided .

15. In what ways can HIV be transmitted from mother to child through the following?

- | | | |
|---------------------------------|---------|--------|
| a. During Pregnancy | yes [] | No [] |
| b. During delivery | [] | [] |
| c. Breast feeding | [] | [] |
| d. During sexual intercourse | [] | [] |
| e. Sharing sharp objects | [] | [] |
| f. Unscreened blood transfusion | [] | [] |

16. In what ways can HIV transmission from mother to child be reduced?

- | | | |
|----------------------------------|-----------|--------------|
| a. Giving antiretroviral drugs | Agree [] | Disagree [] |
| b. Delivery by caesarean section | [] | [] |
| c. Avoiding breast feeding | [] | [] |
| d. Exclusive breast feeding | [] | [] |
| e. Formula feeding | [] | [] |
| f. Others (specify)..... | | |

SECTION 4: Level of Male support to HIV positive women utilizing PMTCT.

SECTION 4.1: Men in Counseling, Testing, Delivery and infant feeding options

17. Does your husband/partner know your HIV status? a. Yes [] b. No [] c. Don't know []
18. Have you ever discussed with your husband/partner about HIV counseling and testing in the last one month? a. Yes [] b. No [] c. Don't know []
19. What is the view of the your husband/partner regarding HIV screening? a. Want couple testing [] b. Want me to tested alone [] c. Does not want me to be tested [] d. Don't know [] e. Felt not important [] f. Frowns at such idea [] g. Others (specify).....
20. Have you ever gone together with your husband /partner to a PMTCT clinic? a. Yes [] b. No [] c. Don't know [] IF YES TO Q20, SKIP TO 22.
21. If No to Q20, what was your husband/partners reasons for not accompanying you to PMTCT clinic? a. Husband busy at work [] b. Lack of money [] c. Fear of discrimination and Stigmatization [] d. Health worker not male friendly [] e. Others (specify).....
22. Does your husband /partner often support you financially whenever you visit PMTCT clinic? a. Yes [] b. No []
23. Did you and your partner jointly planned for the current pregnancy? a. Yes [] b. No []
24. Did your husband/partner likely to accompany you to the hospital for delivery? a. Yes [] b. No [] c. Don't know []
25. If you choose not to breast feed, will your husband /partners buy formula milk for the baby? a. Yes [] b. No [] c. Don't know []

26. How would you grade your husband/partners level of support in utilizing PMTCT services?
a. Very poor [] b. Poor [] c. Fair [] d. Good [] e. Very good [] f. Excellent []

SECTION 5: ART adherence among HIV Positive women.

27. Are you currently on antiretroviral therapy (ART)? a. Yes [] b. No [] c. Don't know []
28. Were you counseled on how to use ART drugs? a. Yes [] b. No [] c. Don't know []
29. Is your husband/partner currently on any Anti-retroviral therapy (ART)? a. Yes [] b. No [] c. Don't know []
30. How long have you been on ART treatment? a. Less than 3 months [] b. Less than 6 months [] c. 6 months to 1 year [] Greater than 1 year [] e. Other (specify)
.....
31. Do you have a specific time for taking ART? a. Yes [] b. No []
32. If Yes to Q31, what is your most convenient time for taking ART? a. Morning [] b. Afternoon [] c. Evening [] d. Night [] e. Others (specify)
).....
33. Do you always take the ART drugs at your chosen time daily? a. Yes [] b. No [] c. Don't know []
34. Does your doctor count your drugs on each visit to the clinic? a. Yes [] b. No [] c. Don't know []
35. Has doctor ever referred you back for another counseling session after counting your drugs? a. Yes [] b. No [] c. Don't know [] IF NO TO Q35, SKIP TO 37.

36. What was the reason for the another counseling after drugs count? Tick more than one options

a. Did not understand how to use the drugs [] b. Missed drugs [] c. Missed clinic

37. What is the interval of your clinic appointment? a. Two weekly [] b. Three weekly [] c. One monthly [] d. Two monthly [] e. Three months [] f. Others (specify)

SECTION 6 Role of Men in adherence to Antiretroviral Therapy Treatment

38. Does your husband/partner remind you to take your drugs? a. Yes [] b. No Don't know []

39. How often does he remind you to take your drugs? a. Every day [] b. Weekly [] c. Monthly [] d. Others (specify).....

40. Have your husband /partner ever stopped you from taking ART drugs? a. Yes [] b. No []

IF NO TO Q40, SKIP TO 42.

41. IF YES to Q40, what are the reasons for his restriction? a. Side effects of the drugs [] b. Drug resistance [] Pregnancy related problems [] d. Family dishamony []

42. Have you ever missed taking drugs? a. Yes [] b. No [] c. Don't know []

43. Have you missed taking drugs in the last three days? a. Yes [] b. No [] c. Don't know []

44. Has your husband/male partner encouraged you to take your drugs in last three days? A. Yes [] b. No [] c. Don't know []

45. What was the reason for missing medications? a. Away from home [] b. Too busy [] c. Forgetfulness [] d. Lost / Misplaced the drugs [] e. High pill burden [] f.

Fear of medication side effects [] g. Stigmatization [] h. Lack of food [] i. Used herbal medicine []

46. Do you belong to any ART adherence group in your community? a. Yes [] No []

Thank you for your time

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IPA TI OMO OKUNRIN NKO NINU IMULO OGUN ANTI RETROVIRAL L'AARIN AWON OMO OBINRIN TO NI KOKORO AISAN KOGBOOGUN HIV. TI WON TUN JO ABOYUN TI WON LO FUN ITOJU ANTENATAL NI ILE IWOSAN NI ILU EGBE NI IPINLE KOGI.

Oludahun mi, Nitoot,

Oruko mi ni Nweri, Chukwuma Hyacinth. Mo je omo akeko agba ti ile eko Giga Faasiti to ni eko lori oniruru aisan l'awujo ati Isiro lori Imo Isegun labe eka ti Ilera awon Awujo, ni Fasiti Ilu Ibadan. Mo fe gba imo lati odo re lori ise to je mo ki a ma de ona aisan kokoro kogboogun (HIV) ati koja lati odo rya si onitilorowanilenuwo wo yi se pataki nitoripe yi o fun wa ni oye nipa ipa ti awon omo okunrin, n ko ninu imulo ise 'PMTCT' ati ogun 'Anti Retroviral' l'ogun awon omo obirin to ni kokoro aisan HIV ni orilede Nigeria.

Ejowo, e se idahun si gbogbo ibeere inu iwe yi pelu otito okan ati ododo. Iwe ibeere yi ma gba ogbon iseju lati se idahun re o si ni anfaani lati dekun ati dahun awon ibeere wonyi lai si wahala rara. Eko ti a ba ko lati awon idahun iwe ibeere yi, a maa lo fun ise lwaadi nikan. A ko ni' lo oruko re, nitori na ma se ko oruko re si inu iwe ibeere yi, ki o si mo daju pe gbogbo idahun re ni a o toju bi asiri ti ko gbodo tu.

Awon ona idani mo

Ti o ba ni awon ibeere ati ohun ti oruwa loju nipa awon ise iwadi yi, a le pe eni ti oni ise iwadi yi

Ogbeni NWERI CHUKWUMA HYACINTII akeko ni eka ajakale aarun ati akosile isegun (Department of Epidemiology and Medical statistics, faculty of public Health University College Hospital Ibadan). Nunba ero ilewo-09055888211, adresi ayelujara: chuksnweri@yahoo.com. Be sinia le pe alabojuto ise iwadi ijinde akoni ni ni eka Epidemiology and medical statistics, nunba ero ilewo: 0809-4988108, adresi ayelujara: adeveikeola@yahoo.com

Gbolohun wipe akopa ninu idahun awon ibeere fun ise iwadi ijinde:

Alaye eko yi ye mi yekeyeke, be sinu mo ni oye oun ti iwadi naa duro le lori, fun idi eyi mo gba lati kopa ninu idahun si awon ibeere lori ise yi

Signature /thumb print

Date: .../.../...

Gbolohun wipe a gba awon imoran ti oye fun ise iwadi yi:

Mo ti se alaye ise iwadi ijinde yi fun awon oludahun mi yekeyeke, mo sinu ti fun won ni awon alaye ti oye ki won mo lati se ipinnu ti oye.

Name Signature Date .../.../...

Questionnaire No: _____

Facility/PMTCT centre: _____

Section 1: Socio-demographic Information

Oluforowa ni lenu wo: Jowo, fi ami si idahun ti o to, si awon alafo ti a pese.

1. Ojo ori oluda'hun
2. Ipo re nipa igbeyawo: a. Apon b. Motigbeyawo c. Mo ti gbeyawo ri d. Mo ti gbeyawo sugbon ati pin ya.
3. Iye odun re ninu igbeyawo.....
4. Iru igheyawo a. Oni aya kan soso b. Oni aya repete c. Awon miran (se alaye)...
5. Iye omo ti oni
6. Iru ise ti o n se. a. ka'ta k'a ra b. Onise owo c. Ise Agbe d. Akeeko e. Onisc ijoba g. Awon miraan (se alaye).
7. Is ti Baale ile nse
8. Esin a. Kristeni b. Musulumi c. Ihile
9. Eya a. Yoruba b. Ibo c. Hausa d. Awon miiran (se alaye).
10. Ipo re ninu eko giga A. mi ko kawe rara B. Eko ibere pipe D. Eko girama E. Awon miiran (se alaye).
11. Ipo oko ninu eko kika a. ko ka iwe rara b. eko ibere pipe

SECTION 2: Imo ogun PMTCT laarin awon obinrin to ni kokoro arun kogbogun HIV (Awareness' of PMTCT among HIV positive women.

Oluforowani lenu wo: Jowo, fi ami si ida'hun ti o to si awon alafo ti a pese.

12. Se o ti gbo pe aisan ko gbo'ogun HIV la ti odo iya koja si ara omo ri? a. Bceni [] b. Bceko []

13. Se o ti gbo nipa eto ti a gbekale ati dena kokoro kogbo'ogun HIV ati lati odo iya si omo, ti a peni PMTCT? a. Beeni [] b. Beeko []

14. Nibo lo ti gbe nipa ogun MTCT ati PMTCT? a. Ara ebi [] b. Awon Onisegun [] c. Ero asoro maghesi []

Section 3: Imo PMTCT larin awon obinrin to ni kororo aisan kogbogun HIV.

15. Awo ona wo ni aarun kokoro HIV lee gba lati odo Iya bosi ori omo ninu awon wonyi?

a. Nigba Oyun Beeni[] Beeko[]

b. Nigba Irubi Beeni[] Beeko[]

c. Nigbati afun Omo L'oyan Beeni [] Beeko []

d. Nigba ibalopo tokotaya Beeni [] Beeko []

e. Nigba ti anlo ohun t'omu bii abere Beeni [] Beeko[]

f. Nigba ti a'ngba eje ti a ko se ayewo re Beeni [] Beeko[]

16. Ni awon ona wo ni alee din aarun kokoro kogbo'ogun ku HIV ati lee koja lati odo iya si omo.

a. Ki ama mulo ogun Antiretroviral (ART) Beeni[] Beeko[]

b. Omo bibi nipa lse abe Beeni [] Beeko []

c. Ki a ma se fun omo ni oyan mu Beeni [] Beeko []

d. Ki a maa fun Omo ni oyan nikan soso Beeni [] Beeko []

f. Ki a ma se eto Pataki si bi a ti fun Omo lounje Beeni [] Beeko []

SECTION 4: Ipa awon Omo okunrin n se iranlowo fun awon obinrin lati lo'ogun PMTCT.

SECTION 4.1: Awon Okurin ninu Igbanii nimorun, Idanwo, Omobibi ati niun k a bo awon Oje wewe.

13. Se o ti gbo nipa eto ti a gbekale ati dena kokoro kogbo'ogun HIV ati lati odo iya si omo, ti a peni PMTCT? a. Beeni [] b. Beeko []

14. Nibo lo ti gbe nipa ogun MTCT ati PMTCT? a. Ara ebi [] b. Awon Onisegun [] c. Ero asoro maghesi []

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SECTION 4: Ipa awon Omo okunrin n se iranlowo fun awon obinrin lati lo'ogun PMTCT.

SECTION 4.1: Awon Okurin ninu Igbani nimorun, Idanwo, Omobibi ati niun k a bo awon Oje wewe.

17. Se oko re mo ipo re nipa kokoro arun kogbo'ogun HIV? a. Beeni b. Beeko c. Emi ko mo.
18. Nje oti le ni ijiroro ri pelu oko re tabi afesona niparun kokoro kogbo'ogun HIV Igbani nimoran ati ayewo ni osu kan seyin? a. Beeni b. Beeko c. Mi o mo.
19. Kini erongba oko tabi afesona re nipa ayewo arun kokoro kogbo'ogun (HIV)? a. Mo fe apapo ayewo b. Mo fe ayewo adanikanse c. Ko fe kinse ayewo d. Mio mo e. Moro pe ko se Pataki f. Mokoro ojusi eru gbbec g. Omiran (je ki mo).....
20. Nje iwo ati oko tabi afesona re jumo lo si ile iwosan PMTCT? a. Beeni b. Beeko d. Mi o mo e. To ba je beeni lo dahun se ibere mejilelogun.
21. Ti idahun re si ibeere to wa ni ogun ba je beeko, kini iditi oko tabi afesona re ko se tele o si ile iwosan PMTCT? a. Oko koraye nibi ise b. Ko si Owo d. Ibceru atako tabi ifini seleya e. Iyooku (je ki mo).....
22. Nje oko tabi afesona re ma n di gba ranolwo nipa eto isuna owo nigba kugba ti oba fe yo jusi ile iwosan nipa PMTCT? a. Beeni b. Beeko.
23. Nje iwo ati oko re ti le ma n gbaradi fun oyun miran? a. Beeni b. Beeko.
24. Nje oko tabi afesona re ma digba te le o lo si ile iwosan fun ibimo? a. Beeni b. Beeko d. Mi o mo.
25. Ti o ba ko lati ma fi omu fun omo, nje oko re tabi afesona le ra Miliki fun omo na bi? a. Beeni b. Beeko c. Mi o mo.
26. Gbedeke orryin wo lo le fun oko tabi afesona re nipa atileyin lilo ilana PMTCT a. Oburu jai b. Oburu c. O se few emo d. Odara e. Odara gan-an-ni f. Okun oju osuwo.

SECTION 5: Ifaramo ART laarin awon obinrin ti oni Arun kogbo'ogun(HIV).

27. Nje o ti le wa ni lori ogun lowolowo? a. Beeni b. Beeko c. Mi o mo.
28. Nje a gba o ni imoran ati le lo ogun (ART)? a. Beeni b. Beeko d. Mio mo.
29. Nje oko re ti le wa lori ogun lowolowo? a. Beeni b. Beeko c. Mi o mo.

30. Igbawo lo ti wa loni itoju ART? a.Odinni osu meta b. Odinniosu mefa c. Osu mefa si odun kan d.Oju odun kan lo e. Omiran (je ka mo).
31. Nje oni asiko ti ayasoto fun lilo ART? a. Beení b. Beeko.
32. To ba je beeni ni idaahun re si ibeere ookan-le-logbon,igbawo gaa-an ni o ro run fun o lati ma lo ART? a.Owuro b. Oosan c. Irole d. Ale.
33. Nje oti le ma n lo ogun ART ni igba ti oyan ni ojojumo? a.Beení b.Beeko d.Mi o mo.
34. Nje dokita digba ka awon ogun re ni gbakugba to ba yojusi ile iwosan?a.Beení b.Beeko d.Mi o mo.
35. Nje ama tun ni ko lo si odo oludamoran miran lehin igbati o ba ka awon ogun re?a.Beení b.Beeko c. Mio mo d. Ti idahun si ibeere aarundin logoji baje beeko nje fo lo si iketadinlogoji.
- 36.Kini idi omiran lehin kika ogun?Mu idahun ti ju eyokanlo. A.Mi o mo bi mo sele lo ogu na b.Mo ma n gbagbe d.Mo ma n ye adahun ti won funmi ni ile iwosan e.Omiran(je ka mo).
- 37.Kini alaafo to wa larin ighati ada fun o nile iwosan? a.Ojo mei laarin ose b.Ojo meta larin osa d. Ekan loosu e. Emeji loosu f. Ecmeta loosu g. Omiran(je ka mo).

SECTION 6: Ojuse awon Okunrin nipa Ifaramo o ART.

- 38.Nje oko re tabi afesona ma n ran lee ti ati lo ogun re?a.Beení b.Beeko d.Mi o mo.
- 39.Ba wo ni igba ti o ma n ran o leti ati lo ogun re se sun mora si?a.Ojojumo b.Osese c. Osoosu e.Omiran(je ka mo).
- 40.Nje oko re tabi afesona ti digba da o duro ati lo ogun ART re? a.Beení b. Beeko.
- Bi beeko ni idahun re si ibeere ogoji,to lo si Eeji le logoji.
41. To ba fe beeni ni idaahun re si ibere to wa ni ojoji,ki ni awon idi si idaduro re?a.ogun na ama se ni ni ijamba b.laduro ogun d.Wahala to rom o oyun e.Aisi Alafia ni iinu cbi.
- 42 Nje digba ma lo ogun re?a.Beení b.Beení d.Mi o mo.
43. Nje oti digba malo ogun re fun bi ijo meta? a.Beení b. Beeko c. Mi o mo.

44. Nje oko re tabi ore lokunrin ti gba o ni imoran lati lo ogun re gbogbo ni ijo meta sehin
a. Beeni b. Beeni c. Mi o mo.

45. Kini awon idi aimalo awon ogun re? a. isinile b. lse pupo ju c. lgbagbe d. Siso ogun nu
e. Wahala awon ogun ti kii tete wa le lara .f. Iberu awon ewo ti o rum o lilo ogun g. ldojuti h. Aisi
ounje i. Lilo ogun ihile.

46. Nje oti le pelu awon ART ni adugbo re? a. Beeni b. Beeko.

Adupe fun akoko re.

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APPENDIX III

FOCUS GROUP DISCUSSION (FGD) GUIDE

FGD Identification Number: _____

Facility/PMTCT centre _____

Date: May 23, 2016

MALE INVOLVEMENT AND INFLUENCE ON ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV POSITIVE WOMEN ATTENDING CLINIC IN KOGI STATE, NIGERIA.

This study is aimed to investigate male involvement and influence on adherence to antiretroviral therapy among HIV positive women attending clinic in Kogi State, Nigeria. All the information you give will be confidential and you will not be associated with any information given during the discussion. We would also like to record your responses so that we can correctly capture your thoughts and ideas. You may refuse to respond to any question or withdraw from the discussion at any time. Please sign/thumb print below if you agree to be part of this focus group:

Signature/Thumb Print:

1 Conduct a warm up session of the discussion

- Introduction of the facilitator, note taker, recorder and principal investigator
- Introduction of FGD by facilitator – objectives, timing, purpose of tape recording, develop rapport and set ground rules agreed by all
- Need for reassurance on confidentiality and obtaining consent from the group.

2 Knowledge about HIV/AIDS, PMTCT, and ART

- Do you know about HIV/AIDS?
- Is mother- to- child transmission of HIV (PMTCT) possible?
- What do you know about antiretroviral drugs?

Probe: Modes of transmission and prevention, Uses and importance of ART

3 Male involvement in PMTCT and ART adherence in pregnancy

- What do you know about male involvement in PMTCT and ART adherence by HIV positive women?

Probe: Roles of male partners in uptake of HCT, PMTCT and ART. Pattern and levels of male partners support in ART adherence in pregnancy (financial, accompany to the clinic, emotional).

3 Barriers and facilitators of male involvement in ART adherence in pregnancy

- What are the factors that can influence/promote or serve as barriers to male involvement in ART adherence.

Thank you for your time...

- APPENDIX V
- KEY INFORMANT INTERVIEW (KII) TOPIC GUIDE

- KII Identification Number: _____
- Facility: _____
- Date: June 30th, 2016 _____

- MALE INVOLVEMENT AND INFLUENCE ON ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV POSITIVE WOMEN ATTENDING CLINIC IN KOGI STATE, NIGERIA.

- The purpose of this study is to investigate male involvement and influence in adherence to antiretroviral therapy among HIV positive women attending antenatal clinic in Kogi State. The information you give shall be confidential and you will not be associated with any information given during the discussion. We would also like to record your responses so that we can correctly capture your thoughts and ideas. You may refuse to respond to any question or withdraw from the discussion at any time. Please sign/thumb print below if you agree to be part of this focus group. Signature/Thumb Print:

1 Conduct a warm up session before the interview

- Introduction of the interviewer, note taker and principal investigator
- Introduction by the interviewer; the research and its objectives, reasons for tape recording etc.
- Reassurance on confidentiality and obtaining consent from the interviewee.

2 Information about male partners perceptions and involvement in HCT, PMTCT and ART uptake

- What are the male partner's views about HCT in pregnancy?
- What are their perception about accompany spouse to ANC/PMTCT clinic?
- Do they support pregnant partners to uptake and adhere to ART?

Prompts: Male in HCT, PMTCT, infant feeding choices, ART uptake and adherence.

3 Factors influencing male involvement in ART adherence in pregnancy.

- What is the ART adherence rates among pregnant women? Does it exceed 95% optimal adherence? What are the motivation/challenges reported by the women about their male partners involvement in this PMTCT programme? What can be done to promote male participation?

Prompts: Default rate, Reasons for missing medications, male partners as adherence counselors, male partners in ART support group, meeting days and average attendance. Any means of inviting male partners to PMTCT clinic.

Thank you for your time.....

Ref. No: 1

Ref. No: EHER/EC/105/14/2014



ECWA HOSPITAL EGBE

P.M.B 202,
EGBE,
KOGI STATE,
NIGERIA.

5TH June 2014

Mr. Nweri Chukuma Hyacinth
Medical Laboratory Department
ECWA Hospital Egbe
P.M.B 202
Egbe, Kogi State.

RE: ETHICAL CLEARANCE \APPROVAL

Your letter dated 12th May 2014 to this committee on the above subject refer: after due consideration by the Institution Ethical Review Committee, your research proposal Titled " **MALE INVOLVEMENT AND INFLUENCE ON ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV POSTIVE WOMEN ATTENDING ANTENATAL CLINIC IN EGBE KOGI STATE NIGERIA**": has been cleared ethically.

You are however required to seek extension of time if this work is not commenced within the next six month of this approval.

You are also required to submit a copy of completed work to this committee for the Hospital Library.

On behalf of the committee I wish you success in this worthy academic exercise.

Yours sincerely

Dr. Okedare, Amos Olufemi mb; bs (abu), m.com.h (oau), fwacp (fm)

Chairman Ethical Review Committee

