

ANGLIA RUSKIN UNIVERSITY

FACULTY OF MEDICAL SCIENCE

DOCTOR OF PHILOSOPHY

**MOTIVATIONAL INTERVIEWING FOR ANTIRETROVIRAL THERAPY
ADHERENCE IN NIGERIA: A FEASIBILITY STUDY**

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for the degree of Doctor of Philosophy in Public Health**

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ABSTRACT
FACULTY OF MEDICAL SCIENCE
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OLAKUNLE LEKAN KAYODE
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Background: Motivational Interviewing (MI) is a person-centred directive approach that can support HIV patients to improve antiretroviral therapy (ART) adherence. Although MI has a growing literature within HIV contexts, studies have not yet examined the feasibility of using it for ART adherence counselling in Nigerian clinical contexts.

Methods: A mixed method approach was used for this study. Counsellors and a sample of HIV patients were recruited from a HIV clinic in Abuja, Nigeria between March and June 2017. The counsellors received five hours training, then used MI in audiotaped sessions with patients. Following the clinical encounters, counsellors and patients were interviewed about the process. Fidelity of counsellors to MI was assessed using the OnePass system which is a tool for measuring the competence of practitioners in MI, while the interviews data were analysed thematically to explore the experiences of study participants.

Findings: All clinicians in the clinic participated in the study and attended the training. Nineteen sessions were recorded from the interactions between 18 patients and seven counsellors in English, Pidgin and Yoruba. The counsellors did not achieve the threshold for competency described in literature, however interview responses revealed that MI improved the consultation practices of the counsellors and was well-accepted by patients. Interviews also revealed significant challenges during routine consultations, such as low clinic capacity, perception of counsellors about adherence support, stigma, bribing, religious/traditional beliefs, privacy issues in the clinic and economic barriers; this may prevent the routine application of the approach in Nigerian hospitals.

Conclusions: This study indicates that MI has potential to be used for ART adherence support within Nigerian context. It is acceptable to clinicians and patients and perceived as being different from current practice. However, for future implementation, time needs to be dedicated to MI training and further professional development around patient-centred approaches to adherence support.

Keywords: *Motivational Interviewing, Cultural Adaptation, Antiretroviral Therapy, and Adherence.*

TABLE OF CONTENTS

ACKNOWLEDGEMENT	i
ABSTRACT	ii
TABLE OF CONTENTS	iii
LIST OF ABBREVIATIONS	x
COPYRIGHT DECLARATION	xii
PRESENTATIONS	xiii
CHAPTER ONE: INTRODUCTION	1
1.0 Chapter Overview	1
1.1 Statement of the Research Problem	1
1.2 Outline of Chapters	3
1.3 Chapter Summary	3
CHAPTER TWO: BACKGROUND TO THE RESEARCH PROBLEM	4
2.0 Chapter Overview	4
2.1 Introduction to the Chapter	4
2.2 Medication-Taking Behaviour and Adherence	6
2.2.1 Antiretroviral Therapy Adherence and Assessment of Adherence	7
2.3 Antiretroviral Therapy Adherence in Nigeria	9
2.3.1 Level of Adherence to ART in Nigeria	21
2.3.2 Predictors of Antiretroviral Therapy Adherence in Nigeria	21
2.4 Target Factors for Antiretroviral Therapy Adherence Intervention	35
2.5 ART Adherence Counselling in Nigeria	37
2.6 Chapter Summary	39
CHAPTER THREE: DECISION MAKING APPROACH IN CLINICAL CONSULTATION FOR HIV TREATMENT AND ADHERENCE-LITERATURE REVIEW	41
3.0 Chapter Overview	41
3.1 Introduction to the Chapter	41
3.2 Methods of this Review	44
3.3 Findings from the Review	50

3.3.1 Overview of Selected Papers.....	54
3.3.2 Decision Making Approach for HIV Treatment	54
3.3.3 Decision Making Approach for ART Adherence	57
3.4 Discussion of the Review Findings.....	58
3.4.1 Clinicians' Practice of SDM.....	58
3.4.2 Cultural Views of the Patients	59
3.4.3 Patient's Health Literacy	60
3.4.4 Trust in Health Providers	61
3.4.5 Patients' Persistent Non-Adherence to ART	62
3.5 Conclusion to the Chapter.....	63
3.6 Chapter Summary	64
CHAPTER FOUR: MOTIVATIONAL INTERVIEWING FOR ANTIRETROVIRAL THERAPY	
ADHERENCE-LITERATURE REVIEW OF STUDIES IN DEVELOPING COUNTRIES	65
4.0 Chapter Overview	65
4.1 Introduction to the Chapter.....	65
4.1.1 The Spirit and Techniques of MI	66
4.1.2 Theoretical Underpinning for MI.....	67
4.1.3 MI and Antiretroviral Therapy Adherence.....	69
4.2 Methods of this Review	70
4.3 Findings from the Review.....	78
4.3.1 Overview of the Retained Studies.....	78
4.3.2 Application and Adaptation of MI	88
4.3.3 Acceptability and Feasibility of the Intervention in Studies	89
4.3.4 Fidelity of the Health Practitioners to MI.....	90
4.4 Discussion of the Review Findings.....	92
4.4.1 Adaptation and Application of MI Across Settings.....	93
4.4.2 Participation of Regular Health Workers in Studies.....	94
4.4.3 Health Practitioners Can Practice MI Irrespective of Qualification	94
4.4.4 Influence of Time on the use of MI for ART adherence	95

4.4.5 Knowledge about the Feasibility and Acceptability of MI	96
4.4.6 Language and Use of MI in Developing Countries	97
4.4.7 Relevance of the Review Findings to Nigerian Context.....	99
4.5 Chapter Summary	101
CHAPTER FIVE: METHODOLOGY AND RESEARCH DESIGN	102
5.0 Chapter Overview	102
5.1 Justification for Theoretical and Philosophical Stance	102
5.2 Conceptual Framework	104
5.3 Justification for Methodology	106
5.3.1 Research Design	109
5.3.2 Languages of Focus in the Study.....	110
5.3.3 Study Setting	110
5.3.4 Ethical Consideration.....	111
5.3.5 Timeframe for the Study	113
5.3.6 Participant Sampling Procedure.....	114
5.3.7 Recruitment Procedure	116
5.3.8 Motivational Interviewing Training and Delivery Process	117
5.4 Data Collection.....	120
5.4.1 Demographic Data.....	120
5.4.2 Observation of the Counselling Sessions.....	120
5.4.3 Semi-Structured Interviews	121
5.5 Data Analyses	123
5.5.1 Quantitative Data Analysis.....	123
5.5.2 Qualitative Data Analysis	125
5.5.3 Data Integration	126
5.6 Chapter Summary	126
CHAPTER SIX: QUANTITATIVE STUDY FINDINGS.....	127
6.0 Chapter Overview	127
6.1 Screening and Recruitment.....	127

6.2 Characteristic of Study Participants.....	129
6.3. Participation of Counsellors in the MI Trainings.....	137
6.3.1 Setting of MI Training and Practice Sessions.....	138
6.4. Participation in MI Practice Sessions for ART Adherence	139
6.5. Clinical Encounters	140
6.6 OnePass Assessment of Fidelity to MI.....	141
6.6.1 MI Global Spirit Scores	141
6.6.2 Percent MI-Consistency.....	143
6.6.3 Influence of the Duration of Sessions on MI Spirit Scores.....	144
6.6.4 Influence of Language on MI Spirit Scores	144
6.6.5 Length of Clinical Experience and MI Spirit Scores.....	145
6.6.6 Inter-Rater Reliability Test	146
6.7 Chapter Summary	146
CHAPTER SEVEN: QUALITATIVE STUDY FINDINGS	148
7.0 Chapter Overview	148
7.1 Description of Data Source and the Findings	148
7.2 Socio-Cultural Factors.....	150
7.3 Organisational Factors	152
7.4 Counselling Approach for Adherence	156
7.5. Impact of MI Training	158
7.6 Chapter Summary	167
CHAPTER EIGHT: SYNTHESIS OF STUDY FINDINGS	168
8.0 Chapter Overview	168
8.1 Current Approach to ART Adherence Counselling in Nigeria	168
8.2 Fidelity of the Counsellors to MI	170
8.3 Acceptability of MI among Study Sample	170
8.4 Facilitators and Inhibitors to the Routine Application of MI	171
8.5 Chapter Summary	173

CHAPTER NINE: DISCUSSION	174
9.0 Chapter Overview	174
9.1 Integrated Summary of Findings	174
9.2 Fidelity to MI in Nigeria.....	174
9.3 Acceptability of MI in Nigeria	176
9.4 Critical Realism and Study Findings.....	179
9.4.1 MI Approach and MI Training in Nigeria.....	180
9.4.2 Languages and MI in Nigeria	181
9.4.3 Low Clinic Capacity and MI in Nigeria.....	182
9.4.4 Perception of Counsellors about ART Adherence Support.....	184
9.4.5 Stigma for HIV/AIDS in Nigeria	185
9.4.6 Bribing in the HIV Clinic	186
9.4.7 Privacy issues in the HIV Clinic	187
9.4.8 Religious/Traditional Beliefs and MI in Nigeria	188
9.4.9 Financial/Economic Constraint and MI in Nigeria.....	188
9.5 Broader Perspective for Dissemination of MI in Nigeria.....	189
9.6 Strengths and Limitations of the Study	189
9.7 Chapter Summary	195
CHAPTER TEN: RECOMMENDATIONS AND CONCLUSION	196
10.0 Chapter Overview	196
10.1 Recommendations	196
10.1.1 Implications for Practice.....	196
10.1.2 Implications for Future Research	200
10.2 Conclusion	201
10.2.1 Reflexivity.....	202

List of Figures

Figure 2.1: Prevalence of HIV among Top 10 Countries in 2016.....	5
Figure 2.2: States and Geographical Regions of Nigeria.....	15
Figure 4.1: Causal Chain among Processes and Outcome Variables in MI.....	68
Figure 5.1: Conceptual Framework for the Study.....	104

Figure 5.2: Retroductive Research Model for the Study.....	107
Figure 5.3: The Diagrammatic Structure for the Study Procedure.....	109
Figure 5.4: Gantt Chart depicting the Implementation of Field Activities.....	114
Figure 5.5: The Sampling Framework for the Study.....	114
Figure 6.1: Flowchart for Recruitment of Study Participants.....	128
Figure 6.2: Gender of Participants.....	129
Figure 6.3: Ethnic Distributions of Participants.....	131
Figure 6.4: Other Languages Spoken by Study Participants.....	134
Figure 6.5: Multilingualism among Participants.....	134
Figure 6.6: Occupational Roles of the Adherence Counsellors.....	136
Figure 6.7: Languages Used by Counsellors for Adherence Counselling.....	136
Figure 6.8: Multilingual Approach to Counselling.....	137
Figure 6.9: Consultation Rooms at the Study Setting.....	139
Figure 6.10: Scatterplot of MI Spirit Scores and Time Spent on Sessions.....	144
Figure 6.11: Scatterplot of Languages and MI Spirit Scores.....	145
Figure 6.12: Scatterplot of Length of Experience and MI Spirit Scores.....	146
Figure 7.1: Qualitative Themes and Ecological Levels of Influence.....	150
Figure 8.1: Hypothetical Retroductive Model for the Feasibility of MI in Nigeria.....	173

List of Tables

Table 2.1: Summary of Study Search	11
Table 2.2: Reported ART Adherence Rates in Nigeria Studies.....	17
Table 2.3: Predictors of Antiretroviral Therapy Adherence in Nigeria.....	22
Table 3.1: Summary of Study Search for the Review.....	45
Table 3.2: Extracted Data from Reviewed Studies in Chapter Three.....	51
Table 4.1: Summary of Study Search for Review.....	74
Table 4.2: Extracted Data from Reviewed Studies in Chapter Four.....	79
Table 6.1: Ethnic Background of all Participants.....	130
Table 6.2: Ethnic Background of the Patients.....	131
Table 6.3: Ethnic Background of Counsellors.....	132
Table 6.4: First Languages Spoken by Patients.....	133
Table 6.5: First Languages Spoken by Counsellors.....	133
Table 6.6: Educational Attainment of Patients.....	135
Table 6.7: Educational Attainment of Counsellors.....	135
Table 6.8: Attendance of Counsellors during the MI training.....	137
Table 6.9: Participant's Involvement in Practice Sessions.....	140

Table 6.10: Features of the MI Practice Sessions.....	141
Table 6.11: One-Sample T-Test for MI Spirit Scores.....	142
Table 6.12: Paired Samples T-Test of MI Spirit Scores for Last and First Sessions.....	143
Table 6.13: Paired Samples T-Test of Percent MI-Consistency Over Time.....	143
Table 7.1: Thematic Framework for Qualitative Findings.....	149

List of Boxes

Box 5.1: Guide for the Semi-Structured Interview.....	122
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References.....	204
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List of Appendices.....	238
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Appendix 1: Summary and Justification for the Exclusion of Studies in Chapter Two	238
Appendix 2: Summary and Justification for Exclusion of Studies in Chapter Four.....	239
Appendix 3: FREP Approval.....	241
Appendix 4: FCTHREC Approval.....	244
Appendix 5: Languages Spoken by Study Participants.....	245
Appendix 6: OnePass Scores for the Practice Sessions.....	246
Appendix 7: Mixed Method Appraisal Tool Checklist.....	248
Appendix 8: Information Sheet for HIV Patients.....	250
Appendix 9: Information Sheet for Adherence Counsellors.....	253
Appendix 10: Informed Consent Form.....	256
Appendix 11: Demographic Data Form.....	258

LIST OF ABBREVIATIONS

AIDS-Acquired Immune Deficiency Syndrome
ART-Antiretroviral Therapy
ARV-Antiretroviral
ASSIA-Applied Social Sciences Index and Abstracts
BC- Basic Competency in MI
BECCI-Behavioural Change Counselling Index
CD4-Cluster of differentiation 4
CINAHL-Cumulative Index to Nursing and Allied Health Literature
COPD-Chronic Obstructive Pulmonary Disease
DNA- Deoxyribose Nucleic Acid
DOT-Directly Observed Therapy
EPF-European Patient's Forum
EU-European Union
FCTHREC-Federal Capital Territory Health Research Ethics Committee
FMOH-Federal Ministry of Health
FREP-Research Ethics Panel of the Faculty of Medical Science of Anglia Ruskin University
GP-General Practitioner
HIV-Human Immunodeficiency Virus
IAPAC- International Association of Providers of AIDS Care
ICF-Informed Consent Form
KHARMA-Keeping Healthy and Active with Risk Reduction and Medication Adherence
MEDLINE- Medical Literature Analysis and Retrieval System Online
MOPD-Medical Outpatient Department
MEMS-Medication Event Monitoring Systems
MI-Motivational Interviewing
MISC-Motivational Interviewing Skill Code
MINT-Motivational Interviewing Network of Trainers
MITI-Motivational Interviewing Treatment Integrity
MI-SCOPE-Motivational Interviewing Sequential Code for Observing Process Exchanges
MITS-Motivational Interviewing Target Scheme
MMAT-Mixed Method Appraisal Tool
MMR-Mixed Method Research
NACA-National Agency for the Control of AIDS
NNRTI-Non-Nucleoside Reverse Transcriptase Inhibitors
NRTI-Nucleoside Reverse Transcriptase Inhibitors

OARS- Open-Ended Questions; Affirming; Reflective Listening; and Summary
P-Proficiency in MI
PBSC-Psychology and Behavioural Sciences Collection
PCMH-Patient-Centred Medical Home
PEO- Population, Exposure and Outcome
PI-Principal Investigator
PIs-Protease Inhibitors
PIS-Participant Information Sheet
PLHIV-People Living with HIV
PMTCT-Prevention of Mother to Child Transmission
RCT-Randomised Controlled Trial
RNA-Ribonucleic Acid
SDT-Self-Determination Theory
SDM-Shared Decision-Making
UNAIDS-Joint United Nations Programme on HIV/AIDS
UK-United Kingdom
USDHHS- United States Department of Health and Human Services
USA-United States of America
VASE-Video Assessment of Simulated Encounters
WHO- World Health Organisation

COPYRIGHT DECLARATION

I declare that the work presented in this thesis was done in accordance with the regulation of Anglia Ruskin University. It is original except where indicated with references in the text. This thesis has not been submitted to any university for any other degree either in the United Kingdom or Overseas. Any views expressed in this thesis are those of the author and not of Anglia Ruskin University.

PRESENTATIONS

The abstract of this thesis has been submitted and accepted for presentation at the 14th UK Society for Behavioural Medicine Scientific Meeting on 12th and 13th December 2018 at Edgbaston Cricket Stadium, Birmingham.

CHAPTER ONE: INTRODUCTION

1.0 Chapter Overview

This chapter presents an outline of the research problem and the focus of the study as well as the research question. The chapter also ends with an outline of the remaining nine chapters of the thesis.

1.1 Statement of the Research Problem

With 160,000 deaths in 2016, Nigeria bears the highest burden of Acquired Immune Deficiency Syndrome (AIDS)-related deaths ahead of South Africa and India (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2017). The number of deaths related to Human Immunodeficiency Virus (HIV) and or AIDS in Nigeria can be attributed to lack of access to antiretroviral therapy (ART) (Baggaley et al., 2015; Granich et al., 2015; UNAIDS, 2017). However, adherence to the ART and not just access to the drug predicts disease progression, emergence of HIV drug resistance and death (Bangsberg et al., 2001; Paterson et al., 2000; World Health Organisation [WHO], 2016, pp.255). Therefore, billions of dollars invested on HIV/AIDS control from both international and domestic sources (Nigerian National Agency for the Control of AIDS [NACA], 2014, p.44) will only increase access to the drug while the patients may continue to die due to non-adherence.

There are several evidence-based interventions to enhance ART adherence such as peer counselling, mobile phone text messages, reminder devices, cognitive behavioural therapy, behavioural skills training and medication adherence training, and fixed-dose combinations as well as once-daily regimen (WHO, 2016, p.255). These interventions are recommended for people on ART (WHO, 2016). However, this recommendation places the responsibility for ART adherence solely on the patient with the assumption that the conduct of the clinicians during the consultation for adherence will not affect the determination of the patient to carry out the drug-taking consistently afterwards. This assumption reinforces the gap reported in 2003 by the WHO that the focus of adherence interventions continues to be directed at patient-related factors despite evidence pointing to the contrary (WHO, 2003, p.19). In the report, the WHO stressed that the misplaced priority on patient-related factors occurs with relative neglect of health provider and health system-related determinants, even though these latter factors have a considerable effect on adherence (WHO, 2003, p.19). Based on this gap the WHO stated that interventions that target these other relevant factors in the health care environment are urgently required (WHO, 2003, p.19). Consistent with this recommendation made 15 years ago, the current global strategy on people-centred and integrated health services emphasise the need to build health providers' skills for effective communication with people as well as to

provide information and support to people to make informed decisions and for their active engagement in their own care and self-management (WHO, 2016, p.280). Similarly, evidence from a systematic review and a meta-analysis has revealed the need for clinicians to be compassionate, to establish trust and a supportive clinical environment to motivate the HIV patients to adhere to their drugs (Katz et al., 2013; Langebeek et al., 2014a). A survey has also shown that by improving the communication and relationship building skills of health providers, retention of HIV patients in care may be improved (Flickinger et al., 2013). Taken together, this bodies of evidence emphasise the need for increased attention to be paid to the skills and conduct of health providers during clinical consultation for ART adherence in respect of communication and fostering of a non-judgemental adherence support context.

Although the current WHO guideline emphasises the importance of counselling to promote ART adherence (WHO, 2016, p.258), there is currently no recommendation for the standard counselling approach to use with patients during the clinical consultation for treatment adherence. Motivational Interviewing (MI) is a patient-centred approach to counselling with a collaborative conversation style for strengthening a person's own motivation and commitment to change (Miller and Rollnick, 2013 p.12). Hence, it is a counselling method that has the potential to promote a more acceptable quality of communication during a clinical consultation for ART between health providers and HIV patients. Despite the availability of considerable evidence supporting the use of MI as an effective behaviour change method to promote ART adherence (Dillard, Zuniga and Holstad, 2016; Hill and Kavookjian, 2012), there is little or no evidence for its routine applications for ART adherence counselling or consultation in Nigeria. Therefore, little is known about whether MI can be used in the clinical context in Nigeria for ART adherence support, since it is an approach developed within the cultural context of the UK and USA with relatively higher-resource context (Koken et al., 2012).

Against this background, it could be argued that to practise MI in the Nigerian context, one needs to adapt it to both community and organisational culture. The need for cultural adaptation of behavioural interventions arose from the evidence of reduced effect in usual practice setting compared to controlled settings. However, Lau (2006) pointed out that endless proliferation of adapted variants of such intervention approaches for various target communities may be unwarranted. Hence, there is a need to establish whether cultural adaptation is needed in the first place and to identify the cultural or contextual barriers to the implementation of the approach in the local setting. Therefore, this study is focused on determining the feasibility of using MI for ART adherence consultation in Nigeria from both cultural and contextual perspectives.

Research Question:

Is the use of Motivational Interviewing (MI) acceptable and feasible for HIV drug adherence counselling or consultation in Nigeria?

1.2 Outline of Chapters

The content of the remaining chapters of this thesis are as presented below.

Chapter Two: This chapter presents a background to the research problem through a comprehensive review of literature that examines the state of adherence to ART and the predictors of adherence in Nigeria and a discussion of the major factors in promoting adherence to HIV treatment in Nigeria.

Chapter Three: This chapter presents a review of literature that investigates the decision-making approaches used in clinical consultation for HIV treatment and adherence.

Chapter Four: This chapter presents another review of literature that investigates the applicability of motivational interviewing in developing countries, with a focus on Nigeria.

Chapter Five: This chapter presents the methodology and research design employed to meet the research objectives.

Chapter Six: This chapter presents the quantitative findings from the study.

Chapter Seven: This chapter presents the qualitative findings from the study.

Chapter Eight: This chapter presents an integrated synthesis of both quantitative and qualitative findings from this study to meet the research objectives.

Chapter Nine: This chapter presents the discussion of the research findings.

Chapter Ten: This chapter presents the recommendations based on the study findings and a conclusion to the study.

1.3 Chapter Summary

This chapter has presented the statement of the research problem and the focus of the study. It has also presented a breakdown of the study activities into chapters with brief description of the focus of each chapter.

CHAPTER TWO: BACKGROUND TO THE RESEARCH PROBLEM

2.0 Chapter Overview

This chapter presents a review of the global burden of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) and the impact of antiretroviral therapy (ART) on the morbidity and mortality associated with the epidemic. The chapter also evaluates the burden of the epidemic in sub-Saharan Africa with a focus on Nigeria. The chapter presents the definition of adherence and methods of its assessment. The chapter explores the prevalence of ART adherence in Nigeria and the factors that determine adherence to ART in the country. The chapter ends with a discussion based on existing evidence and recommendations regarding factors that may be prioritised for ART adherence support in Nigeria.

2.1 Introduction to the Chapter

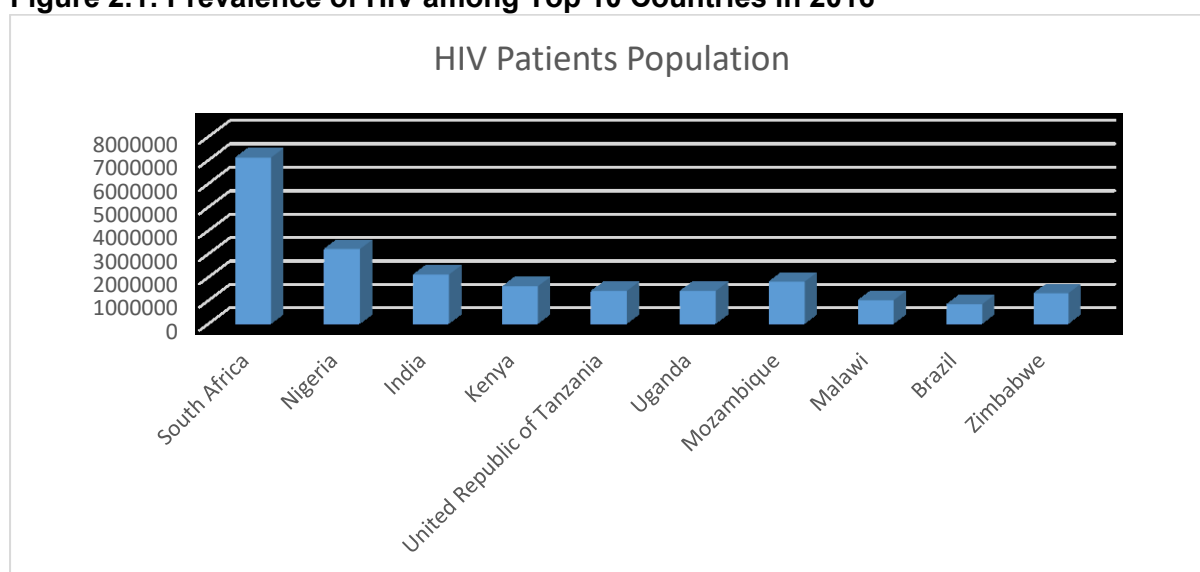
Acquired Immune Deficiency Syndrome (AIDS) is a leading cause of infectious disease mortality (Kaplan, 2013, p.7). While about 37.6 million people live with the Human Immunodeficiency Virus (HIV), about 5,000 new infections occur daily (UNAIDS, 2017, pp.12-13). Sub-Saharan Africa bears a disproportionate burden of the HIV/AIDS epidemic with 71% of the global infections in the region (UNAIDS, 2014, p.18). Despite the overall number of people living with HIV/AIDS, there has however, been a significant decline in the morbidity and mortality associated with HIV/AIDS globally (Granich et al., 2015; UNAIDS, 2017). For instance, since 2010, the annual number of new HIV infections has declined by 16% to 1.8 million [1.6 million–2.1 million], while there were also about one million AIDS-related deaths [830,000–1.2 million] in 2016 compared to 1.5 million in 2013 (UNAIDS, 2017). This significant decline in the HIV/AIDS related morbidity and mortality has been associated with the increased access to antiretroviral therapy (ART) (Baggaley et al., 2015; Granich et al., 2015; UNAIDS, 2017). Specifically, a recent report from the United Nations revealed that increased access to ART for people living with HIV [PLHIV] resulted in a 48% reduction in AIDS-related death from its peak of 1.9 million in 2005 (UNAIDS, 2017, p.4). This evidence, therefore highlights the importance of ART to prevent the millions of lives lost due to the epidemic.

Although ART does not cure HIV, it works by blocking the replication of the virus and reduce the plasma viral load, thereby strengthening the lymphatic T-helper cells [cluster of differentiation 4 [CD4]] to fight off opportunistic infections (Wilson and Sereti, 2013). This is because the CD4 T lymphocytes are the coordinators of the body's immune system (WHO, 2007, p.11). The advent of ART has therefore succeeded in changing the normal progression of the infection from the deadly stage of AIDS, to one which increases the life expectancy of

people living with HIV (PLHIV) (Hanif et al., 2013; Langebeek et al., 2014a). In this regard, the availability of ART has shifted the status of HIV to a chronic disease that requires management with daily treatment rather than an imminent life-threatening health condition (Adefolalu and Nkosi, 2013; Hanif et al., 2013).

Besides disease management potential, ART has well-established preventive use as evidenced in its use for prevention of mother to child transmission (PMTCT) and for pre-and post-exposure prophylaxis (Baggaley et al., 2015; Choopanya et al., 2013; Cohen et al., 2011; Granich et al., 2009; Grant et al., 2010). Due to the management and preventive benefits embedded in the ART, in 2015 the WHO recommended a greater access to ART for all PLHIV irrespective of the CD4 cell count and a broader use of antiretroviral drugs for pre-exposure prophylaxis (WHO, 2016, p.74). Despite the significant global benefits recorded due to the widespread access to ART for PLHIV, sub-Saharan Africa still contribute about 64% to new infections globally and Nigeria which bears the second highest burden of HIV globally (figure 2.1) still contributes over 20% to the reported new infections in 2016 (UNAIDS, 2017).

Figure 2.1: Prevalence of HIV among Top 10 Countries in 2016



Data Source: UNAIDS (2017).

While South Africa recorded a significant decline in new HIV infections from 380,000 in 2010 to 270,000 in 2016, Nigeria recorded a smaller reduction in new infections within the same period from 230,000 to 220,000 (UNAIDS, 2017, pp.40-70). Although there was a reduction in the number of AIDS-related deaths in Nigeria from 200,000 in 2010 to 160,000 in 2016, South Africa reduced the number of deaths by 100,000 within the same period from 210,000 deaths in 2010 to 110,000 deaths in 2016 (UNAIDS, 2017 pp.40-70). The significant reduction in AIDS-related deaths in South Africa was attributed by the United Nations to the rapid scale-up of ART in the South African region (UNAIDS, 2017, p.3). However, there was also a

significant improvement in the scale-up of ART in Nigeria in recent times. For instance, the number of PLHIV on ART in Nigeria increased from 639,397 PLHIV in 2013 to 970,000 in 2016 (Nigerian National Agency for The Control of AIDS [NACA], 2014, p.37; UNAIDS, 2017, p.70). This represents an 88% coverage among the 1.1 million PLHIV in the country who are aware of their status contrary to the total estimate of 3.2 million people living with the virus (UNAIDS, 2017, p.70), most of whom are assumed not to know their status. Hence, the actual need for total coverage of ART among the PLHIV who are aware of their status is a total of 130,000, which is significantly lower than the difference of 2.2 million in South Africa between PLHIV who know their status and those who do not (UNAIDS, 2017, p.40).

Unfortunately, these data might have either underestimated or overestimated the coverage of ART in Nigeria due to poor registration and surveillance. Apart from South Africa, other sub-Saharan African countries where the burden of HIV is concentrated have been reported to have very poor registration and incomplete disease notification systems (Murray et al., 2014). This data unreliability could also occur because many people with HIV positive status might have avoided being tested for HIV to determine their status due to the fear of stigma attached to the disease in Nigeria (Afolabi et al., 2013; Aransiola et al., 2014; Olowokere, Fatiregun and Adewole, 2012). Despite the challenges with the available statistics, the data suggests that there is need for more effort to avert significant numbers of AIDS related deaths occurring in Nigeria.

Based on this background, one significant gap in the available data on HIV treatment in Nigeria is that only 780,000 PLHIV are reported to be virally suppressed (UNAIDS, 2017, p.70). Therefore, it can be assumed that apart from those who are not aware of their status 190,000 PLHIV who are on treatment are still at risk of progressing to the latter stage of the disease (AIDS) and ultimately dying. Hence, beyond access to the ART, there is a need to ensure that the PLHIV take the drugs as recommended to suppress the virus.

2.2 Medication-Taking Behaviour and Adherence

Adherence and compliance are two terms commonly used interchangeably in literature to describe the medication-taking behaviour of patients (Horne et al., 2005, pp.12-13). However, these two terms examine medication-taking behaviour from different perspectives. Compliance is the oldest term used for the description of medication-taking behaviour and it is defined as the extent to which a patient's behaviour (in terms of taking medications, following diets or executing other lifestyle changes) matches the clinician's prescription (Ahmed and Aslani, 2014; Chakrabarti, 2014; De las Cuevas, 2011; European Patient's Forum, 2015; Horne et al., 2005, p.33; Lehane and McCarthy, 2009; Nunes et al., 2009, p.58; Vrijens et al.,

2012). However, the term has been widely criticised for its paternalistic undertones that denote a relationship where the role of the clinician is to decide and the role of the patient is to passively follow “*the doctor’s orders*” (Ahmed and Aslani, 2014; Brown and Bussell, 2011; Horne et al., 2005, p.33; Lehane and McCarthy, 2009; Mullen, 1997; Nunes et al., 2009, p.58; Segal, 2007). Critics argued that the term fails to define whether it is good to take the drug or not, but simply considers patient’s behaviour on a dichotomous scale that compliance is good, and non-compliance is bad (Chakrabarti, 2014; De las Cuevas, 2011; Horne et al., 2005, p.34). The term is considered pejorative as non-compliance suggests that the patient is unwilling to behave as instructed by a prescriber who knows what the patient needs best (Chakrabarti, 2014; Horne et al., 2005, p.34; Nunes et al., 2009, p.58).

On the other hand, the term adherence has been used as an alternative to compliance to emphasise that the patient is free to decide whether to accept the doctor’s recommendations and that failure to do so should not be a reason to blame the patient (Horne et al., 2005, p.35). The term “adherence” was coined to avoid the normative problem in the definition of compliance by emphasising the need for shared agreement (Horne et al., 2005, p.35). The WHO defined adherence as “*the extent to which a person’s behaviour in respect of taking a medication, following a diet and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider*” (WHO, 2003, p.3). This definition aims to emphasise active patient involvement while choosing the most suitable treatment, where both parties need to participate in a discussion which yields the most appropriate medication regimen to be followed (Ahmed and Aslani, 2014; Chakrabarti, 2014). Unlike compliance, the term adherence is intended to be non-judgmental; to serve as an observation of a fact and not intended to blame either the clinician or the patient (Chakrabarti, 2014). Even though compliance and adherence share the same property of being quantifiable parameters, due to the emphasis on patients’ involvement in treatment decisions, adherence is considered more patient-centred than the clinician-centred concept of compliance, thereby making it more favoured by many experts in the field in recent times (Ahmed and Aslani, 2014; Chakrabarti, 2014; Horne et al., 2005; Nunes et al., 2009; Vrijens et al., 2012). Consistent with this background, the term “adherence” was adopted to describe medication-taking behaviour of PLHIV in this study.

2.2.1 Antiretroviral Therapy Adherence and Assessment of Adherence

Antiretroviral therapy (ART) refers to the use of a combination of three or more antiretroviral (ARV) drugs for treating HIV infection (International Association of Providers of AIDS Care [IAPAC], 2014, Fact Sheet 403; WHO, 2016). High level of adherence to HIV treatment has long been found to be a key factor in the treatment success of HIV infection by predicting

virological failure, disease progression, emergence of HIV drug resistance and death (Bangsberg et al., 2001; Paterson et al., 2000; WHO, 2012, p.10). Specifically, poor adherence to ART has been associated with repeated hospitalization, opportunistic infections, poor quality of life, loss of productivity and premature mortality (Adefolalu and Nkosi, 2013; Cruciani and Melani, 2015). Like other chronic diseases, poor adherence to ART is common among PLHIV (Adefolalu and Nkosi, 2013; Langebeek et al., 2014b; WHO, 2003; Williams et al., 2014). However, unlike other chronic diseases such as hypertension and diabetes where moderate adherence could be sufficient for treatment outcomes (Adefolalu and Nkosi, 2013), rapid rate of replication of HIV requires that a high level of adherence to the ART needs to be maintained to suppress the viral load (Adefolalu and Nkosi, 2013; WHO, 2012, p.9; Williams et al., 2014).

There are currently numerous methods for assessing ART adherence globally. Although self-report is the most commonly used means of adherence assessment especially in resource-limited settings due to its affordability, it is highly susceptible to recall bias, reporting bias and social desirability bias (McRae-Clark et al., 2015; Sahay, Reddy and Dhayarkar, 2011). Despite the high susceptibility of this subjective measure to overestimation, some studies have shown that adherence assessed by self-report can be strongly associated with virological outcomes (Nieuwkerk and Oort, 2005; Simoni et al., 2006).

Meanwhile, there are also some objective measures of ART adherence that are considered to have relatively higher reliability than self-report such as electronic medication event monitoring systems (MEMS), pharmacy refill, pill counts and directly observed therapy (DOT) (McRae-Clark et al., 2015; Sahay, Reddy and Dhayarkar, 2011; Sangeda et al., 2014; Shi et al., 2010). Despite being deemed as relatively more reliable, each of these objective methods also have certain drawbacks. For instance, while observing patient's ingestion of a medication through DOT is expected to ensure optimum adherence, it places significant time burden on both patients and providers (McRae-Clark et al., 2015), thereby making it less practical than self-report. Although the total number of medications ingested could be estimated through pill count, this method may also be unreliable, as it is not possible to confirm that the patient actually took the medication as prescribed (McRae-Clark et al., 2015; Sangeda et al., 2014). While pharmacy refill is a measure that is commonly available in clinical care and not subject to recall bias, it may be less accurate to predict virological outcome when applied over a short time (Heneger et al., 2014; Sangeda et al., 2014). In addition, pharmacy refill does not measure actual medication taking behaviour (Charurat et al., 2010). Lastly, even though MEMS is usually considered the gold standard for adherence measurement, apart from the high cost attached to its use, the system is limited to registering date and times when the

medication container is opened and when it is closed (McRae-Clark et al., 2015; Shi et al., 2010). Therefore, actual medication ingestion by patients may not also be ascertained (McRae-Clark et al., 2015). Hence, MEMS has been described as the imperfect gold standard (Shi et al., 2010).

Based on these highlighted shortcomings of the numerous measures of adherence, there is currently no universally accepted gold standard for measurement of ART adherence (Sahay, Reddy and Dhayarkar, 2011; Sangeda et al., 2014). Hence, emphasis has been placed on the need to use viral load assessment to validate measurement of ART adherence (Heneger et al., 2014; Sangeda et al., 2014).

2.3 Antiretroviral Therapy Adherence in Nigeria

Evidence from a meta-analysis demonstrated that HIV patients in sub-Saharan Africa have a high tendency to adhere to ART, especially when compared with patients in North America (Mills et al., 2006a). Findings from the review contradicted some initial concerns about the ability of African PLHIV to adhere to the treatment (Attaran, 2007; Gills et al., 2005). However, findings from recent studies also revealed that rates of adherence are not consistently high within the sub-Saharan African region (Adefolalu, Nkosi and Olorunju, 2014; Denison et al., 2015; Elhers and Tshisuyi, 2015; El-Khatib et al., 2011; Nabukeera-Barungi et al., 2015; Peltzer et al., 2010; Wiens et al., 2012). This can be attributed to the different level of associations that studies reported between factors predicting adherence and adherence rates. For instance, findings from a recently published meta-analysis and systematic review of 146 qualitative and quantitative studies from the sub-Saharan African region show that main predictors of non-adherence to ART include use of alcohol, male gender; use of traditional/herbal medicine; dissatisfaction with healthcare facility and healthcare workers; depression; discrimination and stigmatisation; and poor social support (Heestermans et al., 2016). On the other hand, the predictors of optimum adherence include: counselling and education interventions, memory aids, and disclosure of HIV status (Heestermans et al., 2016). Despite these identified associations, 14 studies in the review did not find significant association between the determinants and ART adherence (Heestermans et al., 2016). It can therefore be argued that a similar pattern of inconsistent adherence rates or the association between adherence and the factors influencing it will be obtainable in Nigeria. Unfortunately, there is currently no standard report for non-adherence to ART. It is worthy of note that the review and meta-analysis by Heestermans et al. (2016) that included studies published till 2014 was limited to study search within electronic databases without further search through references or manual search through relevant local journals. Hence, there is a need to review the current state of knowledge from existing literature about ART adherence and the

influencing factors in Nigeria, to identify key factors to target to promote better adherence rates.

Methods of this Review

To manage the inclusion and exclusion of studies into this review of literature, the PEO format (Bettany-Saltikov, 2012, p.21) was adopted. Limits for the Population, Exposure and Outcome components of the PEO are as specified below:

Population: This refers to individuals living with HIV and/or their caregivers. This population ranges from children to adults living with HIV.

Exposure: This refers to the initiation of the individual living with HIV on ART.

Outcome: This refers to the level of adherence to ART reported in the studies and or the factors influencing adherence to the ART. However, studies that tested the effectiveness of an intervention for adherence to ART was excluded from this review. Lastly, quantitative studies which did not report the threshold used to assess the ART adherence were also excluded from the review.

To carry out this review, a comprehensive search for relevant articles was conducted through four electronic databases which include PubMed, Medline, ASSIA and Web of Science. Study search was limited to articles published from 2008 till 2018. The reason for this time range is to identify studies published within the last decade in order to include recent state of knowledge in the topic area. Relevant studies were searched for in the four electronic databases with the keywords in the following format: [*adherence or non-adherence or compliance*] and [*antiretroviral therapy or highly active antiretroviral therapy or antiretroviral or HIV drug or HIV treatment*] and [*Nigeria*]. Study search through the electronic databases was supplemented with manual search for relevant articles through relevant local and international journals within the specified time interval. This include search through: Journal of Antivirals and Antiretrovirals; Journal of AIDS and HIV Research; Global Journal of Medical Research; The Nigerian Journal of General Practice; The Nigerian Health Journal; International Journal of Medicine and Medical Sciences; International Journal of Infection Control; Journal of HIV and Human Reproduction; Journal of Acquired Immune Deficiency Syndromes; Journal of Advances in Medicine and Medical Research; and African Journal of Primary HealthCare and Family Medicine. Relevant studies were also searched for within the reference list of some of the retrieved studies from the electronic databases. Summary of the literature search are as presented in Table 2.1.

Table 2.1: Summary of Study Search

S/N	Study Sources	Total Hit	Relevant Titles
1	ASSIA	118	3
2	Web of Science	99	24
3	MEDLINE	129	32
4	PubMed	170	33
5	Journal of Antivirals and Antiretrovirals	Not Applicable	1
6	Journal of AIDS and HIV Research	Not Applicable	1
7	Global Journal of Medical Research	Not Applicable	1
8	The Nigerian Journal of General Practice	Not Applicable	1
10	International Journal of Medicine and Medical Sciences	Not Applicable	1
11	International Journal of Infection Control	Not Applicable	1
13	Journal of Advances in Medicine and Medical Research	Not Applicable	1
14	African Journal of Primary HealthCare and Family Medicine	Not Applicable	1
15	Reference Search	Not Applicable	2
	Total	516	102

A total of 516 articles were retrieved from the search through the electronic databases. After excluding irrelevant titles based on the specification of the PEO search, 92 relevant articles were retained for further screening. The manual search through journals yielded additional eight articles: Shittu et al. (2013) [Journal of Antivirals and Antiretrovirals]; Pennap, Abdullah and Bako (2013) [Journal of AIDS and HIV Research]; Bello (2011) [Global Journal of Medical Research]; Chineke et al. (2015) [The Nigerian Journal of General Practice]; Igwegbe, Ugboaja and Nwajiaku (2010) [International Journal of Medicine and Medical Sciences]; Kasumu and Balogun (2014) [International Journal of Infection Control]; Akinboro et al. (2014) [Journal of Advances in Medicine and Medical Research]; and Sekoni, Balogun and Obidike (2013) [African Journal of Primary HealthCare and Family Medicine]. In addition, search through the reference lists also produced two more studies (Afolabi et al., 2009; Asekomeh, Ebong and Onwucheka, 2010) from two of the retained articles (Oku et al., 2014; Maduka and Tobin-West, 2015) respectively. Hence, a total of 102 relevant articles were retained for further screening.

After duplicates were excluded, 51 articles with relevant titles were retained for abstract screening. The abstract screening led to the exclusion of seven articles leaving 44 relevant articles for full-text screening. Justification for the exclusion of the seven articles (Al-Mahmood, 2017; Ashraf et al., 2017; Ejekam et al., 2014; Maduka and Tobin-West, 2015; Ndembi, 2015;

Olowokere, Fatiregun and Osagbemi, 2009; Olowokere, Fatiregun and Adewole, 2012) are detailed in Appendix 1.

Full text reading of the remaining articles also led to the exclusion of twelve more articles (Adewuya et al., 2010; Aransiola et al., 2014; Asekomeh, Ebong and Onwucheka, 2010; Cornelius et al., 2018; Ebonyi et al., 2015; Ekwunife, Oreh and Ubaka, 2012; Goar et al., 2015; Meloni et al., 2015; Odili, Obieche and Amibor 2016; Torpey et al., 2012; Uzochukwu et al., 2009; Yunusa, Njoku and Obembe, 2014). Reasons for the exclusion of studies at this stage are detailed in Appendix 1. These include: focus on stigma and survival challenges and not on adherence (Aransiola et al., 2014); unclear threshold for adherence (Adewuya et al., 2010; Ekwunife, Oreh and Ubaka, 2012; Odili, Obieche and Amibor 2016; Uzochukwu et al., 2009; Yunusa, Njoku and Obembe, 2014); unavailability of full-text (Asekomeh, Ebong and Onwucheka, 2010; Torpey et al., 2012); discrepancy between the number of recruited participants and the population in results (Goar et al., 2015); focus on loss-to-follow up (Meloni et al., 2015) or focus on ART interruption (Ebonyi et al., 2015) not on ART adherence; and uncertainty about how much of the evidence was contributed by PLHIV (Cornelius et al., 2018). After the full-text reading, 32 articles were retained for review. Twenty-five of the articles were studies carried out with descriptive cross-sectional survey (Afolabi et al., 2013; Akahara et al., 2017; Akinboro et al., 2014; Alakija et al., 2010; Avong et al., 2015; Bello, 2011; Chineke et al., 2015; Ekama et al., 2012; Erah and Arute, 2008; Falang, Akubaka and Jimam, 2012; Iroha et al., 2010; Igwegbe, Ugboaja and Nwajiaku, 2010; Kasumu and Balogun, 2014; Pennap, Abdullahi and Bako, 2013; Oku et al., 2014; Okoronkwo et al., 2013; Oku et al., 2013a; Olisah, Baiyewu and Sheikh, 2010; Olowokere et al., 2008; Omosanya et al., 2013; Suleiman and Momo, 2016; Shittu et al., 2013; Shaahu, Lawoyin and Sangowawa, 2008; Ugwu and Eneh, 2013; Ukwé et al., 2010). The rest were carried out as cohort studies (Adejumo et al., 2015; Charurat et al., 2010; Habib et al., 2008); Qualitative studies (Adu, Morgan and Rutter, 2013; Okoror et al., 2013), and mixed-method studies (Afolabi et al., 2009; Sekoni, Obidike and Balogun, 2012).

There is a need to critically assess the quality of the evidence in each of the retained studies to determine the overall worth of the body of evidence included in this review (Polit and Beck, 2017, p.115). To carry out the critical assessment, Mixed Methods Assessment Tool (MMAT) designed by Pluye et al. (2011) was adopted because it allows the assessment of quantitative, qualitative and mixed method studies in a review.

Critical Assessment of Retained Studies

Critical assessment of the 32 studies revealed that sampling bias and lack of reliability are predominant, while few of the studies had challenges with credibility. In respect of sampling bias, there was insufficient evidence about how many eligible patients were invited to participate in 15 quantitative studies (Akahara et al., 2017; Akinboro et al., 2014; Alakija et al., 2010; Chineke et al., 2015; Habib et al., 2008; Igwegbe, Ugboaja and Nwajiaku, 2010; Okoronkwo et al., 2013; Oku et al., 2013a; Olowokere et al., 2008; Omosanya et al., 2013; Pennap, Abdullahi and Bako, 2013; Ukwé et al., 2010; Shaahu, Lawoyin and Sangowawa, 2008; Shittu et al., 2013). Although the number of participants who consented to these studies were reported, without knowing how many other patients were eligible for the study, one cannot ascertain whether the study samples were representative samples. Similar sampling bias was evident in the qualitative aspect of the mixed method study carried out by Afolabi et al. (2009). The author stated that a total of 28 clients were randomly selected from the clinic register and 24 people consented to participate. They further stated that six to eight clients who had not answered the questionnaire (survey phase of the study) were included in each focus group discussion. However, there was no sufficient information about who the qualitative participants were. Similarly, the identity of one of the seven participants in the qualitative phase of the study carried out by Sekoni, Obidike and Balogun (2012) was not reported. As defined by Polit and Beck (2017, p.203) an appropriate sample results from the selection of participants who can best supply information that meets the conceptual requirement of the study. Based on this definition, it is not certain if the sample population for the qualitative phase of the two studies (Afolabi et al., 2009; Sekoni, Obidike and Balogun, 2012) were the appropriate samples.

Furthermore, the authors of ten studies did not provide sufficient evidence to ascertain the validity or reliability of the questionnaires that were used for the data collection in respect of ART adherence or predictors of adherence in the surveys (Afolabi et al., 2009; Akinboro et al., 2014; Alakija et al., 2010; Habib et al., 2008; Olisah, Baiyewu and Sheikh, 2010; Oku et al., 2014; Oku et al., 2013a; Pennap, Abdullahi and Bako, 2013; Shaahu, Lawoyin and Sangowawa, 2008; Shittu et al., 2013). Meanwhile, the credibility of the qualitative phase of the mixed methods study carried out by Sekoni, Obidike and Balogun (2012) was also limited. In this regard, the authors did not report how the qualitative data was analysed (Sekoni, Obidike and Balogun, 2012). The authors only stated that “*information collected was analysed manually*”. The manual analysis is not compatible with the qualitative research tradition such as thematic or content analysis (Polit and Beck, 2017, p.292).

Lastly, dependability is an integral element of the rigour of qualitative studies (Ryan, Coughlan and Cronin, 2007). A way of establishing the dependability of the qualitative study is to provide the readers with evidence of the decisions and choices made in respect of the theoretical and methodological issues throughout the study (Ryan, Coughlan and Cronin, 2007). In this regard, lack of evidence in the study carried out by Sekoni, Obidike and Balogun (2012) about the influence of the authors on the findings and limitations associated with the integration of methods reduced the dependability of the study.

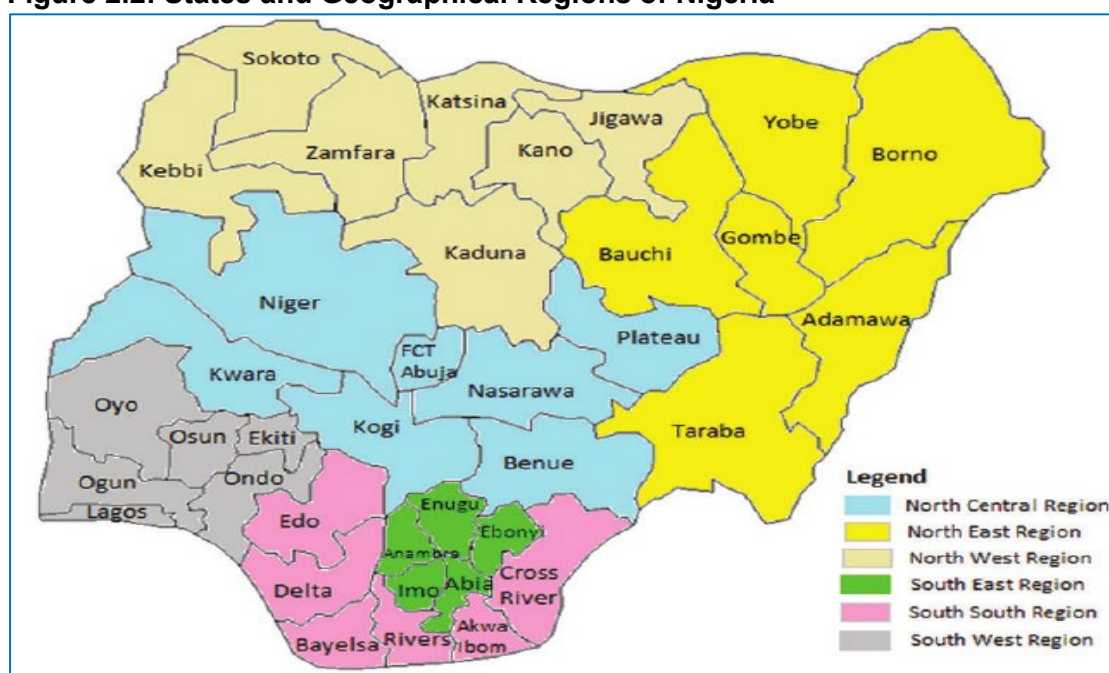
As presented in Table 2.2, the quality scores for the studies were calculated with Likert scores “zero”, “one” and “two” allocated for responses to each of the MMAT questions (see Appendix 7) such as “No”, “Can’t tell” and “Yes” respectively. The maximum achievable quality score by any of the studies is eight. Therefore, a total Likert score of four was assumed to be the medium quality score and any lower score suggests a poor methodological quality. Based on the methodological limitations highlighted above, 16 studies have quality scores of eight (Adejumo et al., 2015; Afolabi et al., 2009; Afolabi et al., 2013; Audu, Morgan and Rutter, 2013; Avong et al., 2015; Bello, 2011; Charurat et al., 2010; Ekama et al., 2012; Erah and Arute, 2008; Falang, Akubaka and Jimam, 2012; Iroha et al., 2010; Kasumu and Balogun, 2014; Okoror et al., 2013; Suleiman and Momo, 2016; Ugwu and Eneh, 2013). Nine studies also have quality scores of seven (Akahara et al., 2017; Igwegbe, Ugboaja and Nwajiaku, 2010; Okoronkwo et al., 2013; Oku et al., 2014; Olisah, Baiyewu and Sheikh, 2010; Olowokere et al., 2008; Omosanya et al., 2013; Sekoni, Obidike and Balogun, 2012; Ukwe et al., 2010). While the remaining eight studies have total quality scores of six (Habib et al., 2008; Oku et al., 2013a; Alakija et al., 2010; Akinboro et al., 2014; Chineke et al., 2015; Shittu et al., 2013; Pennap, Abdullahi and Bako, 2013; Shaahu, Lawoyin and Sangowawa, 2008). Since the quality scores of the reviewed studies were all above the medium benchmark, it can be argued that the overall methodological quality of the review is high. Findings from this review should therefore be interpreted with regards to the highlighted methodological limitations and the quality scores of the studies contributing to the findings. The data collected from the retained studies after the critical assessment are as presented in Table 2.2.

Overview of Reviewed Studies

Numerous studies have been carried out to assess adherence of PLHIV to ART and the factors predicting adherence from different settings across all age groups in Nigeria. The minimum threshold of adherence in the studies in this review that reported ART adherence rates was 95%. The 32 studies in the review were carried out in five out of the six geopolitical regions in the country (Figure 2.2). These include: South-South (Erah and Arute, 2008; Oku et al., 2014; Oku et al., 2013a; Suleiman and Momo, 2016; Ugwu and Eneh, 2013); South-

East (Akahara et al., 2017; Chineke et al., 2015; Igwegbe, Ugboaja and Nwajiaku, 2010; Okoronkwo et al., 2013; Ukwé et al., 2010); South West (Adejumo et al., 2015; Afolabi et al., 2009; Afolabi et al., 2013; Akinboro et al., 2014; Ekama et al., 2012; Iroha et al., 2010; Kasumu and Balogun, 2014; Okoror et al., 2013; Olowokere et al., 2008; Omosanya et al., 2013; Sekoni, Balogun and Obidike, 2012); North-Central (Alakija et al., 2010; Audu, Morgan and Rutter, 2013; Avong et al., 2015; Bello, 2011; Falang, Ubaka and Jimam, 2012; Pennap, Abdullah and Bako, 2013; Shaahu, Lawoyin and Sangowawa, 2008; Shittu, 2011); and North-West (Habib et al., 2008; Olisah, Baiyewu and Sheikh, 2010). One of the studies that was not carried out in a single region (Charurat et al., 2010) was carried out in five teaching hospitals across the five regions. The only region without any study representation in this review is the North-Eastern part of Nigeria, which has been deeply affected by the Boko Haram insurgency which started in 2009. The insurgency could have made the region unsafe for research activities leading to the dearth of evidence in respect of the objectives of this review from the region. In this regard, it can be argued that the studies included in this review represent available evidence from all the viable regions in Nigeria.

Figure 2.2: States and Geographical Regions of Nigeria



Source: Gayawan, Arogunadade and Adebayo (2014)

As presented in table 2.2, a total of 12,713 adult men and women living with HIV participated in 29 of the reviewed studies (Adejumo et al., 2015; Afolabi et al., 2013; Afolabi et al., 2009; Alakija et al., 2010; Akinboro et al., 2014; Audu Morgan and Rutter, 2013; Avong et al., 2015; Bello, 2011; Charurat et al., 2010; Chineke et al., 2015; Ekama et al., 2012; Erah and Arute, 2008; Falang, Akubaka and Jimam, 2012; Habib et al., 2008; Igwegbe, Ugboaja and Nwajiaku,

2010; Kasumu and Balogun, 2014; Okoronkwo et al., 2013; Okoror et al., 2013; Oku et al., 2013a; Oku et al., 2014; Olisah, Baiyewu and Sheikh, 2010; Olowokere et al., 2008; Omosanya et al., 2013; Shittu et al., 2013; Pennap, Abdullahi and Bako, 2013; Sekoni, Obidike and Balogun, 2012; Shaahu, Lawoyin and Sangowawa, 2008; Suleiman and Momo, 2016; Ukwe et al., 2010). In addition, 635 children living with HIV also participated in three of the reviewed studies (Akahara et al., 2017; Iroha et al., 2010; Ugwu and Eneh, 2013), while 538 pregnant women living with HIV also participated in two studies (Ekama et al., 2011; Igwegbe, Ugboaja and Nwajiaku, 2010). Hence, the state of knowledge contributed by the reviewed studies cuts across all age groups of patients including pregnant mothers in Nigeria.

Table 2.2: Reported ART Adherence Rates in Nigerian Studies

Author	Population Size and Gender	Measure of Adherence (%)	Rate of Adherence (%)	Rate of non-Adherence (%)	Adherence Measure	Quality Score
Falang, Akubaka and Jimam, 2012	461 (men and women)	≥95	87.9	12.1	Self-report	8
Shittu et al., 2013	170 (men and women)	≥95	81.2	18.8	Self-report	6
Olowokere et al., 2008	318 (men and women)	≥95	62.9	37.1	Self-report	7
Alakija et al., 2010	253 (men and women)	≥95	70.8	29.2	Self-report	6
Avong et al., 2015	502 (men and women)	≥95	97.3	2.7	Self-report	8
Pennap, Abdullahi and Bako, 2013	250 (men and women)	≥95	62.8	37.2	Self-report	6
Bello, 2011	213 (men and women)	≥95	73.3	26.7	Self-report/Pill count	8
Shaahu, Lawoyin and Sangowawa, 2008	428 (men and women)	100	62.6	38.4	Self-report	6
Olisah, Baiyewu and Sheik, 2010	310 (men and women) Patients with Depressive Disorder (D)- (n=44). Patients without Depressive Disorder (ND)- (n=266).	100	With Depressive Disorder- 36.4%. Without Depressive Disorder- 78.9%	With Depressive Disorder- 63.6%. Without Depressive Disorder- 21.1%	Self-report	7

Author	Population Size and Gender	Measure of Adherence (%)	Rate of Adherence (%)	Rate of non-Adherence (%)	Adherence Measure	Quality Score
Habib et al., 2008	Fasting patients (FP-142); Non-Fasting patients (NFP-101 [16 Muslims; 85 Christians)	100	Since Commencement of ART: FP-80.3%; NFP-88.1%. During the Month of Ramadan: FP--95.8%; NFP-Patients-98%	Not reported	Self-Report	6
Ekama et al., 2012	170 (pregnant women)	≥95	80.6	19.4	Self-report	8
Sekoni, Obidike and Balogun, 2012	197 (men and women) participated in Survey. Seven additional patients participated in Focused Group Sessions	≥95	89.4	10.6	Self-report	7
Omosanya et al., 2013	100 (men and women)	≥95	88	12	Self-report	7
Kasumu and Balogun, 2014	361 (men and women)	≥95	78.4	21.6	Self-report	8
Akinboro et al., 2014	270 (men and women)	≥95	62.6	37.4	Pill count	6
Iroha et al., 2010	212 Children	100	86	14	Self-report	8
Afolabi et al., 2013	379 (men and women)	≥95	95.5	4.5	Self-report/Pill count	8

Author	Population Size and Gender	Measure of Adherence (%)	Rate of Adherence (%)	Rate of non-Adherence (%)	Adherence Measure	Quality Score
Okoronkwo et al., 2013	221 (men and women)	≥95	14.9	85.1	Self-report/Pill count	7
Ukwe et al., 2010	310 (men and women)	≥95	70.2	29.8	Self-report	7
**Adejumo et al., 2015	453 (men and women)	100	90.3% in the preceding week. 86.8% in the preceding month.	7.9% in preceding week. 11.5% in preceding month.	Self-report	8
Chineke et al., 2015	400 (men and women)	≥95	96.2	3.8	Self-report	6
Igwegbe, Ugboaja and Nwajiaku, 2010	368 (men and women)	≥95	79.3	21.7	Self-report	7
Akahara et al., 2017	210 (infected children)	≥95	91	9	Self-report	7
Erah and Arute, 2008	102 (men and women)	≥95	58.1	41.9	Self-report/Pill count	8
Okoror et al., 2013	35 (men and women)	N/A	N/A	N/A	N/A	8
Audu, Morgan and Rutter, 2013	In-depth interview with 135 HIV patients; with observation of additional 10 patients during clinical consultation.	N/A	N/A	N/A	N/A	8
Oku et al., 2013a	411 (men and women)	≥95	59.9	40.1	Self-report	6
Suleiman and Momo, 2016	601 (men and women)	≥95	73.4	26.6	Self-report	8

Author	Population Size and Gender	Measure of Adherence (%)	Rate of Adherence (%)	Rate of non-Adherence (%)	Adherence Measure	Quality Score
Ugwu and Eneh, 2013	213 (Children [5month-17 years] and their caregivers)	≥95	76.1	23.9	Self-report	8
*Charurat et al., 2010	4529 (men and women)	≥95	25.8	74.2	Pharmacy refill	8
Oku et al., 2014	393 (men and women)	≥95	50.4	49.6	Self-report	7
Afolabi et al., 2009	120 (men and women)	≥95	44	56	Self-report/Pill count	8

N: B: * Out of 5760 patients, the reported adherence was among 4529 who returned for follow-up. **Seven and Eight participants did not report adherence in the study period respectively. **N/A** refers to “Not Applicable”.

2.3.1 Level of Adherence to ART in Nigeria

As presented in table 2.2 evidence from the reviewed studies shows that adherence rates ranged between 14.9% and 97.3% across all age groups including pregnant women, children and adolescents. Poor adherence to the HIV treatment could also be as high as 85.1% and as low as 2.7%. It is worthy of note that report of ART adherence above 77%, which is the average adherence rate in sub-Saharan Africa region (Mills et al., 2006a) were based on self-report (Adejumo et al., 2015; Akahara et al., 2017; Avong et al., 2015; Chineke et al., 2015; Ekama et al., 2012; Falang, Akubaka and Jimam, 2012; Habib et al., 2008; Igwegbe, Ugboaja and Nwajiaku, 2010; Iroha et al., 2010; Kasumu and Balogun, 2014; Olisah, Baiyewu and Sheikh, 2010; Omosanya et al., 2013; Sekoni, Obidike and Balogun, 2012; Shittu et al., 2013). However, the 95.5% adherence reported by Afolabi et al. (2013) presents an exception to this observation as it was measured with the combination of self-report and pill count.

Meanwhile, other studies that combined self-report with pill count also reported adherence levels below the sub-Saharan African average: 14.9% (Okoronkwo et al., 2013); 58.1% (Erah and Arute, 2008); 73.3% (Bello, 2011); and 44% (Afolabi et al., 2009). Interestingly, a study that utilized only pill count for ART adherence assessment reported 62.6% adherence (Akinboro et al., 2014) and another study which assessed adherence with pharmacy refill reported 25.8% adherence (Charurat et al., 2010). These rates are lower than the values reported from most studies that employed self-reported adherence in Nigeria. Considering the unreliability of self-report and the limitations of other objective adherence assessment methods, there is high likelihood that ART adherence from studies and across Nigeria may be poorer than is reported. Even if high non-adherence is not reported in all studies, it is important to consider that PLHIV who disrupt treatment for even short periods face the possibility of increasing viral load over time as well as increasing the risk of drug resistance (Genberg et al., 2014). Therefore, the PLHIV in Nigeria who do not achieve optimum adherence still need support to improve adherence to their medications to prevent new infections and death.

2.3.2 Predictors of Antiretroviral Therapy Adherence in Nigeria

To develop appropriate support to maintain adherence to treatment among PLHIV, there is need for insight into the factors influencing adherence or non-adherence to ART (Langebeek et al., 2014a). Evidence from systematic reviews has shown that predictors of ART adherence can be categorized into many ways such as patient-related factors, medication-related factors, interpersonal relationship factors, clinical setting and health system factors (Mills et al., 2006b; Mbuagbaw et al., 2012). Factors associated with adherence that are elicited from the reviewed

studies from Nigeria are therefore categorised under the same categories as presented in table 2.3.

Table 2.3: Predictors of Antiretroviral Therapy Adherence in Nigeria

Authors	Patient-Related Factors	Medication - Related Factors	Interpersonal Relationship Factors		Clinical Setting and Health System Factors
			Health Provider-Related	Community Factors	
Falang, Akubaka and Jimam, 2012	F; T; BS; D; PV; R; H; CS; S; A; NAT	SE	C	Not reported	Not reported
Shittu et al., 2013	F; T; BS; DC; FH	SE; PB	Not reported	SD	SO
Olowokere et al., 2008	F; FH;	N/A	Not reported	SD	Not reported
Alakija et al., 2010	U; PV; DC; A; G	N/A	Not reported	Not reported	Not reported
Avong et al., 2015	F; T; BS; PV; FH; PM; SG	Not reported	Not reported	L; FS;	SO
Pennap, Abdullahi and Bako, 2013	F; T; DC; PV; O; E; CS	SE	Not reported	Not reported	Not reported
Bello, 2011	F; T; E; HM; BS	SE; PB	Not reported	SD	Not reported
Shaahu, Lawoyi-n and Sangowawa, 2008	LD; CS; PV	Not reported	NJH	Not reported	SO
Olisah, Baiyewu and Sheik, 2010	F; D; LD	Not reported	Not reported	Not reported	SO
Ekama et al., 2012	F; BS; R; NR; PM; EM; D; K;	Not reported	Not reported	SD; TS	Not reported
Sekoni, Obidike and Balogun, 2012	LD; T; FH	SE	Not reported	SD	Not reported
Omosanya et al., 2013	Not reported	Not reported	Not reported	SD	Not reported
Kasumu and Balogun, 2014	T; A	Not reported	Not reported	Not reported	LW
Akinboro et al., 2014	Not reported	Not reported	Not reported	DS	Not reported
Iroha et al., 2010	LD; CSA; G; CS	Not reported	Not reported	Not reported	Not reported
Afolabi et al., 2013	Not reported	Not reported	Not reported	FS	Not reported
Afolabi et al., 2009	PV; E; HMI	CD	NJH	FS	AC
Okoronkwo et al., 2013	F; BS; A; LD; E; U	SE	C	SD	LW
Ukwe et al., 2010	RA	Not reported	Not reported	Not reported	Not reported
Chineke et al., 2015	PM	Not reported	Not reported	Not reported	SO

Authors	Patient-Related Factors	Medication - Related Factors	Interpersonal Relationship Factors		Clinical Setting and Health System Factors
			Health Provider-Related	Community Factors	
Igwegbe, Ugboaja and Nwajiaku, 2010	F; A; PP; E; O; LD; FH; DC	SE	Not reported	DS	Not reported
Akahara et al., 2017	F; H; T; FH; PV; PM	SE	C	SD; FS; SG	Not reported
Erah and Arute, 2008	E; PV; O	SE	LCT	FS	Not reported
Okoror et al., 2013	PM	Not reported	Not reported	Not reported	Not reported
Audu, Morgan and Rutter, 2013	PM	Not reported	NJH	SD	Not reported
Oku et al., 2013a	F; BS; D; T; R; PV; DC; FH; HM	INT; SE; PB	NJH	SD	LW
Suleiman and Momo, 2016	F; BS; FH	SE	Not reported	Not reported	Not reported
Ugwu and Eneh, 2013	F; T; BS; R; FH; E; PV; RA; A; PC; M	PB; SE	C	FS	SO
Charurat et al., 2010	A; E; U;	Not reported	Not reported	DS	Not reported
Oku et al., 2014	FS; BS; R; T; D; PV; HMI; FH; HM	NR	Not reported	Not reported	Not reported

Notations: **AC**-Adherence Counselling at the Clinic; **A**-Age; **BS**-Busy Schedule; **C**-Poor Communication/Unclear Dosage Instruction; **CSA**-Child Sleeping During Drug Administration; **CD**-Characteristic of Drug; **CS**-Missing/Keeping Clinic Session; **D**-Depression; **DC**-Distance to the Clinic; **DS**-Disclosure of Status; **E**-Educational attainment; **EM**-External Motivation; **FH**-Feeling Healthy; **FS**-Family Support; **G**-Gender; **F**-Forgetfulness; **H**-Hospitalisation/Illness; **INT**-Inconvenient Timing of Drug; **HM**-Herbal Medicine; **HMI**-High Monthly Income; **K**-Knowledge of HIV/ART; **L**-Loss of Drugs; **LCT**-Lack of Confidentiality; **LD**-Length of Diagnoses/Drug-Taking Fatigue; **LW**-Long Waiting at the Clinic; **M**-Marital Status; **NAT**-Non-Taking of Alcohol; **NJH**-Non-Judgmental Health Workers; **NR**-Nutritional Requirement; **O**-Occupation; **PB**-Pill Burden; **PC**-Comorbidity; **PM**-Personal Motivation; **PP**-Pregnancy Parity; **PV**-Poverty; **R**-Religious Activity; **RA**-Reminder Aid; **T**-Travelled; **TS**-Treatment Supporter; **SE**-Side Effects of Drug; **SG**-Support Group; **SD**-Stigma and Discrimination; **SO**-Stock Out of ARV; **U**-Unemployment/Employment.

Patient-Related Factors: Predictors found under this category include: gender; age; depression; level of education; employment status; marital status; patients' health beliefs, forgetfulness; travelling without drugs; busy daily tasks; motivation for adherence and self-efficacy. These are the factors that were reported by more than one study.

Gender: Evidence from a survey in Nigeria among adults has shown that male PLHIV were more likely to adhere to their HIV medications than the female PLHIV (Alakija et al., 2010). Another survey among 212 children in Nigeria has also shown that male children were more likely to adhere to ART than female children (Iroha et al., 2010). Although evidence from these two studies may not be sufficient for generalization for the whole of Nigerian population, evidence from other settings in other countries has revealed similar patterns (Beer and Skarbinsky, 2014; de Fatima et al., 2013; O'Neil et al., 2012; Ortego et al., 2012; Puskas et

al., 2011; Tapp et al., 2011). Some socio-cultural factors may contribute to the polarised adherence rate between the genders which mostly favours the male gender. For instance, the Nigerian society is male dominated and disclosure of HIV status especially to an HIV-negative husband may come with dire consequences for the women (Alakija et al., 2010). Moreover, women in Africa usually play many roles in caring for the family and such responsibilities may leave them with little or no time to care for themselves or remember to take their medications (Oku et al., 2013b). Even though ART adherence for children is managed by their adult caregivers, likelihood of higher adherence rates among male children could be a reflection of the more socio-cultural value placed on the male child compared to female child in most settings in Nigeria (Iroha et al., 2010).

Age: Some studies in Nigeria have reported that older age of adult PLHIV and children living with HIV predict optimum ART adherence (Alakija et al., 2010; Charurat et al., 2010; Falang, Akubaka, and Jimam, 2012; Igwegbe, Ugboaja and Nwajiaku, 2010; Kasumu and Balogun, 2014; Okoronkwo et al., 2013; Ugwu and Eneh, 2013). This pattern is consistent with adherence behaviour in other contexts. For instance, in a meta-analysis by Ghidhei et al. (2013) older adults over the age of 50 were found to be more adherent to ART than the younger adults. This is consistent with the findings by Nachega et al. (2009) from a cohort study involving 7,622 adults and 154 adolescents living with PLHIV in South Africa. In the study, adolescents in South Africa tend to be less adherent than adults. It has however been pointed out that the age impact on ART adherence may be due to the possibility of higher familiarity of the older PLHIV with usage of correct medications or increasing awareness of the necessity of optimal ART adherence among the older patients (Falang, Akubaka and Jimam, 2012; Kasumu and Balogun, 2014).

Depression: Surveys from Nigeria have reported that depression or depressive symptoms predict non-adherence to ART (Falang, Akubaka and Jimam, 2012; Oku et al., 2014; Oku et al., 2013a; Olisah, Baiyewu and Sheik, 2010). Consistent with the findings from these studies in Nigeria, evidence from a systematic review and meta-analysis of studies from high-, middle- and low-income countries has established that the likelihood of achieving optimum ART adherence among PLHIV with depressive symptoms is 42% lower than among those without such symptoms (Uthman et al., 2014).

Level of Education and Employment Status: Patients' level of education and employment status have been found to influence ART adherence differently in Nigeria. Evidence from some surveys has shown that employment and better source of income were associated with good adherence (Afolabi et al., 2009; Alakija et al., 2010; Charurat et al., 2010; Erah and Arute, 2008; Pennap, Abdullahi and Bako, 2013). This finding was associated with the possibility that

the employed patients have a source of income to transport themselves to the clinic most of the time (Falang, Akubaka and Jimam, 2012). However, the findings from the survey by Okoronkwo et al. (2013) suggests that the association between employment and ART adherence may not be consistent with every population in Nigeria. This study reported that employed patients tend to miss their drugs more than the unemployed and artisans by citing forgetfulness, busy schedule, and stigma as reasons for non-adherence.

In respect of the influence of educational status of PLHIV with ART adherence, evidence has shown that higher literacy level of PLHIV is associated with higher ART adherence when compared to the adherence found among those who are not educated (Afolabi et al., 2009; Bello, 2011; Erah and Arute, 2008; Pennap, Abdullahi and Bako, 2013). This association was also found in the study by Igwegbe, Ugboaja and Nwajiaku (2010) which reported that all the female HIV students in their study were adherent, while the women who were artisans and full housewives were non-adherent to their therapy. Igwegbe, Ugboaja and Nwajiaku (2010) also reported that apart from the low educational level of the women, low level of education of their husbands were associated with increased likelihood of the women to non-adherence. This report underscores the importance of the role of the husbands and family in supporting the women living with HIV to adhere to their treatment. Overall these findings suggest that poor educational level of PLHIV may affect their communication with health workers and decrease their retention of information provided by the health workers, thereby inhibiting the patients' implementation of the clinicians' recommendations. It is therefore, not surprising that in a survey by Okoronkwo et al. (2013) patients with no formal education were reported to be more likely to attribute their non-adherence to ART to poor communication.

Marital Status: The survey by Pennap, Abdullahi and Bako (2013) demonstrated that being married is associated with significantly higher ART adherence than being single, widowed or divorced. The survey by Ekama et al. (2012) among pregnant women also showed that having treatment partners which in most cases are the husbands whom the women could disclose their HIV status to was associated with higher level of ART adherence. On the other hand, marital problems have been associated with non-adherence among some PLHIV in another study by Falang, Akubaka and Jimam (2012). This contrasting evidence emphasise the importance of family members on the patients towards ART adherence.

Patients' Health Beliefs: Evidence from a qualitative study by Audu, Morgan and Rutter (2014) has shown that some patients believe in the effectiveness of ART because they described it as "life drugs". This belief could determine whether the patient will adhere to the treatment or not as has been reported in a meta-analysis by Mills et al. (2006b) that doubts about the efficacy of ART by PLHIV is associated with poor adherence. However, lack of faith

in the effectiveness of ART contribute to poor adherence. In this regard, surveys in Nigeria have reported the use of herbal-medicine by PLHIV due to their growing lack of faith in the curative capacity of ART and beliefs in the claims of instant cure for HIV by traditional medicine practitioners and prayer houses or spiritual healing. The studies show that concurrent use of herbal-medicine and spiritual healing with ART or their use as absolute replacement for ART predicts non-adherence to ART (Bello, 2011; Oku et al., 2013a; Oku et al., 2014; Ugwu and Eneh, 2013).

Poor health beliefs associated with patients' poor understanding of HIV and its treatment has also been reported to predict non-adherence to ART in Nigeria (Akahara et al., 2017; Ekama et al., 2012; Ugwu and Eneh, 2013). For instance, Ugwu and Eneh (2013) reported that some patients fail to adhere to ART because they share their ARVs with their child.

Meanwhile, some studies have also shown that religious beliefs of PLHIV influence their thinking in relation to the disease and adherence to its treatment. For instance, Audu, Morgan and Rutter (2013) reported that some PLHIV believe God has the power to cure HIV and viewed it as "God's will" and as a "punishment from God". Some of the PLHIV in the qualitative study also believed that their HIV diagnosis brought them closer to God and to cope with their status. These views are common among PLHIV in Nigeria as it has also been reported in a survey that some PLHIV believe that HIV/AIDS is a punishment for previous immoral behaviour and that PLHIV have no hope of a better future (Olowokere, Fatiregun and Adewole, 2012). These views have the possibility of inhibiting PLHIV from implementing ART adherence recommendations from their health workers as they believe that their religious belief could heal them rather than the ART. For instance, in a survey among 1,177 PLHIV initiating ART in Ethiopia, patients' belief in the capacity of holy water to cure HIV was found to increase the risk of ART non-adherence among some patients (Tymejczyk et al., 2015).

Religious constraints or activities such as fasting or attending church programmes have also been found to predict poor ART adherence in Nigeria (Falang, Akubaka and Jimam, 2012; Oku et al., 2014; Oku et al., 2013a). Charurat et al. (2010) also found from a cohort study that patients with Quranic education were at an increased risk of being non-adherent to ART. These findings highlight the value placed on religious beliefs in Nigeria where such views among Christians and Muslims play important roles in determining health behaviours (Olowokere et al., 2008).

However, religious beliefs do not always predict a negative impact on patients' ART taking behaviours. For instance, Kremer, Ironson and Porr (2009) reported in a qualitative study carried out in USA that patients who believed that spiritual belief is helpful in coping with HIV

treatment side effects were more likely to adhere optimally. Lyimo et al. (2014) also reported in a survey involving 158 PLHIV in Tanzania that religious coping could serve as a buffering resource in the experience of HIV related stigma which may predict better ART adherence. Similarly, Vyas et al. (2014) found in a longitudinal study among 350 PLHIV that patients who reported that their religion was a positive influence during their recovery period showed greater adherence. Conversely, patients who adopt passive deferral by believing that God/higher power is in control of their disease and how it progresses or that he will not turn his back on them as forms of religious coping are more likely to report suboptimal adherence (Kremer, Ironson and Porr, 2009; Finocchiaro-Kessler et al., 2011; Vyas et al., 2014). Based on these evidence, the potential impact of religious beliefs on health outcomes depends on the interpretation of the individuals on whether they view God as a source of inspiration and strength to do what needs to be done or as a reason to abdicate full responsibility for their illness to God (Finocchiaro-Kessler et al., 2011). It is therefore not surprising that evidence from a cohort study carried out by Habib et al. (2008) in Nigeria shows increased rate of optimum adherence during the fasting month for the Muslim cohort.

Motivation: Evidence from some studies in Nigeria has revealed that certain patients' perceptions motivate them to take the drugs or not. For instance, self-discouragement has been reported as a barrier to ART adherence in a study in Nigeria (Chineke et al., 2015). In this regard, improvement in health condition is commonly reported as a key motivator for PLHIV to adhere to their drugs, while lack of improvement in health since the commencement of the treatment discouraged the patients from taking the treatment, because they felt the drug was not helpful (Akahara et al., 2017; Avong et al., 2015; Igwegbe, Ugboaja and Nwajiaku, 2010; Okoror et al., 2013; Oku et al., 2013a; Oku et al., 2014; Suleiman and Momo, 2016; Ugwu and Eneh, 2013). However, influence of the perceived improvement in health on the medication taking behaviour of the patients could vary. For instance, it has been reported that improvement in health enhanced the motivation of some PLHIV because they felt that ART provided them with the opportunity to regain their health and improve their physical appearance, to enable them to engage in their daily activities (Okoror et al., 2013). Conversely, it has also been reported that improvement in health could lead to the patients being unable to continue taking the drug (Akahara et al., 2017; Igwegbe, Ugboaja and Nwajiaku, 2010; Olowokere et al., 2008; Sekoni, Obidike and Balogun, 2012; Shittu et al., 2013). Hence, it cannot be assumed that all PLHIV will be motivated to adhere to their drugs because their health improved.

Furthermore, desire to live is a potential motivation among PLHIV leading to increased adherence to ART because HIV infected individuals want to live longer (Akahara et al., 2017;

Avong et al., 2015). Similarly, pregnant women may also be more motivated to adhere to the HIV treatment compared with other members of the general population because of their concerns for the foetus. As reported by Ekama et al. (2012) the desire to protect the unborn child was the greatest motivation for the pregnant PLHIV to adhere to their drugs. However, evidence from the study by Igwegbe, Ugboaja and Nwajiaku (2010) suggests that the motivation reported by Ekama et al. (2012) may not be consistent in Nigeria as they reported that a significant number of pregnant PLHIV in their study missed their drugs because they felt healthy. Meanwhile, besides the influence of intrinsic motivation, the motivation to adhere to ART among some PLHIV in Nigeria is dependent on external sources which include adherence counselling that they receive from the clinic (Afolabi et al., 2009) or following instruction from the health counsellors (Ekama et al., 2012) or availability of support groups (Akahara et al., 2017; Avong et al., 2015).

Patient Duration on ART: Evidence from some surveys in Nigeria has also shown that the length of time PLHIV have been on ART may predict their adherence to the treatment. The studies showed that PLHIV who have been on ART for long time were more likely not to adhere to the treatment (Igwegbe, Ugboaja and Nwajiaku, 2010; Okoronkwo et al., 2013; Shaahu, Lawoyin and Sangowawa, 2008). This finding contradicts evidence reported in a survey in Zambia that ART adherence was significantly higher for people who had been on treatment longer (Carlucci et al., 2008). However, the association found in the Nigerian studies suggests that the patients' behaviour could be due to dwindling enthusiasm for those who had been on the therapy for longer time compared with those who newly commenced the treatment (Igwegbe, Ugboaja and Nwajiaku, 2010). This is consistent with the finding of Sekoni, Obidike and Balogun (2012) in Nigeria who reported that majority of the non-adherent patients in their study cited being tired of taking the medication as the main reason for skipping their drug. The dwindling enthusiasm may also be associated with the need to cope with daily living with HIV and stressors associated with it such as stigma and adherence to the ART (Kamau et al., 2011).

Self-Efficacy: Self efficacy is described as people's beliefs that determine how well they motivate themselves and persevere in difficult situations when pursuing specific goals that they set for themselves (Bandura, 2012, p.13). It determines whether people will make good use of their capabilities when approaching certain tasks and whether they will be successful or not (Bandura, 2012; Colbert, Sereika and Erlen, 2012). Hence, self-efficacious people have the tendency to be more successful in learning new skills to perform specific tasks or behaviours, because they have the capability to persevere when faced with challenges that may inhibit them from carrying out such tasks (Sweeney and Vanable, 2015). Bandura (2012)

further asserted that people's beliefs in their coping capabilities is central to the self-regulation of their emotional states, which in turn affects the quality of their emotional life and their vulnerability to depression and stress.

In respect of self-efficacy, while some studies from Nigeria have demonstrated that social support from family members and society for PLHIV may predict better adherence levels (Afolabi et al., 2013; Afolabi et al., 2009; Avong et al., 2015; Erah and Arute, 2008), a survey suggests that self-reliance of PLHIV may have similar or greater influence on their medication taking behaviour (Odili, Obieche and Amibor, 2016). For instance, Odili, Obieche and Amibor (2016) demonstrated that among the PLHIV who were adherent to ART, 92.1% were self-reliant compared with 83.7% who relied on family support. However, the adherence threshold in the study was not clear. Hence it could not be determined if the adherent participants are comparable to adherent participants in the other studies. Despite the limitation of the study, similar relationship between self-efficacy and ART adherence has been reported in other settings. For example, evidence from a survey among 354 PLHIV in Kenya has reported significant association between the self-efficacy to cope with daily living and HIV related stressors such as stigma and adherence to ART (Kamau et al., 2011). Interestingly, the adherence threshold in the study was 100%, which is comparable to the findings of some studies in this review.

Other Priorities: Some other patient-related factors that have been commonly reported to inhibit ART adherence in Nigeria include: forgetfulness; travelling without drug; and busy daily schedule (Avong et al., 2015; Bello, 2011; Ekama et al., 2012; Igwegbe, Ugboaja, Nwajiaku, 2010; Olowokere et al., 2008; Pennap, Abdullahi and Bako, 2013; Okoronkwo et al., 2013; Oku et al., 2013a; Sekoni, Obidike and Balogun, 2012; Shittu et al., 2013). Among these barriers, forgetfulness is the most commonly cited (Avong et al., 2015; Bello, 2011; Ekama et al., 2012; Falang, Akubaka and Jimam, 2012; Pennap, Abdullahi and Bako, 2013; Olisah, Baiyewu and Sheikh, 2010; Okoronkwo et al., 2013; Oku et al., 2013a; Oku et al., 2014; Shittu et al., 2013; Suleiman and Momo, 2016; Ugwu and Eneh, 2013). Forgetfulness as the most frequently cited barriers in the Nigerian studies, reflects a pattern that is consistent with the findings of a systematic review and meta-analysis of 125 studies (Shubber et al., 2016). Overall, evidence from the Nigerian studies suggests that the patients may place higher priorities to other aspects of their lives than the HIV treatment leading to non-adherence.

Access to Care: Cost of transportation and distance to medical centre are reported as significant barriers to ART adherence among patients in some studies in Nigeria (Alakija et al., 2010; Pennap, Abdullahi and Bako, 2013). This is consistent with the findings of a systematic review and meta-analysis carried out by Shubber et al. (2016) which shows that

distance to clinic is a common barrier in low and middle-income countries in Africa, South East Asia, and Western Pacific regions. However, Okoye, Diekedie and Afemikhe (2015) have argued that cost of transportation may not necessarily be a barrier to all HIV patients. Based on a study among 540 PLHIV in Nigeria, they found that some of the patients who complained about cost of transportation as barrier to ART adherence actually travelled to ART centres far from their place of residence due to fear of stigmatization. Therefore, distance and cost of transportation to the clinic may become a barrier for such patients and not for others. This argument is consistent with the finding from the study by Alakija et al. (2010) which revealed that cost of transportation correlates with higher adherence.

Medication-Related Factors: In studies from Nigeria, common barriers to ART adherence associated with the medication include drug adverse events, strict nutritional restriction, drug dosing frequency and pill load burden (Afolabi et al., 2009; Akahara et al., 2017; Bello, 2011; Falang, Akubaka and Jimam, 2012; Igwegbe, Ugboaja and Nwajiaku, 2010; Okoronkwo et al., 2013; Oku et al., 2013a; Pennap, Abdullahi and Bako, 2013; Sekoni, Obidike and Balogun, 2012; Suleiman and Momo, 2016). This is consistent with the findings from a systematic review and meta-analysis of 19 studies from countries other than Nigeria (Al-Dakkak et al., 2013). In the review, adherence to ART was significantly lower in patients with non-specific and some specific adverse event than in patients who did not experience adverse events. The specific adverse events identified in the review include: fatigue; confusion; taste disturbances; and nausea. However, evidence of the systematic review and meta-analysis carried out by Shubber et al. (2016) shows that frequency of the reporting of drug toxicity, pill burden, and being sick as barriers to ART adherence have reduced over time. This could be associated with the changes that have been made in respect of ART adherence delivery and therapy formulations over the years (Shubber et al., 2016; WHO, 2016). The simplicity and tolerability associated with such changes could have accounted for the reduction in the frequency of the reporting of the medication-related barriers (Shubber et al., 2016) in the Nigerian studies.

Interpersonal Relationship Factors: This category includes factors specific to health providers and community factors as discussed below:

Health Provider-Related Factors: Trust or satisfactory relationship with healthcare providers has been consistently associated with good ART adherence (Brion, 2014; Corless et al., 2013; Mills et al., 2006b; Wasti et al., 2012). In this review, evidence from Nigerian studies shows that poor communication and stigma from the health workers (Okoronkwo et al., 2013) as well as lack of confidentiality in the clinic (Erah and Arute, 2008) are predictors of ART non-adherence. Conversely, non-judgemental (Shaahu, Lawoyin and Sangowawa, 2008) and positive (Afolabi et al., 2009) attitude of health workers have also been found as predictors of

optimum adherence to ART in Nigeria. HIV stigma and judgemental approach by health workers have been established in a systematic review as aspects of poor patient-provider relationship (Colvin et al., 2014). Such attitude from the health workers induce fear in the patients that the health workers may inadvertently breach their confidentiality by disclosing their status to others (Colvin et al., 2014; Erah and Arute, 2008). Based on this perceived threat, evidence from Nigeria and other settings shows that PLHIV avoid going to nearby treatment centres to avoid fellow community members knowing their status, due to stigma related risk (Colvin et al., 2014; Lyimo et al., 2012; Okoye, Diekedie and Afemikhe, 2015). Therefore, stigmatization or discrimination of PLHIV by some Nigerian health workers can lead to non-adherence or lack of retention in care.

Community Factors: Central factors in this category are the concepts of stigma and disclosure of HIV status as potential predictors of ART adherence (Lyimo et al. 2012). Despite various efforts targeted at changing the public perceptions of HIV, there is little or no change in the perception of Nigerians about the disease (Aransiola et al., 2014), hence stigma or discrimination towards HIV/AIDS has been reported to predict poor ART adherence in many studies (Akahara et al., 2017; Audu, Morgan and Rutter, 2014; Bello, 2011; Omosanya et al., 2013; Sekoni, Obidike and Balogun, 2012; Shittu et al., 2013). Stigma or discrimination in respect of HIV in Nigeria is due to many cultural beliefs and perceptions. Typically, HIV status continues to be attributed to patients' promiscuity and waywardness (Aransiola et al., 2014; Olowokere, Fatiregun and Osagbemi, 2009). Due to this perception, PLHIV have reported being alienated and not being accepted by the society. For instance, PLHIV commonly experience neglect and avoidance from family and community members (Afolabi et al., 2013; Audu, Morgan and Rutter, 2013; Okoror et al., 2013). In some instance, community knowledge of the health status of the PLHIV may result in loss of job for the individual (Aransiola et al., 2014; Audu, Morgan and Rutter, 2013).

There appears to be a significant difference in the pattern in which general society and family and friends react to the health status of the PLHIV in Nigeria. While attitude of the general society and some health workers in Nigeria is negative, the attitudes of family members and close friends of PLHIV usually tend to change from the initial negative reaction towards being positive (Okoror et al., 2013). However, evidence from the qualitative study by Okoror et al. (2013) indicated that beyond family and close friends, some other member of the society (such as business customers) may also change their attitude from negative to positive over time towards the PLHIV. This change in stigma and discriminatory reaction from the family and friend or business associates has been associated with improvement in the health and

physical appearance of the PLHIV due to their initiation of ART (Okoror et al., 2013), because Nigerians tend to assume that someone is healthy based on their physical appearance.

Apart from the enacted stigma and discrimination arising from the society and family members, PLHIV may also self-stigmatize themselves (anticipated stigma) (Okoror et al., 2013; Sekoni, Obidike and Balogun, 2012; Shittu et al., 2013). This anticipated stigma may increase the risk of non-adherence to ART. For instance, PLHIV who self-stigmatize themselves by believing that taking the drug will expose their HIV status (Ekama et al., 2012; Oku et al., 2013a; Sekoni, Obidike and Balogun, 2012), may probably not be adherent to their medication. It was reported in the study by Shittu et al. (2013) that due to self-stigma, some PLHIV in Nigeria feel embarrassed when taking their medical folders to pharmacy for prescription refill. This attitude was reported by the PLHIV even though their folders were not different from the folders used by other patients in the hospital. Due to this fear of anticipated stigma, PLHIV could resort to secrecy, not taking their medication in the presence of people, storing their medication to prevent other household members from easily finding them and taking the medication when others are not around (Kunapareddy et al., 2014). However, evidence from focus group sessions among 23 adolescents in Kenya shows that these actions could also result in missed or delayed doses of ART (Kunapareddy et al., 2014). This is consistent with findings from studies in Nigeria that have reported that some PLHIV tend to discard their drug packaging before leaving the hospital or keeping the drug in unlabelled pillboxes (Audu, Morgan and Rutter, 2013; Sekoni, Obidike and Balogun, 2012), to avoid others knowing their status. Such practice may make it difficult for them to remember what dose or drug to take, thereby limiting their ability to adhere to their drugs (Audu, Morgan and Rutter, 2013). Ironically, some PLHIV in Nigeria have also been reported to stick to their medication because of anticipated stigma to avoid HIV-related complications or sickly appearance that could engender enacted stigma from their friends and families (Okoror et al., 2013).

The fear of stigma therefore, makes it difficult for PLHIV to disclose their status. Even after family, friends and some community members have returned to the PLHIV when their physical appearance has improved, the patients still find it difficult to disclose their status, due to fear of stigma (Okoror et al., 2013). Although disclosure to trusted family members and friends who would not divulge the information is imperative to ensure their support, some PLHIV in Nigeria do not disclose their status to anyone (Charurat et al., 2010; Ekama et al., 2012). Not surprisingly, non-disclosure of HIV status has been reported to predict poor-adherence to ART among PLHIV in Nigeria (Ekama et al., 2012; Olowokere et al., 2008). This could be attributed to the fear that disclosure of HIV status to spouse or partner or family members can either enhance adherence to medication or serve as hindrance (Rachlis, Mills and Cole, 2011; Katz

et al., 2013; Audu, Morgan and Rutter, 2013; Hodgson et al., 2014). The negative outcome of status disclosure to sexual partner or family members can occur if they embrace the community's norm around stigma which may result in discrimination and social isolation of the infected individual (Rachlis, Mills and Cole, 2011).

Despite the widely reported impact of stigma on ART adherence, a mixed method study in Nigeria has found no significant association between stigmatization and ART adherence (Sekoni, Obidike and Balogun, 2012). Sekoni, Obidike and Balogun (2012) reported that 87% of the patients who experienced stigmatization in their study were adherent to ART, while 90.8% of the patients who were not stigmatized were also adherent. A similar pattern has been reported in a mixed method study in Nigeria by Atibioke and Osinowo (2015). The study involved a cross sectional survey and focus group sessions with 548 PLHIV. The authors found that 77.9% of patients who did not feel stigmatized in the study were adherent to ART while 69.9% of the patients who experienced stigmatization were adherent. Although the threshold of adherence in the study by Atibioke and Osinowo (2015) was not reported, this pattern of evidence suggests that PLHIV may still adhere to their treatment regardless of whether they experience stigmatization or not, but this may depend on their ability to cope with the negative emotions arising from stigma and discrimination.

Clinical Setting and Health System Factor: Cost of ART, inadequate numbers of health workers and health facilities resources such as non-availability of ART and laboratory testing facilities have been implicated in Nigerian studies to result in the inability to cope with needs of the PLHIV, long waiting period, repeated visit to the clinic and delay on clinic days (Audu, Morgan and Rutter, 2013; Chineke et al., 2015; Kasumu and Balogun, 2014; Shaahu, Lawoyin and Sangowawa, 2008). These factors hinder adherence to ART among PLHIV in Nigeria in different ways. For instance, cost of ART was cited as a predictor of ART non-adherence in studies carried out in the last decade (Erah and Arute, 2008; Shaahu, Lawoyin and Sangowawa, 2008), but due to widespread provision of free ART to PLHIV, cost of ART was not found to be a barrier to ART adherence in recent studies (Afolabi et al., 2009; Afolabi et al., 2013; Akinboro et al., 2014; Okoronkwo et al., 2013; Oku et al., 2013a; Olowokere et al., 2008).

Furthermore, some surveys in this review have established that long waiting time in the clinic predicts poor adherence to ART in Nigeria (Kasumu and Balogun, 2014; Okoronkwo et al., 2013; Oku et al., 2013a). This could be associated with inadequacy of hospital resources which increases the likelihood of patient's status being revealed due to delay or repeated visit which may also pose the threat of job loss to the PLHIV if they have not disclosed their health status at their workplace (Audu, Morgan and Rutter, 2013). Due to this delay and anticipated

stigma, some PLHIV may avoid visiting the clinic for their ART. For instance, the in-depth interview with 15 PLHIV in Nigeria Aransiola et al. (2014) has shown that PLHIV usually fear that they might meet people that they know at the clinic, which may result in being fired at work or that customers may stop patronizing them. Hence, the PLHIV are always in a hurry to leave the clinic when they come for the drug refill (Aransiola et al., 2014). This has been corroborated by the findings of a cross-sectional survey with 318 PLHIV which showed that some patients feel that they may be seen in the ART clinic and would therefore prefer to avoid visiting the clinic because of the concern that their status may become public knowledge (Olowokere, Fatiregun and Adewole, 2012).

Even though the hospital delay on clinic day may be strictly attributable to hospital system failure such as chaotic patients' registration or non-functional laboratory machine, evidence from a qualitative study has shown that patients were threatened by clinicians with the possibility of denying them necessary care due to the structural challenges of the clinic (Chiegil, Zungu and Jooste, 2014). For instance, the study which involved focus group sessions with 64 PLHIV from the six geopolitical zones of Nigeria, shows that where the CD4 count machine was not functional in a hospital the patients were informed by clinicians that *"without your CD4 count at the next appointment, no drug"* (Chiegil, Zungu and Jooste, 2014). In the same study, poor movement of patients' records between departments (i.e. from doctors to pharmacy) was also found to create delays experienced by the PLHIV. The anxiety and stress experienced due to these types of delays have been reported in one of the studies in this review to result in some patients arriving at the hospital night before clinic day to sleep at the hospital (Audu, Morgan and Rutter, 2013). This experience frustrates patients and may prevent them from attending the clinic for their medication replenishment.

This evidence in this review suggests that the clinical system in Nigeria operates within a culture of higher provider power and authority while the patients are passive. The findings also suggest a widespread system breakdown that fails to address the structural barriers that may be preventing the PLHIV from having access to the drugs and resources that could save their lives. For instance, inadequate resources such as stock out in the hospitals (Chineke et al., 2015; Shaahu, Lawoyin and Sangowawa, 2008) have been reported to lead to rationing of ART by the clinicians for the patients (Audu, Morgan and Rutter, 2013). This means that some patients may not have the drugs for a considerable length of time and they will not be deemed adherent to the ART through no fault of their own. This led to the improvisation by some patients to reduce the dose of ARV to last till the next clinical appointment for them to get more medications (Ugwu and Eneh, 2013). Unfortunately, this method leads to poor adherence to the ART. However, stock out of the ART as a barrier to ART adherence is not unique to the

Nigerian context. For example, the systematic review and meta-analysis carried out by Shubber et al. (2016) revealed that stock out of the ART is common in low and middle-income countries with few instances in the USA.

Lastly, while the delays and inadequate resources at the hospitals could be attributed in some cases to the sheer number of PLHIV present on clinic days which may place too much strain on available resources (Audu, Morgan and Rutter, 2013), these challenges may not also be unconnected with the impact of widespread societal corruption. For instance, about \$4million which was part of the money that Nigeria received from the Global Fund to fight AIDS, tuberculosis and malaria to prevent and treat HIV was reported in a Nigerian Daily Newspaper (Punch) to have been diverted by some Nigerian health officials in 2016 (Akinkuotu, 2016). These types of contextual barriers therefore, directly or indirectly contribute to ART non-adherence in Nigeria.

2.4 Target Factors for Antiretroviral Therapy Adherence Intervention

The numerous factors influencing ART adherence in Nigeria suggest several areas for intervention to improve adherence. However, it is evident from this review of evidence that the drug-taking behaviour of PLHIV in Nigeria is influenced by numerous and some inconsistent factors (i.e patient' health belief, distance to clinic and stigma) and it will be unreasonable to assume that a perfect intervention can be designed to address all the identified barriers to adherence. In this regard, a recent meta-analysis of 207 studies has explored the relative impact of similar factors to the identified factors in Nigeria on ART adherence (Langebeek et al., 2014a). In the analysis, the factor with the strongest association with ART adherence was patient's self-efficacy for adherence with standardized mean difference [SMD] 0.603. Factors with small to medium effect on ART adherence were substance use (SMD=-0.395), concerns about the treatment (SMD=-0.389), trust or satisfaction with the healthcare provider (SMD=0.377), patient's belief about the necessity of treatment (SMD=0.357), depressive symptoms (SMD=-0.305), HIV stigma (SMD=-0.282) and social support (SMD=0.237). Based on these findings, Langebeek et al. (2014a) recommended that interventions should mainly target psychological factors such as patient's self-efficacy and their belief about the necessity or concerns about ART. They based this suggestion on the fact that ART adherence predictors were more strongly associated with patient related beliefs. Implication of this recommendation is that despite the importance of contextual factors and interpersonal factors, the major responsibility for ART adherence depends on the individual patient. This is consistent with the findings from the Nigerian context by Sekoni, Obidike and Balogun (2012) that with adequate self-efficacy, stigma and discrimination may not be strong enough to stop the patient from following their treatment regime.

Consistent with the recommendation from Langebeek et al. (2014a) some experts have recommended that health providers should work with PLHIV to improve their self-efficacy for medication adherence (Nokes et al. 2012; Colbert, Sereika and Erlen, 2012). In respect of the importance of patient's health beliefs, Langebeek et al. (2014a) also suggested the need for health providers to elicit and address patients' health beliefs to improve ART adherence. These recommendations indicate that health providers should be considered as essential mediators to address the core patient-related barriers to ART adherence.

However, stigma plays an important role in ART non-adherence in Nigeria, this should not be overlooked as a primary target to address in any ART adherence intervention. This was emphasised in a survey in USA by Sayles et al. (2009) where they concluded that to identify effective target for ART adherence intervention, there is a need to understand the interrelationship between stigma and other factors such as social support, self-efficacy and patient's health beliefs. In this regard, evidence from some systematic reviews has shown that stigma primarily influence ART adherence by deflating the coping capabilities (self-efficacy) of the PLHIV and undermine their social support (Katz et al., 2013; Sweeney and Vanables, 2015). Therefore, patients will need to be helped to identify how stigma affects them and undermines their social ties to improve ART adherence. This process may be especially important in resource limited countries like Nigeria where the impact of social support network on ART adherence may be more significant because the PLHIV rely heavily on their social support to overcome structural and economic barriers to care (Katz et al., 2013). Hence, the key target for enhancing ART adherence may not be only patient health beliefs and self-efficacy but also requires focus on improving their social support by addressing the impact of enacted and anticipated stigma.

Evidence has shown that positive health provider communication skills may be a key target factor through which patients can be supported to overcome significant impact of stigma on their social support network. This may be especially important in Nigeria where the reactions to HIV status from family and friends or other community members of PLHIV tend to become positive when the physical appearance of the patient improve due to ART initiation. A helpful health provider communication with the HIV patients while supporting them with ART might therefore help them to overcome some enacted and anticipated stigma that may arise from the social construct of HIV status that the society attach to physical appearance. In this regard, evidence from the systematic review and meta-synthesis by Katz et al. (2013) has also shown that compassionate human capital could help to establish a supportive clinical environment for patients and to establish bonds of trust and empower patients to overcome medication-related stigma. Improving the communication and relationship building skills of HIV health

providers to respect and listen to PLHIV have been revealed as strategies that may improve the retention of patients in care (Flickinger et al., 2013). This is consistent with the finding of Corless et al. (2013) from a multi-site survey which showed that the importance of PLHIV regular and positive engagement with healthcare providers in respect of ART adherence cannot be overstated. They emphasized the importance of not just listening to the patients but also making them feel heard to ensure that they are engaged with the healthcare provider on ART adherence (Corless et al., 2013).

These bodies of evidence highlight the importance of considering the communication approach of the health provider when working with HIV patients to improve their self-efficacy, addressing their health beliefs and enhancing their social support in respect of ART and HIV. This is significant in Nigeria, as Langebeek et al. (2014a) had found that trust or satisfaction with health providers was more strongly and positively associated with ART adherence in resource limited countries. Therefore, improvement of the support given to patients during clinical consultation or counselling sessions for ART adherence via communication and enhancement of the self-efficacy of the patients appears to be a reasonable factor to enhance adherence in Nigeria.

2.5 ART Adherence Counselling in Nigeria

Findings from a recent meta-analysis to promote adherence to ART in Africa has shown that compared to standard care, enhanced standard care (standard care with intensified adherence counselling), enhanced standard of care and SMS messages, and treatment supporters were more effective (Mills et al., 2014). The authors based their findings on interventions data obtained from 14 randomised controlled trials involving a total of 7,110 patients. Evidence from this meta-analysis highlights the importance of adherence counselling in Africa, which has been found as a positive predictor of ART adherence in Nigeria. While the standard care in the ART clinic includes provision of treatment, counselling and psychosocial support for HIV patients (Aransiola et al., 2014), it is through the ART adherence counselling that clinicians will inform patients about the treatment options, psychosocial and social support available to them (FMOH, 2016, p. 91). This is also implied in the definition in the Nigerian guideline for HIV Counselling and Testing (FMOH, 2011, p.19) which described adherence counselling as a process that involves engagement and participation of the patient in the plan of care and provision of opportunity for discussion about the various factors in the patient's life that may influence the ability to adhere to treatment. However, evidence of actual practice suggests that certain significant challenges persist with the adherence counselling or consultation techniques used in Nigeria for ART adherence.

Some studies have shown that adherence counselling is offered regularly to patients before and after ART initiation in Nigeria (Afolabi et al., 2013; Alakija et al., 2010; Akinboro et al., 2014; Avong et al., 2015; Charurat et al., 2010; Ekama et al., 2012; Igwebe, Ugboaja and Nwajiaku, 2010; Kasumu and Balogun, 2014; Omosanya et al., 2013; Ugwu and Eneh, 2013). However, while high ART adherence rates were attributed to regular and comprehensive ART adherence counselling in some studies (Afolabi et al., 2013; Avong et al., 2015; Kasumu and Balogun, 2014), there has been suggestions on the need to improve the adherence counselling technique in Nigeria in some other studies (Ekama et al., 2012; Igwebe, Ugboaja and Nwajiaku, 2010; Okoronkwo et al., 2013). For instance, Okoronkwo et al. (2013) suggested the need for health workers to spend more time with patients during adherence counselling to ensure adequate patient-provider communication and assessment of understanding at every visit. Igwebe, Ugboaja and Nwajiaku (2010) also pointed out that poor adherence counselling quality could be associated with the non-adherence to ART observed in their study, because all the non-adherent pregnant women in their study were enrolled in PMTCT program where they had access to pre-ART initiation adherence counselling.

Although the adherence counselling definition by the FMOH suggests that HIV treatment plan should be approached through a shared decision-making approach between the counsellor and the patient, available evidence about practice in Nigeria suggests otherwise. For instance, the study by Kasumu and Balogun (2014) showed that some patients have complained that they were feeling forced to take the drug. The fact that busy schedule was commonly attributed to non-adherence to ART in Nigeria suggests that patients have difficulty fitting in medication-taking with their daily activities (Okoronkwo et al., 2013; Oku et al., 2013a; Oku et al., 2014). This also shows that clinicians might have failed to assist the patient to tailor their treatment plan with their lifestyle. This evidence suggests that such patients might not have been properly involved in the decision-making about their treatment during consultation/counselling sessions. However, shared-decision making is increasingly considered as an essential element in any effective approach to promote adherence (Clyne, Granby and Picton, 2007; Cribb, 2011; European Patient's Forum, 2015; Snowden and Marland, 2012).

It is however, worthy of note that evidence about the counselling or consultation approach adopted by the health practitioners for ART adherence in Nigeria till this point has been based only on inferences drawn from feedbacks from patients or recommendations from research authors and not the report of actual practice of the clinicians. In view of the need to understand the actual practice adopted by clinicians, description by Maduka and Tobin-West (2013) in a randomised controlled trial shows that standard counselling approach in Nigeria might be mostly based on health education and advice. According to the authors, the standard of care

for patients on ART in a tertiary hospital in Nigeria involves group health education and information on the importance of adherence delivered by counsellors before the commencement of every clinic day. This has been corroborated by Avong et al. (2015) who reported that HIV patients first attend a mandatory one-hour health talk on every clinic day, where the health workers give health tips and encourage PLHIV to be adherent to their medications. Meanwhile, Maduka and Tobin-West (2013) further reported that the standard care for PLHIV includes occasional admonitions by the doctors (during clinic consultation) to the patients to take their medications as prescribed. Unfortunately, this evidence is based on the observations of the authors and not from the patients and clinicians, which may not be a reliable or credible representation of events in the clinic. Despite the lack of reliable and sufficient knowledge about the actual practice of the health practitioners during ART consultation or counselling session, the sequence of practice reported by the authors occur even though evidence from an overview of systematic reviews has shown that interventions solely based on information or education strategies are not effective to improve medication adherence (Ryan et al., 2014).

This review has identified that there is limited evidence on the effectiveness of the current adherence counselling approach for ART in Nigeria. However, it appears to be consistent with a traditional patient-provider relationship, characterized by high provider control and authority (Dewing et al., 2014), rather than conform to a patient-centred approach. In addition, it appears to allow the health providers to judge the patients; an approach which contradicts the normative construct of the “adherence” term. Unfortunately, such judgemental approach has the tendency to elicit resistance to change from the patients (Miller and Rollnick, 2004; Dellasega, Añel-Tiangco and Gabbay, 2011). Hence, PLHIV in Nigeria may benefit from an ART adherence counselling or consultation approach that is not judgemental, based on patient-centred counselling philosophy, facilitates shared decision-making (SDM) and promotes patients’ self-efficacy.

2.6 Chapter Summary

This chapter explored the general burden of HIV/AIDS globally with a focus on Nigeria. The definition of adherence and methods of assessment of adherence were presented. The prevalence of ART adherence in Nigeria was also presented. Within the limit of the available evidence in this review, it is difficult to draw any reliable conclusions about the prevalence of ART adherence in the HIV context in Nigeria largely because of the high variability in how adherence is defined in each of the included studies. However, factors that influence ART adherence or non-adherence in Nigeria were discussed in the chapter, while various barriers were identified. Due to the numerous barriers to ART adherence identified in Nigeria,

predictors of adherence that should be prioritised for intervention were discussed in the light of existing evidence and evidence-based recommendations. Based on the evidence-based recommendations, this chapter ended by evaluating the approach used by clinicians to support HIV patients with ART adherence during clinical consultation or counselling sessions in Nigeria. Within the limit of the available evidence, the chapter found that the current approach to counselling or consultation used by clinicians in Nigeria to support PLHIV to adhere to their treatment appears to be judgemental and paternalistic and needs to be improved to achieve a widespread high level of adherence to ART.

Finally, this chapter provides a background to the research question by demonstrating the importance of understanding how clinicians currently discuss adherence to ART with HIV patients in the Nigerian context plagued with contextual challenges such as stigma, negative religious and traditional beliefs, corruption among the clinical administrators, and clinical system dysfunctionality to mention a few.

CHAPTER THREE: DECISION MAKING APPROACH IN CLINICAL CONSULTATION FOR HIV TREATMENT AND ADHERENCE-LITERATURE REVIEW

3.0 Chapter Overview

This chapter focuses on how to enhance the HIV patient's likelihood to adhere to treatment through evidence-based consultation approaches that promotes patient-centred philosophy. The chapter examines through a comprehensive review of literature how treatment decisions are made in clinical consultation to promote ART adherence for the management of HIV/AIDS and the factors that influence the choice of the decision-making approaches used. Findings from this chapter are intended to inform ways to improve ART adherence consultation in Nigeria in respect of treatment decision-making.

3.1 Introduction to the Chapter

In 2002, the WHO expanded the definition of chronic conditions beyond the traditional non-communicable diseases such as heart disease, diabetes, cancer, asthma, chronic obstructive pulmonary disease (COPD) to include persistent communicable diseases such as HIV/AIDS and tuberculosis (WHO, 2002, p.12). This expanded definition can be attributed to public health successes which now allow patients to live with health conditions previously regarded as terminal illnesses for decades (Bloomfield et al., 2014; Bolduc et al., 2016; WHO, 2002, p.12). For instance, with the advent of antiretroviral therapy (ART) and improved access to care, the average life expectancy of HIV patients who are receiving optimal treatment now approaches that of patients in the general population (Bloomfield et al., 2014; Bolduc et al., 2016). However, only 50% of people living with chronic diseases in developed countries or lesser in developing countries follow medication and dietary regimes and/or make lifestyle changes as recommended (WHO, 2003, p.7). In addition, adherence is usually lower in chronic conditions than in acute conditions (Beena and Jimmy, 2011). As the principal underlying cause of ineffective treatment, non-adherence also worsens the course and outcome of chronic conditions and impairs the quality of life of the patient (Chakrabarti, 2014; WHO, 2003, p.12). Due to non-adherence, healthcare professionals as well as the health care systems worldwide struggle to meet their targets, even after making treatment services accessible for patients (Chakrabarti, 2014; WHO, 2003, p.12).

Moreover, non-adherence to recommended therapy or lifestyle changes is costly not only to the patients but also to the health care system (Chakrabarti, 2014; European Patient's Forum [EPF], 2015, p.3; Zullig, Peterson and Bosworth, 2013). For instance, in the US poor use of prescription medication results in \$213.2 billion of avoidable costs to the healthcare system each year, with \$105.4 billion ascribed to non-adherence to medication and \$20 billion to medication errors (IMS Institute of Healthcare Informatics, 2013). Similarly, in the European

Union (EU) non-adherence is estimated to cost the EU around €1.25bn each year (EPF, 2015, p.3). These figures result in millions of avoidable hospital admissions, outpatient treatments, pharmaceutical prescriptions and emergency room visits for patients, reduced productivity and waste of resources funded by public health system (EPF, 2015, p.3; IMS Institute of Healthcare Informatics, 2013). Therefore, enhancing adherence among patients living with chronic conditions will not only improve the quality of patients' life but also reduce health professionals' frustration and save unnecessary health care cost. The WHO emphasized this by stating that "increasing the effectiveness of adherence interventions may have a far greater impact on health of the population than any improvement in specific medical treatment" (WHO, 2003, p.21).

However, evidence supporting interventions focused towards improving adherence is inconclusive (Cushing and Metcalfe, 2007; Nunes et al., 2009; Ryan et al., 2011; Ryan et al., 2014; Snowden and Marland, 2012). Previous efforts to improve adherence were mostly focused on providing clearer education and instruction about medicines (Clyne, Granby and Picton, 2007). Conversely, it is becoming increasingly recognised that the key to making better use of medicines is by involving patients as partners in decisions about their medications (Clyne, Granby and Picton, 2007; Cribb, 2011). It has been argued that the main limitation of previous adherence interventions is the underlying assumption that the clinician is right (Snowden and Marland, 2012). Hence, the traditional paternalistic model where clinicians "*do things to*" and make decisions for patients is increasingly being questioned and, in its place, shared decision-making (SDM) is more advocated (Da Silva, 2012, p.1; Kaplan and Frosch, 2005).

Shared decision-making describes a process in which clinicians and patients work together to select tests, treatments, management or support packages, based on clinical evidence and the patient's informed preferences (Da Silva, 2012, p.2). It involves the provision of evidence-based information about options, preferred outcomes and uncertainties, with the aim of reaching mutual-agreement on the best course of action to take (Coulter and Collins, 2011, p.2; Da Silva, 2012, p.2). A defining characteristic of SDM is the fostering of a real partnership, where the health professional is the expert in medicine and the patient is the expert about themselves, their circumstances, attitudes to illness and risk, values, preferences and the extent to which treatment options might fit with their lifestyle (Coulter and Collins, 2011, pp.2-3; Da Silva, 2012, p.2; Russell, Abidi and Abidi, 2014). Both parties need to be willing to share certain information in the decision-making process and accept responsibility for the decision made (Barry and Edgman-Levitan, 2012; Da Silva, 2012, p.2). The role of the clinician in SDM is to help patients become well-informed, to help them develop their personal preferences for

available options and to provide professional guidance where appropriate (Elwyn et al., 2014). On the other hand, the role of the patient is to express their preferences and values (Barry and Edgman-Levitan, 2012). Hence, both clinician and patient are armed in SDM with a better understanding of the relevant factors (Barry and Edgman-Levitan, 2012).

The SDM concept rests on the assumption that patients are more likely to be committed to the treatment which follows from a process where they are encouraged to state their preferences and to actively participate in the process of decision-making about chronic illness management (Clyne and Colin-Thome, 2008; Pollock, 2005, pp. 2-3). There is compelling evidence that patients who are active participants in managing their health and health care have better outcomes than patients who are passive recipients of care (Coulter and Collins, 2011). It is therefore, not surprising why SDM is regarded as the pinnacle of patient-centred care (Barry and Edgman-Levitan, 2012). Unfortunately, while SDM is often talked or written about it is less common in day-to-day clinical practice (Coulter and Collins, 2011, p.32; Coulter et al., 2015; Da Silva, 2012, p.34). In this regard, evidence from some studies carried out in Norway, Ireland, Canada, USA and England has shown that SDM is not consistently practised in making treatment decisions for many chronic conditions, even when the health care policy supports SDM (Aasen, Kvangarsnes and Heggen, 2011; Allen, Wainwright and Hutchinson, 2011; Coyne et al., 2014; Fried, Tinetti and Iannone, 2011; Kucukarslan et al., 2012; Mishra et al., 2011; Upton et al., 2011).

Unlike other chronic conditions that usually have many alternative options of treatment, the treatment of HIV/AIDS is only through ART. While SDM is commonly assumed to be necessary when there are more than one reasonable healthcare options, it has been argued that SDM should be applied more broadly even in situations where there is clearly one superior option (Barry and Edgman-Levitan, 2012; Elwyn et al., 2014; Kaplan and Frosch, 2005), such as with HIV/AIDS. Given the extent of uncertainty about the effectiveness of medical care and the presence of side-effects, there is often more than one possible course of action, which includes the option of "*doing nothing*" (Barry and Edgman-Levitan, 2012; Coulter and Collins, 2011, p.13; Kaplan and Frosch, 2005). In view of the limited treatment options for HIV/AIDS, which includes treatment with ART or doing nothing, clinicians may tend to be more paternalistic as it is common with other chronic conditions. Yet, there are also numerous medication varieties that can be combined to formulate an ART regimen (Cruciani and Malena, 2015; WHO, 2016, pp. 97-102). However, little is known about the extent to which decisions are shared between clinicians and patients about the different treatment formulations for HIV/AIDS. Hence, there is need for further evidence to understand how ART decisions are made and what influences the choice of the decision-making approaches.

This chapter focuses on Nigeria as a country with high rate of poor adherence to ART (Afolabi et al., 2009; Erah and Arute, 2008; Okoronkwo et al., 2013; Oku et al., 2013a; Oku et al., 2014). It is also the country with the highest number of AIDS-related mortality globally (UNAIDS, 2017). Findings from a descriptive cross-sectional survey in Nigeria have shown that there is a likelihood that HIV patients may not be involved in making decisions about their treatment (Kasumu and Balogun, 2014). Other surveys from the country have also shown that busy schedule is a common predictor of non-adherence to ART among HIV patients (Okoronkwo et al., 2013; Oku et al., 2013a). This indicates that the patients' might be finding it difficult to fit the medication-taking with their daily activities. Taken together, these reports suggest that such patients might not have been properly involved in decision making about their treatment during the treatment consultation or counselling sessions. Unfortunately, further evidence to verify these practice approaches in Nigeria is currently scarce. However, evidence from other settings may provide valuable information to understand the common practice in ART consultation contexts which may help to inform how to improve practice in Nigeria. Therefore, the purpose of this chapter is to carry out a review of literature to determine how decisions are made about HIV treatment and adherence, and to explore the factors that influence the identified decision-making processes.

3.2 Methods of this Review

A comprehensive review of literature was conducted. The search for relevant literature was undertaken in seven electronic databases from 2002 to 2018. The searched databases include: CINAHL; MEDLINE; Psychology and Behavioural Sciences Collection (PBSC); PsycARTICLE; PsycINFO; PubMed; and Web of Science. The 2002 to 2018 time-period was chosen to ensure that relevant studies were selected starting from a year after the Institute of Medicine recommended shared decision making as one of the 10 strategies to improve the delivery of care in 2001. The following key terms were stringed together to search for the relevant studies in the databases: (HIV or AIDS or HIV/AIDS) AND (treatment or intervention or antiretroviral therapy or care) AND (decision making or decision-making) AND (adherence or compliance or concordance) AND (counsellor or nurse or doctor or pharmacist or health provider or health personnel). The terms *adherence*, *compliance* and *concordance* were used because they are the most commonly used terms to describe patient's medication taking behaviours in literature. However, unlike adherence and compliance that measure patients' medication-taking behaviour, the term concordance is focused on defining the consultation outcome after negotiations between a patient and a healthcare provider and not patients' medication-taking behaviour (Horne et al., 2005, p.12; Kelham and Shaw, 2006). Despite the misapplication of the terms in literature, it is necessary to search the databases with the three terms in order to locate all relevant literature.

Studies published in English language were also preferred for selection due to lack of time for translation of studies published in other languages. Informed by a scope search, Journal of the Association of Nurses in AIDS Care was also manually checked within the same period for relevant articles and two more relevant studies (Fuller et al., 2016; Vervoort et al., 2010) were retrieved. Although the Journal of the International Association of Providers of AIDS Care was also searched within the same time frame, no relevant studies were retrieved. A total of 353 citations were yielded from all sources. After removing irrelevant titles, 23 articles were retained for screening. The study search summary is as presented in table 3.1

Table 3.1: Summary of Study Search for the Review

S/N	Study Sources	Total Hit	Relevant Titles
1	CINAHL	36	3
2	MEDLINE	35	4
3	PsycARTICLE	0	0
4	PBSC	7	0
5	PsycINFO	28	2
6	Web of Science	112	6
7	PubMed	135	6
8	Journal of the International Association of Providers of AIDS Care	N/A	0
9	Journal of the Association of Nurses in AIDS care	N/A	2
	Total	353	23

Twelve articles were further removed because of duplications, leaving 11 articles for abstract screening. After studying the abstracts, three articles were excluded for not focusing on the objectives of the review as highlighted below:

1. Focused on exploring the view of people living with HIV about clinical communication in respect of their self-care and not on treatment decision-making (Laws et al., 2012);
2. Focused on assessing the knowledge, attitudes, and practices of physicians with respect to patient decision aids and not on treatment decision-making (Alden, Friend and Chun, 2013); and
3. Focused on comparing patient and provider perspective of aspects of treatment quality such as effectiveness, quality of life and further treatment options and not on treatment decision-making (Muhlbacher et al., 2013).

After excluding studies that are not relevant to the objectives of this review, the literature search produced six relevant qualitative studies (Fuller et al., 2016; Gourlay et al., 2014; Griffiths et al., 2007; Marelich et al., 2002; Mulder et al., 2016; Vervoort et al., 2010), a quantitative study [a survey] (Clucas et al., 2011) and a mixed method study (Fehr et al., 2005). The eight articles were retained because they investigated strategies used by clinicians

for or that aid treatment decision-making (Clucas et al., 2011; Fehr et al., 2005; Gourlay et al., 2014; Griffiths et al., 2007; Vervoort et al., 2010), clinical communication experiences of patients about treatment decision-making (Mulder et al., 2016), factors that may inhibit or promote patients' engagement in SDM (Fuller et al., 2016) and patients' involvement in treatment decision-making (Marelich et al., 2002). However, there is a need to evaluate the methodological quality of the studies included in a literature review to draw conclusions about the strength of the overall body of evidence included in it (Polit and Beck, 2008, pp.127-130). Hence, before extracting data from the retained studies, the methodological quality assessment of the eight studies was carried out.

Methodological Quality Assessment

Although there are numerous existing frameworks for the critical appraisal of qualitative studies (Ryan, Coughlan and Cronin, 2007; Walsh and Downe, 2006), the Mixed Method Appraisal Tool (MMAT) developed by Pluye et al. (2011) was used for the methodological assessment for the retained studies in this review. The MMAT was adopted because it was designed for use at the appraisal stage of complex literature reviews that include quantitative, qualitative and mixed method studies.

Evaluation of the methodological rigour of qualitative studies requires that the study should be assessed in respect of its credibility, transferability, dependability and confirmability (Bryman, 2016, pp.48-49; Ryan, Coughlan and Cronin, 2007). The retained qualitative studies were therefore assessed on each of these dimensions of methodological rigour. On the other hand, focus on the methodological quality of quantitative studies is mainly on the reliability and validity (Bryman, 2016, p.48). The only quantitative study and the quantitative strand of the only mixed method study in this review were therefore assessed in respect of reliability and validity. In similar manner, the qualitative strand of the only mixed method study was also assessed in respect of credibility, transferability, dependability and confirmability to ascertain the overall quality of the study.

Dependability as a methodological rigour could be achieved when another researcher can clearly replicate the procedure used by a researcher and arrive at similar conclusions (Ryan, Coughlan, and Cronin, 2007). In this regard, dependability was found to be a major weakness to two of the reviewed studies (Marelich et al., 2002; Griffiths et al., 2007). For instance, there was no mention of the setting for data collection by Marelich et al. (2002), while Griffiths et al. (2007) did not also provide any detail about how semi-structured interview was used to collect data for the study. Hence, it may be difficult for other researchers to replicate the procedures used in the studies.

In respect of credibility, a major strength identified in the reviewed studies are data collection triangulation (Vervoort et al., 2010) and investigator triangulation (Fehr et al., 2005; Fuller et al., 2016; Gourlay et al., 2014; Mulder et al., 2016). Data triangulation refers to the use of different sources of data as opposed to one, while investigator triangulation refers to the use of different observers or interviewers to detect or minimize biases resulting from the researcher as a person (Flick, 2014, pp.183-184; Sarantakos, 2013, pp.159-160). Triangulation has the potential to increase the depth and consistency in methodological process, thereby enhancing the credibility and validity of the study findings (Flick, 2014, p.183; Sarantakos, 2013, pp.159-160). Hence, use of triangulation in four qualitative studies enhanced their credibility (Fuller et al., 2016; Gourlay et al., 2014; Mulder et al., 2016; Vervoort et al., 2010), while also enhancing the credibility of the qualitative strand of the mixed method study (Fehr et al., 2005). Another dimension to the enhancement of study credibility was demonstrated by the study carried by Fehr et al. (2005) when the authors involved one of their patients in the thematic analysis of their data. This is an approach to ensure that the researchers' representation of the participants' views is consistent with the actual views of the participant (Ryan, Coughlan and Cronin, 2007).

Another common strength of the reviewed studies is the extensive use of verbatim quotes from the source data to support data interpretation (Fehr et al., 2005; Fuller et al., 2016; Gourlay et al., 2014; Griffiths et al., 2007; Marelich et al., 2002; Mulder et al., 2016). This approach allows the reader to verify that the researchers' conclusions or inferences were derived from the study data (Polit and Beck, 2008, p.130). Therefore, this approach enhanced the credibility of the reviewed studies.

Apart from the strengths some other characteristics of the studies also threatened their credibility. For example, constant comparative analysis is a data collection approach that is typically associated with grounded theory approach to inquiry (Flick, 2014, p.535; Polit and Beck, 2008, p.522; Ryan, Coughlan and Cronin, 2007). However, this approach was used by Vervoort et al. (2010) to analyse their data in a study which did not use a grounded theory approach. As pointed out by Polit and Beck (2008, p.531) a researcher who claims to have undertaken an ethnography but used a grounded theory approach to analysis may not be well informed about the underlying goals and philosophies of the two research traditions. Hence, this mismatch in research method and data analysis limits the believability and credibility of the study.

Another common issue found among most of the studies (Griffiths et al., 2007; Fuller et al., 2016; Marelich et al., 2002; Vervoort et al., 2010) is the use of convenience sampling for recruitment of subjects, which limits their credibility. Although sampling by convenience may

be easy and efficient, it is not necessarily the preferred strategy in qualitative study as it does not guarantee data collection from the most information-rich sources and may lead to sample bias in favour of certain group (Gray, 2014, pp.223-224; Polit and Beck, 2017, p.199). The use of convenience sampling also suggest that the transferability of study may be limited, because the views of the participants who were not recruited through convenience means may differ from those of the participants used in the four studies. A more preferred approach in qualitative study is the use of purposive sampling which has higher credibility than convenience sampling (Gray, 2014, p.224). Therefore, use of purposive sampling by Mulder et al. (2016) and Gourlay et al. (2014) enhances the credibility of the studies.

Furthermore, data collection setting and sample characteristics also reduced the possibility that the findings of some of the studies could fit into other contexts (Fuller et al., 2016; Fehr et al., 2005; Griffiths et al., 2007; Marelich et al., 2002; Mulder et al., 2016; Gourlay et al., 2017). For instance, since the study by Vervoort et al. (2010) was carried out only among HIV nurse consultants in Netherlands, the findings of the study may not apply to other settings beyond the country. Similar challenges might have affected the transferability of the findings of the study by Mulder et al. (2016) where samples were recruited from two academic hospitals from two large cities in Netherland. There is high likelihood that the clinical experience of patients from these settings may differ from patients from other hospitals in the country, thereby reducing the possibility that the findings of the study could be assumed to be obtainable in all other settings. This limitation could also affect the findings of the study by Fuller et al. (2016) which was carried out in a patient-centred medical home (PCMH) initiative setting. Obviously, the views and clinical experiences of patients from this study may not be transferable to other clinical settings where the PCMH initiative is not practiced. For the qualitative strand of the mixed method study carried out by Fehr et al. (2005) which was carried out in one clinic in Germany and three clinics in Switzerland, data was only collected from 12 patients from the patients in Switzerland out of a total of 75 patients. The authors stated that the purpose of carrying out in-depth interviews with the 12 patients was to further explore their experience (Fehr et al., 2005). It cannot be assumed that the experience of the patients from Switzerland will represent the experience of patients from Germany. This limitation might have reduced the transferability of the qualitative finding from the study. However, since the qualitative data in the study by Fehr et al. (2005) was collected with the view to enhance the quantitative data from the same study, limited transferability is not a challenge for the study. Lastly, the study by Gourlay et al. (2014) was carried out in a relatively poor rural area in North-West Tanzania. The practice and views of participants recruited from this setting may not represent the experience of others from relatively richer areas of Tanzania. Hence, the findings from the study may not also be transferable to other areas.

Confirmability as a methodological rigour criterion for qualitative studies is usually achieved when credibility, transferability and dependability have been achieved (Ryan, Coughlan and Cronin, 2007). Since each of the qualitative studies has been found to have at least limited transferability of findings, their confirmability might therefore be considered limited.

For the quantitative study (Clucas et al., 2011) and the quantitative strand of the mixed method study (Fehr et al., 2005), the sampling process and measurement instruments present challenges to the reliability and validity of the findings. For instance, although 86% of the eligible patient populations was recruited into the study carried out by Clucas et al. (2011) and 93% of the eligible patient population in the study carried out by Fehr et al. (2005) were recruited, the sampling approaches involved the exclusion of patients who could not speak English and German to carry out the studies activities respectively. Hence the findings of the studies might not account for the views and experiences of minority patients. This suggests the possibility of sampling bias (Coughlan, Cronin and Ryan, 2007), which might have affected the reliability as well as the generalisability of the study findings. In addition, the authors did not provide evidence to determine whether the validity of some of the measuring tools that they used to collect data for the two studies were established, even though they reported that they adapted some of the tools from standard or already validated tools (Clucas et al., 2011; Fehr et al., 2005). This limitation has the potential of weakening the validity and the reliability of the findings of the two studies.

Overall, two of the retained studies (Gourlay et al., 2014; Mulder et al., 2016) have very high methodological qualities scores of 10/10. Judgement of the methodological quality of the retained studies were based on the allocation of Likert scores zero, one and two to answers categories “no”, “can’t tell” and “yes” respectively on the adopted critique framework (see Appendix 7) (Pluye et al., 2011). Since the highest achievable quality score was 10, it was assumed that the medium quality score will be five and any quality score below that benchmark was low. While one of the other studies have a total score of nine (Fuller et al., 2016) and four studies have scores of eight (Clucas et al., 2011; Fehr et al., 2005; Griffiths et al., 2007; Marelich et al., 2002), one of the retained studies have the lowest score of seven (Vervoort et al., 2010). Since the quality scores of the studies were well above the median benchmark, it could be argued that the overall methodological quality of the reviewed studies is high. Total quality scores allocated to each study out of a total of 10 are presented along with the extracted data in table 3.2. However, findings from this review should be interpreted with regards to the highlighted methodological limitations and the quality scores of the studies contributing to the overall findings. After the methodological quality assessment, full texts of the eight retained studies were explored to extract data on how ART adherence and ART

treatment-related decisions were made and the factors that influenced the choice of the identified decision-making approach. Relevant data were extracted from the selected studies and analysed thematically.

3.3 Findings from the Review

Data extracted from the eight reviewed studies are as presented in table 3.2.

Table 3.2: Extracted Data from Reviewed Studies in Chapter Three

S/N	Authors	Country	Number of Participants	Characteristic of Participants	Decision-Making Approach	Factors influencing decision making approach	Quality Score
1	Griffiths et al., 2007	UK	HIV patients (n=17). [Observation of HIV TAC consultations between patients and clinicians was carried out].	Black-African women (n=4), Black-Caribbean (n=2) women and White men (n=11).	IA to facilitate PDM	Not reported	8
2	Vervoort et al., 2010	Netherland	HIV Nurse Consultants [HNC] (n=23) in SSI stage. HNC (n=19) in the focused group discussions. HNC (N=10) in interview and focus group.	Male (n=13) and Female (n=10) nurses in semi-structured interviews. Male (n=14) and female (n=5) nurses in focus group sessions. The nurses were all white Caucasians.	IA to facilitate PDM; SDM when starting treatment; MI for treatment adherence and PA for persistent non-adherence.	Persistent Non-Adherence	7
3	Mulder et al., 2016	Netherland	HIV patients (n=28); and Clinicians (n=12).	Caribbean background (n=8); Dutch background (n=11); and African background (n=9).	Tailored LDI; SDM and MI for adherence; PA for persistent non-adherence.	Perception of patient's treatment TDM preferences; Cultural view about TDM; Patient's health literacy; Trust in health provider; Patient's TDM preference; Length of experience and acceptance of HIV status; and Persistent non-adherence	10

S/N	Authors	Country	Number of Participants	Characteristic of Participants	Decision-Making Approach	Factors influencing decision making approach	Quality Score
4	Fuller et al., 2016	USA	HIV patients (n=53).	African-Americans (n=17); Asian-Pacific Islanders (n=2); Latinos (n=18), non-Hispanic White (n=12), and from other ethnic groups (n=4).	Few instances of SDM; PDM without guidance; CPA	Trust in health providers; Limited option for treatment; Patients' perception of health knowledge; Patient's preference for LDI	9
5	Fehr et al., 2005	Germany and Switzerland	HIV patients (n=75); Physicians (n=20) and Nurses (n=12).	All but one of the patients were Swiss Germans or Germans. Without ART (n=34); Starters (n=21); and Non-starters (n=13). Thirty-three were Changers (n=33); and Non-changers (n=8).	SDM; CDM; and CPA	Poor communication; and Lack of understanding.	8
6	Gourlay et al., 2014	Tanzania	Patients (n=61) in PLA group activities [30 women and 31 men; and 8 women with known HIV status]. Women (n=21) IDI group [11 from the PLA and 10 more recruited by the nurses]. Health workers (n=6) and Officers (n=3).	Participants were all Tanzanian.	PIA; Rare instance of SDM; and prevalent PA.	Patients' views about LDI; Trust in health providers; and Patients' health literacy.	10

S/N	Authors	Country	Number of Participants	Characteristic of Participants	Decision-Making Approach	Factors influencing decision making approach	Quality Score
7	Marelich et al., 2002	USA	HIV patients (n=39).	African-Americans (n=44%), White (n=39%), Latinos (n=6%) and from other ethnic backgrounds (n=6%). Male (n=69%).	SDM; CDM; and PDM	Patients' health literacy; and Length of experience with the HIV.	8
8	Clucas et al., 2011	UK	HIV patients (n=217)	Women (n=32); heterosexual male (n=14); and homosexual male (n=166). White (n=165) and non-White (n=48) [Black African, Asian or from other ethnic groups].	SDM occurring in 88% of consultation sessions.	Not reported	8

Notations: CDM=Clinician-Led Decision-Making; CPA=Covert Paternalism; IA=Information giving approach; IDI=In-Depth Interview; LDI= Level of Decisional-Making Involvement; MI=Motivational Interviewing; “n” = Number of Study Participants; PA=Paternalism Approach; PLA=Participant Learning Action; PDM= Patient-Led Decision-making; SDM=Shared Decision-Making; SSI=Semi-Structured Interview; TAC=Treatment Advice Clinic; TDM=Treatment Decision-Making.

3.3.1 Overview of Selected Papers

As presented in table 3.2, two of the selected studies were carried out in USA (Fuller et al., 2016; Marelich et al., 2002), two in Netherland (Mulder et al., 2016; Vervoort et al., 2010), two in UK (Clucas et al., 2012; Griffith et al., 2007), one from Germany and Switzerland (Fehr et al., 2005) and one from Tanzania (Gourlay et al., 2014). Unsurprisingly, no study from Nigeria that meets the objectives of the review was retrieved. The participants include adult patients and/or healthcare providers and health officers. These include adult patient population in seven of the studies and health providers in only four of the studies. Only one study included health officials and HIV-negative individuals (Gourlay et al., 2014). The patient populations in the studies were mostly from African Background and White race, while there were fewer representations from the Caribbean, Latino and Asian-Pacific Island. Although the clinicians' population in the study by Vervoort et al. (2010) were reported to comprise of only White Caucasians, there was no record of the race of the clinicians in the study by Mulder et al. (2016) or of the health workers and or the health officers in the studies by Fehr et al. (2005) and Gourlay et al. (2014) respectively. Based on the wide racial composition of the participants in these studies, it may be safe to assume that the review can fairly represent the views of HIV patients from many racial groups from different settings, especially the Africans and the African-Americans which could be similar to the views of Nigerians.

Data in respect of HIV treatment decision-making from the reviewed studies fall into two theme categories which are: approaches used while making treatment decision and approaches used in adherence decision-making. These approaches and the factors that predict the adoption of each of them are discussed below.

3.3.2 Decision Making Approach for HIV Treatment

Evidence from seven of the studies shows that clinicians commonly attempt to share decision-making with HIV patients about disease treatment options when starting, changing or interrupting treatment (Clucas et al., 2011; Fehr et al., 2005; Fuller et al., 2016; Griffiths et al., 2007; Marelich et al., 2002; Mulder et al., 2016). They do this by providing the patients with detailed information about the disease and treatment options to help them prepare for the treatment (Clucas et al., 2012; Fehr et al., 2005; Griffiths et al., 2007; Mulder et al., 2016; Vervoort et al., 2010). They also give the patients time to decide when to start the therapy and to think about their personal motivation about treatment (Clucas et al., 2011; Fehr et al., 2005; Griffiths et al., 2007; Vervoort et al., 2010). They engage the patients in discussion about their lifestyles and psychosocial barriers that could prevent adherence to the treatment and ensure that treatment is tailored to the lifestyle of the patient (Griffiths et al., 2007; Vervoort et al.,

2010). Particularly, in the study by Vervoort et al. (2010), when the treatment regimen prescribed by the physician did not fit the lifestyle of the patients, the HIV nurse consultants discussed it with the patients and the physician to propose other regimens that will fit into the lifestyle of the patients. Similarly, in the study by Clucas et al. (2011) before making the decision to switch or stop treatment regimen, the doctors discussed issues leading to the need to make the decision with the patient and discuss the options with them. However, the doctors also checked with the patients to understand what role they want to take in making decisions (Clucas et al., 2011). Factors commonly reported in the studies to support SDM include: health literacy; trust in health providers; and patients' long-time experience with HIV, and acceptance of the HIV status (Fuller et al., 2016; Marelich et al., 2002; Mulder et al., 2016).

However, decision making was not shared with the patients in all situations. Particularly, the evidence from the only study carried out in Africa shows that paternalistic style is mostly used for medical care and ART treatment decisions, while SDM approach is rarely used (Gourlay et al., 2014). Meanwhile, instances of paternalism were also found in studies carried out in non-African settings (Fehr et al., 2005; Fuller et al., 2016; Mulder et al., 2016; Vervoort et al., 2010). For instance, the study by Fuller et al. (2016) which was carried out in USA reported how a clinician forced a patient to keep to a treatment option, even though it was affecting the health of the patient and the patient was unhappy with it. In support of this experience, a patient reported an instance of his interaction with a clinician.

"Which one do you prefer, to have your nails like this or to be healthy?" (Fuller et al., 2016).

This instance indicates that the clinician was practising paternalism covertly under the guise of SDM. Similar practice of covert paternalism was reported in the study by Fehr et al. (2005) which was carried out in Germany and Switzerland. Consistent with the experience of the patients in the study carried out in USA (Fuller et al., 2016), the Swiss patients felt pressured to take a decision they were not ready to make, which led to anxiety and distress (Fehr et al., 2005).

Another instance which demonstrates the approach to paternalism was also described by Fuller et al. (2016) when the patients were given options about their treatment by clinicians without giving them adequate information or properly guide them to ensure that they make an informed decision (Fuller et al., 2016). This can be supported by the consultation account of one of the patients.

“If I were just told, okay, you have to let’s say Atripla, Truvada, or Isentress, choose. Well, one is pink, one is blue and the other is orange. So, I’m like in the mood of pink” (Fuller et al., 2016).

Practice of paternalism by clinicians was also reported in the study carried out by Fehr et al. (2005) where the patients were not concordant with the decision made in the consultation because they did not understand the information provided to them by the clinicians.

However, there were instances where the clinicians may not be necessarily paternalistic, but because of patients’ passivity which may be due to many factors, the consultation may therefore take the shape of a clinician-led treatment decision-making approach (Fuller et al., 2016; Gourlay et al., 2014; Marelich et al., 2002; Mulder et al., 2016). The factors leading to patients’ passivity include cultural beliefs and low level of health literacy.

Cultural beliefs: Non-Western patients, especially the Africans and African-Americans were reported to tend to see the clinicians as knowledgeable and should know better than the patients, so they prefer to just listen and follow advice even if the outcome of the consultation is not what they wanted (Fuller et al., 2016; Gourlay et al., 2014; Mulder et al., 2016). Based on this belief and attitude of trust, some patients with African background were reported to be passive in treatment consultations (Gourlay et al., 2014; Fuller et al., 2016). This however, does not suggest that patients whose cultural beliefs may influence them to be passive will not participate in shared decision-making. This ability was demonstrated in the study by Fuller et al. (2016), where the attitude of a Latino man was changed through discussions with the clinicians to participate in SDM. This occurred despite the initial shock expressed by the Latino man when he first encountered the need to share treatment decisions with clinicians in USA, which was in stark contrast with his previous experience in Mexico (Fuller et al., 2016). Furthermore, irrespective of whether the patient is Western or non-Western, evidence from two studies shows that some HIV patients including the patients with Western backgrounds may prefer their clinicians to make treatment decisions for them (Fuller et al., 2016; Mulder et al., 2016).

Low level of health literacy: Evidence from the study by Mulder et al. (2016) shows that patients’ passive attitude in decision making may not be solely attributable to being of non-Western background. For example, some Dutch patients were also found to perceive that they were not as knowledgeable as their clinicians and so were not sure of their preferred role for treatment decision-making. Similar report was also made by Fehr et al. (2005) where some patients felt pressured to make a treatment decision they were not sure about because of lack of understanding. This issue of lower health literacy was also associated with the passivity in

decision making due to the length of time between the patients' HIV status diagnosis and their encounter with the clinicians for treatment decision. From some of the studies, patients tend to be passive in clinical interactions when they are newly diagnosed but become more involved in treatment decision when they accept their status and get more experienced with time (Marelich et al., 2002; Mulder et al., 2016).

Patients taking control of decision making

Apart from shared treatment decision making or clinician-led approach to decision making, there are instances in some of the studies where patients were reported to tend to take control of the treatment decision making (Fuller et al., 2016; Marelich et al., 2002). Some patients were reported to be very aggressive and assertive by demanding for certain ART option when discussing their treatment with clinicians in the study by Marelich et al. (2002). This control taking approach by patients was reported to have the potential to result in the selection of wrong treatment option in some instance, which may not work for the patients (Marelich et al., 2002). Although some of the patients are aware of this risk, they are still eager to retain the higher power in treatment decision-making.

"I push for something, I get it, and I try it out and if it works for me, it works for me. If it does not work for me, I let the doctor know to do something different"
(Marelich et al., 2002).

3.3.3 Decision Making Approach for ART Adherence

In respect of ART adherence issues, evidence from two of the reviewed studies from Netherland shows that although clinicians tried to share the decisions with patients, they tend to go beyond the need for SDM by also trying to motivate the patients by using a motivational interviewing approach to enhance their self-efficacy (Vervoort et al., 2010; Mulder et al., 2016). The nurses in the study by Vervoort et al. (2010) were reported to engage the non-adherent patients in in-depth questioning to explore the reasons for their behaviour to determine if the patient was motivated to change. However, when the non-adherence persists, some of the clinicians were reported in the two studies to resort to paternalistic approach with the hope that such approach will motivate the patients to adhere to their treatment (Vervoort et al., 2010; Mulder et al., 2016). For instance, Mulder et al. (2016) reported that clinicians used risk communication by informing the patients about the consequences of non-adherence to motivate them to adhere to their treatment. Similarly, Vervoort et al. (2010) reported that the nurses repeatedly warn the patients about the potential consequence of their behaviour, to provoke them to feel guilty or frustrated about being non-adherent, which the clinicians hoped could be used to motivate the patients. Some of the nurses even advised the patients to stop

treatment due to persistent non-adherence, with the hope that the patients may become more adherent when HIV-related symptoms reoccur (Vervoort et al., 2010). In this situation, the decision to stop the treatment was not left to the patient but was entirely dependent on the clinicians (Vervoort et al., 2010).

3.4 Discussion of the Review Findings

Evidence from the eight studies has shown that clinicians attempt to share decisions-making with HIV patients when starting, changing, when interrupting ART or when discussing ART adherence, but not in all situations. The overall finding of the review is therefore consistent with the findings of existing literature that shared decision-making may not be taking place as often as possible in clinical practice (Coulter and Collins, 2011; Da Silva, 2012). Exception to the practice of shared decision-making occurs due to improper practice of the approach, cultural views of the patients, health literacy level of patients, length of experience of patients with HIV and its acceptance, trust in the clinician as well as persistent nonadherence to ART. Although limited number of studies were reviewed in this chapter, the findings are contextualised in relation to the wider available literature on SDM and chronic conditions in the following sections.

3.4.1 Clinicians' Practice of SDM

Existing studies have shown that clinicians tend to prefer covert paternalism instead of SDM. For instance, a qualitative study among primary care asthma nurses in UK has demonstrated that although clinicians held positive values about SDM and its potential to improve adherence, they only used it as a tool to support their own agenda, rather than as an expression of equality between clinicians and patients (Upton et al., 2011). This covert approach to paternalism has also been reported in a qualitative study carried out in Australia. In the study, most of the nurses deliberately gave patients limited information and were reluctant to collaborate with them by advocating or providing them with options towards reaching an informed decision (Henderson, 2003). These earlier reports are consistent with the report in this review where patients were given options but were not properly guided to make an informed decision or when they were technically forced to remain on a treatment option that they did not want (Fuller et al., 2016). This evidence suggests that even though clinicians theoretically agree to the importance of SDM, most of them still prefer to practise the older approach of paternalism (Longtin et al., 2010; Upton et al., 2011). A probable reason for the resistance of the clinicians to fully embrace the SDM approach is that the clinicians do not want to lose their identity of authority by delegating powers and responsibilities to the patients (Longtin et al., 2010). Therefore, as recommended by Cushing and Metcalfe (2007)

there is a need for further sensitization of the clinicians to change their perception of clinical treatment decision-making approach and to re-emphasize the importance of SDM. This may be especially important in African settings as the evidence from the study by Gourlay et al. (2014) revealed that the African clinicians tend to favour paternalism in almost all cases.

3.4.2 Cultural Views of the Patients

Although limited, the findings of this review also reflect the common opinion in literature that culture could affect the competence of both patients and clinicians to participate in SDM (Coulter, Parsons and Askham 2008; Levit et al., 2013; Longtin et al., 2010). This review reveals that patients with non-Western backgrounds are more likely to be passive in clinical consultation for HIV treatment. Specifically, HIV patients with African background and from the Caribbean were reported to be more likely to prefer their health providers to make treatment decisions for them, as they consider them to be medical authority whom they trust (Fuller et al., 2016; Gourlay et al., 2014; Mulder et al., 2016). A survey in the USA among diabetes patients reported similar findings that perceived power imbalance between the clinicians and African-Americans was a significant barrier to SDM (Peek et al., 2009). These patients were reported to be more likely to prefer their physicians to make treatment decisions for them because they see them as medical authority that they should avoid challenging (Peek et al., 2009). Another survey in the USA also reported that the passive attitude of the African-Americans may not necessarily be due to their cultural perceptions alone but may also be due to experience of bias and discrimination or lack of cultural concordance between them and the physicians (Peek et al., 2010). From the study, African-American diabetic patients reported that their physicians were less likely to share information with them and tend to be domineering with them (Peek et al., 2010). These patients' views can be corroborated with the finding from a qualitative study in the USA where clinicians were reported to be more verbally dominant with the Black HIV patients than the Hispanics and the White patients (Laws et al., 2014). The study also reported that while the clinicians engaged the Blacks and Hispanics patients in discussions about ART adherence, they tend not to discuss strategies to improve adherence with them, but they did with the White non-Hispanic HIV patients (Laws et al., 2014). Hence, the patients' cultural-related passivity may not necessarily be the only challenge that prevents Black patients engaging in treatment decision-making, but also the attitude of their clinicians.

Furthermore, a large survey in the USA has shown that passive role in treatment decision-making is not the preferred role for all Black patients or patients with African background (Peek et al., 2011). In the study, African-American diabetes patients preferred shared decision-making as much as the White patients and were more likely to report that they initiated discussions with their doctors about their care (Peek et al., 2011). Therefore, one cannot

assume that HIV patients will not want to actively participate in a treatment decision making because of their cultural or ethnic identity. This has been corroborated with the instance of SDM in the study by Gourlay et al. (2014) in this review.

However, the preference of the Black or African HIV patients for a passive role in treatment decisions as reported in studies carried out in non-African settings in this review could be a reflection of their societal norms and the healthcare culture where they receive treatment. This societal norms and healthcare cultures may not only be associated with their current location where the studies were carried out but may be associated with the prevailing culture in the countries where the HIV patients came from. For instance, as reported by Fuller et al. (2016) the initial reluctance expressed by a Latino patient when he first encountered the need to share decision-making with clinicians was due to his previous experience in Mexico, where such an approach was not the norm. Although from a different context, the study by Gourlay et al. (2014) has also revealed that paternalism and higher clinician power in consultation are the norms in the rural area of Tanzanian. Therefore, the passive attitudes of the Black or African HIV patients in shared decision-making suggests that in their countries, sharing decision-making with the health provider may not be the norm.

Moreover, the HIV patients' initial preference for a passive role in treatment decisions does not mean that they will not participate in SDM if they are given appropriate decision support. This was demonstrated by the change in the attitude of the Latino man to participate in SDM through discussions with his clinicians despite being initially reluctant (Fuller et al., 2016). Therefore, irrespective of the cultural beliefs, clinicians need the skills to elicit each patient's preferences and willingness to become more involved in their health care or to support them at whatever level that is comfortable for them (Coulter, Parsons and Askham, 2008; Cushing and Metcalfe, 2007; Legare and Witteman, 2013). This is important as this review also shows that irrespective of race, some HIV patients including the patients with Western backgrounds prefer their clinicians to make treatment decisions for them (Fuller et al., 2016; Gourlay et al., 2014; Mulder et al., 2016).

3.4.3 Patient's Health Literacy

Evidence from literature has consistently demonstrated that patients including African-Americans with higher education and health literacy are more likely to engage in SDM and share responsibility with their health providers (Amalraj et al., 2009; Coulter and Collins, 2011; Da Silva, 2012; Peek et al., 2009; Smith et al., 2009; Yin et al., 2012). However, as pointed out by Nielsen-Bohlman (2004) low health literacy is not limited to the uneducated and poor, but could also affect well educated individuals, who may at some stage find it difficult to

comprehend medical forms or doctor's instructions. In addition, Da Silva (2012) in a review of literature summarised that one cannot clearly say based on available evidence that people from a certain level of education will be more or less likely to prefer SDM. Consistent with this view, evidence from a study in this review shows that some patients who were identified as having high level of education did not value SDM approach (Fuller et al., 2016).

Lower health literacy on the other hand, has been shown to consistently predict lower self-confidence among the patients which results in leaving medical decisions to the health providers (Amalraj et al., 2009; Da Silva, 2012; Peek et al., 2009; Smith et al., 2009; Yin et al., 2012). Similarly, in this review patients who felt that they lack the knowledge and expertise to make medical decisions themselves were reported to be ambiguous about what their level of decisional involvement should be (Mulder et al., 2016). Rather than only due to level of education, this attitude was also associated with patients who were still experiencing the initial shock of being diagnosed with HIV and were not sure of what to do (Marelich et al., 2002; Mulder et al., 2016). However, further evidence from the review shows that this initial passivity is usually overcome, and patients become more involved in SDM as they become experienced with the disease and accept their HIV status (Marelich et al., 2002; Mulder et al., 2016).

Although high literacy level is desirable for SDM, this review revealed that patients with high literacy level may also want to take leading role in the treatment decision-making (Fuller et al., 2016; Marelich et al., 2002). This struggle for higher autonomy could however result in patients tending to disregard their clinicians' advice and lead to the selection of the wrong treatment regimen by the patient (Fuller et al., 2016; Marelich et al., 2002). Therefore, clinicians need to be conscious of the fact that engagement of each patient in treatment decision may differ and as such they cannot all be supported with the same approach, but the clinicians should be prepared to accommodate each patient's desire for autonomy (Da Silva, 2012). This was emphasised in the concordance scale used by Clucas et al. (2012) which revealed that the doctors need to ascertain the role that the patient wants to take in treatment decision. This process can promote shared decision even if it results in the patients preferring that the doctor should take the decision for them.

3.4.4 Trust in Health Providers

Trust between clinicians and their patients has been shown to be a potential barrier or facilitator of SDM in studies (Da Silva, 2012; Peek et al., 2009). In this review, patients' trust in their health providers has also been found to have varying impact on SDM. While trust in the provider facilitated SDM in some instances reported in the studies, it was reported to lead to patient's passivity in other instances (Fuller et al., 2016; Marelich et al., 2002; Mulder et al.,

2016). Similar to the report of the literature review by Da Silva (2012), because some patients had blind trust in their clinicians, the treatment decision ended up being made solely by the health providers (Fuller et al., 2016). Meanwhile, patients who did not trust their clinicians were reported to want to make the decisions themselves (Fuller et al., 2016). Therefore, clinicians need to be aware that patients' trust in them may not necessarily predict concordance with the treatment decision.

3.4.5 Patients' Persistent Non-Adherence to ART

In most studies in this review, it was reported that clinicians either directly or indirectly address adherence to ART with patients. This was done by involving them in the treatment decisions and trying to elicit information from the patients about barriers to adherence and by providing them with tailored information about their disease, treatment and resources such as social support to help them control their disease (Griffiths et al., 2007; Mulder et al., 2016; Vervoort et al., 2010). Beyond this approach, clinicians were also reported to use motivational interviewing (MI) to enhance the self-efficacy of the patients (Mulder et al., 2016; Vervoort et al., 2010). This approach is evidence-based as it is consistent with the prevailing evidence from a meta-analysis that patient's self-efficacy is the most significant predictor of ART adherence or non-adherence (Langebeek et al., 2014a). Meanwhile, beyond the context of HIV and ART, self-efficacy is widely regarded in literature as the key predictor of health behaviour changes for a wide range of health behaviours (Isa et al., 2017; Dixon, 2008; Sheeran et al., 2016). This is because self-efficacy influences behaviour change by shaping both the formation of intention to change and the actual implementation of that intention (Dixon, 2008). Motivational Interviewing therefore appears to be very useful in this context because it aims to improve self-efficacy of the client to carry out a behaviour change (Miller and Rollnick, 2013, p.213). Unfortunately, the evidence supporting the use of MI in this review is low and involved very few participants and thus cannot be generalised. Coincidentally, apart from the widespread call for a shift in the paternalistic approach towards the adoption of SDM there is currently a growing consensus that what constitutes an ideal decision support counselling are approaches that draw on the principles of MI (Barry and Edgman-Levitan, 2012; Coulter and Collins, 2011; Da Silva, 2012).

However, when the clinicians in this review encountered patients with persistent non-adherence or when the patients' motivation to continue with the HIV treatment was low, they either confronted the patients with the consequences of non-adherence or asked the patients to stop the treatment (Mulder et al., 2016; Vervoort et al., 2010). This approach is paternalistic as the choice to stop the treatment was taken by the clinicians and not with the patient, while the confrontation draws on the higher authority of the clinicians to coerce the patient to adhere

to the treatment. As observed by Upton et al. (2011), this attitudinal shift implies that the clinicians only embraced the SDM or the MI when the selected approach seemed to be improving the patient's adherence outcome.

Clinicians who resort to a controlling style of communication to motivate the patients may encounter a role-conflict when trying to adopt a patient-centred approach like the SDM or the MI (Mulder et al., 2016). For instance, physicians assume certain level of power during clinical interactions due to their medical training and credentials (Ariss, 2009; Joseph-Williams, Elwyn and Edwards, 2014; Lian and Robson, 2017; Nimmon and Stenfours-Hayes, 2016). Ironically, this medical knowledge base creates an imbalance of power between the clinicians and the patients, irrespective of the level of knowledge that the patient may possess. Therefore, based on findings from a systematic review Joseph-Williams, Elwyn and Edwards (2014) argue that knowledge provision and acquisition, as well as the expectation to contribute personal preferences are usually done in the context of a power imbalance between clinicians and patients. They stressed that patients do not only need knowledge, but also power to participate in SDM (Joseph-Williams, Elwyn and Edwards, 2014). Unfortunately, studies have shown that physicians often struggle to relinquish power to participate in a collaborative clinical interaction with patients, thereby leading to them switching to paternalism (Lian and Robson, 2017) or tagging the patients as problematic when they attempt to share the power position with the physicians (Ariss, 2009; Joseph-Williams, Elwyn and Edwards, 2014; Nimmon and Stenfours-Hayes, 2016). Hence, there is a need for an improvement in clinicians' approach to SDM and/or MI as revealed in this review to empower them to promote ART adherence among HIV patients even when the patients' non-adherence behaviour is persistent or when they appear to lack motivation to adhere.

3.5 Conclusion to the Chapter

Despite the limited number of articles, evidence from Germany, Netherland, Tanzania, USA and UK reported in this review has established that clinicians attempt to share HIV treatment decisions with PLHIV in some situations while they use paternalistic approaches in other instances. The review also revealed that to promote ART adherence, clinicians may need to go beyond aiming for a SDM by also enhancing the self-efficacy or motivation of the HIV patients. While the evidence within the review that suggests the use of MI to complement SDM to promote adherence is limited and cannot be generalised, the review reveals that the techniques of MI could also provide the requisite skills base to effectively participate in SDM. Hence, the clinicians may benefit from a more robust skill set if they are empowered through MI training to complement their skills of SDM towards the goal of supporting HIV patients to adhere to ART. Meanwhile, it can also be inferred from this review that HIV treatment

decisions in non-Western countries are most likely to be made predominantly by the clinicians. Arguably, the societal or healthcare norms in such countries may not be initially compatible with the patient-centred approach of SDM or MI. However, ability of patients to overcome such initial shock in this review was demonstrated only in a study carried out in the context of a developed country; an outcome which might have been influenced by the high resources available in the context. Therefore, when promoting the adoption of SDM or MI in non-Western countries there is a need to consider not just the compatibility of the approaches with the societal and health care norms, but also to pay attention to the influence of the resources within the context of a developing country like Nigeria.

3.6 Chapter Summary

This chapter investigated how to enhance the adherence of HIV patients to ART through evidence-based approach to clinical consultation. A comprehensive review of the literature was carried out. Evidence from the review revealed that for ART adherence, clinicians may need to go beyond involving the patient in the treatment decision making by enhancing the motivation of the individual through a motivation enhancing strategy such as MI to improve the self-efficacy of the patient. While the evidence suggesting the need for a motivational enhancement strategy may not be generalisable, it will be unwise not to explore the potentials of such a promising approach in respect of ART adherence as explored in the chapter. However, such an approach will need to be considered in relation with the prevailing societal or health care norms and the available resources in a developing country like Nigeria.

Finally, this chapter has contributed to the research question by demonstrating that patient-centred approaches such as SDM or MI may not be readily adopted for practice in the clinical setting for clinical consultation for HIV treatment adherence in non-Western countries. This is because of the unknown potential impact of the clinical and community culture that may inhibit the routine adoption of such approaches in real-life practice.

CHAPTER FOUR: MOTIVATIONAL INTERVIEWING FOR ANTIRETROVIRAL THERAPY ADHERENCE-LITERATURE REVIEW OF STUDIES IN DEVELOPING COUNTRIES

4.0 Chapter Overview

This chapter presents MI and its theory and discusses the current state of knowledge in respect of the theory that underpins it. The chapter also discusses the available evidence that supports adoption of MI as an approach to promote ART adherence. The chapter then presents a review of literature that is focused on exploring the challenges or facilitators to the use of MI in different settings for ART adherence in developing countries. The purpose of the review of literature is to understand how to use MI in diverse culture and contexts in developing countries. The findings from this review are expected to inform how to use MI for ART adherence support within the Nigerian culture and health care context.

4.1 Introduction to the Chapter

Motivational Interviewing (MI) is a collaborative, goal-oriented style of communication with particular attention to the language of change (Miller and Rollnick, 2013, p.29). It is a client-centred therapeutic approach that operates within an empathetic interpersonal context (Miller and Rollnick, 2013, p.29; Moyers, 2014). The approach also uses techniques such as shared-decision making and eliciting of change talk (Resnicow and McMaster, 2012). In MI, the role of the clinician is to guide the client to elicit and strengthen the client's motivation for change (Miller and Rollnick, 2009; Resnicow and McMaster, 2012). In this regard, MI approaches behaviour change by focusing on enhancing the internal motivation of the clients rather than aiming to change their behaviour through external motivation (Miller and Rollnick, 2009; Moyers, 2014).

To successfully guide the patients to enhance their inherent motivation towards a specific goal, the aim of the MI counsellor is to assist the individuals to resolve their ambivalence, which is considered as a normal stumbling block in changing complex, intractable behaviours that have both costs and benefits (Dewing et al., 2015; Miller and Rollnick, 2012; Moyers, 2014). Therefore, unlike other treatment approaches that focus on assisting patients to change behaviour, MI is mainly concerned with helping the patient to make decision for change and why the change should occur (Moyers 2014; Resnicow and McMaster, 2012).

MI was introduced by William Miller in 1983 for use in addressing substance abuse but has since been applied to areas beyond addictions (Bisono, Manuel and Forcehimes, 2006, p.72). The client-centred but directive counselling style of MI emerged at a time when there was an increasing frustration with the prevalent traditional clinical belief that alcoholic patients should be confronted or coerced to change their health behaviour (Allsop, 2007). In 1989, Steve

Rollnick met with William Miller and encouraged him to write more about how to implement the method (Moyers, 2004). Collaboration between the two individuals led to emphasis of the MI approach on client's ambivalence, and the importance of eliciting language of change from the patient (Moyers, 2004). This emphasis on client's ambivalence is one of the distinguishing factors between MI and other client-centred counselling approaches (Dewing et al., 2015; Miller and Rollnick, 2009).

4.1.1 The Spirit and Techniques of MI

The spirit of MI is based on four fundamental components: collaboration, evocation, acceptance and compassion (Miller and Rollnick, 2013, pp14-22).

Collaboration: MI promotes a collaborative approach in which the clinician does not assume an authoritarian or expert role in the therapeutic relationship (Bisno, Manuel and Forcehimes, 2006, p.73). Instead, the counsellor respects the client's perspective and autonomy, while fostering a positive interpersonal atmosphere that is conducive to change but not coercive (Miller and Rollnick, 2013, p.15).

Evocation: Contrary to the assumption that the client is lacking something that needs to be installed, MI emphasises that perspectives and values should be elicited from the client rather than being imparted (Bisno, Manuel and Forcehimes, 2006, p.73; Hettema, Steele and Miller, 2005; Miller and Rollnick, 2013, p.20).

Acceptance: Another spirit of MI is an attitude that shows profound acceptance of what the client brings (Miller and Rollnick, 2013, pp16-19). This involves the acceptance of the absolute worth of the client, expression of accurate empathy (an active interest in and effort to understand the internal perspective of another person), and autonomy support. Therefore, besides the acceptance of the inherent worth and potentials of every human being in MI (Miller and Rollnick, 2013, p.17), the approach requires that the clinician understands that it is up to the clients to decide whether they want to change or not, and how best to go about it (Bisno, Manuel and Forcehimes, 2006, p.73). The role of the clinician is therefore to respect the choices of the client and decisions regarding self-direction, even if they are divergent from what the clinician thinks is best for the client (Bisno, Manuel and Forcehimes, 2006, p.73; Miller and Rollnick, 2013, p.18). Lastly, acceptance involves another element termed as affirmation which requires that the clinician should seek to know and acknowledge the strengths and efforts of the clients (Miller and Rollnick, 2013, p.19).

Compassion: A recently added element to the spirit of MI is the need to be compassionate by actively promoting the welfare of the clients and to give priority to their needs (Miller and

Rolnick, 2013, p.20). According to Miller and Rollnick (2013, p.20) being compassionate in MI differs from the expression of personal feelings, sympathy or identification, but a deliberate commitment to the welfare and best interest of the client.

Techniques of MI

While the essence of MI lies in its spirit, specific techniques and strategies when used effectively help to ensure that the spirit is evoked (Resnicow and McMaster, 2012). In this regard, the MI counsellor relies heavily on skills or strategies such as: Open-ended questions; Affirming the clients; Reflective listening and Summarizing, which are all popularly referred to as the **OARS** (Bisno, Manuel and Forcehimes, 2006; Miller and Rollnick, 2013, p.32-34; Resnicow and McMaster, 2012). The OARS skills are strategically used to elicit and reinforce clients' change talk. This is important, as it is the single factor that differentiates MI from other counselling approaches (Miller and Rollnick, 2009).

4.1.2 Theoretical Underpinning for MI

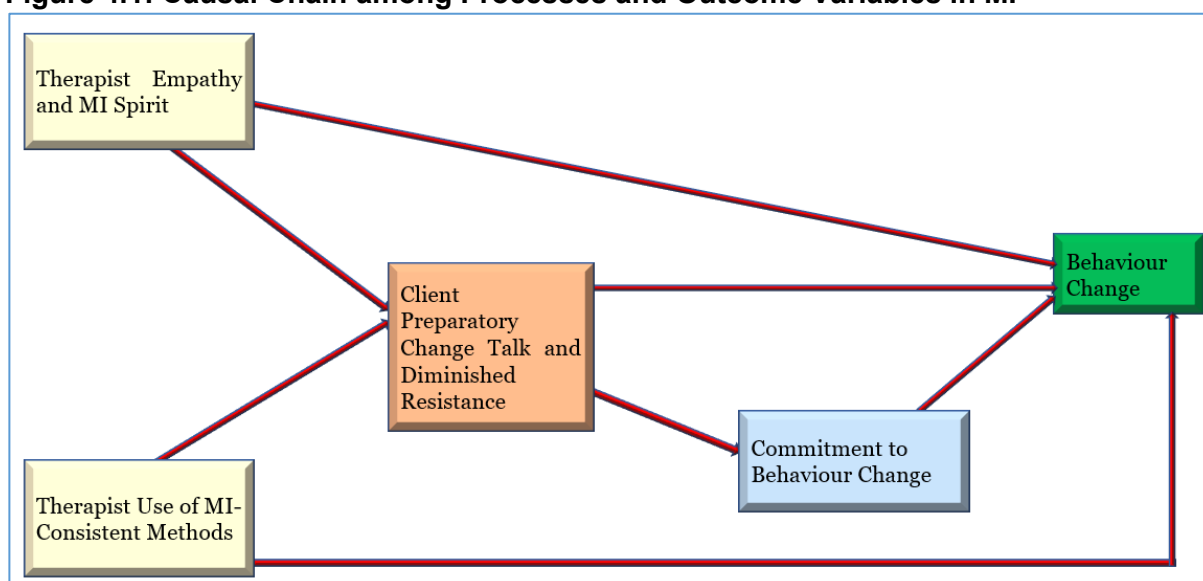
MI is an approach that was not derived from theory but arose from practical clinical experience in the field of alcohol treatment (Miller and Rollnick, 2012). Since its emergence into the field of health behaviour change in 1983, a theoretical understanding of how the MI approach is effective is still lacking (Allsop, 2007; Bjork, 2014). In recent years, an increasing number of researchers and practitioners have been promoting the use of self-determination theory (SDT) to understand how MI works (Gwardz et al., 2015; Resnicow and McMaster, 2012; Miller and Rollnick, 2012). While SDT grew up independently from MI, both approaches bear semblance in many areas. In this regard, the three human needs relevant for motivating behaviour change in SDT- *autonomous regulation*, *relatedness* and *competence*- are all directly addressed in MI (Deci and Ryan, 2012; Miller and Rollnick, 2012; Resnicow and McMaster, 2012).

Even though there are many similarities between the SDT and the practice of MI, some salient and potential differences between them have been identified. For instance, while MI emphasises the quantity, intensity and sequence of change talk as essential elements of the behaviour change process, SDT places more emphasis on the quality of the change talk by asking whether the change intention has been fully internalized (Deci and Ryan, 2012; Resnicow and McMaster, 2012; Vansteenkiste and Sheldon, 2006). From the SDT perspective, a client's change effort is expected to have a high likelihood of failure if it is based on introjected reasons or external pressure, even if the expression is strong in intensity (Vansteenkiste and Sheldon, 2006). In addition, while MI places more emphasis on the source of the autonomy by ensuring that the motivation, solutions and action plans emanates from the client, from the SDT perspective, it seems more important to ensure the clients' volition

even if the initial source of motivation is external (Resnicow and McMaster, 2012). Lastly, Resnicow and McMaster (2012) have also argued that contrary to the assumption in MI that clients possess both strong reasons for and against change, it is not clear how such simultaneous motivations are addressed in SDT, because the SDT continuum implies that motivation is discreet.

While there is currently no consensus about a valid theory of how MI works, Miller and Rose (2009) proposed a causal chain for the processes and outcomes of MI (figure 4.1) (Allsop, 2007; Bjork, 2014; Miller and Rollnick, 2012; Miller and Rose, 2009; Resnicow and McMaster, 2012). From the causal chain, the therapeutic relationship (Empathy and Spirit) in MI has been hypothesized to have both direct impact on clients' outcomes and facilitate the emergence of client language in favour of behaviour change (Miller and Rose, 2009; Moyer, 2014). However, evidence from a literature review has shown that the impact of the therapeutic relationship on the effectiveness of MI is inconsistent (Apodaca and Longabaugh, 2009). Despite this finding, Miller and Rose (2009) emphasised that MI without its spirit cannot be considered as MI.

Figure 4.1: Causal Chain among Processes and Outcome Variables in MI



Adapted from: Miller and Rose (2009)

Besides the therapeutic relationship which is associated with the *relational component* of MI in the existing causal chain, MI also has a technical component which is focused on differential evocation and reinforcement of clients' change talk (Miller and Rose, 2009; Moyers, 2014). The technical component of MI (MI consistent methods) has also been hypothesized to be directly linked with clients' change talk as well as to clients' behavioural outcomes (Miller and Rose, 2009). This technical component is built on the assumption that behaviour change will be promoted by causing the client to verbalize arguments for change (*change talk*), while

causing the client to verbalize argument for not changing (*sustain talk*) is expected to favour behavioural status quo (Miller and Rollnick, 2013, p.158-159; Miller and Rose, 2009). Based on this assumption, the technical hypothesis regarding how MI works suggests that proficient use of the techniques of MI is expected to increase the likelihood of the emergence of clients' change talk and to decrease sustain talk (Miller and Rose, 2009). Unlike the existing finding about the impact of the MI spirit, evidence from the review carried out by Apodaca and Longabaugh (2009) demonstrated that inconsistent MI behaviour was consistently associated with poor clients' behavioural outcomes, while client change talk is consistently related to better behavioural outcome.

4.1.3 MI and Antiretroviral Therapy Adherence

Despite the lack of consensus on an appropriate theory to underpin the MI approach, it has been adopted to address many health behaviour challenges which includes medication adherence (Allsop, 2007; Easthall, Song and Bhattacharya, 2013; Mathes et al., 2013; McMaster and Resnicow, 2015). For instance, a recent meta-analysis of medication adherence interventions for chronic conditions that are based on cognitive-behaviour change techniques has shown that most interventions use the MI approach (Easthall, Song and Bhattacharya, 2013). Interventions evaluated in the review of 26 studies included those focused at improving patients' adherence to HIV drugs in 14 of the studies. Similarly, another meta-analysis of 17 randomised controlled studies that tested MI for treatment adherence for chronic conditions also involved 10 studies that tested the potential of MI based interventions to promote ART adherence (Palacio et al., 2016). These bodies of evidence suggest that among chronic conditions, the potential to utilize MI to improve medication adherence has been investigated more with HIV than with other chronic conditions. Meanwhile, evidence from a systematic review of 21 trials that examined the effectiveness of adherence-enhancing interventions for HIV treatment has found that only the study that used MI reported statistically significant results for adherence (Mathes et al., 2013). Moreover, findings from another systematic review of five studies (Hill and Kavookjian, 2012) and an integrative review of 239 articles (Dillard, Zuniga and Holstad, 2016), have led the researchers to conclude that MI can be an effective clinical method to improve HIV drug adherence among people living with HIV [PLHIV].

While evidence abounds about the effectiveness of MI for improving HIV drug adherence, its implementation in routine care delivery is still scarce. This suggests that most of the successes of MI at improving ART adherence remain shrouded in academic papers. This observation has also been echoed by Haberer et al. (2017) that effective ART adherence interventions have generally not been implemented at scale, especially in resource-limited settings. It is

therefore, not surprising that the widespread successes of MI in academic journals have not led to its adoption in regular clinical practice in resource-limited countries like Nigeria which bears the highest burden of AIDS-related mortality globally (UNAIDS, 2017). Although the dearth of its practical application is a strong indication for the need to promote its wide scale deployment into real-life clinical practice, little is currently known about the contextual factors that might inhibit or enhance its regular application in routine care delivery in resource-limited settings.

Against the background above, little is also known about how the cultural or healthcare norms in developing countries can influence its application. This is worth consideration because MI was developed within the cultures in USA and UK which are developed countries (Koken et al., 2012). It could therefore be argued that if MI is not properly practised due to the cultural context in which it is practised, HIV patients may not benefit equally from MI-based ART adherence counselling because of their cultural or ethnic backgrounds. Hence, Koken et al. (2012) emphasised the importance of ensuring that clinicians maintain fidelity to the spirit and techniques of MI when it is considered for use in different cultural and linguistic contexts. This is especially important in a highly multilingual and multicultural country like Nigeria (Pinon and Haydon, 2010).

While it is usually assumed that the core processes of MI cross cultures very well as they rely heavily on semantic universals, it is also believed that certain cultural nuances could influence how the MI processes are applied (Miller and Rollnick, 2013, p.350). It has also been argued that certain cultural factors may play important role in the processes and outcomes of MI and that clarification of such factors will facilitate its cross-cultural adaptation (Miller and Rose, 2009). Hence, knowledge about the influence of the context and culture on the application of MI for ART adherence in developing countries may enhance its implementation in Nigeria. Therefore, this review is focused on exploring the impact of languages, cultures and contexts on the application of MI for ART adherence in developing countries and how it has been adapted for use in such countries, with a view to understand how to utilise the approach in Nigeria.

4.2 Methods of this Review

To carry out this literature review, data search and study selection was based on the PEO format (Bettany-Saltikov, 2012, p.21). The PEO format was chosen because the review's objective is primarily an exposure question and not necessarily an intervention question (Bettany-Saltikov, 2012, p.21). **P** refers to people or population, **E** for exposure and **O** for outcome. Based on the objectives of the review certain definitions were applied to what

people, exposure and outcome data were considered relevant for inclusion of studies in the review.

People or population: Population refers to the HIV patients or the health practitioners who counsel them to adhere to their ART. Studies were also included in the study if they were carried out in developing countries which includes Upper-Middle Income Economies, Lower-Middle Income Economies and Low-Income Economies but excluding High Income Economies as defined by The World Bank (2018a).

Exposure: Exposure in this review refers to the type of MI-based intervention used for ART adherence or the way the study participants are exposed to the MI approach. Based on findings from a scoping search, a criterion for exclusion of studies under this dimension of PEO is if the study did not actually apply MI approach for ART adherence. Another criterion for exclusion of studies is if the MI was not applied during a consultation or counselling session between the health practitioner and the patient.

Outcome: Focus on outcomes in this review is restricted to data that is related to the experience of the study participants in respect of their exposure to the MI approach or the factors that might have facilitated or hindered the application of MI in the study. Hence, expected outcomes from the studies does not include report of ART adherence, but includes data relating to the feasibility or acceptability of the MI based interventions or experience that the study participants might have had with MI, health practitioners' fidelity to MI, and the influence of contextual factors on the practice of MI. Influence of time on the applicability of MI is considered important to this review because existing evidence has consistently demonstrated that time constraints are the most frequently cited barrier to the implementation of shared decision-making (Legare and Witteman, 2013) or lifestyle counselling (van de Glind et al., 2012). It has also been frequently cited as a barrier to the implementation of MI in routine practices for other health settings in developed settings but outside ART care settings (Ostlund et al., 2014; Sargeant et al., 2008; Shannon Donovan-Hall and Bruton, 2017; Soderlund and Nilsen, 2009). Therefore, as cautioned by Emmons and Rollnick (2001) there is a need to consider dealing with time constraints specific to each health care setting when adapting MI for use across settings.

Regardless of the focus of the review on diverse outcome data, description of certain terms that guided the study search in respect of health practitioners' fidelity to MI is considered necessary.

MI therapists' fidelity assessment: Effectiveness of a complex intervention like MI can vary across studies, sites and therapists (Hettema, Steele and Miller, 2005; Miller and Rollnick, 2014). However, a factor that has been insufficiently considered is the fidelity of the behavioural treatment that was provided during the intervention delivery (Miller and Rollnick, 2014). Meanwhile, evidence has shown that therapist's fidelity to MI techniques and spirit predicts patients' behavioural outcomes (Koken et al., 2012). Therefore, to assess the fidelity of therapists to MI, several competence assessment tools have been developed. These include: MI Skill Code [MISC] (Miller et al., 2008); MI Treatment Integrity [MITI] coding system (Moyers, Manuel and Ernst, 2014); MI Target Scheme [MITS] (Allison, Bes and Rose, 2012); Behavioural Change Counselling Index [BECCI] (Lane, 2005); MI Sequential Code for Observing Process Exchanges [MI-SCOPE] (Moyers and Martin, 2006); Video Assessment of Simulated Encounters [VASE] (Rosengren et al., 2009) and OnePass coding system (McMaster and Resnicow, 2015; <http://www.motivationalinterviewing.org/>).

MISC which is the first MI fidelity assessment tool was originally developed in 1997 as a method for evaluating the quality of MI from audiotapes and videotapes of individual counselling sessions (Miller et al., 2008; Moyers et al., 2005). MITI on the other hand was developed from the MISC, not to compete for the same task, but to accomplish different tasks (Moyers et al., 2005; Moyers et al., 2010). While MISC is typically more useful in conducting detailed process research to investigate critical elements and causal mechanisms of MI, MITI is more useful when simpler questions are the focus of the study (Moyers et al., 2010). Probably because of its simpler focus which could aid in the cross-settings application of the MI approach with optimum therapists' fidelity and to enhance provision of targeted feedback for trainees, MITI is currently the most popularly used treatment fidelity tool for MI (McMaster and Resnicow, 2015; Moyers et al., 2010; Moyers, Manuel and Ernst, 2014).

According to the MITI, there are two aspects to the assessment of therapists' fidelity: Global spirit ratings and Behaviour counts. Global spirit scores in MI are intended to capture the rater's overall impression of how well or poorly the therapist meets the intent of a scale (Moyers et al., 2010). The measure of the therapists' behaviour on the other hand is carried out in MITI by assessing percent complex reflections, open questions, reflections to question ratio and percent MI consistency. While the Global spirit is an aggregate score of *collaboration*, *evocation* and *autonomy support*, the Behaviour counts include computation of percentage values for complex reflections to total reflections (complex + simple) counts, open to total question (open + closed) counts, MI consistent responses to total responses (MI consistent + MI-inconsistent) count, as well as the ratio of reflections to questions (Miller and Rollnick, 2013, p.400). Currently the basic competency threshold for Global spirit rating on MITI is an

average of 3.5 (on a 1-5 scale), $\geq 40\%$ for percentage complex reflections, $\geq 50\%$ for percentage open questions, $\geq 90\%$ for percentage MI consistency and ≥ 1.0 for reflection-to-question ratio. Conversely, the proficiency thresholds are: 4.0 for Global spirit; $\geq 50\%$ for percent complex reflections; $\geq 70\%$ percent open questions; $\geq 98\%$ for MI consistency; and ≥ 2.0 for reflection-to-question ratio (Miller and Rollnick, 2013, p.400). Although these competency and proficiency thresholds are currently widely used in studies, they are still considered to be provisional ratings based on expert opinions only as they lack normative or other validity data to support them (Miller and Rollnick, 2013, p.399; Moyers, Manuel and Ernst, 2014). However, until such data become available, researchers are encouraged to use the provisional ratings with other data to arrive at clinician's basic competence and proficiency in using MI (Miller and Rollnick, 2013, p.399; Moyers, Manuel and Ernst, 2014).

Study Search

To carry out this literature review, eight electronic databases were searched for relevant studies. These include ASSIA, CINAHL, MEDLINE, PBSC, PsycARTICLES, PsycINFO, PubMed and Virology and AIDS Abstract. Study search was limited to those published between 1995 and 2018. The limitation for study search from 1995 is to account for all studies published since the introduction of ART for management of HIV (Baggaley et al., 2015; Granich et al., 2015). Study search was also limited to articles published in English language, due to lack of time to carry out translations. The search terms used for searching the studies from the databases were stringed together with Boolean operators in the following pattern: (Motivational Interviewing OR MI OR Motivational Interview) AND (Counselling OR Counseling OR Advice OR Consultation) AND (HIV drug OR HIV treatment OR Antiretroviral Therapy OR Antiretrovirals). This search string produced 1,911 articles. Screening of the articles for relevant titles yielded 78 articles that met the objectives of this review. One more relevant article (Yeagley et al., 2012) was retrieved through manual search of the journal of the Association of Nurses in AIDS care and one more study (Bofill et al., 2015) was retrieved from the manual search of the Journal of the International Association of Providers of AIDS Care (2002-2018). Another article (Evangeli et al., 2009) was also retrieved from the manual search through the reference of one of the retrieved articles from the electronic databases (Dewing et al., 2013). Hence, 81 relevant articles were retained for assessment after the study search. A summary of the study search is presented in table 4.1.

Table 4.1: Summary of Study Search for Review

S/N	Study Sources	Total Hit	Relevant Titles
1	Virology and AIDS Abstract	61	0
2	ASSIA	613	5
3	CINAHL	65	13
4	MEDLINE	130	13
5	PsycARTICLE	0	0
6	PBSC	28	5
7	PsycINFO	180	16
8	PubMed	834	26
9	Journal of the International Association of Providers of AIDS Care	NA	1
10	Journal of the Association of Nurses in AIDS care	NA	1
11	Reference Search	NA	1
	Total	1911	81

N.B: Total search hits were “**NA**-Not Applicable” for the Manual Searches through Journals and References

Duplicate titles were removed from the retained articles, leaving 37 articles for abstract screening. After the abstract screening 12 studies were excluded based on the inclusion criteria (Cook et al., 2009; Cooperman et al., 2007; Dilorio et al., 2003; Gwardz et al., 2015; Holstad et al., 2011; Koken et al., 2012; Laisaar et al., 2013; Outlaw et al., 2013; Parsons et al., 2007; Parsons, Rosof and Punzalan 2005; Uuskula et al., 2017; van Loggerenberg et al., 2015b). The remaining 25 articles were retained for full text review. After the full text review 17 studies were also excluded based on the inclusion criteria (Adamian et al., 2004; Allicock et al., 2017; Cooperman et al., 2012; Dilorio et al., 2008; Goggin et al., 2013; Golin et al., 2006; Fox et al., 2016; Ingersoll et al., 2011; Konkle-Parker et al., 2010; Krummenacher et al., 2011; Letourneau et al., 2013; Navarro et al., 2014; Pradier et al., 2003; van Loggerenberg et al., 2015a; Sutton et al., 2017; Thrasher et al., 2006; Yeagley et al., 2012). A summary of the excluded studies and the justification for exclusion is presented in Appendix 2. Justification for exclusion of the studies includes: because setting of study was in developed countries (Adamian et al., 2004; Allicock et al., 2017; Cook et al., 2009; Cooperman et al., 2012; Dilorio et al., 2008; Goggin et al., 2013; Golin et al., 2006; Gwardz et al., 2015; Holstad et al., 2011; Ingersoll et al., 2011; Konkle-Parker, Erlen and Dubbert, 2010; Krummenacher et al., 2011; Laisaar et al., 2013; Letourneau et al., 2013; Navarro et al., 2014; Outlaw et al., 2014; Parsons et al., 2007; Pradier et al., 2003; Uuskula et al., 2017; Yeagley et al., 2012); for not using MI in the study (Fox et al., 2016; Sutton et al., 2017; van Loggerenberg et al., 2015a; van Loggerenberg et al., 2015b); for being a pilot study of a randomised controlled trial included among the retrieved studies (Cooperman et al., 2007; Dilorio et al., 2003; Parsons, Rosof and Punzalan 2005); and for being a process report of the adaptation of MITI (Koken et al., 2012).

The eight retained articles after full text review are all quantitative studies (Bofill et al., 2015; Dewing et al., 2013; Dewing et al., 2015; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011; Holstad et al., 2012; Jones et al., 2016; Maneesriwongul, Prajanket, and Saengcharnchai, 2012) with different research designs. Among the quantitative studies, there was a cluster randomised controlled trial [RCT] (Dewing et al., 2015); a factorial experimental study (Jones et al., 2016); two single group cohort studies (Dewing et al., 2013; Evangeli, Longley and Swartz, 2011), three pre-and post-test studies (Bofill et al., 2015; Evangeli et al., 2009; Maneesriwongul, Prajanket and Saengcharnchai, 2012), and a post-test only study (Holstad et al., 2012).

Each of the retained studies was selected for inclusion in this review because of diverse reasons that are consistent with the inclusion criteria specified by the PEO. These reasons include: test of impact of training on the application of MI techniques during routine consultation for ART (Bofill et al., 2015); test of the fidelity of lay adherence counsellors to MI techniques during ART adherence counselling sessions (Dewing et al., 2013); test of the impact of MI training course on the counselling skills of lay adherence counsellors during ART adherence counselling sessions (Dewing et al., 2015); test for changes in the ability of lay adherence counsellors to use MI to promote ART adherence (Evangeli et al., 2009); test for changes in the MI skills of the lay adherence counsellors one year after training without any further training or supervision (Evangeli, Longley and Swartz, 2011); test for the feasibility and efficacy of a group MI intervention to promote adherence to ART (Holstad et al., 2012); impact of the use of MI techniques to optimise adherence and engagement in care among HIV patients (Jones et al., 2016); and test of the effectiveness of a MI based counselling intervention on ART adherence (Maneesriwongul, Prajanket and Saengcharnchai, 2012).

Despite meeting the inclusion criteria, there is a need to evaluate the methodological quality of the studies included in a literature review to draw conclusions about the strength of the overall body of evidence included in it (Polit and Beck, 2008, pp.127-130). Therefore, before extracting data from the retained studies, the methodological quality assessment of the eight studies was carried out.

Methodological Quality Assessment for the Retained Studies

To carry out the methodological assessment for the retained studies in the review Mixed Method Appraisal Tool (MMAT) developed by Pluye et al. (2011) was adopted for this purpose. The MMAT was considered fit for this review because of its efficiency as it allows the use of one tool for appraising all types of empirical studies, rather than appraising the studies with different tools and separate list of questions.

Significant methodological challenges were found in six of the studies (Bofill et al., 2015; Dewing et al., 2015; Evangeli et al., 2009; Holstad et al., 2012; Jones et al., 2016; Maneesriwongul, Prajanket, and Saengcharnchai, 2012). The methodological challenges found among the studies include: sampling or selection bias (Bofill et al., 2015; Evangeli et al., 2009; Holstad et al., 2012; Jones et al., 2016; Maneesriwongul, Prajanket, and Saengcharnchai, 2012); attrition bias (Dewing et al., 2015); unclear validity and reliability of measurement instruments (Bofill et al., 2015; Evangeli et al., 2009).

Sampling Bias: Sampling bias is a systematic overrepresentation or underrepresentation of a population segment in term of key characteristics (Polit and Beck, 2017, p.163). Possibility of sampling bias occurred in four studies (Bofill et al., 2015; Evangeli et al., 2009; Holstad et al., 2012; Maneesriwongul, Prajanket, and Saengcharnchai, 2012) due to the use of convenience sampling for selection of study participants. Although convenience sampling is commonly used by researchers, the price of using it is an increased risk of bias as it is the weakest form of sampling (Polit and Beck, 2017, p.163). The authors could have used more reliable form of sampling for quantitative studies such as probability sampling like random or systematic sampling methods to reduce sampling bias (Polit and Beck, 2017, p.163-165). Moreover, for one of the studies (Jones et al., 2016) involving randomisation of participants, there was also possibility of selection bias due to lack of description of the sequence generation for randomisation or allocation concealment (Akobeng, 2005).

Attrition bias: Attrition bias which is a term commonly used in controlled trials can be described as the systematic difference between groups in respect of withdrawal from a study (Higgins and Green, 2008, p.195). This bias could occur due to incomplete data and lack of blinding of participants, personnel and outcome assessors (Higgins and Green, 2008, p.195). Attrition rate beyond 20% increases the possibility that effect estimates of randomised controlled trials could be biased (Pluye et al., 2011). Hence, attrition rate of 39.6% in the study carried out by Dewing et al. (2015) is higher than safe threshold.

Validity and reliability: Validity refers to the ability of a measurement instrument to measure what it is supposed to measure, and reliability is the instrument's ability to consistently and accurately measure the concept under study (Coughlan, Cronin and Ryan, 2007). If an instrument with already established validity and reliability is used in a study, there is no need for the researchers to outline its validity and reliability in their study, but if the instrument has been adapted in any way or is being used for a new population, it is recommended that the authors should indicate the validity and reliability of the new instrument (Coughlan, Cronin and Ryan, 2007). In the study carried out by Evangeli et al. (2009) the authors did not clearly explain how they ensured the validity and reliability of the self-efficacy questionnaire before it

was used in the study. Additionally, the questionnaire for MI techniques used to assess the self-reported frequency of the use of MI techniques in counselling sessions was adapted from the 11-item BECCI, but with the observation response format used in the BECCI changed to that of self-report. While it was not clear why the authors chose to use self-report instead of the observation process of BECCI which would have been more objective, it was not also clear how the authors ensured the validity and reliability of this instrument before use. Similarly, the findings of the study carried out by Bofill et al. (2015) suffer from poor validity due to the use of MI technique coding approach which does not involve established validated tools such as MISC, MITI or OnePass. Lastly, while the validity and reliability of the study carried out by Holstad et al. (2012) could have been enhanced by use of already validated tools for data collections and measurements, the authors did not specify the measuring tool used for data collection in respect of the satisfaction of patients with the MI sessions. Although the data collection tool was not reported by the authors of the study, they presented results of the satisfaction of the patients among the study findings. Based on this limitation, it is difficult to ascertain the reliability of such finding.

Overall, two (Dewing et al., 2015; Evangeli, Longley and Swartz, 2011) of the retained studies have very high scores of eight out of eight total quality scores. Judgement of the methodological quality of the retained studies were based on the allocation of Likert scores zero, one and two to answers categories “no”, “can’t tell” and “yes” respectively on the adopted critique framework (see Appendix7) (Pluye et al., 2011). Since the highest achievable quality score was eight, it was assumed that the medium quality score will be four and any quality score below that benchmark was low. While one of the other studies had total scores of six (Maneesriwongul, Prajanket, and Saengcharnchai, 2012) and four studies had scores of five (Evangeli et al., 2009; Bofill et al., 2015; Holstad et al., 2012; Jones et al., 2016), one of the retained studies had the lowest quality score of three (Dewing et al., 2013). Since one the studies had a low quality while the others had higher scores above the quality benchmark, it could be argued that the overall methodological quality of the reviewed studies is averagely high. Total quality scores allocated to each study are presented along with the extracted data in Table 4.2. Findings from this review should therefore be interpreted with regards to the highlighted methodological limitations and the quality scores of the studies contributing to the findings.

After the methodological quality assessment, full texts of the eight retained studies were explored to extract data in line with data relevant to the PEO defined earlier.

4.3 Findings from the Review

4.3.1 Overview of the Retained studies

As presented in Table 4.2, the eight retained studies were carried out in four developing countries: four from South Africa (Dewing et al., 2013; Dewing et al., 2015; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011); one from Thailand (Maneesriwongul, Prajanket and Saengcharnchai, 2012); two from Argentina (Bofill et al., 2015; Jones et al., 2016); and one from Nigeria (Holstad et al., 2012). Hence, the studies were carried out among HIV patients and health practitioners in three different continents: Africa; South America; and Asia.

A total of 270 HIV patients were recruited into this review by the individual studies that focused on patients' experiences or outcomes. In this regard, Holstad et al. (2012) recruited 60 women, Maneesriwongul, Prajanket and Saengcharnchai (2012) recruited 90 patients (male and female), while Jones et al. (2016) recruited 120 patients (male and female). For studies that focused on MI training for health providers, a total of 146 individuals were recruited into the review. For instance, Evangeli et al. (2009) recruited 17 female lay adherence counsellors (this include the 10 who participated in the follow-up evaluation in Evangeli, Longley and Swartz, 2011), Dewing et al. (2013) recruited 39 lay adherence counsellors and Dewing et al. (2015) recruited 78 lay adherence counsellors and Bofill et al. (2015) recruited 12 physicians.

Table 4.2: Extracted Data from the Reviewed Studies in Chapter Four

Study	Intervention	Study Context	Participants	Ethnicity/ Language of Clinicians	Language/ Duration of Sessions	Ethnic Group of Patients	Relevant Outcomes	Quality
1	Intervention: 8 MI Group sessions for medication adherence and RRB Control: 8 equivalent sessions of HPP.	Nigeria. HIV clinic at the NIMR	Patients: 60 HIV+ English speaking adult women. Clinicians: in MI group were 3 trained HW. For HPP were 3 trained HW.	Not reported	English. MI sessions lasted for 90-120 minutes.	Hausa (n=6.3%); Ibo (n=33.3%); Yoruba (n=43.8%); Ijaw (n=8.3%); Efik (n=4.2%); and from other tribes (4.1%).	Satisfaction: No significant differences between groups in how the sessions were liked. Six of the MI sessions scored higher in 3 MI-related indicators compared to the HPP sessions. Sessions five (SSK and skills) and six (pros/cons and ambivalence about using RRB) scored lower in MI related ratings.	6
2	Evaluation of a 6-session (12-hour) training course of MI. Data collected from role-plays between trained LAC.	South Africa	LAC (n=17).	FL: Afrikaans (n=7); Xhosa (n=9) English (n=1)	Sessions: Afrikaans (n=8); English (n=10); and Xhosa (n=9). Counselling sessions lasted for 10 minutes.	Not relevant	Fidelity assessed with MITI 2.0. Three of 14 counsellors achieved beginning proficiency in MI in respect of percent MI consistency. Counsellors who conducted some or all sessions in English showed a higher percentage of complex reflections ($p=0.025$).	5

Study	Intervention	Study Context	Participants	Ethnicity/ Language of Clinicians	Language/ Duration of Sessions	Ethnic Group of Patients	Relevant Outcomes	Quality
3	<p>Intervention:</p> <p>MI with counselling (MIC); educational video; and UC group.</p> <p>MIC consist of 3 sessions.</p> <p>Delivery method:</p> <p>Sessions 1 and 3 were face-to-face. Session 2 was over the telephone.</p>	<p>Thailand.</p> <p>Carried out in AC</p>	<p>Patients:</p> <p>Adult NAP (n=90). 30 patients selected for each IG.</p> <p>Clinicians: For MIC sessions was a nurse. For UC sessions was a clinic nurse counsellor and the clinic physician.</p>	Not reported.	<p>First MIC session lasted about 40 minutes.</p> <p>Session 2 lasted 25 to 30 minutes.</p> <p>Session 3 lasted about 30 minutes.</p>	The patients were all Thais.	Not relevant	6

Study	Intervention	Study Context	Participants	Ethnicity/ Language of Clinicians	Language/ Duration of Sessions	Ethnic Group of Patients	Relevant Outcomes	Quality
4	<p>Intervention: LAC trained and supervised as a part of <i>Options</i>.</p> <p>Control: Standard training for public LAC</p> <p>Delivery Method: Individual and face to face basis.</p>	<p>South Africa. 33 Clinics.</p>	LAC employed by 11 NGO.	<p>Intervention group: FL: Afrikaans (n=5); Xhosa (n=17); and other LLs (n=1).</p> <p>Control: group: FL: Afrikaans (n=3); Xhosa (n=27); English (n=2).</p>	<p>Sessions: Fifty-five sessions recorded in Xhosa or Afrikaans (n=55).</p>	Not relevant	<p>Fidelity assessed with MITI 3.0. Significant difference between the two groups on all global dimensions except direction- $p=0.1289$.</p> <p>Behaviour counts: MI counsellors delivered significantly more MI adherent statements and simple reflections ($p=0.0002$ and $p=0.0001$ respectively).</p>	8

Study	Intervention	Study Context	Participants	Ethnicity/ Language of Clinicians	Language/ Duration of Sessions	Ethnic Group of Patients	Relevant Outcomes	Quality
5	Follow-up evaluation from Evangeli et al. (2009).	South Africa	LAC (n=10).	Not reported. Reference made by authors to Evangeli et al. (2009).	Sessions: English; isiXhosa or Afrikaans. Duration of sessions was 10 minutes.	Not reported	<p>MI fidelity assessed with MITI 2.0.</p> <p>Data for 8 participants were reported. Global spirit improved between post-training and follow-up ($p = 0.05$, $r = 0.49$). No differences in reflection to question ratio between the same periods. Improved percentage complex reflections ($p = 0.09$, $r = 0.42$).</p> <p>Positive relationship between the percent MI adherent responses and length of counselling experience ($p = 0.03$) at follow-up.</p>	8

Study	Intervention	Study Context	Participants	Ethnicity/ Language of Clinicians	Language/ Duration of Sessions	Ethnic Group of Patients	Relevant Outcomes	Quality
6	Video Record (VR) of a RC with an HIV-positive NAP obtained from each physician. Physicians were then trained to use MI techniques. A follow-up VR of physicians and a different NAP were collected within 1 to 2 months after training.	Argentina. A public and a private facility, providing HHS	IDP (n=12) specialized in HIV care.	Not reported.	Not reported.	Not reported.	Physicians were willingness to try MI with patients. Seven of 12 physicians felt MI would fit into their practice or that they would have enough time to use the techniques. Two weeks after the workshop: 11 of 12 physicians responded to a survey. Most of the physicians endorsed using MI skills. Two physicians were not comfortable to use MI and 1 reported not having enough time to use it. 9 of 12 physicians who submitted VR after MI training used at least 1 of the MI techniques.	5

Study	Intervention	Study Context	Participants	Ethnicity/ Language of Clinicians	Language/ Duration of Sessions	Ethnic Group of Patients	Relevant Outcomes	Quality
7	<p>Intervention with 2 phases.</p> <p>Phase one: Participants randomized to either PA or PI.</p> <p>Phase two: PP randomized to PA or SOC [PI]. CP conducted the PRA condition.</p>	<p>Argentina. A public and a private facility, providing HHS</p>	120 adult (61 men and 59 women) PP	Not reported.	Not reported.	Not reported.	Not relevant.	5

Study	Intervention	Study Context	Participants	Ethnicity/ Language of Clinicians	Language/ Duration of Sessions	Ethnic Group of Patients	Relevant Outcomes	Quality
8	Intervention: Training of LAC to use Options. Delivery method: Individual and face-to-face basis.	South Africa	LAC (n=39).	FL: Xhosa (n=77%), and Afrikaans (n=23%)	35 sessions analysed. Sessions: Afrikaans (n=5); English (n=3) by Afrikaans speaking counsellors. Remaining sessions were in Xhosa	Not relevant	Fidelity analysed with MITI 3.0. Counsellors failed to achieve proficiency in MI.	3

Notations: **AC**-Ambulatory Clinic; **CP**-Clinician Participants; **FL**- First Languages; **HPP**- Health Promotion Program; **HHS**- HIV Healthcare Services; **HIV+**=HIV positive; **HW**- Health Workers; **IDP**-Infectious Diseases Physicians; **IG**-Intervention Group; **LAC**-Lay HIV Adherence Counsellors; **LL**-Local languages; **n**-Number; **NAP**-Non-ART Adherent Patients; **NGO**- Non-Governmental Agencies; **NIMR**- Nigerian Institute of Medical Research; **Options** (an evidence-based intervention based on MI); **PA**-Patient Active; **PI**-Patient Inactive; **PP**-Patient Participants; **PRA**-Provider Active; **RC**-Routine Consultation; **RRB**-Risk Reduction Behaviours; **SOC**-Standard of Care; **SSK**- Safer Sex Knowledge; **Study 1**- Holstad et al. (2012); **Study 2**- Evangeli et al. (2009); **Study 3**- Maneesriwongul, Prajanket, and Saengcharnchai (2012); **Study 4**-Dewing et al. (2015); **Study 5**- Evangeli, Longley and Swartz (2011); **Study 6**-Bofill et al. (2015); **Study 7**- Jones et al. (2016); **Study 8**- Dewing et al. (2013); **UC**-Usual Care; **VR**- Video Record.

Ethnicities of Study Participants

Although the study carried out by Maneesriwongul, Prajanket and Saengcharnchai (2012) involved only Thai patients, the studies carried out in Argentina did not report the ethnic characteristics of the study participants (Bofill et al., 2015; Jones et al., 2016). Conversely, the studies carried out in Nigeria reported recruiting patients from diverse ethnic groups. For instance, the study in Nigeria involved patients mainly from five ethnic groups: Hausa, Ibo, Yoruba, Efik and Ijaw (Holstad et al., 2012). However, the ethnicity of the health practitioners who participated in the study was not reported (Holstad et al., 2012). Similarly, the ethnicity of the study participants in the studies carried out in South Africa (Dewing et al., 2013; Dewing et al., 2015; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011) was not reported. Hence, little is known about the ethnicity of the individuals who have been exposed to the MI approach in the existing studies.

Languages of Study Participants

Only the four studies which were carried out in South Africa reported the language characteristics of the health practitioners. For instance, Dewing et al. (2013) and Dewing et al. (2015) reported the first languages of the counsellors as Afrikaans or Xhosa, while Evangeli et al., (2009) also reported that counsellors in their study speak Xhosa, Afrikaans and English as first languages. Although Holstad et al. (2012) reported the ethnic groups of the patients in their study in Nigeria, it cannot be assumed that the individuals spoke the languages associated with their ethnic groups (Hausa, Ibo, Yoruba, Efik and Ijaw) because of inter-ethnic mobility and settlements in the country which could have led to the adoption of a different language by the individuals. Therefore, apart from the South African studies little attention was paid to the importance of the language characteristics of the individuals exposed to or using MI in the existing studies.

Characteristics of the Study Patients

Only three of the six studies were focused on patient outcomes and therefore presented patient characteristics. Adult HIV patients aged ≥ 18 were involved in these studies (Holstad et al., 2012; Jones et al., 2016; Maneesriwongul, Prajanket and Saengcharnchai, 2012). Moreover, in the study carried out in Nigeria, eligibility of the patient participants includes having been prescribed ART by the physicians and the ability to speak English (Holstad et al., 2012). Although the eligibility for the Thai study includes patients who have been on ART for more than four weeks with $<95\%$ adherence to ART (Maneesriwongul, Prajanket and Saengcharnchai, 2012), the study did not specify any language capacity for the eligibility of

the patients. Meanwhile, eligibility of participants in the study carried out in Argentina includes being considered as non-adherent to first ART regimen or previously prescribed ART regimen (Jones et al., 2016). However, the study did not specify language restriction for eligibility of participants, rather the authors reported that they translated assessment materials into Spanish to enhance participation of the recruited participants. Although, the baseline level of adherence of patients was not assessed in the Nigerian study (Holstad et al., 2012), characteristics of the patient participants in this review indicate that MI has been tested with patients irrespective of their adherence level. Evidence from the reviewed studies also indicate that test of MI among patients who could not speak English is relatively limited.

Study Settings

While six studies were carried out in HIV care clinic contexts (Bofill et al., 2015; Dewing et al., 2013; Dewing et al., 2015; Holstad et al., 2012; Jones et al., 2016; Maneesriwongul, Prajanket and Saengcharnchai, 2012), two studies were based on only data collected in MI trainings context and role plays among health practitioners (Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011). However, only six studies involved the participation of health practitioners who work in the HIV clinical care context where the research was carried out (Bofill et al., 2015; Dewing et al., 2013; Dewing et al., 2015; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011; Jones et al., 2016). Incidentally, these are only studies carried out in Argentina and South Africa but not in Nigeria and Thailand. This pattern of study practice suggests that only on few occasions were the existing knowledge about the applicability of MI in ART clinic contexts obtained with the involvement of health workers who support HIV patients in real life practice.

Educational Characteristics of Health Practitioners

Health practitioners who were trained to use MI in the reviewed studies ranged from individuals who had no professional qualification to those with high level of professional qualifications. For instance, the four studies carried out in South Africa involved training of lay adherence counsellors on how to carry out *Options*-which is an MI based ART adherence counselling approach. The lay adherence counsellors are individuals without any professional or paraprofessional certificate or degree education who carry out functions related to health care delivery (Evangeli et al., 2009; Dewing et al., 2013; Dewing et al., 2015). Contrary to the training of lay adherence counsellors in the South African studies, the four remaining studies involved health practitioners with relatively higher educational qualification. For example, the study carried out by Holstad et al. (2012) in Nigeria involved training of health practitioners with nursing, social work and counselling background. Additionally, health practitioners in the

Thai study were nurses (Maneesriwongul, Prajanket, and Saengcharnchai, 2012), while the studies carried out in Argentina involved infectious diseases physicians (Bofill et al., 2015; Jones et al., 2016).

Languages used in the MI sessions

In the Thai and Argentine studies, the language used to conduct the MI sessions were not reported (Bofill et al., 2015; Jones et al., 2016; Maneesriwongul, Prajanket, and Saengcharnchai, 2012). However, in the Nigerian study, English was the language in which the MI sessions were carried out (Holstad et al., 2012). While only some of the sessions analysed in the four South African studies were carried out in English language, other sessions were carried out in Xhosa or Afrikaans language (Dewing et al., 2013; Dewing et al., 2015; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011). This pattern of MI practice in existing studies shows that MI has been carried out in local languages as well as in English in developing countries.

4.3.2 Application and Adaptation of MI

MI was applied in the reviewed studies in different formats. The formats mainly involved face-to-face sessions, but some of the sessions of the MI based interventions in the study carried out by Maneesriwongul, Prajanket, and Saengcharnchai (2012) were also carried out through the telephone to complement the physical sessions. While MI based intervention was delivered in group sessions in one of the studies (Holstad et al., 2012), the interventions was delivered in one-to-one basis between the trained health practitioners and patients in all the other studies except two (Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011) where the sessions were carried out in role-plays between counsellors during MI training. Irrespective of whether the session was conducted in individual or group format, duration of the MI sessions carried out in the reviewed studies ranged between 10 to 120 minutes.

MI was also utilised in different roles in all the studies. In two of the studies, MI was the counselling approach adopted for the delivery of all the components of the ART adherence intervention projects such as the *Options* (Dewing et al., 2013; Dewing et al., 2015), Keeping Healthy and Active with Risk Reduction and Medication Adherence (KHARMA) project (Holstad et al., 2012), and the MI along with counselling intervention carried out by Maneesriwongul, Prajanket, and Saengcharnchai (2012). In the two Argentine studies, MI was the consultation approach used by the physicians for the HIV treatment sessions (Bofill et al., 2015; Jones et al., 2016). Meanwhile, in the last two studies, the MI counselling approach was the ART intervention (Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011). Therefore,

irrespective of how MI was applied in each of the studies, the common factor is the need for health providers to develop MI skills.

Outcomes

Outcomes measured in the reviewed studies differ depending on the objective of each study. However, the outcome data extracted from the studies were the ones that were considered relevant to the objectives of this review irrespective of how many other outcome data that were reported in each study. Measured outcomes extracted from the reviewed studies include: feasibility and acceptability of the study interventions or the MI approach; fidelity of health practitioners to the MI; and impact of the MI training on the treatment consultation.

4.3.3 Acceptability and Feasibility of the Intervention in Studies

Acceptability of MI was assessed in only two of the reviewed studies (Bofill et al., 2015; Holstad et al., 2012). In this regard the authors of the Nigerian study assessed the satisfaction of the HIV patients about the group sessions in respect of certain factors termed “MI related indicators” (Holstad et al., 2012). The MI indicators examined by the authors include: whether patients talked more than the health practitioners; whether the patients felt listened to; and whether the patients felt understood (Holstad et al., 2012). The authors reported that they evaluated each of these indicators with each of the patient participants after each of the eight group sessions of the KHARMA project. Based on these indicators, the authors reported that there was no significant difference between the MI and control group in how well the sessions were liked, although six of the MI sessions were consistently scored higher by the patients in three MI-related indicators when compared to the control. However, it was also reported that sessions two of the MI group sessions were scored lower by the patients in respect of the MI related indicators compared to the control group (Holstad et al., 2012).

Contrary to the Nigerian study, the Argentine study reported both feasibility and acceptability of MI among the physicians. The study revealed that immediately after the MI training all participating physicians were willing to use MI with their difficult patients and they found the MI techniques appropriate for understanding how to guide their difficult patients instead of imposing decisions on them (Bofill et al., 2015). Over half of the 12 participating physicians in the study also reported that they would have enough time to use the MI techniques during their regular clinic time schedule. After each of the physicians had practiced the MI approach with one difficult patient apiece, most of the physicians (nine out of 11) who responded reported feeling comfortable to use MI skills with their difficult patients and perceived having enough time to use the during their regular consultation session. However, two of the physicians who responded to the survey reported that they were not comfortable using MI

skills, while one of them reported not having enough time to use the approach during routine consultations. Evidence available in this review based on these data therefore revealed that while MI may be acceptable for use among some physicians, it may not be acceptable to others, while available time for regular clinical consultation sessions appears to be a significant predictor of its acceptability. In addition, evidence within this study also revealed that MI intervention may not always be more acceptable to patients, yet one needs to be cautious with this finding from the study carried out by Holstad et al. (2012) because its validity and reliability could not be ascertained. Overall, findings from these two studies indicate that current knowledge about the feasibility and acceptability of the use of MI for routine consultation in ART clinical context in developing countries is very limited and it is not yet conclusive.

4.3.4 Fidelity of the Health Practitioners to MI

Fidelity of the health practitioners to the techniques and spirit of MI was not assessed in four of the studies (Bofill et al., 2015; Holstad et al., 2012; Jones et al., 2016; Maneesriwongul, Prajanket, and Saengcharnchai, 2012), but in the four remaining studies which were all carried out in South Africa fidelity of health practitioners to MI was assessed by using the MITI coding system (Dewing et al., 2013; Dewing et al., 2015; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011). Therefore, it could not be ascertained whether MI was delivered with optimum quality in the studies carried out in Argentina, Thailand and Nigeria.

Assessment of MI fidelity in the four studies revealed different but comparable levels of competencies among the health practitioners. In one of the four studies carried out by Dewing et al. (2013), health practitioners had challenges at achieving the basic level of MI competency. This conclusion could be reached based on the following data. Against recommended global ratings with basic competency score of 3.5 average and proficiency score of 4.0 average, mean score for MI spirit in this study was 2.6 (SD=0.8; range: 1.3-4.0). Despite the low average MI spirit score among the health practitioners, the health practitioners achieved maximum score of five for Direction which is a dimension of the global spirit (SD=0.0; range: 5.0-5.0). Overall, only nine of the 35 counsellors with audiotaped records in the study achieved basic competency for MI spirit with one among the nine counsellors achieving proficiency. Similarly, for MI behaviour counts in respect of recommended basic competency (BC) and proficiency (P) scores for percent complex reflections (BC $\geq 40\%$ and P $\geq 50\%$), percent open-questions (BC $\geq 50\%$ and P $\geq 70\%$), percent MI consistency (BC $\geq 90\%$ and P $\geq 98\%$) and reflection-to-question ratio (BC ≥ 1.0 and P ≥ 2.0) the health practitioners in the study also had challenges. For instance, only two and six of the counsellors achieved basic competencies for reflection-to-question ratio and percent MI consistency respectively. Although the six counsellors who achieved basic competency for percent MI consistent

behaviours achieved proficiency in MI consistency, they constitute only 17% of the total population of counsellors.

Similar pattern of MI fidelity challenge was reported in the study carried out by Evangelini et al. (2009). In their study, only a small proportion of the counsellors reached the level of MI basic competency in respect of percent MI consistency (three out of 14 counsellors who completed the post-test training assessment) compared with only one who achieved the basic competency at the pre-training assessment. A similar but not significant improvement was also reported in respect of the global spirit in which three of the counsellors achieved basic competency at the pre-training assessment compared to four in post-test assessment. While no counsellor achieved basic competency in reflections-to-questions ratio and percent complex reflections throughout the study, nine counsellors achieved basic competency in the post-training assessment compared to six in pre-training assessment for percent open-questions. Therefore, statistically significant change in the skills level of the counsellors only occurred in respect of percent reflection-to-question ratio and percent MI consistency ($p=0.011$ and $p=0.026$ respectively). Moreover, in respect of the interaction of language with the MI skills of the lay counsellors, the authors noted that counsellors who conducted some or all counselling sessions in English showed a significantly higher percentage of complex reflections than those who did not ($p=0.025$).

After 12 months without any supervision or further training, a follow-up assessment of the MI skills of eight out of the same cohort of lay adherence counsellors in the study carried out by Evangelini et al. (2009) revealed few improvements in the number of counsellors achieving basic competency in MI indices compared to the post-training assessment in the primary study (Evangelini, Longley and Swartz, 2011). For instance, three of the counsellors in the follow-up assessment achieved basic competency in MI spirit compared to two in the primary study. In respect of reflection-to-question ratio one of the follow-up counsellors also achieved basic competency even though none of them achieved similar competency in the primary study. Five of the follow-up counsellors also achieved basic competency in respect of percent open-questions although only four of the six counsellors who achieved similar skill level in the primary study participated in the follow-up phase. For percent complex reflections only one of the follow-up counsellors achieved basic competency even though none of them achieved the competency in the primary study. Lastly, two of the follow-up counsellors also achieved basic competency in respect of MI consistency, although the two counsellors also achieved the same skill level in the primary study. Therefore, there were improvements in the number of counsellors achieving basic competency level in MI among without further training or supervision. Apart from the ability of counsellors to use or retain MI skills over time, the authors

also found a significant and positive association between the percent MI consistent responses at the follow-up stage of the study and the length of counselling experience of the lay adherence counsellors ($p=0.03$).

Furthermore, Dewing et al. (2015) did not report if the intervention counsellors achieved basic level of MI competency in their study, they only reported significant differences between MI and the usual counselling group in respect of the MI global ratings and behaviour counts associated with the audiotaped sessions that they analysed for both study groups. The authors reported statistically significant difference between the two groups on all global spirit dimensions in favour of the MI group (Evocation [$p=0.0004$]; Collaboration [$p=0.0005$]; Autonomy support [$p=0.0231$] and Empathy [$p=0.0064$]) except for Direction [$p=0.1289$]. In respect of behaviour counts, MI intervention counsellors also delivered significantly more MI consistent statements and simple reflections than the control group counsellors ($p=0.0002$ and $p=0.0001$ respectively). However, there was no significant difference in the behaviour of the two study groups in respect of the open-ended questions, close-ended questions and complex reflections. Based on these data, the authors summarised that the practice of the intervention counsellors was more consistent with a client-centred approach than the control counsellors. Although Bofill et al. (2015) did not assess fidelity of the health practitioners to MI they found similar impact of the MI training on the practice of the physicians by reporting that compared to pre-training level, scores for standard of care for the physicians significantly increased at post-training stage in respect of education, follow-up support and systematic planning.

One can therefore infer that these bodies of evidence suggest that while the health practitioners in the South African studies struggled to achieve fidelity to MI, they were still able to practice the approach within their multilingual and cultural contexts to certain degree of competence. Meanwhile such conclusion could not be made yet for other developing settings including Nigeria.

4.4 Discussion of the Review Findings

The objectives of this review are to explore existing literature for knowledge about how MI has been adapted for use in different settings in the developing countries and the impact of languages, culture and context on its application in such countries, with a view to understand how to apply it in Nigeria. Data generated from the eight reviewed studies in this chapter revealed the following: MI can be applied or adapted for application in different formats; participation of health workers involved in the routine care for HIV patients is limited; irrespective of professional qualification of counsellors MI can be practised to promote ART

adherence; limited time for routine clinical session may be a significant barrier; MI may not be feasible or acceptable to all; and importance of language for the implementation of MI in developing countries. Each of these findings and how they may influence the routine implementation of MI in Nigerian context are discussed further in the next few sections.

4.4.1 Adaptation and Application of MI across Settings

MI was applied in the reviewed studies in different formats. These include: face-to-face or telephone sessions; and one-to-one individualised sessions or group session format. This demonstrates that MI can be tailored to meet the needs of HIV patients irrespective of whether they could visit the HIV clinic or not for their medication adherence counselling. The group format also showed that the needs of patients who may prefer to learn more and be supported in group format rather than in individualised sessions can also be met. Although evidence of the potential use of the group format for MI could increase the population reach in respect of ART adherence promotion, it still falls within the clinical intervention and counselling/education tiers at the top of the five-step health impact pyramid which requires more of individual effort (Frieden, 2010). This is however, not a limitation of the MI approach as argued by Frieden (2010), *“interventions at the top tiers of the health impact pyramid are designed to help individuals rather than the entire populations, but they could theoretically have a larger population impact if universally and effectively applied”*. Hence, irrespective of the form in which MI is applied, whenever it is considered useful in a setting, the main aim should be how to ensure that it is universally and effectively applied.

MI has been used in different roles such as being the consultation approach in ART treatment consultation session, as the main counselling session in multicomponent ART adherence intervention programs, as the counselling approach adopted for the delivery of all the components of ART adherence intervention, or as the intervention for ART adherence promotion itself. The versatility of the MI as evidenced in the reviewed studies is an indication of the increasing interest of experts in the client-centred approach of MI. Although, MI drew some influence from client-centred psychotherapeutic approaches promoted by Thomas Gordon, and Truax and Carkhuff, it is however mostly influenced by the client-centred psychotherapeutic approach promoted by Carl Rogers (Moyers, 2004). Despite the association between MI and the approach promoted by Carl Rogers, the two approaches differ due to the focus on direction in MI. It is therefore, not surprising that Dewing et al. (2015) reported that training in MI helped lay adherence counsellors to be more client-centred in their practice than those trained only in the Egan's Skilled Helper Model, which is the client-centred model in which HIV lay adherence counsellors in the public sector in South Africa are trained (Dewing et al., 2012).

Lastly, MI has been applied in the reviewed studies with HIV patients irrespective of whether they are adherent to the ART or not. However, feasibility of using it with this spectrum of patients based on their adherence status is still limited since only one of the reviewed studies explored the appropriateness of the approach with non-adherent patients.

4.4.2 Participation of Regular Health Workers in Studies

As Moyers (2014) argued, due to the focus on harnessing the underlying motivation of individuals for change, MI is sometimes the only intervention needed, as people who resolve ambivalence often move forward to make staggeringly complex changes without any further assistance. However, without being empowered with MI training to use it, clinicians who support HIV patients in regular practice may not have the necessary skills to counsel their patients. These clinicians could be motivated to use the skills they learn from research studies in real-life practice if they believe it could be helpful in their line of work, when their standard practice fails. This was demonstrated by Evangelí, Longley and Swartz (2011) who did not only report that there were no reductions in the MI skills level they observed among a sub-set of their primary study population a year after the initial training, but also found some improvement in the skills level of the counsellors. Based on this observation, the authors concluded that the lay adherence counsellors who remained in the service of their non-governmental organisations might have been more motivated to practise and maintain their MI skills without any booster training or supervision (Evangelí, Longley and Swartz, 2011). Meanwhile, out of the studies reviewed in this chapter, only the South African and Argentine studies involved training of the health providers who worked in the HIV clinical care context where the research was carried out (Bofill et al., 2015; Dewing et al., 2013; Dewing et al., 2015; Evangelí et al., 2009; Evangelí, Longley and Swartz, 2011; Jones et al., 2016). This pattern of research approach to test MI in developing countries contexts may not be entirely helpful in respect of its dissemination, since most of its achievements remain hidden in the research write-ups, rather than being translated into real-life practice.

4.4.3 Health Practitioners Can Practise MI Irrespective of Qualification

According to the report of the evidence scan carried out by The Health Foundation (2011, p.21) various groups of individuals such as emergency workers, health educators, nurses, psychologist, psychiatrists, counsellors and general practitioners have been trained to carry out MI in different studies in different contexts. Although one of the reviewed studies (Evangelí et al., 2009) found a significant association between length of experience and fidelity to MI, such evidence is limited as it cannot be generalised to other contexts. Apart from being the only study that provided evidence of this correlation, limitation to the generalisability of the

finding from the study by Evangeli et al. (2009) is partly because the participants were all female lay adherence counsellors. Hence, one cannot assume that skills pattern observed among the female health practitioners will predict similar skills pattern among male health practitioners.

However, overall evidence in this review suggests that whether the counsellors have no professional qualification or have professional qualifications in counselling, they can be trained to use MI for their line of work. This finding is consistent with findings reported by Naar-King et al. (2009), who carried out a randomised clinical trial using MI to improve retention of youth living with HIV in primary care and compared the fidelity and outcome of peer outreach workers to master's level staff. They found that peer outreach workers can provide MI quality comparable to master's level staff if they have adequate training and supervision. This enhances the feasibility and cost-effectiveness of using MI in real-life practice for ART adherence counselling, especially in resource-limited settings where clinical staff strength may be limited in respect of the availability of professional health workers.

4.4.4 Influence of Time on the use of MI for ART adherence

Evidence from some previous qualitative studies have consistently reported time as a potential barrier to the feasibility of using MI in routine practice (Sargeant et al., 2008; Shannon, Donovan-Hall and Bruton, 2017; Soderlund and Nilsen, 2009). Unfortunately, these previous studies were not focused on ART adherence but on other health challenges. In this current review, only one study provided evidence that is consistent with the finding in previous studies where one of the physicians reported not having enough time to practise the approach in routine consultation session (Bofill et al., 2015). However, because this evidence was obtained from one out of 12 physicians from one out of the eight reviewed studies knowledge about the influence of time on the practice of MI in routine practice in developing settings is still limited.

It could be argued that the finding from the single participant in the Argentine study (Bofill et al., 2015) is consistent with the finding from a case study that tested the feasibility of using MI in routine clinical practice at an ART clinic in South Africa (Dewing et al., 2011). In the South African study time was cited as a potential barrier to use of MI by a lay adherence counsellor. However, the study was designed to address sexual risks and not ART adherence. While it could be assumed that similar contextual challenge due to time may be encountered if the MI approach is used for ART adherence support in the same clinic, this evidence is limited as it was obtained from one clinician and cannot be generalised to every context.

Besides the constraint of effect of time, evidence from one of the reviewed studies has shown that the MI skills of the trained counsellors may improve over time (Evangeli, Longley and

Swartz, 2011). However, this evidence is also limited because it was not obtained in real-life practice between counsellors and patients, but in role-plays between trained counsellors.

Lastly, within the limit of the data available in this review, irrespective of whether the sessions were conducted in individual or group session format, duration of the MI sessions carried out in the studies ranged between 10 to 120 minutes. This evidence is also limited as none of the authors specifically explored the influence of time spent on each session on the application of the MI approach. Based on these evidence, further empirical studies are still needed to either buttress the findings about the influence of time on MI approach in this review or discount it, to further understand how to implement MI in real-life practice in developing countries.

4.4.5 Knowledge about the Feasibility and Acceptability of MI

Within the limit of the available evidence in this review, little is known yet about how feasible and acceptable the MI approach will be in the context of developing countries. For instance, acceptability of the MI approach was assessed in only two studies in this review (Bofill et al., 2015; Holstad et al., 2012). Evidence from the reviewed studies has demonstrated that MI may not be universally accepted among patients or among the health practitioners in developing contexts. However, it was not clear if the views of the patients in this review from the Nigerian study (Holstad et al., 2012) could have been influenced because they experienced a poor-quality MI delivered by the health practitioners. This is because there was no report of the assessment of the fidelity of the health practitioners to MI in the study (Holstad et al., 2012).

Meanwhile, findings from the Nigerian study (Holstad et al., 2012) appear to be consistent with findings from previous studies which suggests that patients from an African background may prefer a more directive approach than MI (Miller, Marolen and Beech, 2010; Swenson et al., 2004). For instance, the study by Miller, Marolen and Beech (2010) explored the perception of diabetic African-American women about MI consultation and non-MI consultation style. In the study, two MI training videos depicting a simulated patient–physician consultation without the application of MI principles and one demonstrating MI principles (MI consultation) were presented to the women. As reported by the authors one of the patients questioned why the doctor was asking the patient about his decision instead of him [provider] telling the patient what to do, while another patient questioned why the doctor was not giving the patient much information when he is supposed to know more than the patient (Miller, Marolen and Beech, 2010). Similarly, another study by Allicock et al. (2017) in which female African-American HIV patients were trained as peer counsellors revealed that the peer counsellors found the MI skills as new ways of communicating. It can therefore be inferred that culturally, the

communication pattern promoted by MI may seem strange whenever patients from African background are first exposed to it and may not be readily acceptable to them. However, this assumption should not be deemed conclusive based on the evidence emanating from the Nigerian study (Holstad et al., 2012) because its validity and reliability could not be ascertained.

Moreover, apart from the evidence emerging from the African context in respect of the views of patients, acceptability and feasibility of MI was not also universal among the physicians in the Argentine study (Bofill et al., 2015). Although the majority of the physicians found MI useful for their practice, the study only focused on using the MI approach with difficult non-adherent patients. It is however, not clear what qualifies a patient to be tagged as difficult. Besides the term “difficult” contravening the non-judgemental concept of MI, evidence from the study could not also represent the views of the participating physicians if they had practised the MI approach with more pliable non-adherent HIV patients. Therefore, this finding from the study cannot be generalised to other contexts as well as to other HIV patients. Based on the evidence available in this review, little is currently known about the feasibility and acceptability of MI for routine clinical practice for ART adherence support in developing settings.

4.4.6 Language and Use of MI in Developing Countries

While the language in which the MI sessions were carried out in the Thai study (Maneesriwongul, Prajanket, and Saengcharnchai, 2012) and the Argentine studies (Bofill et al., 2015; Jones et al., 2016) were not reported, English was the language in which all the sessions in the study carried out in Nigeria were conducted (Holstad et al., 2012). This is despite the existence of over 450 languages in Nigeria (Ayeomoni, 2012; Pinon and Haydon, 2010). Although English is used for official and national functions in Nigeria, three indigenous languages (Hausa, Igbo and Yoruba) are also used for major official functions to conduct businesses, law and education (Akinnaso, 1991; Ayeomoni, 2012; Igboanusi, 2008; Federal Republic of Nigeria, 1999). It is therefore surprising that the study that tested use of MI for ART adherence in a highly multilingual country like Nigeria involved recruitment of only women who could speak English (Holstad et al., 2012). Testing the potential of MI for ART adherence in such a multilingual society like Nigeria in only English therefore leaves a lot to learn about the feasibility of implementing the approach in real-life clinical context.

Contrary to the practice in the Nigerian study for ART adherence, English was used only for some of the sessions in the South African studies, while the other sessions were carried out in local languages such as Xhosa and Afrikaans (Dewing et al., 2013; Dewing et al., 2015; Evangeli et al., 2009). In South Africa, English, Xhosa and Afrikaans are official languages

(Deumert, 2010). Based on this evidence, there is currently no evidence to support the reluctance of some researchers to use MI in other languages except English in multilingual communities.

Moreover, use of MI in only English to promote ART adherence in contexts where the patients may not be adequately skilled to use English or where their social setting is not entirely structured in English, may not be helpful to the patients. The systematic review carried out by Mills et al. (2006a) revealed that “*not understanding treatment instruction*” was a significant patient-related barrier to ART adherence in both developed and developing nations. This lack of understanding can be associated with lack of or inadequate education, which can also mean difficulty to understand instructions provided in English. Although, Field and Caentano (2010), suggested the need for an ethnic match between patient and health practitioner to enhance the effectiveness of an MI-based intervention, this may not be feasible in resource-limited settings. Hence, there is a need to understand how to use MI with the patients in their languages which can also be practised by the available staff mix irrespective of the staff strength in their clinic context.

In respect of fidelity to MI, evidence from this review revealed that the health practitioners in the South African studies found it difficult to achieve fidelity to MI (Dewing et al., 2013; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011). Despite this finding, one cannot safely assume based on this finding that the counsellors struggled with the use of MI because they are Africans, because previous studies in other contexts have established that MI is complex to learn and will take more than a single training workshop to learn (Bohman et al., 2012; Eno, 2016; Moyers et al., 2007; Mullin et al., 2015; Ostlund et al., 2015; Shannon, Donovan-Hall and Burton, 2017). However, evidence from the study by Evangeli et al. (2009) revealed that lay adherence counsellors who conducted some or all counselling sessions in English showed a higher percentage of complex reflections than those who did not. The finding suggests that hybrid of languages could have been used in some of the sessions, while some sessions might have been carried out entirely with just one language. This is an indication of how health practitioners and patients may adapt use of languages to ensure effective communication in a multilingual clinical setting when practising MI. Even though this finding from the study by Evangeli et al. (2009) cannot be generalised, use of the hybrid of languages or entire use of local languages in this study seem to significantly inhibit the ability of the counsellors to achieve optimum fidelity to MI in respect of percent complex reflection. Unfortunately, this review could not obtain further evidence to corroborate this finding. Ironically, while several attempts have been made by experts to support the use of MI in other languages apart from English, such efforts have only been targeted at using one pure language in an MI session

(Brueck et al., 2009; Forsberg et al., 2008; Koken et al., 2012). Hence, little is known about the impact of the use of local languages on the fidelity of health practitioners to MI in HIV treatment context in multilingual settings.

Meanwhile, limiting the use of MI to sessions between English speaking clinicians and patients may further prevent learning about fidelity in the local languages in developing countries. For instance, a recent study carried out to promote uptake of glaucoma surgery in Nigeria, which was designed to be carried out in English or Hausa languages was also designed to assess the fidelity of counsellors to MI only within the English sessions (Abdull et al., 2017). Surprisingly, all the MI sessions in the study were carried out in Pidgin or Hausa languages, which according to the authors prevented them from assessing the fidelity of counsellors to MI in all their study sessions (Abdull et al., 2017). This study design therefore, led to a missed opportunity to understand how to use MI in the local languages with fidelity or not. Hence, little is known about how to use MI in multilingual contexts in developing countries where languages may not only differ from English but can also be mixed within sessions without affecting the fidelity of the health practitioner.

Finally, Evangeli et al. (2009) stated that an important determinant of the outcome in their study relates to the cultural communication style, because MI was developed within the Western communication context. Dewing et al. (2013) also stated that it is important to acknowledge that the counsellors and probably most of the South African patients in their study did not speak English as their first language. They further argued that since counselling is a product of Western cultures, some concepts of counselling may not exist in the language of the health practitioner in non-Western settings which may also be completely foreign to the culture that the health practitioner inhabits. Based on these arguments, to use MI in contexts with different languages apart from English or settings where the communication style differs from the cultures in developed countries, we need to know how to adapt the MI approach for use in such settings without affecting the fidelity of the health practitioners to the approach.

4.4.7 Relevance of the Review Findings to Nigerian Context

Existing evidence from this review has revealed that little is currently known about the feasibility and acceptability of using MI for routine consultation sessions for ART adherence in developing countries which includes Nigeria. Neither do we have sufficient knowledge about the influence of contextual factors such as time and length of counselling experience as well as cultural factors such as languages and communication patterns in multilingual settings on the practice of MI. However, the findings from the review have also reinforced existing evidence by establishing that health practitioners can be trained to use the MI approach in

developing countries to promote ART adherence irrespective of their professional qualification.

Nigeria is not just highly burdened with HIV/AIDS prevalence and high rate of non-adherence to ART among the PLHIV, but the country is also a developing country that is shackled with limited resources (The World Bank, 2018a). Hence, as a resource-limited country the HIV clinics may be ill equipped to implement complex adherence interventions (Simoni et al., 2010). Therefore, it may be prudent to consider a seamless integration of MI which has been shown to be the consistent element of some complex interventions in this review into the existing clinical care set up in Nigeria to support ART adherence. This is also consistent with the recommendation of Simoni et al. (2010) who suggested that even though independent strategies presented in their review were not clearly established or demonstrated as independent active ingredients, they may nonetheless offer approaches that might be cautiously considered for incorporation in clinical care. Although evidence from this present review differs in that MI was demonstrated as an active ingredient that can be independent and can easily be integrated to complement existing strategies in the HIV clinic. Based on these features, MI can be integrated into the limited-resource settings of the HIV clinic in Nigeria to empower the health providers to support their patients' adherence to treatment. Findings from the network meta-analysis carried out by Mills et al. (2014) also support this view that instead of implementing a whole new complex structure to support ART adherence, an effective approach in Africa may be just to support existing standard care approach with intensive adherence counselling. However, as elicited in chapter two (page 38-39) not enough is known about the current approach to ART adherence counselling or consultation in Nigeria. One cannot assume that MI should be used to complement an existing approach that only little is currently known about, because the possibility of its ineffectiveness could inhibit the potentials of MI as well. Hence, as emphasised by Simoni et al. (2010) efforts need to be made to ensure that the efficacy of an evidence-based approach like MI is not compromised by being used in the local clinical context.

Overall, within the limit of the studies reviewed in this chapter, little is known about how MI can be adapted into a highly multilingual society like Nigeria where clinical consultations may involve use of pure or hybrid forms of languages as had been revealed in this review, without compromising its efficacy and affecting its application by clinicians. It is also not known how feasible and acceptable the approach will be in the clinical context that the existing approach to ART adherence counselling inhabits. Therefore, application of MI to support ART adherence in the Nigerian context will require more knowledge than currently available in existing studies in respect of how it can be used within the clinical and cultural context.

4.5 Chapter Summary

This chapter has presented the description and history of MI. It has also presented evidence supporting its effectiveness at promoting ART adherence. It has also established that despite the large amount of evidence supporting the usefulness of the approach, little is currently known about how to use it in real-life practice, especially in Nigeria. This chapter has therefore presented a review of literature to examine the impact of the culture and context on the use of MI and how it has been adapted for use in developing countries to inform how to use the approach to promote ART adherence in Nigeria. Evidence from this review has shown that more needs to be known about the applicability of MI in Nigeria with a focus on how to adapt it for practice in the HIV clinical context in the country for ART treatment support.

Finally, this chapter has also contributed to the research question by identifying the need to establish the transferability of MI to a Nigerian context. It is vital to ascertain whether following MI training health practitioners practice the approach with fidelity in the same context and culture within which they practise their existing adherence counselling approach. This also brings to the fore the importance of establishing and understanding the potential impact of the cultural and contextual factors that may inhibit or influence its adoption in routine practice for ART adherence consultation sessions in Nigeria.

CHAPTER FIVE: METHODOLOGY AND RESEARCH DESIGN

5.0 Chapter Overview

This chapter discusses the justification for the philosophical and theoretical perspective that underpin this study. It also presents the conceptual framework for the study and the anticipated relationship between the concepts and variables. The chapter discusses the research methodology adopted for this study. The chapter also outlines the research design and the methods used in the study, which includes the strategies adopted for the selection of participants, ethical considerations for the study and how they were addressed, the study regimen, the data collection procedures and the methods used for the data analyses.

5.1 Justification for Theoretical and Philosophical Stance

The aim of this study is to explore the feasibility of using Motivational Interviewing (MI) to promote behaviour change for HIV treatment adherence in the clinical setting in Nigeria. As it has been clearly highlighted in chapter four, there may not only be a need to consider contextual adaptation but also cultural adaptation of the MI approach before implementing the approach in the HIV clinical settings in Nigeria without compromising its effectiveness. This finding from the literature review is plausible because cultural adaptations are useful when considering the need to apply evidence-based interventions to individuals who are not similar to those who participated in its primary development (Barrera and Castro, 2006). This study therefore draws on existing frameworks for cultural adaptation of evidence-based interventions (Bernal, Bonilla and Bellido, 1995; Barrera and Castro, 2006; Kumpfer et al., 2008; Resnicow et al., 2000), because they do not only allow for assessment of the relevance or sensitivity of the intervention to the cultural elements but also contextual factors.

As recommended by Kumpfer et al. (2008), once a suitable intervention has been selected to address the problem of a population, it should be tested in the new local context. They recommend that substantial cultural changes to the program should not be made until after several pilot tests. The first stage is to implement the program in its original form, except for minor changes such as its wording to match local culture and context. Then one should check to see what works well and not so well (Kumpfer et al., 2008). Since cultural adaptation is an ongoing process, it is the testing stage that is the focus of this study. Therefore, this study seeks to first implement MI in its original format with only language adaptation by encouraging clinicians to use it in their local languages and then to determine what works and not so well.

Consistent with the prevailing practice in existing studies (Gwardz et al., 2015; Ingersoll et al., 2011; Konkle-Parker et al., 2012; Yeagley et al., 2012), the feasibility of the MI approach in the HIV clinic could be determined through the post-positivists (quantitative) approach, which

holds that there is an independent reality out there to be tested (Onwuegbezie, Johnson and Collins, 2009). However, uncertainty of the influence of cultural element such as the language and contextual factors on its practice in a country like Nigeria requires that the findings of the investigation should be understood in the context in which it is studied. Thus, this study adopts the critical realist ontological stance, which is concerned with the social and physical reality (Sarantakos, 2013, p.33).

Critical realists believe that knowledge about this world is socially constructed (Denzin and Lincoln, 2011, p.11). They also believe that social phenomena are produced by mechanisms that are real which are not directly accessible to observation, but they are discernible only through their effects (Bryman, 2016, p.616; Sarantakos, 2013, p.33). Since the purpose of this study is partly to understand how the local languages or communications styles may affect the use of MI, such effects may not be directly discernible through mere observation of real-life practice, but as the critical realists emphasised, by attempting to understand how these factors influence the behaviours of the counsellors when using MI.

Beyond merely identifying the mechanisms that influenced the phenomenon of interest, critical realists also argue that we will only be able to understand and so change the social world if we identify the underlying mechanisms (Bryman, 2016, p.25). In fact, according to Bryman (2016, p.25) the prospect of transforming the status quo after identifying the generative mechanism is what makes critical realism critical. This argument fits into the purpose of this study which is to understand how languages and communication style as well as contextual factors may affect application of MI and to use that knowledge to culturally adapt it into the local context without compromising its effectiveness.

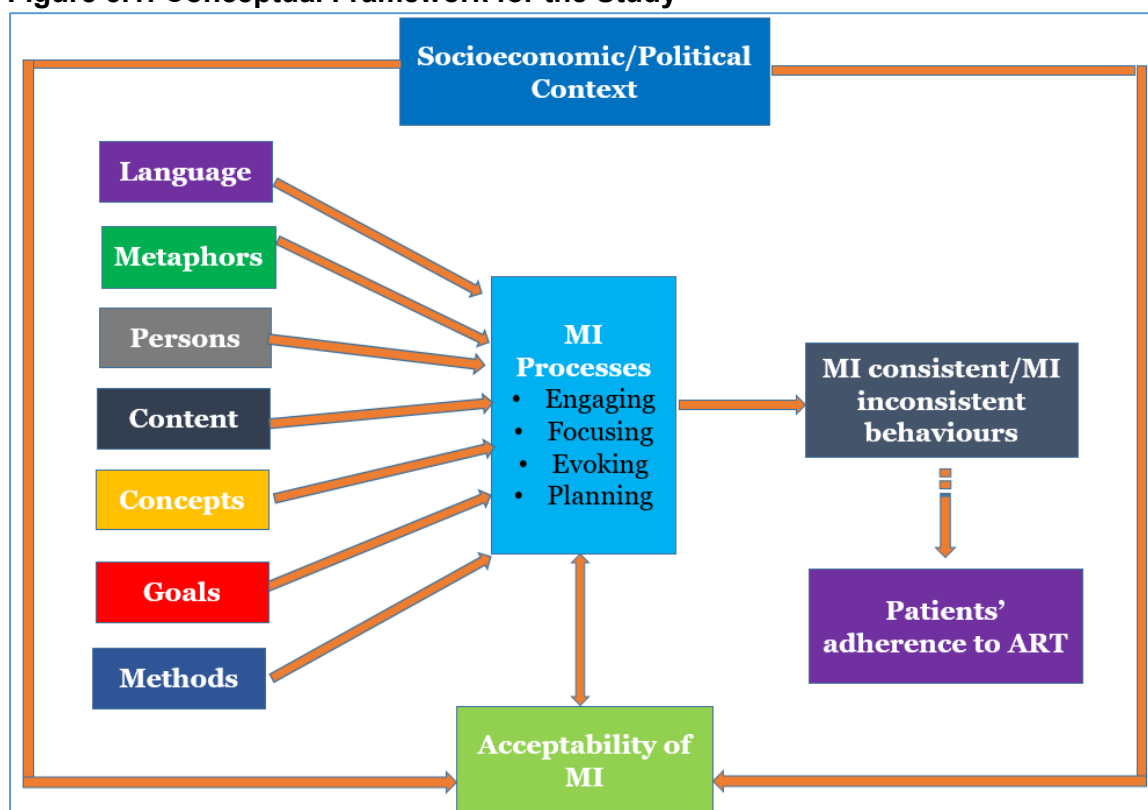
Furthermore, critical realists believe that phenomena in the world are constructed by a society made up of human beings who think and have feelings, and as such, their interpretations of the world need to be considered, when trying to understand the phenomena they create (Denzin and Lincoln, 2011, p.11). This belief of the critical realists also fits with the objective of this study which seeks to explore and incorporate the perception of the participants into the body of knowledge to fully understand the feasibility of using MI in their local context.

Lastly, critical realism favours the use of qualitative methods for the study of the social world by rejecting the positivistic rules and its standards of quantification, measurement and prediction (Sarantakos, 2013, p.33). However, it also rejects methodological individualism, as it rejects both objectivist and constructionist ontologies (Denzin and Lincoln, 2011, p.11; Sarantakos, 2013, p.33). As stated earlier, the purpose of this inquiry will not be satisfactorily met by relying on the positivistic assumption of absolute truth, because of the need to also

explore the perception of participants to fully understand the phenomenon under study. Hence, both quantitative and qualitative methods are appropriate for use in this study. This is consistent with the view of Onwuegbezie, Johnson and Collins (2009) that the ontological, epistemological and axiological stance of critical theorists who largely endorse critical realism do not prevent the use of all quantitative and qualitative analysis techniques when appropriate.

5.2 Conceptual Framework

Figure 5.1: Conceptual Framework for the Study



The conceptual framework (figure 5.1) for this study is primarily based on the theory that clinicians' fidelity to techniques and spirit of MI predicts patients' behavioural outcomes (i.e. ART adherence) (Koken et al. 2012). Hence, the conceptual framework presents the relationships between factors that could affect clinicians' fidelity to MI and its acceptability in the HIV clinic as measures of its feasibility. The framework relies on the cultural adaptation framework for interventions as proposed by Bernal, Bonilla and Bellido (1995). The framework specified that eight cultural sensitivity elements and dimensions of interventions are worthy of consideration: Language; Metaphors; Persons; Content; Concepts; Goals; Methods and Context. This framework was selected because the specification of its dimensions aligns with the objectives of this study. For instance, the framework specified that *language* of the intervention which is a key carrier of the culture (Jiang, 2000; Modiano, 2001), should go beyond mechanical translation or making the intervention available in the relevant language.

Therefore, special effort needs to be made to ensure that the language of the intervention is relevant as a culturally sensitive intervention language increases its chances of being received as intended. This framework also suggests the need to consider how the metaphors (communication concepts and symbols) unique to the study population may affect engagement of the target group in the intervention. It is in respect of the language and metaphor dimensions that this study explores the use of MI in the major indigenous Nigerian languages, to tailor its use to the needs of all patients, including those with low literacy and inability to speak English.

The *person* dimension of the framework also specifies the need to consider ethnic similarities between the clinician and the patient as a factor that may determine the therapeutic relationship for the intervention. Consideration of this dimension is important for this study as the target population is highly diverse in terms of language and culture and the achievement of a quality therapeutic partnership between the clinician and patient is one of the spirit of MI (partnership) which promotes patients' engagement or disengagement (Miller and Rollnick, 2013, p.15).

The *content* dimension emphasises the need to consider cultural values, customs and traditions that are unique to a group as essential for treatment assessment and planning. This dimension is important to the purpose of this study because MI processes are susceptible to the influence of some cultural nuances. For instance, time orientation as a cultural factor may affect the co-creative planning process of MI, while cultural norms of politeness may also affect how and when clinicians proceed from one process of MI to another (Miller and Rollnick, 2013, p.350). Among the HIV patients in Nigeria, religious beliefs and activities as well as their high dependence on social support may also affect the engaging and planning processes of MI.

The framework also specifies the need to consider how culturally sensitive the intervention *concepts* are, as well as how the *goals* of treatment are framed within the values, customs and tradition of the patients. It also specified the need to consider if the *methods* used to focus on the goal of the treatment and problem solving by the clinician is compatible to the culture of the patient. Consideration of these three dimensions align with the need to ascertain the feasibility of using the techniques and spirit of MI in the Nigerian.

Lastly, the *context* dimension of the framework emphasises the importance of considering the social, economic and political context that may affect the relevance of the intervention to the target group. In Nigeria, factors such as non-availability of ART, stigma, inadequate health workers and other hospital system barriers could affect patients' engagement in the MI sessions for ART adherence. Since the purpose of cultural adaptation is to improve

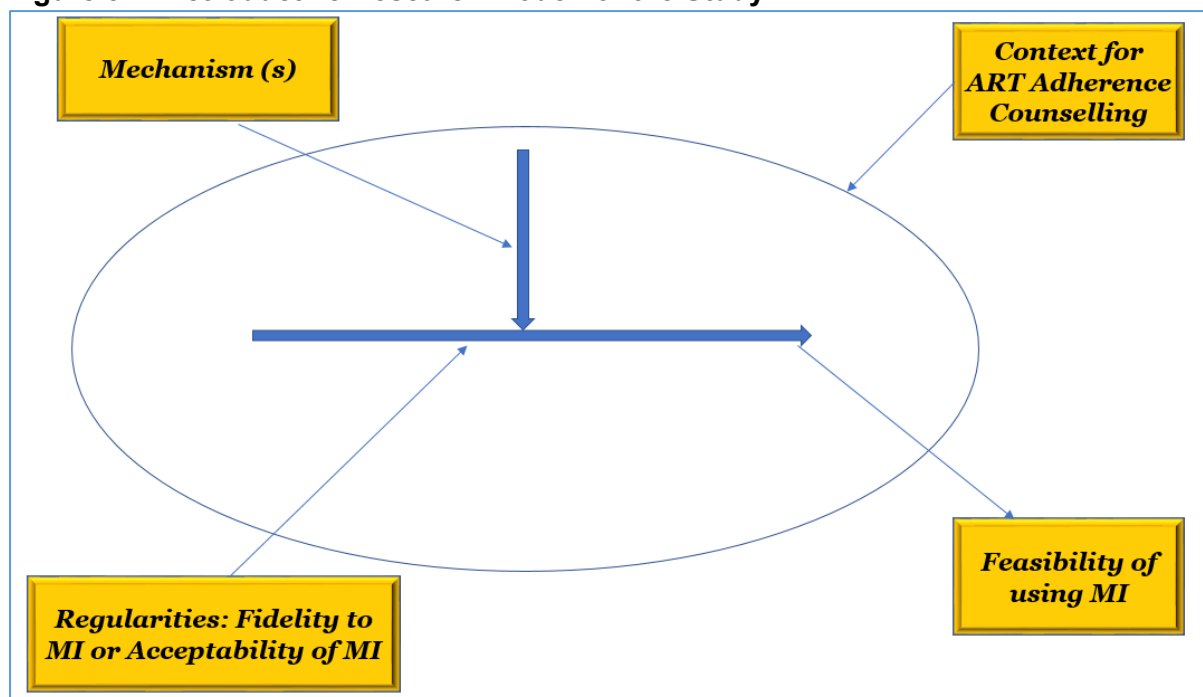
engagement in the intervention procedures (Barrera and Castro, 2006), context factors may directly impact on the acceptability of MI. While all other dimensions may directly define the cultural sensitivity of each MI process, it is assumed that they may also determine its acceptability indirectly. This study will therefore assess the feasibility of using MI for ART adherence in Nigeria by considering the specified dimensions in this framework.

5.3 Justification for Methodology

As a study underpinned by critical realism, this project utilizes neither deductive nor inductive research strategies but retroductive reasoning (Bryman, 2016, p.25). The aim of retroductive research strategy is to discover underlying mechanisms that in some contexts explain observed regularities (Blaikie, 2010, p.87). However, apart from discovering the underlying mechanisms and their relevance, retroduction also emphasises the need to establish the features of the context in terms of the ways in which it facilitates or inhibits the operation of the identified mechanism(s) (Blaikie, 2010, p.87). Meanwhile, the logic of retroductive reasoning refers to the process of building hypothetical models of structures and mechanisms that are assumed to produce empirical phenomenon (Blaikie, 2010, p.87). Based on this logic, outcome of a retroductive based study is expected to result in making inferences about the causal mechanism(s) that lie behind and is responsible for regularities that are observed (Bryman, 2016, p.25). The central assumption in this study is that the feasibility of using MI in the clinical setting for HIV adherence counselling could be determined by considering the fidelity of counsellors to the approach and the acceptability of the approach by the study subjects. Hence, it can be assumed that the empirical phenomenon is the feasibility, while the regularities of focus are the fidelity to MI and its acceptability in the study context.

Although, retroduction involves working back from the data, the central problem of a retroductive research is how to discover the structures and mechanisms that are proposed to explain the observed regularities (Blaikie, 2010, p.87). However, current level of knowledge has neither established the status of the target regularities, nor do we have sufficient knowledge about the context within which MI will be practised in Nigeria. In this regard, as presented in figure 5.2, the focus of this study goes beyond assessing the fidelity and acceptability to determine the feasibility of using MI, but also to determine the underlying mechanisms responsible for these regularities when observed within the context available for ART adherence counselling in the study setting.

Figure 5.2: Retroductive Research Model for the Study



Adapted from: Blaikie (2010, p.88)

Fidelity of clinicians to the techniques and spirit of MI can be determined after empowering them with the MI skills through MI training (Allicock et al., 2017; Dewing et al., 2013; Evangelii et al., 2009; Miller and Mount, 2001; Moyers et al., 2007). Meanwhile, assessment of clinician's fidelity to MI requires rating (assigning numerical data) of their performance from an observation record against standard indices, depending on the coding system that is used [i.e. MISC; MITI or OnePass] (McMaster and Resnicow, 2015; Miller et al., 2008; Miller and Rollnick, 2013, p.387-402; Moyers, Manuel and Ernst, 2014). This is consistent with the recommendation of Oh and Lee (2016) that observation of clinical encounters can be informative and can provide a different perspective when compared with the information obtainable from focus groups. They made this recommendation based on the argument that clinical interactions have the capacity to activate the core ingredients of MI and that the extent to which cultural congruence is achieved between the provider and client can determine the therapeutic alliance. The process for evaluating the MI fidelity therefore lends itself to observation as the data collection method, but also in a structured manner with the view of generating quantitative data. As pointed out by Gray (2014, p.422) "structured observation aims to observe and record behaviour in a holistic and systematic way, usually by making use of an observation guide or coding schedule". The numerical data generated from this process will therefore be statistically analysed and inferences on the competence and fidelity of the clinicians to MI can then be drawn.

Beyond mere assessment of the ability of the clinicians to use MI, the observation data also provides the opportunity to evaluate the impact of certain cultural and contextual factors on the fidelity of the clinicians. These include languages and communications patterns, time and length of counselling experience which are cultural and contextual factors that have been elicited in chapter four to have the potential to either facilitate or inhibit the ability of clinicians to use MI with optimum fidelity. Therefore, statistical tests will be carried out to determine the association between each of these factors and the fidelity of the trained clinicians in this study.

The literature has also not established whether the MI approach will be readily acceptable among HIV patients and health practitioners with African background. It is therefore not certain how the MI approach will be accepted among ART adherence counsellors or HIV patients in Nigeria. Although MI is not currently the clinical approach to counselling in Nigeria, this study provides an opportunity to present it to the HIV clinical context and the target groups. This opportunity allows the individual assessment of each of the study participants, having experienced the approach in practice in relation to the usual ART adherence counselling practice in their clinic. To explore the perception of the participants about the MI approach in relation to the existing practice, observation records of the clinical interactions between the counsellors and patients alone will not suffice. In this regard, Oh and Lee (2016) argue that focus groups lack depth and are not generally useful for eliciting individual narratives which can be better captured through surveys, diaries and semi-structured interviews. Consistent with the preference of critical realism for qualitative methods and to explore the subjective views and opinions that the participants ascribe to MI in relation to their culture and context, the semi-structured interview appears to be the appropriate method to complement the data obtained from the structured observation in this study. In view of the above, a mixed research methods approach was adopted for this study.

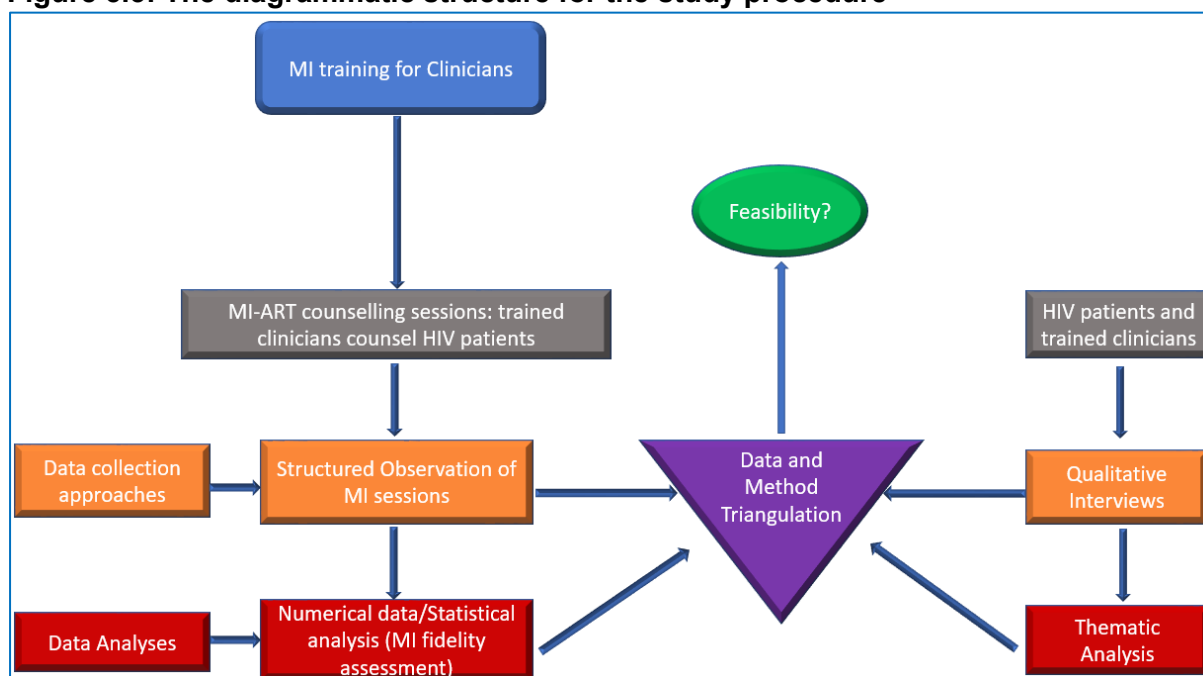
Research Objectives:

- To understand the way conversations around ART adherence occur in clinical practice in Nigeria.
- To identify the potential impact of a brief MI training programme on the practice of ART adherence counsellors in Nigeria.
- To explore how the ART adherence counsellors and patients respond to the MI approach.
- To identify factors that facilitate or hinder the adoption of MI for ART adherence counselling in the Nigerian clinic context.

5.3.1 Research Design

Mixed method research (MMR) is a procedure that employs both quantitative and qualitative methods and strategies in the same project (Sarantakos, 2013, p.50). The procedures and extent of mixing in MMR vary significantly, ranging from formal qualitative analysis to a variety of mixing strategies (Sarantakos, 2013, p.50). Based on the need to obtain different but complementary data about the central phenomenon under study a convergent MMR design (Polit and Beck, 2017, p.215) was adopted for this study. Convergent design also known as triangulation design is one in which the qualitative and quantitative components are concomitant (Pluye et al., 2011; Polit and Beck, 2017, p.215). The purpose of a triangulation design is to answer related aspects of the same questions by interpreting qualitative and quantitative results (bringing data analysis together at the interpretation stage), or by integrating qualitative and quantitative data sets, or by transforming data (Pluye et al., 2011; Teddlie and Tashakkori, 2011 cited in Denzin and Lincoln, 2011, p.288). Based on the focus of this study, quantitative data were collected using structured observation while qualitative data were collected using semi-structured interview. For this study, the structured observation and the semi-structured interviews are triangulated to fully understand the feasibility of using MI for ART adherence in Nigeria. The diagrammatic structure for the mixture of the research approaches in this study is as presented in figure 5.3:

Figure 5.3: The diagrammatic structure for the study procedure



5.3.2 Languages of Focus in the Study

In Nigeria, between 450 and 512 languages are spoken (Ayeomoni, 2012; Pinon and Haydon, 2010). These include English and three major local languages (Hausa, Igbo and Yoruba) spoken by majority of the polity (Akinnaso, 1991; Ayeomoni, 2012; Igboanusi, 2008; Federal Republic of Nigeria, 1999). Due to the high diversity of languages spoken in the country, it will be unwise to attempt to assess the feasibility of using MI with MI consistent behaviour across the wide spectrum of languages.

Although there is currently no consensus estimate of the proportion of the population that speak one language or another, some existing data have shown that over 50% of Nigerian population speak Yoruba, Igbo and Hausa (Akinnaso, 1991; National Population Commission, 2013), while, 54% of the population speak English language (Pinnon and Haydon, 2010). However, the majority of the English speakers in the country also speak the Nigerian Pidgin (Pinnon and Haydon, 2010), which has been argued to be probably the language with the highest number of users in the country or as the lingua franca in the informal domains especially among the non-Western educated masses (Akinnaso, 1991; Ayeomoni, 2012; Ihemere, 2006; Igboanusi, 2008).

Based on this data and the fact that the principal investigator (PI) is from the Yoruba tribe, who also speaks Nigerian Pidgin and English, assessment of the influence of languages and communication styles on the MI fidelity of the ART adherence counsellors in this study will be limited to English, Nigerian Pidgin and Yoruba. This limited focus of study languages is partly based on the assumption that counsellors or patients who could not speak Yoruba, but Hausa and Igbo will be able to use either English or Nigerian Pidgin for routine clinical interactions. It is also partly based on the need to avoid risks of breach of confidentiality that may occur through professional translators, if data collected in Igbo or Hausa has to be translated by other persons and not by the PI.

5.3.3 Study Setting

This study was carried out in Abuja, Nigeria. Abuja is the Federal Capital Territory of Nigeria and its central function facilitates employment of workforce and settlement of individuals from all the ethnolinguistic groups in the country. Hence, this setting presents the opportunity to recruit members of almost every ethnolinguistic group available in Nigeria into the study.

A general hospital was chosen as the study site based on the central function that it serves, as a secondary health facility in the hub and spokes model of HIV/AIDS care in Nigeria (Federal Ministry of Health [FMOH], 2010, pp.62-64). In the model, the tertiary hospitals serve

as the hubs and domicile of specialized HIV/AIDS services but have links with secondary health facilities. Within the network, patients can be referred from the secondary facilities to the tertiary facilities for specialized services, because they serve as the spokes to the tertiary health facilities. The secondary health facilities in turn serve as hubs to some primary health centres within the same network. The routine referral channel is from the primary to secondary and secondary to tertiary health facilities and vice versa. However, in exceptional situations such as where there is closer proximity, the primary health facilities may refer directly to the tertiary health facilities and vice versa (FMOH, 2010). Although HIV services have been decentralized to the primary/private or faith based health centres in the communities to provide better access to HIV patients, especially the hard to reach population, evidence has shown that there is still a need for more effort to ensure optimum decentralization of such services in Nigeria (Charurat et al., 2010; Maduka and Tobin-West, 2015; Onwujekwe et al., 2015). Since the decentralization of HIV services to the primary health facilities are not yet optimum, the secondary health facilities have the tendency to have better clinic capacity for ART services than the primary health facilities. They also have the potential to provide better access to hard to reach populations compared to tertiary health facilities (Oleribe et al., 2016). To examine the applicability of MI among a sample population that is similar to the population, general hospitals fit the purpose of this study. The study participants were selected from Wuse General Hospital. This hospital was chosen as it is the oldest general hospital in Abuja, with the largest HIV patient population. It also fits the purpose of this study because of its location in the central area of Abuja, thereby allowing more access to patients from all socio-economic groups.

5.3.4 Ethical Consideration

As recommended in the Belmont report, if there is any element of research in an activity, such activity should undergo review by an institutional review board for the protection of human participants (US Department of Health and Human Services [USDHHS] (2016). Hence, this study was approved by the Research Ethics Panel of the Faculty of Medical Science of Anglia Ruskin University (FREPnumber:15/16 087) and by the Federal Capital Territory Health Research Ethics Committee (FCTHREC) (FHREC/2016/01/77/26-10-16). This also ensures that the scientific value of the study is ascertained before it is carried out as specified by The British Psychological Society (2010). Copies of the ethical approvals from FREP and FCTHREC are presented in Appendix 3 and 4 respectively.

Apart from the ethical principle of *scientific value*, The British Psychological Society also proposed ethical principles such as: 1) Respect for autonomy and dignity of persons; 2) Social responsibility; and 3) Maximising benefit and minimising harm. These principles are direct equivalent of the three basic ethical principles specified in the Belmont report which are: 1)

Respect for persons; 2) Justice; and 3) Beneficence (USDHHS, 2016). The study also complied with each of these three principles in different but also in some interconnected ways.

Respect for autonomy and dignity of persons: This principle requires researchers to value the dignity and worth of all persons equally, with sensitivity to the dynamics of perceived authority or influence over others and with respect for people's rights including those of privacy and self-determination (The British Psychological Society, 2010). The principle emphasizes that researchers have a responsibility to develop and follow procedures for valid consent, confidentiality, anonymity, fair treatment and due process that are consistent with moral rights (The British Psychological Society, 2010).

This study complied with this principle by ensuring that valid and informed consent was obtained from each participant before they participated in the study. This was carried out by informing the participants that their participation in the study is voluntary and they have the complete autonomy to decide whether to participate or not. They were also informed that they are free to withdraw from the study at any time without giving any reasons. To ensure that informed consent was obtained, comprehensive explanation about the study was provided for each participant to empower them to make decision on whether to participate or not. Where the participant lacked capacity to speak or write English, the study information was provided for them in alternative languages that they understood, and their consent procedure was audiotaped. The participants were not also offered any reward to participate in the study to avoid coercing them. This is based on the consideration that coercion infringes on the human right to autonomy and coerced participation compromises the validity of research data (The British Psychological Society, 2010). No participant took part in any study activity before consenting to the study.

Furthermore, safeguarding of the confidentiality of the personal information provided by the study participants was assured before they consented to participate in the study. This was carried out by assuring the participants that the information or data collected about them will be appropriately anonymised and cannot be traced back to them or other parties, except in exceptional circumstances such as when requested by court order or regulatory requirements.

Social responsibility: This principle requires that knowledge must be generated and used for beneficial purposes and such purposes can be broadly defined as those that not only support and reflect respect for the dignity and integrity of persons (both individually and collectively) but also contribute to the 'common good' (The British Psychological Society, 2010, pp.10-11). This also relates to *Justice* in the Belmont report which states that an injustice occurs when some benefits to which a person is entitled is denied without good reason or when some

burden is imposed unduly (USDHHS, 2016). In this study, the participants (ART adherence counsellors and HIV patients) are expected to be the direct beneficiary of the study processes which include the MI training and eventual implementation of the approach for routine practice. The principle also specifies that researchers should avoid creating unwarranted or unnecessary disruption to the social structure or the social context in which they work unless they judge that the benefits of the study outweigh the costs of such disruption (The British Psychological Society, 2010). The data collection from this study was designed to be carried out first during the usual ART adherence counselling or consultation sessions at the HIV clinic and later through interview over the telephone so as not to impose undue burden on the participants.

Maximising benefit and minimising harm: This principle also specified that the responsibility of the researcher is to consider all research activities from the standpoint of the participants, with the aim of avoiding potential risks to the psychological well-being, mental health, personal values or dignity (The British Psychological Society, 2010). Occurrence of an adverse event due to participation in this study is not expected, because clinical trials that have used the MI approach have not yet reported adverse events. However, as a measure to mitigate against unexpected adverse events, all HIV patients were free to withdraw from the study at any time which includes if they feel uncomfortable with the MI approach or the research procedure.

Meanwhile, the primary risk of being in this study for the patients is the potential for their identity as HIV patients to be known by others, while for the ART adherence counsellors there may be the fear of being judged by other health personnel in respect of their competence at using a new clinical approach. In this regard, the participants were assured that all records identifying them will be considered confidential and managed in accordance with the UK Data Protection Act, 1998 and the confidentiality guidelines of the Nigerian National Health Act (2014, p.20-23).

5.3.5 Timeframe for the Study

This study was carried out between 1st of March and 31st of December 2017. The Gantt chart in figure 5.4 presents the timeline details for how field activities for the study such as the recruitment of participants, MI training and the data collection procedures were implemented between 1st of March and 31st of August. Following the field activities, analyses of all data from the study were carried out between September and December 2017.

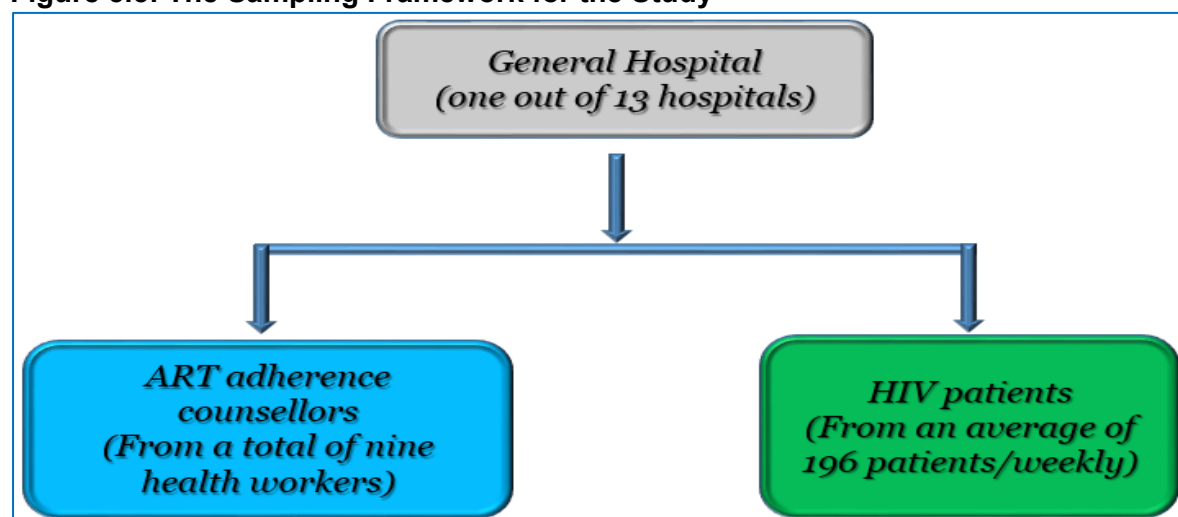
Figure 5.4: Gantt Chart depicting the Implementation of Field Activities

Activities/Timeline	March 2017				April 2017				May 2017				June 2017				July 2017				August 2017			
	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4	wk1	wk2	wk3	wk4
Recruitment of Participants																								
ART adherence Counsellors																								
HIV patients																								
MI Training Course																								
ART adherence Counsellors																								
MI-ART Adherence counselling																								
ART adherence Counsellors																								
HIV patients																								
Post-Study Interviews																								
ART adherence Counsellors																								
HIV patients																								

5.3.6 Participant Sampling Procedure

As stated earlier, all study activities which includes recruitment of participants were carried out in only one of the 13 General Hospitals in Abuja. The recruitment activities were carried out by the principal investigator (PI) within 14 weeks. Recruitment procedure for ART adherence counsellors took place over nine weeks, while that of the patients took 10 weeks. The sampling framework for the study is as presented in figure 5.5:

Figure 5.5: The Sampling Framework for the Study



Participants for this study were recruited using a purposive sampling approach. Purposive sampling is very useful, when specific people, events or settings are chosen because they provide important information that could not be obtained from other sampling designs (Gray, 2014, p.217). In this approach, the researcher exercises a degree of judgement about who will provide the best perspectives on the phenomenon of interest and then invites them into

the study (Gray, 2014, p.217; Sarantakos, 2013, p.177). Apart from being purposive, the sampling approach was also designed to be homogenous to ensure that the participants (counsellors and HIV patients) were individuals who have had and will have common experiences to share before or during the study processes. The inclusion and exclusion were defined to ensure that the selected participants were those who can provide the perspectives of interest:

Inclusion Criteria

- Health personnel who counsel HIV patients about ART adherence in the HIV clinic of the general hospital were eligible to participate in the study.
- Adult HIV patients aged ≥ 18 or older who are already receiving ART services at the ART clinic were also eligible to participate in the study.

Exclusion Criteria

- Health personnel who do not counsel HIV patients about ART adherence were not eligible for the study.
- HIV patients who are not receiving ART services from the general hospital selected for this study were not eligible.
- Children and young people under 18 years living with HIV were also not eligible for the study.
- HIV patients, who could not speak English, Nigerian Pidgin or Yoruba language were also not eligible for the study.
- HIV patients who were very ill or hospitalised as at the time of the study were eligible for the study.

Sample Size Justification

Generalization of findings is not the central aim of this study as the sample size required for this stage of the cultural adaptation framework is small. However, as presented in figure 5.5 all eligible adherence counsellors (nine health practitioners) and HIV patients presenting at the hospital within the recruitment period were approached to participate in the study. As recommended for pilot or exploratory studies (Gray, 2014, p.231) a sample size of 10 to 30 is usually sufficient, patient population within this range was expected to participate in this study. Based on direct observation of events at the study site by the PI, patient population that attends the Medical Outpatient Department (MOPD) for HIV care ranged from 128 to 295 every week. Hence, it was estimated that the expected counsellor and patient populations

required for the study can be conveniently recruited within a month as projected in the research protocol. Based on this assumption all the patients presenting at the MOPD during the month of April 2017 were approached to participate in the study.

5.3.7 Recruitment Procedure

Antiretroviral Therapy Adherence Counsellors in this study refer to health personnel who counsel HIV patients about ART adherence during the HIV clinic sessions at the Medical Out-Patient Department (MOPD) of the hospital. During the period of this study, eight clinical health practitioners and one non-clinical health worker were involved in providing ART adherence education and advice to patients at the MOPD. The HIV clinic sessions were held on Mondays for newly diagnosed patients and on Wednesdays for follow-up appointments. The nine individuals involved in the delivery of ART education and advice at the MOPD were eligible as adherence counsellors and were approached by the principal investigator (PI) to participate in the study. Each of the counsellors was given a participant information sheet (PIS) which they were encouraged to read. Two weeks later the PI contacted each of the counsellors to discuss the study and to ascertain whether they would like to participate or not. The counsellors were informed that as part of the study, they will be asked to inform all HIV patients about the study during their usual adherence counselling or consultation sessions and to refer those who are interested to the PI. After the meeting to discuss the study, each of the counsellors were given one week to make an informed decision to participate in the study by completing the Informed Consent Form (ICF). The PIS for the counsellors and the ICF are as presented in appendix 9 and 10 respectively.

Patients in this study refer to HIV patients who are already receiving ART services at the MOPD. This is to ensure that each participant have had at least one experience of clinical consultation in respect of ART adherence with any of the recruited counsellors before the study and would still have one with any of the counsellors during the period of the study. According to the Integrated National Guideline for HIV Prevention Treatment and Care in Nigeria, the treatment schedule for HIV patients who are starting ART requires that adherence counselling should be offered to the patient at baseline (before treatment), 2 weeks, 4 weeks, 8 weeks, 12 weeks and at every clinic appointment (FMOH, 2016, p.51). Therefore, irrespective of the ART adherence status of the HIV patient (naïve or experienced) adherence counselling is expected to be offered to them on an ongoing basis, starting from the point of initiation. Hence, all HIV patients who have been on ART or who have just been placed on ART were eligible for recruitment into the study.

However, because MI promotes autonomy of patients in treatment decision-making, only those who could make such decisions independently were considered eligible for this study. Although, young people aged 16 or 17 are considered to have capacity to make decision on their medical treatment in some countries (National Health Service, 2016), individuals are considered to be full of age in Nigeria when they are 18 and above (Federal Republic of Nigeria, 1999, chapter iii 29[4]a). Below the age of 18 in Nigeria a person may not be considered eligible to make independent decision in respect of his education or welfare (Federal Republic of Nigeria, 1999, chapter iv 35[1]d). On this basis, eligible patients in this study were limited to those who are aged 18 or above.

All HIV patients presenting at the hospital for the Wednesday clinic sessions were informed about the study by the principal investigator (PI). Patients who were potentially interested in the study approached the PI who provided them with the PIS (see Appendix 8). Some patients were also informed about the study by the recruited counsellors during the Monday clinic sessions and those who were interested in the study were referred to the PI for further information. These patients were provided with a PIS. Each patient who collected the PIS was contacted two weeks after receiving the PIS via the telephone to arrange for a meeting for further discussions about participating in the study. This meeting was held within the hospital facility and it allowed the HIV patients to ask questions that arose from the PIS. After these discussions, HIV patients who wished to participate in the study signed the ICF on the same day. Although written informed consent is the usual approach, for two patients who lacked the capacity to write or speak English, their audiotaped verbal consents were obtained. One patient had the audiotaped consent witnessed by her sister and had the consent process carried out in Nigerian Pidgin by the PI. The other patient had her audiotaped consent process carried out in Yoruba without any witness.

5.3.8 Motivational Interviewing Training and Delivery Process

Existing evidence from systematic reviews (Barwick et al., 2012; Hall et al., 2015; Madson, Loignon and Lane, 2009; Soderlund et al., 2011) and meta-analyses (de Roten et al., 2013; Schwalbe, Oh and Zweben, 2014) of the literature has shown that the most commonly used methods for MI training are didactic instructions and experiential exercises. These experiential experiences may include role-plays or use of a standard patient (Madson, Loignon and Lane, 2009). However, as noted by Madson, Loignon and Lane (2009) with some small variabilities the common approach to MI training in existing studies is to combine the didactic instructions and experiential activities to provide a more inclusive training program.

A notable feature of the MI training in the existing studies is that the workshop trainings usually require minimum of nine to 16 hours structured in an average of a 2-day workshop (Barwick et al., 2012; de Roten et al., 2013; Madson, Loignon and Lane, 2009; Schwalbe, Oh and Zweben, 2014; Soderlund et al., 2011). It is worthy of note that fewer training hours such as below eight hours have been reported in some of the existing studies as well as the reports of some more intensive workshop schedules that lasted for up to 24 hours in total (Barwick et al., 2012; Madson, Loignon and Lane, 2009; Soderlund et al., 2011). These diverse training schedules were reported in the existing studies with or without post-workshop follow-up support that includes feedback/coaching. However, a common feature in the reports from the existing training studies is that the frequency, length and duration of the workshop and/or the post-workshop support moderate the ability of the trainees to use the MI in practice or for them to achieve a sustained practice change (Schwalbe, Oh and Zweben, 2014). Therefore, even though it has been suggested that MI training can be effective in short durations (Martino et al., 2007), evidence from the meta-analysis by Schwalbe, Oh and Zweben (2014) agrees with the findings of Miller et al. (2004) that suggest that the most efficacious training for integration of MI into practice is one that is longer in duration and integrates training, observation, feedback and coaching.

Despite the direction of the evidence from existing studies on MI trainings, a key factor to consider for skills transfer apart from the trainee factors is the work environment factors where the skill is intended to be implemented (Baldwin and Ford, 1988; Elangovan and Karakowsky, 1999). These factors refer to various aspects in the employee's work environment which could be job-related or organisation-related that either facilitates or impedes effective transfer of the training (Elangovan and Karakowsky, 1999). Based on the consideration of the work environment factor, consultations with the recruited counsellors about possible periods that may be available for the training revealed that the time for training was very limited due to their busy work schedule. Therefore, a longer duration of MI training was not possible, and the training schedule had to be structured within the limited time available to the health practitioners since the focus was to adapt the training to fit their context.

As clearly presented in figure 5.3 the first study activity after recruiting the ART adherence counsellors is the provision of a 3-day MI training for the counsellors. The MI training workshop was carried out in the conference room of the general hospital. Training materials (manual and PowerPoint slides) were prepared by Dr McMaster and the PI. The training workshops were held in English language on 21st of April, 5th of May, and 8th of May 2017. Some contributions were also made to the training materials by the adherence counsellors in terms of communication patterns in respect of key statements that are used for daily interactions in

Nigeria. These local statements were interpreted into Pidgin, Hausa, Igbo and Yoruba languages and the impact of such diversities on clinical communications were discussed in the second MI training workshop.

The first training session which involved discussion about communication and what good communication is, introduction to MI, its history and evolution, and key skills, was led by the PI and lasted for approximately one hour. The second and third training workshops were led by Dr McMaster, who is an experienced MI trainer. She has run large clinical trials on MI in the USA (Resnicow et al., 2015) and regularly delivers MI training in Nigeria, Senegal, China and Singapore. Dr McMaster is a member of the Motivational Interviewing Network of Trainers (MINT) and a collaborator with Prof Stephen Rollnick (Resnicow, McMaster and Rollnick, 2012). The second and third MI training workshops involved discussions about MI, the spirit of MI, skills and strategies used in MI, and lasted for approximately two hours each. The second and third sessions also involved role-plays between the recruited counsellors to engage each other by switching roles to practise skills of MI such as open-questions, reflections and strategies for eliciting change talk. The third training workshop included a simulated counsellor-patient role play between Dr McMaster and the PI to demonstrate use of MI in the clinical interactions according to a well-rehearsed vignette similar to the routine practice of the counsellors. The counsellors were then asked to make observations about what they learnt from the role play. At the end of the training, the counsellors were issued with a training certificate and were encouraged to use MI with the recruited patients in the study in the three languages (English, Nigerian Pidgin and Yoruba), depending on what language each counsellor and their patient may agree to use on individual cases.

After the scheduled training sessions, the counsellors asked for more training practice to keep learning about how to use the MI. Subsequently, three more role-play sessions were carried out between two counsellors and the PI. Two of these follow-up role-play sessions were carried out in English, while the third one was carried out in Nigerian Pidgin. These follow-up practice sessions were audiotaped and transcribed for further feedback and learning purposes as requested by the counsellors. Real-life practice of MI by the counsellors with the recruited patients started on 10th of May 2017, immediately after the training workshops. Counsellors were asked to carry out the MI sessions in less than 60 minutes.

5.4 Data Collection

The data collected were through: (1) a demographic questionnaire, (2) audiotaped records of the ART consultation session between MI trained counsellors and recruited patients, and (3) semi-structured interviews carried out through the telephone.

5.4.1 Demographic Data

The demographic questionnaire was used to collect information such as: the age; gender; ethnic background; first language spoken; other languages spoken; and the highest level of education of both patients and counsellors. For the counsellors, further information was collected in respect of the languages that they use to counsel patients, their occupational role in the hospital and their length of working experience after professional qualification.

Questionnaires are the most commonly used data gathering tool for quantitative purposes (Coughlan, Cronin and Ryan, 2007). When a researcher has chosen a quantitative tool like a questionnaire, the validity and reliability of such instrument needs to be justified if it was not adopted as an off-the shelf tool with already known validity and reliability (Coughlan, Cronin and Ryan, 2007). Hence, validation of the reliability of the demographic questionnaire used in this study was carried out by pilot-testing with three master's degree students and an undergraduate student attending Anglia Ruskin University who are Nigerians. It was also tested with two high school pupils in the UK and two retired older adults with Nigerian background. Test of the demographic data questionnaire among these individuals was not only to ensure its reliability but also to ensure that the questions are relevant to people at any age or educational level and to ensure that they are culturally acceptable in the Nigerian context. Feedback from each of the individuals was useful in the final draft of the questions and answer options used in the demographic questionnaire which was used for this study (see appendix 11). All demographic data were collected when each participant completed the consent process for this study.

5.4.2 Observation of the Counselling Sessions

HIV patients visit the MOPD for their routine clinical appointments to discuss the HIV treatment with the doctors (the counsellors). This process was not disrupted for this study. After consenting to the study, each of the recruited patients were allocated to meet any of the MI trained counsellors for the routine clinical appointment as part of the study activities. Each session between the counsellor and patients was audiotaped with a Dictaphone (Sony IC recorder). Recording of all the counselling sessions was carried out by each participating counsellor, even though every participant agreed that the PI could be present in the session

for recording purposes. The Dictaphone was returned to the PI after every session to transfer the data into a password protected computer.

5.4.3 Semi-Structured Interviews

Following each counselling session, patients were asked by the PI if they would like to be interviewed on the telephone to talk about their experience. The interviews were also audiotaped. The decision to conduct post-practice interviews through the telephone was to avoid delaying the HIV patients beyond the usual time they spend with their health provider. The primary literature review for this study has revealed that fear of spending long time in the HIV clinic contributes to non-adherence to ART among the patients (see chapter one). The choice of the telephone as the means of conducting the post-practice interview was therefore consistent with the ethical principle that specify the need to minimise harm to participants (The British Psychological Society, 2010). Hence, apart from the low-cost advantage of using the telephone (Gray, 2014, p.404), the medium was chosen for the interview so that the participants can schedule the time of the interview to suit their convenience. Even though, a potential disadvantage of using the telephone is the tendency to record high refusal rate (Gray, 2014, p.404), the ethical requirement not to unduly burden the participants informed the choice of this data collection medium. One of the interviews had to be carried out within the hospital facility face-to-face because the audio quality from the patient's mobile phone was too low and data from such interaction would not be useful for transcription purpose.

For the counsellors, those who had recorded sessions for the study were invited by the PI to talk about their experience after the last patient in the study had been counselled. Due to the busy schedule of the counsellors, the interviews were also scheduled to be conducted through the telephone. These semi-structured interviews were also audiotaped.

The interviews were carried out by using an interview guide. The interview guide was developed in English, but its content had to be interpreted into Yoruba and Pidgin by the PI when using it with only two patients. Design of the interview guide was guided by knowledge gained from literature reviews and by the conceptual framework of the study. The interview questions for the patients differ in some ways from the questions targeted to the counsellors. Although interview questions were drafted to be used in the guide, whenever the responses of the participants led to interesting or unexpected responses, probing questions were used to follow-up. The draft interview questions used in the guide are as listed below in Box 5.1.

Box 5.1: Guide for the Semi-Structured Interview

For HIV Patients.

- Tell me about your experiences when you visit the HIV clinic to talk about your HIV drugs- think about what usually happened before we started this study?
- Tell me what happened during the counselling session that you attended for this study?
- What did you find particularly helpful during the counselling session that you attended for this study?
- Tell me what you were not satisfied with during the counselling session that you attended for this study?
- What do you think can affect the use of the approach that your counsellor used to talk with you for this study, if it is used on a regular basis?

For ART adherence Counsellors.

- What is the usual approach in your clinic to encourage a HIV patient to take his/her drugs- think about what usually happened before we started this study?
- What are the barriers that you usually face in encouraging HIV patients to take their HIV drugs as recommended, before we started this study?
- How can you describe your experience with the counselling approach that you used for this study?
- What do you remember from the training that you attended for this study?
- Tell me about any areas of the training that seemed particularly useful for your kind of work?
- Tell me any areas of the training that seemed difficult to practice in the place where you work?
- Tell me how you were able to move between the usual counselling approach in your HIV clinic and the counselling approach that you learnt in the training?
- After your experience with this study, what advice will you give a member of staff on how to encourage HIV patients to take their drugs?
- What do you think can affect the use of the counselling approach that you used with your patients for this study, if it is used on regular basis?

After using the interview guide with some of the patients, it became clear that they could not properly answer the last question in the guide, despite their experience in the study. Hence, the last question in the interview guide for the patients was discarded after using it for the first five patients. This is not a methodological problem as semi-structured interview gives researchers the freedom not to deal with all the questions in a guide in every interview (Gray, 2014, p.385).

5.5 Data Analyses

Data collected from this study were first analysed quantitatively and qualitatively, after which the results were integrated.

5.5.1 Quantitative Data Analysis

Quantitative data for this study were generated from the demographic questionnaire and the audiotaped MI-based adherence counselling sessions. Descriptive statistical analysis was first performed on both categorical and continuous data generated from the demographic questionnaire and in respect of frequency of use of the MI approach by the counsellors as well as the duration of each of the MI counselling sessions. All statistical analyses were carried out through IBM SPSS version 24.

To analyse the recorded data obtained from the MI sessions, the audio data were labelled with study codes for the participating patients and counsellors respectively. Labelled audio-recorded data were imported into NVivo Pro 11 for verbatim transcribing. After the transcripts, the sessions carried out with Yoruba and/or Pidgin were translated into English by the PI. Fidelity of the counsellors to MI was assessed by using OnePass coding system. Although MITI is the most commonly used coding system, OnePass involves the use of simpler coding process and lesser time consumption (McMaster and Resnicow, 2015). It has also been validated against the MITI, though with moderate concurrent validity, but with great potential in evaluating both traditional and novel interpretations of MI (McMaster and Resnicow, 2015). Unlike MITI, OnePass involves the use of impressionistic ratings rather than counts of MI-consistent behaviours (McMaster and Resnicow, 2015).

There are 23 different items for OnePass assessment of the fidelity of MI therapists, which are assessed on a 7-point scale. These include: 1) Agenda setting; 2) Open Questions; 3) Affirm Client; 4) Reflective Listening; 5) Action Reflections; 6) Evoke Change Talk; 7) Elicit Importance; 8) Elicit Confidence; 9) Address Values; 10) Respond to Affect; 11) Roll with Resistance; 12) Avoid Advice; 13) Provide Menu; 14) Support Autonomy; 15) Explore, Guide and Choose; 16) Summarise; 17) Arrange Follow-up; 18) Demonstrate MI; 19) Overall Conduct; 20) Talk Time; 21) Reflection Ratio; 22) Open-Closed Question Ratio; and 23) Complex-Simple Reflection Ratio (McMaster and Resnicow, 2015). All the recorded MI sessions were evaluated with 22 of the OnePass scoring items by the PI, except for *action reflections* which is considered complex for beginners of MI such as the counsellors in this study. Moreover, it is also an optional item among the OnePass items (McMaster and Resnicow, 2015). Some of the recorded sessions were also randomly selected for scoring by Dr McMaster who is a co-developer of OnePass, to ascertain inter-rater reliability. Scoring by

Dr McMaster was aided by the translated transcripts of the recorded sessions as she does not speak any of the local Nigerian languages, except English. Inter-rater reliability was assessed by using Spearman's rank correlation, which is a statistical approach commonly used to measure agreement between ratings or ranking of data by two judges (Gray and Kinnear, 2012, pp.409-410).

After coding of the recorded sessions with OnePass and the assessment of inter-rater reliability, generated data in form of OnePass scores were analysed by running paired-sample and one-sample *t-tests*. The paired sample *t-test* was used because it can be used to assess the consistency between the level of performance of participants under two different conditions (Gray and Kinnear, 2012, p.195). While the one-sample *t-test* can be used to test whether the means of two or more related samples of scores differ from a specified constant (IBM, 2011).

Fidelity of each counsellor to the techniques of MI were assessed in relation with the proficiency thresholds as suggested in MITI. Use of the proficiency and competence thresholds specified by MITI was adopted for this study as there is currently no such thresholds for OnePass. The MITI thresholds was also used because it is the threshold recommended for users of MISC when greater compatibility with MITI score is desired (Miller et al., 2008). In this regard, McMaster and Resnicow (2015) have identified specific items within the 23 scoring items of OnePass that are directly equivalent to the global and behaviour dimensions in MITI. Global spirit scores (average of all the scores of OnePass items) for all the sessions were assessed with one-sample *t-test*.

As elicited in the literature review, trend of improvement or decay of the MI techniques and spirit of the counsellors were also assessed by comparing the scores of their first MI practice sessions to their last sessions. Percentage MI-consistency among the counsellors was also assessed based on the OnePass equivalent items of percent MI-consistency on the MITI thresholds. According to McMaster and Resnicow (2015), the percent MI-consistency is equivalent to the scores of all the OnePass items except items 2, 4, 5 and 19-23.

Correlation between time and language(s) used in the session as well as the length of experience of each counsellor with the mean of MI scores (global spirit) for each MI session were also assessed by using the Pearson Correlation and a Scattered plot. The Pearson correlation was used because it measures a supposed linear relationship between two variables that are measured at scale or continuous level (Gray and Kinnear, 2012, p.402). However, due to the susceptibility of Pearson correlation to be misleading as a measure of strength of association, scatterplot which has the potential to reveal the true nature of the relationship between continuous variables (Gray and Kinnear, 2012, p.402) was used to

complement the Pearson correlations. Confidence interval of 95% ($p < 0.05$) was used for the *t*-tests, Spearman's rank correlation and the Pearson correlation.

5.5.2 Qualitative Data Analysis

The audiotaped records of the post-practice telephone interviews were also labelled with the study codes of each study participant that was interviewed. The labelled records were also imported into NVivo Pro version 11 and transcribed verbatim. Transcripts of the interviews carried out in Yoruba and/or Pidgin were also translated into English by the PI. Following the translations, the transcribed data were subjected to thematic analysis. Instead of using an inductive thematic analysis which involves development of codes and themes from the data, a theoretical thematic analysis which is more driven by the researcher's theoretical or analytical interest (Braun and Clarke, 2006), was carried out in this study in respect of the feasibility of using MI in Nigerian context. This is because the data were collected by using an interview guide that was developed based on the specified dimensions of the conceptual framework and literature reviews. The thematic analytical guideline proposed by Braun and Clarke (2006) was adopted for this stage of the study because of its simplicity and clarity of the steps of the guideline. The six steps to thematic analysis as proposed by Braun and Clarke (2006) involves: familiarisation with the data; generating initial codes; searching for themes; reviewing the themes; defining the themes and producing the report.

After the transcripts were completed, for the thematic analysis in this study, initial codes were generated after familiarisation with the data through first reading and re-reading of the texts. Codes were collated into potential themes after further study of the texts. A review of the themes was carried out by the PI in conjunction with both primary and secondary research supervisors. The review of themes involved checking whether the identified themes work with the coded references. Further analysis was carried out to refine and define the themes and associated sub-themes to ensure that they entail salient information relevant to the research objectives. Finally, appropriate example of references that best represents the themes were linked to them and the data analysis was presented in that format. Overall, steps were taken to ensure trustworthiness of the analysis by ensuring its credibility, dependability, confirmability and transferability. For instance, the thematic analysis was carried out using investigator triangulation. Investigator triangulation involves a systematic comparison of different researchers influence on an issue and the results of the research to detect or minimize biases resulting from the researcher as a person (Flick, 2014, p.183). In this regard, each member of the research team (PI, Dr McMaster and Prof Redsell) generated the themes independently and the themes were compared to eliminate bias that might have emerged from

an individual researcher's perspective. This process enhances the dependability of the study as a measure of methodological rigour/trustworthiness (Ryan, Coughlan and Cronin, 2007).

5.5.3 Data Integration

Data from this study were integrated by using results from both analytical approaches (quantitative and qualitative) to comprehensively meet the four objectives of the study and to answer the research question. This approach justifies the need for triangulation, which allows for systematic extension of the possibilities of knowledge production by using a second methodological approach (Flick, 2014, p.184).

5.6 Chapter Summary

This chapter presented the justification of the research philosophy, theory and methodology. It also presented the conceptual framework and the mixed method design for the study. Lastly, the chapter presented the research procedures which includes: ethical processes, sampling and recruitment, MI training procedure for counsellors, data collection and analyses and data integration.

CHAPTER SIX: QUANTITATIVE STUDY FINDINGS

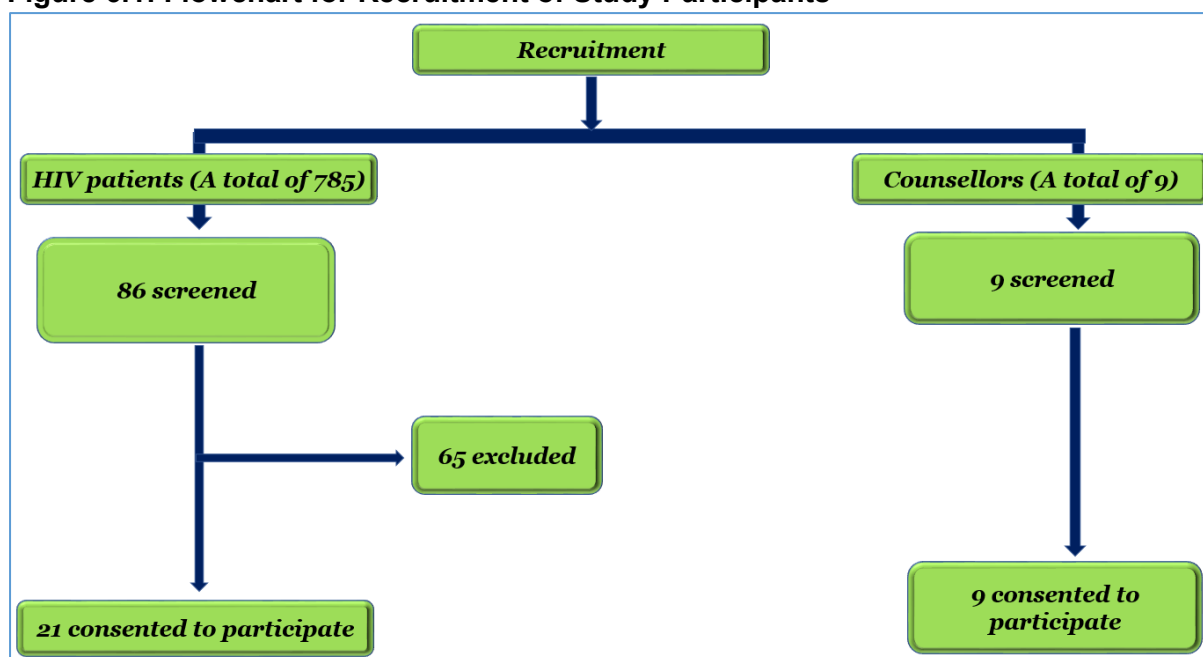
6.0 Chapter Overview

This chapter presents the findings in respect of recruitment, participation in the MI training activities and participants' involvement in data collection activities. It also presents the descriptive statistics of the demographic data collected from the study participants as well as the quantitative data generated from the audio recorded data from the MI practice sessions between the ART adherence counsellors and patients through OnePass coding system. The chapter presents the analyses of the fidelity of the adherence counsellors to MI spirit and techniques. Correlations between the language(s) used for the practice sessions, the time used for the practice sessions and the length of experience of the counsellors with the MI fidelity scores of the counsellors are provided. Lastly, assessment of the improvement or decay of MI skills among the counsellors through within-subject assessment of MI fidelity scores as well as the between-subject comparison of the MI fidelity scores for all the counsellors are provided.

6.1 Screening and Recruitment

A total of 785 patients presented at the clinic during the period of recruitment and they were all informed about the study by the principal investigator (PI) during the mandatory health talk session which holds before the start of routine HIV clinic sessions on Wednesdays and by the health practitioners when interacting with the patients during consultation sessions on Mondays. Eighty-six patients (approximately 11% of the patient population for the month) were screened for the study as presented in figure 6.1. Only 21 patients (approximately 24% of the screened patients) who met the eligibility criteria consented to participate in the study. Reasons for not consenting to participate in the study after collecting the Participant Information Sheet (PIS) were diverse. These include: telephone contact challenges (n=31); lack of incentive (n=1) from the PI; too busy (n=2); travelled or travelling out of town (n=3); failed to meet up with appointment to discuss the study with the PI (n=11); just got a new job (n=2) and so was not be able to meet up with the clinical appointment and PI for fear of losing the job; could only speak Hausa which is not included as a study language (n=1); being transferred to another clinic closer to the patient's home (n=2) and will not be attending clinic at the study setting anymore; not actually receiving treatment in the study setting (n=1); staying too far from the study setting (n=1); and not interested for no stated reasons (n=10). While evidence from a review of guidelines has emphasised the need to provide compensation to enhance participants' recruitment to research in sub-Saharan Africa (Puppalarwar et al., 2015), only one of the patients in this study declined participation due to lack of incentive.

Figure 6.1: Flowchart for Recruitment of Study Participants



Although telephone contact challenges prevented the highest number of the patients from participating in the study, these communication challenges occurred in different ways. These include: switching off the phone (n=5); number not reachable (n=12); not answering the call (n=8); call forwarded (n=1); husband answering call and insisting the PI talks to him instead of the wife (n=1); telephone number not available (n=1); incomplete telephone number; and husband presence beside the wife prevented her from speaking further even though she answered the phone (n=1). Some of these communication challenges are unique to the Nigerian context. Apart from the unusual influence on the wife's communication media by the husbands, disruption of telephone contact due to poor network quality is a well-documented challenge in Nigeria (British Broadcasting Corporation, 2012). Moreover, for some of this population, there are additional security issues such as theft of the mobile device which is a commonplace occurrence in Nigeria (Aworinde, 2016).

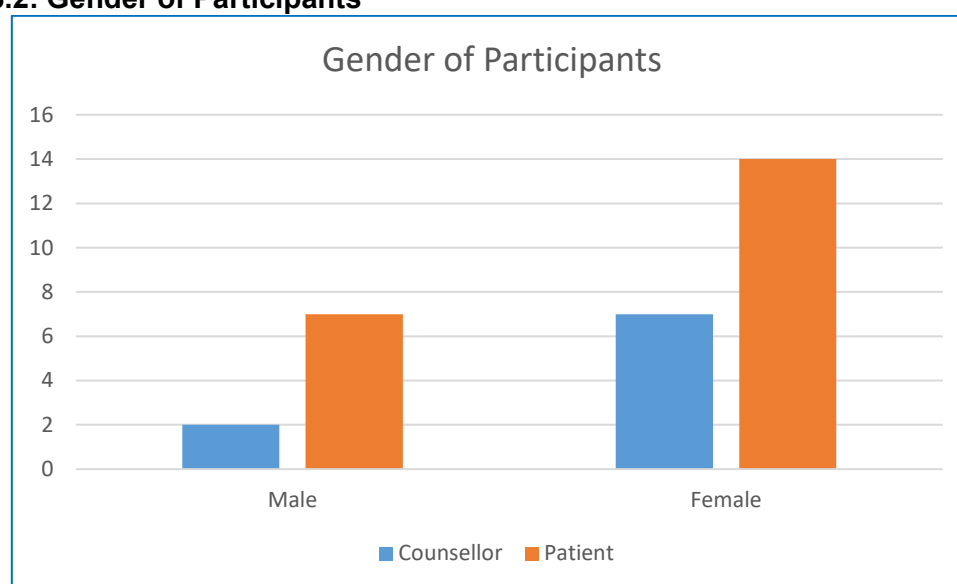
From the practitioners' cohort, every member of eligible staff within the hospital consented and participated in the study. This was a total of nine individuals (seven Doctors, one Nurse and one non-clinical health worker) involved in ART adherence counselling during the period of the study and who collected the PIS consented to participate in the study.

6.2 Characteristic of Study Participants

Age and Gender of Participants

The minimum age of the patient participants was 29 years with a range of 14 years, while the minimum age of the counsellors was 33 years with a range of 25 years. However, the age ranges represent approximated values because four of the patients and two of the counsellors declined to declare their ages. Meanwhile, as presented in figure 6.2, seven (33.3%) of the patients were male, and fourteen (66.7%) were female. In similar pattern, two (22.2%) of the counsellors were male, while the rest (77.8%) are female.

Figure 6.2: Gender of Participants



In the general population in Nigeria, HIV is more prevalent among females (3.5%) than the males (3.3%) (NACA, 2014, p.19). This gap in the burden of the disease has been attributed to higher early vulnerability and infections among girls and women relative to boys and men (NACA, 2014, p.19). While the gap in prevalence rate in the general population may be narrow, 66.3% (57) of the screened patient population (86) in this study were females, relative to the 33.7% (29) who were men. Therefore, the patient population in this study mirrors the gender inequality in the burden of the disease in the general population. This gender inequality could have accounted for more female participation in the study compared to men. Moreover, the patient population also suggest that there was no significant difference between the actual patient participants in the study and the non-responders.

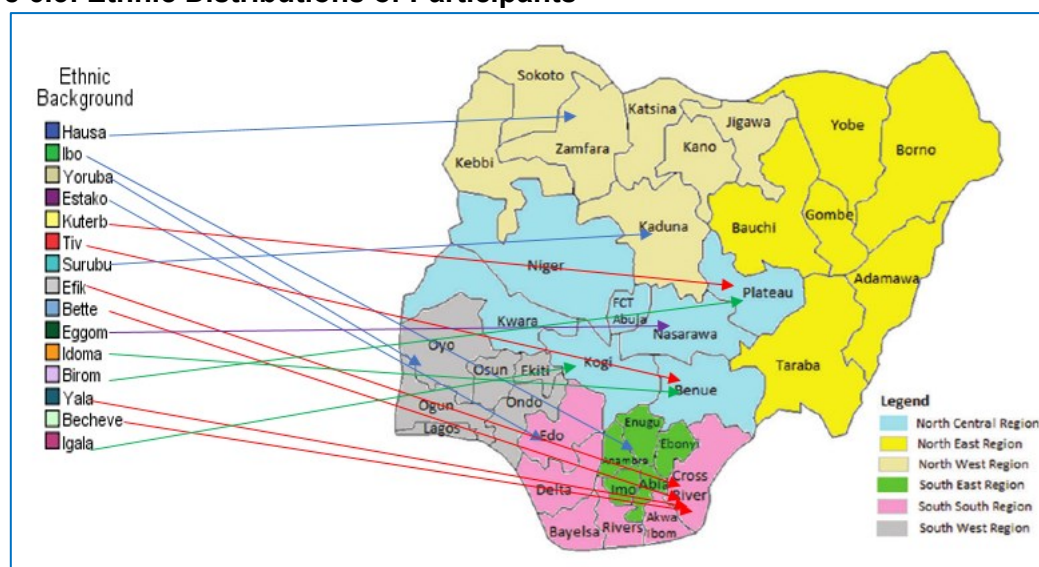
Ethnic Backgrounds of Participants

All the 30 study participants (patients and counsellors) came from 15 different ethnic groups in the country as presented in table 6.1. While a higher proportion of the study participants came from Ibo (26.7%), Tiv (16.7%) and Yoruba (13.3%) tribes, two (6.7%) participants came from Birom tribe (6.7%). All other ethnic groups were however represented by an individual (3.3%) each. The ethnic groups as presented in figure 6.3 represents five of the six geographical regions in Nigeria except the North-Eastern region of the country. The study population can therefore be assumed to represent majority of the tribes and cultures in the country.

Table: 6.1: Ethnic Background of Participants

		Frequency	Valid Percent
Valid	Hausa	1	3.3
	Ibo	8	26.7
	Yoruba	4	13.3
	Estako	1	3.3
	Kuterb	1	3.3
	Tiv	5	16.7
	Surubu	1	3.3
	Efik	1	3.3
	Bette	1	3.3
	Eggom	1	3.3
	Idoma	1	3.3
	Birom	2	6.7
	Yala	1	3.3
	Becheve	1	3.3
	Igala	1	3.3
	Total	30	100.0
Missing	System	10	
Total		40	

Figure 6.3: Ethnic Distributions of Participants



Source of Map only: Gayawan, Arogundade and Adebayo (2014)

While 13 of the ethnic groups in the total population of participants are represented by the patient participants, unlike in the total participants group higher proportions came from Ibo (19%), Tiv (23.8%) and Birom (9.5%). As presented in table 6.2 all other ethnic groups are represented by relatively fewer individuals compared to those from Ibo, Tiv and Birom.

Table 6.2: Ethnic Background of the Patients

	Frequency	Valid Percent
Hausa	1	4.8
Ibo	4	19.0
Yoruba	1	4.8
Tiv	5	23.8
Surubu	1	4.8
Efik	1	4.8
Bette	1	4.8
Eggom	1	4.8
Idoma	1	4.8
Birom	2	9.5
Yala	1	4.8
Becheve	1	4.8
Igala	1	4.8
Total	21	100.0

Although the ethnic distribution among the patient participants is similar to the distribution among non-responders in respect of certain ethnic groups, there were significant differences in the ethnic representations in respect of other groups. For instance, while 29.2% (19) of the 65 non-responders were Ibos and 3% (two) were Yorubas, 24.6% (16) were Hausas. This pattern of ethnic distribution among the non-responders showed that significant number of HIV patients who were screened for recruitment were Hausas which is in stark difference to the single representation among the actual participants.

Moreover, unlike the wide distribution of ethnic groups among the patients, all the adherence counsellors came from just four ethnic groups which include: Estako; Ibo; Kuterb; and Yoruba. As presented in table 6.3, among the four ethnic groups Ibo and Yoruba have relatively higher representations with 44.44% and 33.3% compared to 11.1% representation from Estako and Kuterb respectively.

Table 6.3: Ethnic Background of Counsellors

	Frequency	Valid Percent
Ibo	4	44.4
Yoruba	3	33.3
Valid Estako	1	11.1
Kuterb	1	11.1
Total	9	100.0

Languages Spoken by Participants

The first languages spoken by the patients presents a similar pattern to the ethnic distribution among them. However, unlike the ethnic distribution pattern more individuals spoke Yoruba language, while Birom language has fewer numbers of speakers even though only one of the patients came from the Yoruba tribe while two came from Birom. None of the patient participants speaks English as first language but the other languages spoken as first languages include: Hausa; Surubu; Efik; Bette; Eggom; Idoma; Birom; Yala; Icheve; and Igala (see table.6.4 and Appendix 5). Unlike the patients, the first languages spoken by the counsellors are direct reflections of their ethnic backgrounds as presented in table 6.5. In total, 15 different languages were spoken as first languages by all the participants.

Table: 6.4: First Languages Spoken by Patients

	Frequency	Valid Percent
Valid Hausa	1	4.8
Igbo	4	19.0
Yoruba	2	9.5
Tiv	5	23.8
Surubu	1	4.8
Efik	1	4.8
Bette	1	4.8
Eggom	1	4.8
Idoma	1	4.8
Birom	1	4.8
Yala	1	4.8
Icheve	1	4.8
Igala	1	4.8
Total	21	100.0

Table: 6.5: First Languages Spoken by Counsellors

	Frequency	Valid Percent
Valid Igbo	4	44.4
Yoruba	3	33.3
Estako	1	11.1
Kuterb	1	11.1
Total	9	100.0

Other Languages Spoken by Participants

Apart from the first language spoken by study participants, they also speak other languages including English (see appendix 5). While all the adherence counsellors speak English (100%), only fourteen (66.7%) of the patients speak English as another language. In comparison with English, while all the adherence counsellors also speak Pidgin, sixteen (76.2%) of the patients speak Pidgin. However, these two languages are the most used among the study cohorts.

Another language which some counsellors and patients speak is Hausa and as presented in figure 6.4, while three (33.3%) of the counsellors speak Hausa, only two (9.5%) of the patients

speak the language. Other local languages such as Yoruba, Igbo and Birom are also spoken as another language by one patient (4.8%) respectively, while Idoma is spoken by two (9.5%) patients as another language. As presented in figure 6.5, only seven (23.33%) of the 30 study participants speak one language as other language, the rest speak between two and five languages as languages other than their first language. Therefore, languages used among this study cohorts presents the multilingual reality existing in Nigeria.

Figure 6.4: Other Languages Spoken by Study Participants

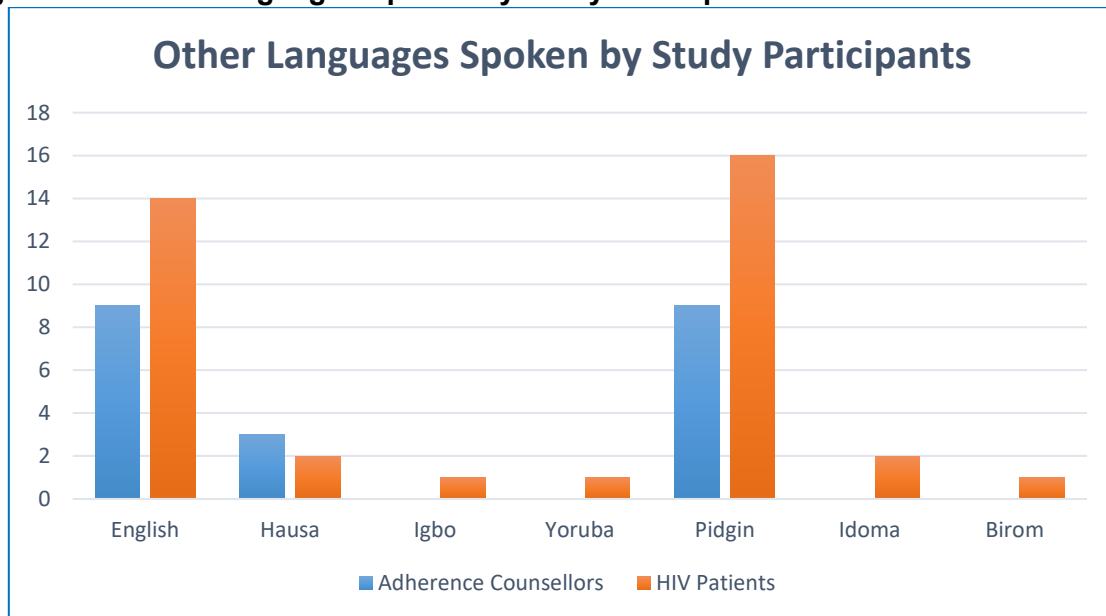


Figure: 6.5: Multilingualism among Participants



Educational Attainment

While three (14.3%) of the patients' cohort have no formal education, as presented in table 6.6 over 80% (17) of the patients had less than an ordinary diploma qualification. On the other hand, the lowest educational qualification among the counsellors was a higher national diploma which was possessed by only two (22.2%) individuals (see table 6.7). Therefore, significant proportion of the patient population may not have the literacy capacity to communicate comfortably with English during their treatment consultation sessions with the counsellors.

Table: 6.6: Educational Attainment of Patients

	Frequency	Valid Percent
No schooling completed	3	14.3
Primary school education	2	9.5
Secondary school education	12	57.1
Valid Ordinary National Diploma	2	9.5
Advanced degrees	1	4.8
Any other qualification	1	4.8
Total	21	100.0

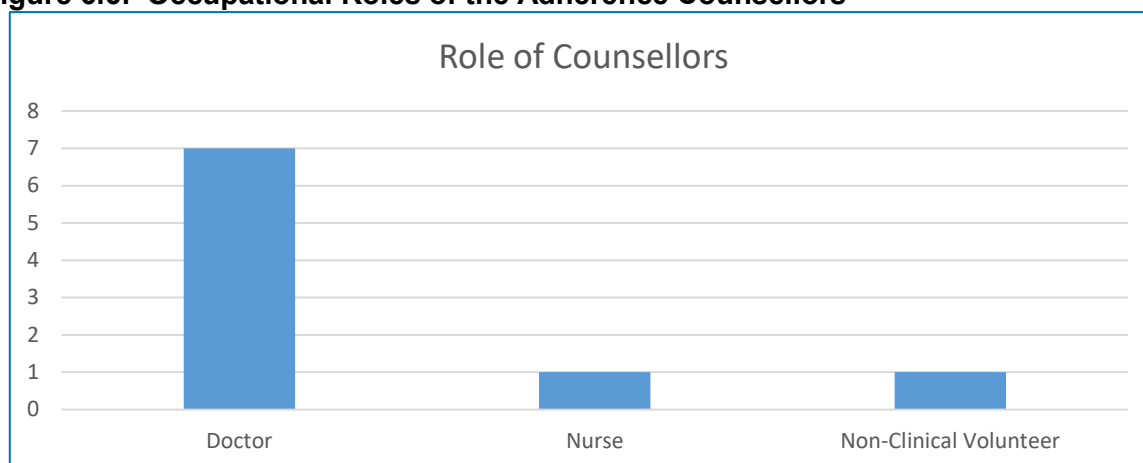
Table 6.7: Educational Attainment of Counsellors

	Frequency	Valid Percent
Higher National Diploma	2	22.2
Bachelor's degree	3	33.3
Valid Advanced degrees	2	22.2
Any other qualification	2	22.2
Total	9	100.0

Occupational Roles and Length of Experience of Counsellors

The counsellors cut across different occupational roles which as presented in figure 6.6 include seven (77.8%) medical doctors, a nurse (11.1%) and a non-clinical volunteer (11.1%). Moreover, the highest length of experience among the adherence counsellors after professional qualification was 33 years, while the shortest length of experience among the doctors was four years. However, the lowest length of experience was the lack of any professional experience of the non-clinical volunteer. Hence the average length of clinical experience among the adherence counsellors was 16.22 years.

Figure 6.6: Occupational Roles of the Adherence Counsellors



Languages Used for Counselling

The adherence counsellors use different languages for counselling while carrying out their routine practice. As presented in figure 6.7, all the counsellors use either English and/or Pidgin (see appendix 5). However, two (22.2%) of the counsellors reported that they also use Hausa while two (22.2%) other counsellors use Igbo language, and only one of the counsellors (11.1%) reported using Yoruba language for routine consultation sessions with the patients. Moreover, while four (44.44%) of the counsellors use two different languages during their consultations others (55.56%) use up to three different languages for their routine clinical consultations (see figure 6.8). Hence, the clinical consultation for HIV treatment in the study setting allows for the practice of the prevalent multilingualism in the country.

Figure 6.7: Languages Used by Counsellors for Adherence Counselling

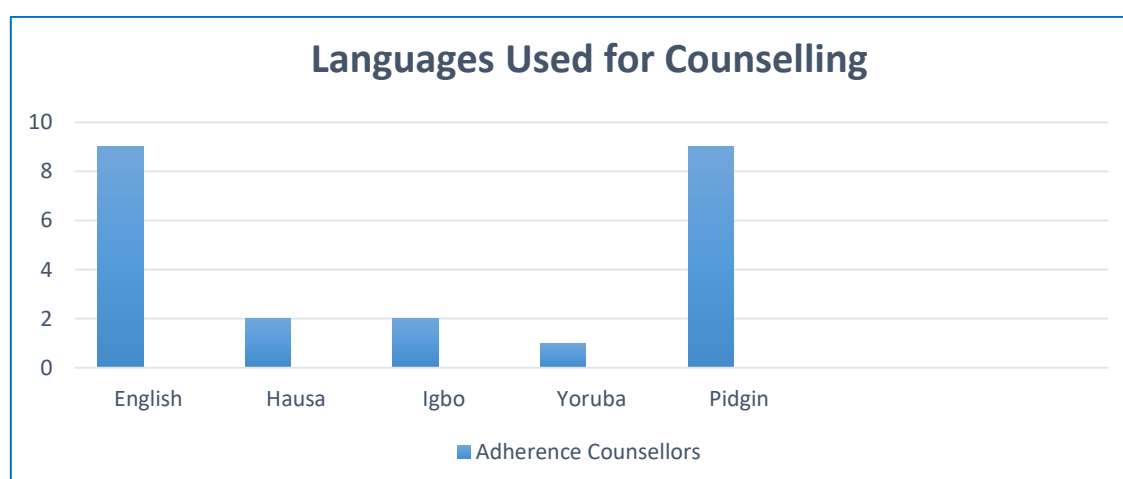
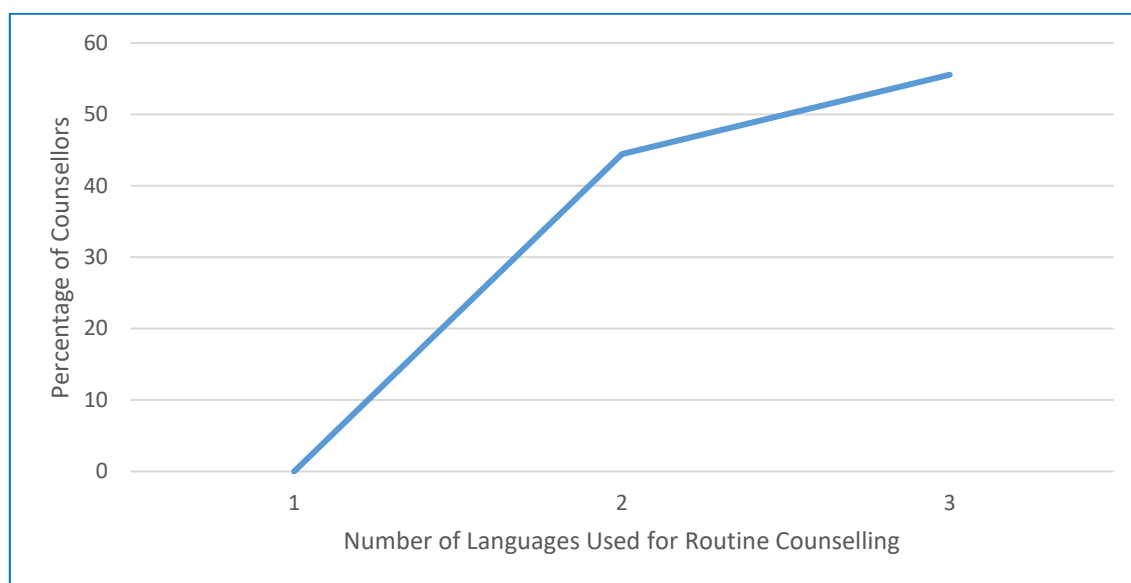


Figure 6.8: Multilingual Approach to Counselling



6.3. Participation of Counsellors in the MI Trainings

As presented in table 6.8, all adherence counsellor attended more than one MI training session. However, two individuals missed a training session apiece, but at different days. One counsellor missed the last training session because of further education in school, while the other counsellor missed the first training session due to illness. Attendance rate in the scheduled MI training sessions was therefore 93%. Meanwhile, none of the clinicians failed to attend the MI training sessions due to lack of interest in the study or the training. This illustrates the high enthusiasm among the counsellors about the MI training.

Table. 6.8: Attendance of Counsellors during the MI training

Adherence Counsellors	Training day one	Training day two	Training day three
Doctor (x001)	Attended	Attended	Attended
Non-clinical staff (x002)	Attended	Attended	Missed
Doctor (x003)	Attended	Attended	Attended
Doctor (x004)	Attended	Attended	Attended
Doctor (x005)	Attended	Attended	Attended
Doctor (x006)	Attended	Attended	Attended
Nurse (x007)	Attended	Attended	Attended
Doctor (x008)	Attended	Attended	Attended
Doctor (x009)	Missed	Attended	Attended

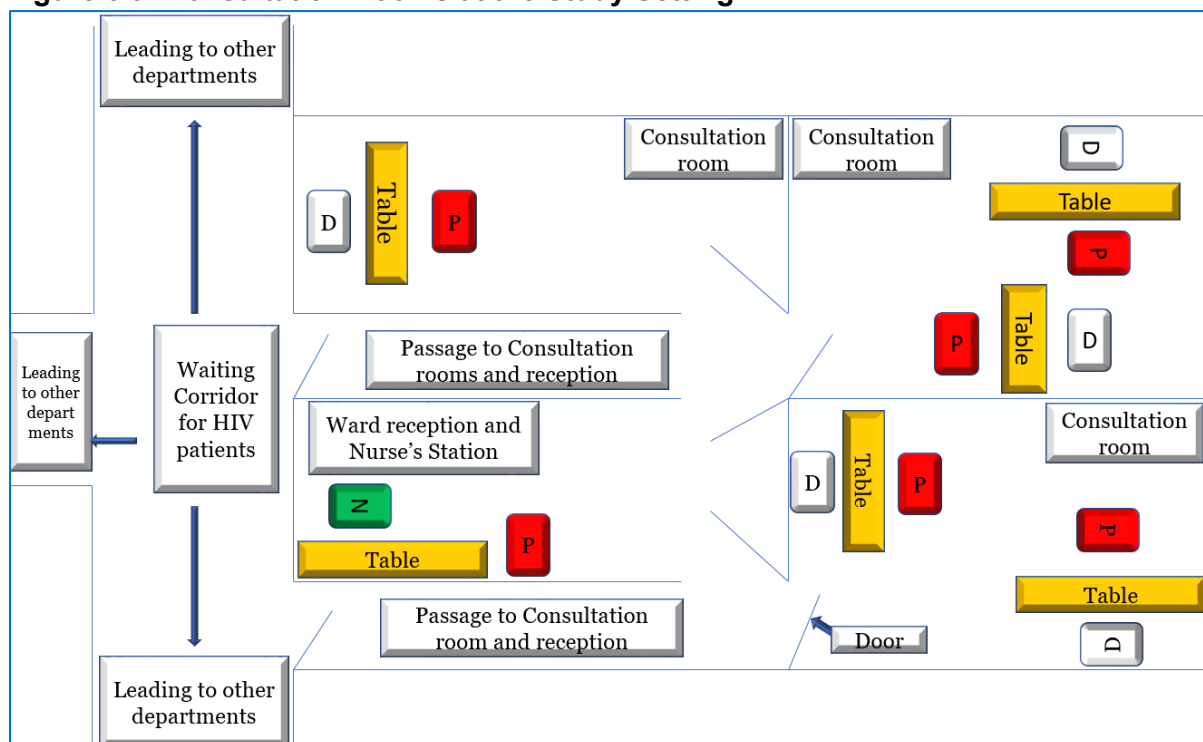
Notation: Study codes for each of the adherence counsellors started with “x”

6.3.1 Setting of MI Training and Practice Sessions

Before presentation of the outcomes that emerged from the interactions between the trained counsellors and the HIV patients, it is necessary to describe the context within which MI training and the MI practice sessions occurred to facilitate interpretation of the outcomes. In this regard, the MI training for the study was carried out in the conference room of the hospital which had adequate training facilities. However, despite the hot weather condition with a temperature ranging from 35-41°C during the period of the study, the air conditioning system in the conference room was dysfunctional throughout the training sessions.

On the other hand, the consultation rooms in which the trained counsellors practised the MI approach with the patients were in the Medical Outpatient Department (MOPD) which is also the HIV clinic. As at the time of the study, there were three consultations rooms and a nurse's station at the MOPD. The nurse at the clinic served partly as a receptionist to the clinic because all interactions between the nurse and the patients were preparatory to the consultation sessions between the patients and any of the doctors. Meanwhile, patients wait in a long corridor which does not only lead to the consultation rooms but also led to other departments in the hospital. Hence, the corridor did not only serve as a waiting space for the HIV patients, but also served as a passage way for other patients, clinicians and visitors to the hospital who have nothing to do with the MOPD. In addition, the positioning of the clinic corridor may increase the likelihood of exposing the patients and their health circumstance to people that they might be avoiding.

Figure 6.9: Consultation Rooms at the Study Setting



N.B: “D” refers to Doctor; “N” refers to Nurse; and “P” refers to Patient

Moreover, two of the consultation rooms in the clinic had two doctors’ tables which allows for two consultation sessions with two different patients to occur simultaneously. The arrangement of these consultation rooms does not also seem to promote safeguarding of the confidentiality of personal information from each HIV patient. Lastly, as presented in figure 6.9 only five of the seven doctors in the study could attend to the waiting HIV patients at the MOPD at any given time.

6.4. Participation in MI Practice Sessions for ART Adherence

Involvement of adherence counsellors in each of the data collection activities is as presented in table 6.9. Only seven of the adherence counsellors (doctors) participated in the observed MI practice sessions. The two remaining counsellors could not participate because the volunteer no longer carry out adherence counselling for the HIV patients by the time the MI training sessions were completed, and the nurse could not get a patient to practice the approach with during the study period. Hence, only the seven doctors participated in the practice sessions analysed in this chapter.

Three of the patients could not also participate in the practice sessions. Two of these patients initially missed their first appointment dates and could not visit the clinic for another session till the end of the study period, while the recording for the third patient failed and the patient

could not return for a re-scheduled session. Meanwhile, only one of the patients who participated, engaged in two different sessions on two different days, while all other patients participated in one session apiece.

Table 6.9: Participant's involvement in Practice Sessions

Number of Study Participants	Observation of MI session for ART adherence
HIV patients-21	18
Adherence counsellors-9	7
Attrition	5

6.5. Clinical Encounters

The clinical encounters between the counsellors and the patients (with study codes starting with “y”) started on 10th of May and ended on 30th of August 2017. As presented in table 6.10, the time spent on each session ranged between 1:10 and 22:34 minutes. Languages used within the sessions include only English, English with Pidgin, English with Yoruba and Pidgin and combination of the three languages with Hausa. Although Hausa was not one of the specified languages of the study, some doctors used some common expressions such as “*tor*” and “*ba*” drawn from Hausa language in two of the sessions. Each of these expressions means “*well*” and “*right?*” respectively. Meanwhile, counsellors X005 and X008 used Yoruba or Hausa with English and Pidgin during the MI practice sessions (see table 6.10). However, the two counsellors did not report that they use either of the two languages for their routine consultation sessions. Similarly, counsellor X006 did not report using Yoruba for routine clinical consultations but used another common expression “*abi*” drawn from Yoruba language, which means “*or*” during one of the practice sessions. Therefore, the counsellors drew on their multilingual abilities to use the MI approach within the practice setting.

Overall, English was used only in 11 (58%) out of the 19 sessions, while a hybrid of different local languages was used with English in the remaining sessions as presented in table 6.10. The most frequently used local language was Pidgin, which was used in the remaining (42%) sessions. While Yoruba was used as part of the hybrid of languages in four (21%) of the sessions, Hausa was used in similar pattern in only two (11%) of the sessions. Lastly, in respect of the frequency of counsellors' involvement in the practice sessions, two (28.60%) of the counsellors carried out four sessions apiece, one (14.29%) counsellor carried out three sessions and the remaining four (57.14%) counsellors carried out two sessions apiece.

Table 6.10: Features of the MI Practice Sessions

Session codes	Participant codes	Time spent	Date of session	Language (s) used in the sessions
X001a	X001Y016	7:08.9	31/05/2017	English
X001b	X001Y018	11:25.8	07/06/2017	English+Pidgin
X003a	X003Y021	21:26.6	14/06/2017	English+Pidgin
X003b	X003Y009	3:54.9	02/08/2017	English
X004a	X004Y008	6:09.2	10/05/2017	English
X004b	X004Y010	3:26.4	15/05/2017	English +Pidgin
X004c	X004Y017	10:20.0	31/05/2017	English
X004d	X004Y012	4:30.0	12/07/2017	English
X005a	X005Y005	8:23.4	10/05/2017	English
X005b	X005Y015	12:22.0	31/05/2017	English+Yoruba+Hausa+Pidgin
X005c	X005Y020	15:05.5	14/06/2017	English+Pidgin+Yoruba
X006a	X006Y007	18:35.0	10/05/2017	English
X006b	X006Y002	22:34.9	02/08/2017	English
X006c	X006Y001	13:10.3	21/08/2017	English+Pidgin
X006d	X006Y004	14:06.2	21/08/2017	English+Yoruba+Pidgin
X008a	X008Y007	10:58.7	05/07/2017	English
X008b	X008Y006	20:43.3	30/08/2017	English+Yoruba+Hausa+Pidgin
X009a	X009Y019	1:58.4	28/06/2017	English
X009b	X009Y003	1:10.8	23/08/2017	English

Notations: Session codes ending with a, b, c or d indicate the chronological sequence with which the interaction occurred for each counsellor.

6.6 OnePass Assessment of Fidelity to MI

Scores generated for each of the 22 items of OnePass from the 19 practice sessions are presented in Appendix 6.

6.6.1 MI Global Spirit Scores

Global scores in MITI are equivalent to the average of all scores in OnePass (McMaster and Resnicow, 2015). Since the average of 22 OnePass items scored on a 7-point scale is 7.0, the maximum achievable score for Global Spirit in OnePass is also 7.0. Hence, an average score of 4.9 is the equivalent to the 3.5 MITI threshold score for basic competency in MI (Miller and Rollnick, 2013, p.400). One-sample t-test carried out on the 19 sessions revealed that none of the counsellors achieved basic competency in any of the sessions. The highest mean which was achieved by one of the counsellors (X008) was 4.18 as presented in table 6.11. While the paired sample t-test (see table 6.12) revealed that four of the counsellors (X001, X004, X005 and X008) demonstrated some improvements in MI spirit scores between their last and first sessions, only two individuals achieved statistically significant difference in skills. Conversely, two of the counsellors (X003 and X006) recorded loss of skills between the time points. However, only one counsellor (X003) has a statistically significant loss of skills. Incidentally, the counsellor (X009) who did not record any improvement in skill between the

time points, missed one of the MI training sessions. This might have also accounted for the consistent lowest MI spirit scores achieved by the counsellor.

Table 6.11: One-Sample T-Test for MI Spirit Scores

Session Codes	Test Value = 0				
	Mean	Std. Deviation	Sig. (2-tailed)	95% Confidence Interval of the Difference	
				Lower	Upper
X001Y016	1.2727	1.83048	.004	.4611	2.0843
X001Y018	1.6364	2.34105	.004	.5984	2.6743
X003Y021	3.1818	2.51919	.000	2.0649	4.2988
X003Y009	.7727	1.68839	.044	.0241	1.5213
X004Y008	.6818	.99457	.004	.2408	1.1228
X004Y010	1.0455	1.67552	.008	.3026	1.7883
X004Y017	3.6818	2.33781	.000	2.6453	4.7183
X004Y012	3.9091	2.32807	.000	2.8769	4.9413
X005Y005	.9545	1.55769	.009	.2639	1.6452
X005Y015	2.1364	1.75378	.000	1.3588	2.9139
X005Y020	3.0909	2.34844	.000	2.0497	4.1321
X006Y007	3.0000	1.77281	.000	2.2140	3.7860
X006Y002	1.8182	2.36314	.002	.7704	2.8659
X006Y001	3.9091	1.87487	.000	3.0778	4.7404
X006Y004	2.2273	2.36908	.000	1.1769	3.2777
X008Y007	3.2727	2.37410	.000	2.2201	4.3253
X008Y006	4.1818	2.83912	.000	2.9230	5.4406
X009Y019	.6818	1.58524	.057	-.0210	1.3847
X009Y003	.6818	1.61500	.061	-.0342	1.3979

Table 6.12: Paired Samples T-Test of MI Spirit Scores for Last and First Sessions

Session Codes	Paired Differences				
	Mean	Std. Deviation	Sig. (2-tailed)	95% Confidence Interval	95% Confidence Interval
				Upper	Lower
Pair 1 X001Y018 - X001Y016	.36364	2.51747	.505	1.47982	-.75255
Pair 2 X003Y009 - X003Y021	-2.40909	2.59412	.000	-1.25892	-3.55926
Pair 3 X004Y012 - X004Y008	3.22727	2.24525	.000	4.22276	2.23179
Pair 4 X005Y020 - X005Y005	2.13636	3.09062	.004	3.50667	.76606
Pair 5 X006Y004 - X006Y007	-.77273	2.20242	.115	.20377	-1.74923
Pair 6 X008Y006 - X008Y007	.90909	2.54313	.108	2.03665	-.21847
Pair 7 X009Y003 - X009Y019	.00000	2.22539	1.000	.98668	-.98668

6.6.2 Percent MI-Consistency

Consistency of the MI responses of the counsellors was assessed on 15 OnePass items that excluded: *open questions; reflective listening; action reflection; overall conduct; talk time; reflections ratio; open-closed question ratio and complex-simple reflection ratio* (see appendix 6). According to the MITI, basic competency threshold for percent MI consistency is $\geq 90\%$ (Miller and Rollnick, 2013, p.400). Hence, for the 7.0 average score on OnePass, an equivalent competency score for MI consistency is ≥ 6.3 . A paired-sample *t*-test between the last and first sessions revealed that only two counsellors (X004 and X005) had statistically significant improvement in consistent MI responses between the time points (table 6.13). However, none of the counsellors achieved basic competency threshold for MI consistency.

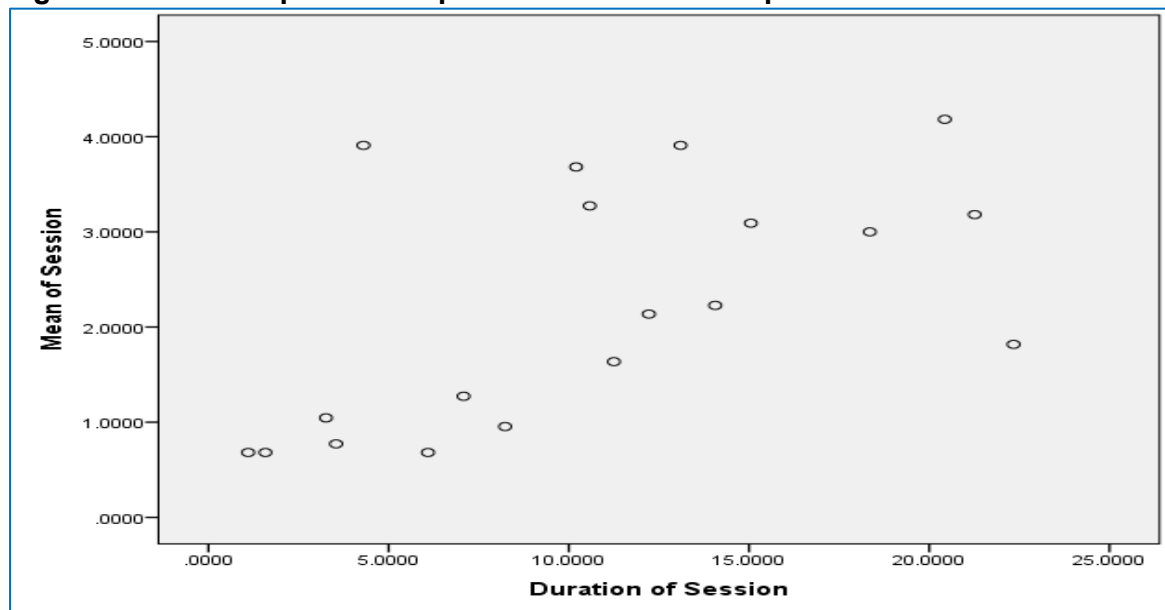
Table: 6.13: Paired Samples T-Test of Percent MI-Consistency over Time

Session Codes	Paired Differences				
	Mean	Std. Deviation	Sig. (2-tailed)	95% Confidence Interval	95% Confidence Interval
				Lower	Upper
Pair 1 X001Y018 - X001Y016	.86667	2.85023	.259	-.71174	2.44507
Pair 2 X003Y009 - X003Y021	-2.46667	2.89992	.005	-4.07259	-.86075
Pair 3 X004Y012 - X004Y008	4.06667	3.10453	.000	2.34744	5.78590
Pair 4 X005Y020 - X005Y005	2.46667	3.48193	.016	.53844	4.39489
Pair 5 X006Y004 - X006Y007	-.06667	2.81493	.928	-1.62552	1.49219
Pair 6 X008Y006 - X008Y007	.66667	3.81101	.509	-1.44380	2.77713
Pair 7 X009Y003 - X009Y019	-.13333	2.69568	.851	-1.62615	1.35948

6.6.3 Influence of the Duration of Sessions on MI Spirit Scores

A Pearson correlation test carried out on the mean of the scores of the 19 sessions and the time spent during the sessions showed a statistically significant and large correlation value of 0.58 according to Cohen's guideline (Gray and Kineer, 2012, pp.406). However, the scattered plot in figure 6.10 shows lack of association between the two variables.

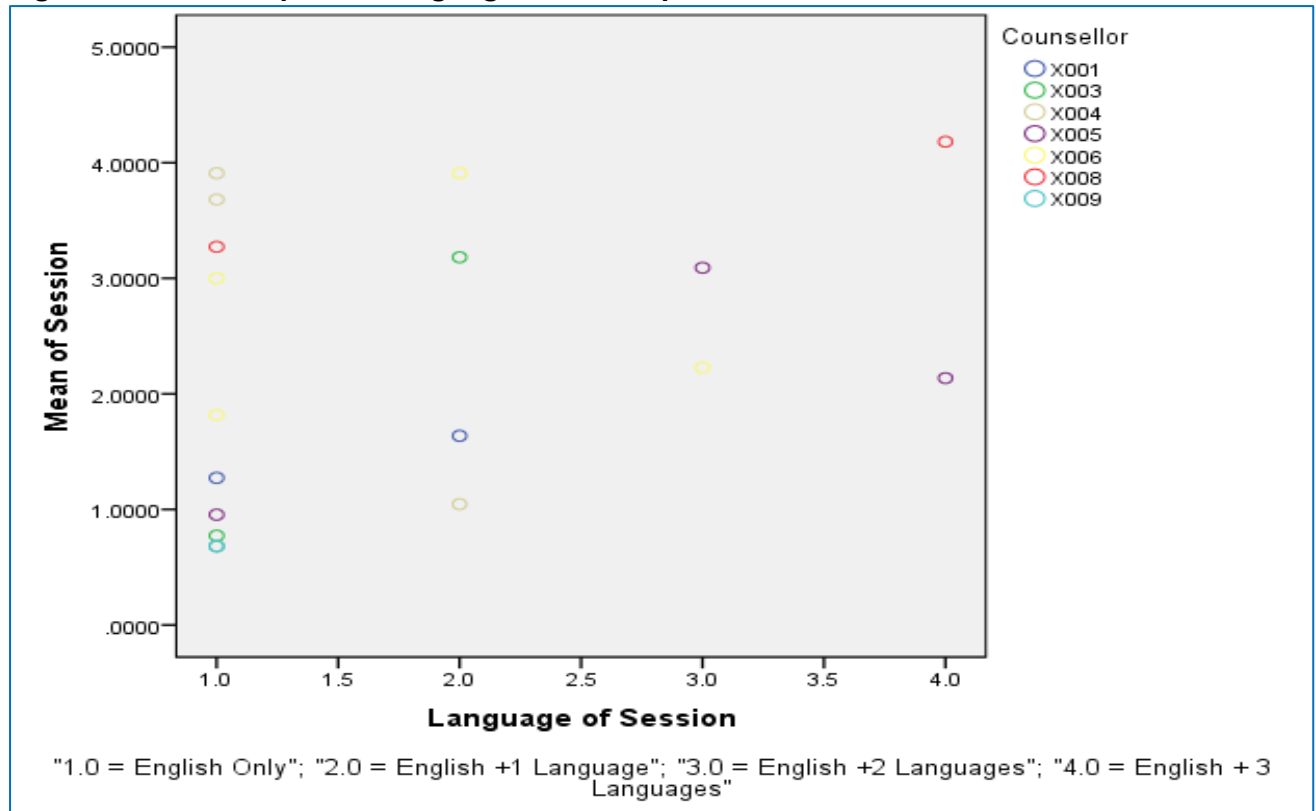
Figure 6.10: Scatterplot of MI Spirit Scores and Time Spent on Sessions



6.6.4 Influence of Language on MI Spirit Scores

A Pearson correlation test of the impact of the language (s) used during each of the sessions and the MI spirit demonstrated by the counsellors resulted in an insignificant medium correlation value of 0.35. This lack of association between the two variables was further corroborated by the scatterplot in figure 6.11. For instance, while the use of four languages by one of the counsellors (X008) resulted in the highest MI spirit score, use of the same language pattern by another counsellor did not produce same level of scores. On the other hand, use of only one language (English) did not result in a consistent level of MI spirit. Despite the lack of association between language (s) and the MI behaviour of the counsellors, the result shows that their multilingual potential facilitated the use of the techniques of the approach within their practice context.

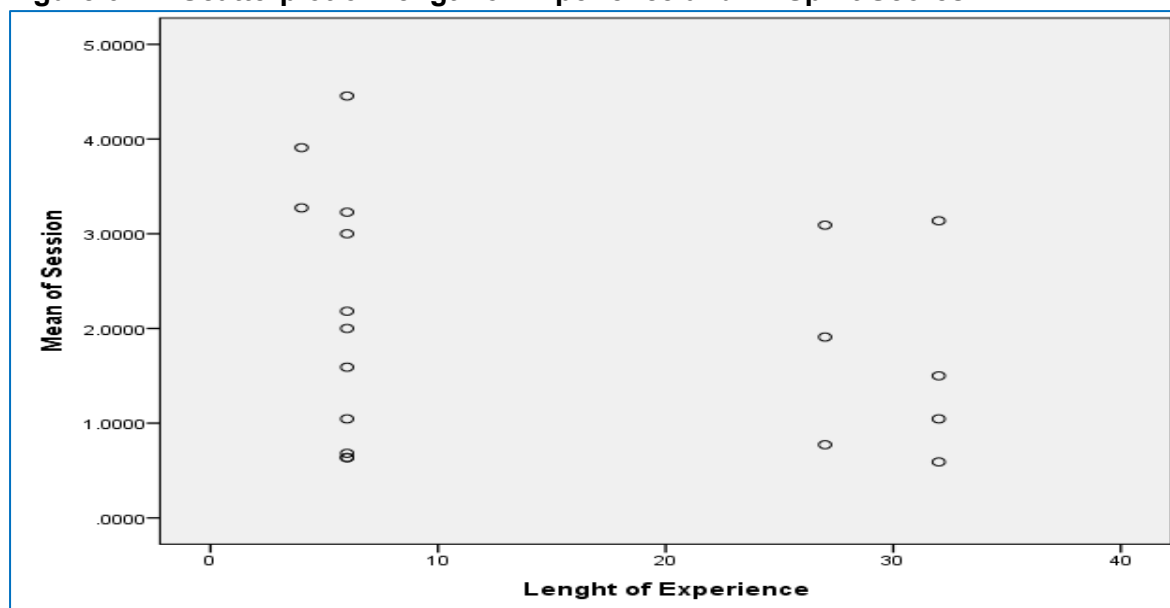
Figure 6.11: Scatterplot of Languages and MI Spirit Scores



6.6.5 Length of Clinical Experience and MI Spirit Scores

Lack of association was also found between the length of clinical experience of the counsellors and the MI spirit scores in the analysed sessions. Pearson correlation test between the two variables shows an insignificant and small correlation with a value of 0.25. The lack of association between the two variables was also corroborated by the scatterplot in figure 6.12. However, the scatterplot shows that the three sessions with the highest quality of MI were carried out by counsellors with relatively lower length of clinical experience.

Figure 6.12: Scatterplot of Length of Experience and MI Spirit Scores



6.6.6 Inter-Rater Reliability Test

Lastly, the Cicchetti and Sparrow's guideline for judging inter-examiner levels of agreement in psychology was used to interpret the Spearman's rank correlation test for the inter-rater reliability. According to Cicchetti and Sparrow when a reliability coefficient for correlation is below 0.40 the clinical significance is poor, between 0.40 and 0.59 is fair, between 0.60 and 0.74 is good, and between 0.75 and 1.00 is excellent (Cicchetti, 1994). In this regard, the Spearman's rank correlation test carried out on the scores generated independently from three of the analysed sessions by the PI and by Dr McMaster resulted in poor to fair clinical reliability significance as indicated by the coefficients of correlation r ([X004Y012; $r=0.23$, $p=0.30$]; [X005Y015; $r=0.31$, $p=0.16$]; and [X006Y001; $r=0.49$, $p=0.020$]).

6.7 Chapter Summary

Findings from this chapter have revealed that individuals involved in counselling of HIV patients for ART adherence in the study setting included doctors and a nurse. The chapter has also revealed that apart from English, local Nigerian languages are also used for routine clinical consultation by the adherence counsellors, which are often used in a hybrid pattern. While the counsellors were enthusiastic about the MI training and its practice, they were not able to demonstrate basic MI competency during the practice sessions. Although some of the counsellors improved from their first session to their last sessions, others could not retain the skills they demonstrated in the first sessions. Irrespective of the low level of fidelity scores observed among the counsellors, there were no significant associations between the language (s) used in the session, time spent on each session and length of experience of the

counsellors with their MI skills. However, it is evident from the findings that the multilingual potential of the counsellors facilitated the use of the techniques of MI within the study context.

CHAPTER SEVEN: QUALITATIVE STUDY FINDINGS

7.0 Chapter Overview

This chapter presents the study findings from the qualitative data generated from the semi-structured interviews with the aim of meeting the first, second and third objectives of the study. It presents the findings as themes generated from the audiotaped records of the interviews carried out with the participant groups (HIV patients and counsellors) after the MI practice sessions.

7.1 Description of Data Source and the Findings

The data were collected from 12 out of 18 patients who participated in the clinical practice sessions for ART adherence and from six out of the seven doctors who participated in the sessions. Reasons for not participating in the semi-structured interview are largely due to telephone contact challenges. For instance, two of the six patients who did not participate in the interview could not be reached because they do not have functional mobile phone contacts at the time. Two other patients could not be reached because their mobile phones were switched off, while another patient was too busy at workplace to respond to the interview questions. However, the last patient did not answer several calls made to her mobile phone for the interview. This behaviour suggests that she was reluctant to participate, despite agreeing to be contacted for the interview. Meanwhile, one of the doctors could not also participate in the interview because of poor mobile phone connection.

Guided by the objectives of the study four main themes emerged from the 18 audiotapes. The main themes generated are: 1) *Socio-Cultural Factors*; 2) *Organisational Factors*; 3) *Counselling Approach*; and 4) *Impact of MI Training*. While the first theme is related to the overarching context and culture in Nigeria and the study community, the second and third themes are related to the context of HIV adherence support and the features of the existing counselling approach for ART adherence respectively, the last theme is focused on the HIV treatment support after MI training. As presented in Table 7.1 sub-themes were identified and named for each of the themes, while child sub-themes were further identified and named for each of the sub-themes in the last theme.

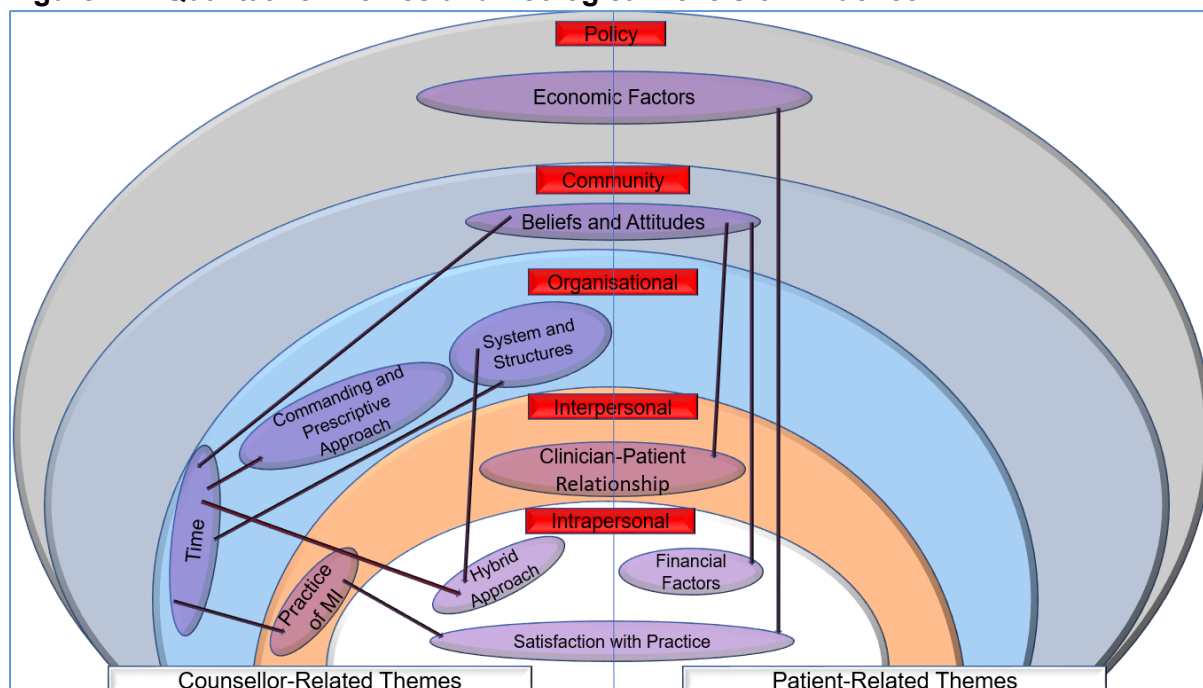
Table 7.1: Thematic Framework for Qualitative Findings

Main Themes	Sub-Theme	Child Sub-Themes
<i>Socio-Cultural Factors</i>	<i>Financial and Economic Situation of PLHIV</i>	<i>N/A</i>
	<i>Beliefs and Attitudes towards PLHIV</i>	<i>N/A</i>
<i>Organisational Factors</i>	<i>System and Structures</i>	<i>N/A</i>
	<i>Patient-Clinician Relationship</i>	<i>N/A</i>
<i>Counselling Approach for Adherence</i>	<i>Interactive and Encouraging approach</i>	<i>N/A</i>
	<i>Commanding and Prescriptive Approach</i>	<i>N/A</i>
<i>Impact of MI Training</i>	<i>Practice Change</i>	<i>Equalised Practice</i>
		<i>Domino Effect</i>
	<i>Satisfaction with Practice</i>	<i>Preferred MI Techniques</i>
		<i>Hybrid Approach</i>
		<i>Time</i>

Notations: “N/A” refers to Not Applicable

Furthermore, figure 7.1 shows the position of the themes within the ecological model of behaviour change. The core concept of the ecological model is that behaviour has multiple levels of influences which often include intrapersonal (biological and psychological), interpersonal (social and cultural), organisational, community, physical environmental, and policy (Sallis, Owen and Fisher, 2008, p. 465). The model emphasizes the explicit consideration of these levels of influences to guide the development of more comprehensive interventions (Sallis, Owen and Fisher, 2008, p.466). Consistent with the concepts of the ecological model, each theme identified in this study occupies different level of influence. However, the themes do not only occupy specific level of influence independently, they also interact with themes in other levels of the ecological model or exert influence on other themes within the same level.

Figure 7.1: Qualitative Themes and Ecological Levels of Influence



The themes and their relevant references are presented in the following sections.

7.2 Socio-Cultural Factors

Socio-cultural constraints that influence the experiences of both HIV patients and their doctors during the usual treatment consultation sessions include the economic situation of the country and the financial situations of the patients as well as the prevalent beliefs and attitudes in the study context.

Financial and Economic situation of PLHIV

The challenging economic situation of the country and the financial circumstances of some patients made it difficult for them to fund transportation to the clinic for check-up appointments and to collect medications. Some of the clinic doctors confirmed that due to financial limitations, patients cannot keep up with their HIV clinical appointments which affects their drug replenishment. Some of the doctors also found it difficult to motivate the patients to adhere to their medication regimen because of their poor financial situation.

“because some people are out of us they ehm one day I tried one thing, I trek to the hospital one day that I supposed to come and see them, I don't have money. so, some of us have many personal problems that are some even don't come, because they don't have money to even come”. (A male Patient, Y015).

“and then you know their own environment because of the socio the poor economic situation, many of them don't eat well. have poor diet and ehn these are all challenges that ehn, the patients usually face. and some no money. ehn. it will be difficult for them to take it. so, you just see that ehn you ask them to ehn now take the dose every day, some of them cannot even come after you have finished the first dose ehn”. (A female Doctor, X005).

Beliefs and Attitudes towards PLHIV

Some of the doctors raised concerns about how lack of belief in the ART engendered by religious or traditional beliefs usually prevents concordance between them and patients in respect of HIV treatment. This is because preference for cure instead of the management capability of the ART makes some of the patients seek and adhere to religious or traditional solutions despite advice to adhere to the drugs treatment from the hospital.

“many of them visited unqualified eh...service provider. And ehm...some will visit eh...spiritualist. visit prophet. begin to think they will be healed. so [not discernible], even when you are trying to tell them that this drug, tell them to take their drug. before they know it, they will say that they went to one prayer house and they have prayed for them ehm with that they will not adhere the way you expect them to adhere to their medication”. (A female Doctor, X005).

Meanwhile, some of the doctors also emphasised how high prevalence of stigma in Nigeria affects the HIV clinic in respect of population of patients visiting this clinic. This is because some of the patients avoid using the health facilities in their local communities due to the fear of stigmatisation and travel to the hospitals in the city where their health status can remain anonymous irrespective of the capacity of the clinic. This behaviour increases the number visiting this HIV clinic which does not have the capacity to deal with the high population.

“some of them, ehm...the distance to clinic. that pulls out most people for clinic visits. most of them come from afar, just because of social stigma”. (A female Doctor, X006).

7.3 Organisational Factors

Organisational constraints that impact on the experience of HIV patients and counsellors during the routine consultation sessions for ART are in relation with the system and structures as well as the relationship between the patients and clinicians.

System and Structures

Some of the study patients expressed concerns about the challenges that they face due to long queue of patients at the HIV clinic. For instance, one of the patients stated that the long queue formed by patients due to the low capacity of the clinic in respect of staff prevents them from discussing major problems they are facing with the doctors. Due to the high population of patients, the doctors try to finish the consultation sessions with each of the patients quickly, a situation which makes the doctors appear not to have adequate time to attend to such issues. Moreover, some of the patients become apprehensive whenever they are meant to attend the clinic for ART consultation, due to the anticipated delay which was partly attributed to the handling of patients' care folders by the health workers in the records department.

“so, only my experience that anytime when I come to the clinic, people are too much. and they don't have time to attend to all. and then sometime, eh.... because of the too much of people, they just fast they do every, so that the everything will be okay. so, but we don't have eh...time to tell them about even our problem our big problem.”. (A male Patient, Y015).

“anytime like maybe, it's about time for me to go over to that place, you know, it's always a kind of uhm [hiss] shaking. am always feeling like ah! how will I cope again, you know, for the stress and the rest of a thing, like maybe delaying aspect of it and all what not..... once the file is passed to the doctor, I don't see any delay from the doctor's side. but the point, the problem there is just for the folder to get to the doctor's table. that is just always where we experience the delay”. (A female Patient, Y004).

Concerns of the patients about the impact of the clinic delays were also shared by the doctors as these factors affect their clinical interactions with the patients. In this regard, two of the doctors reported that the long waiting period that the patients endure before they meet with the doctors usually make them difficult to communicate with, as they are either angry or eager to leave the hospital at that time. One of the doctors emphasised that the long waiting period in the clinic occurs because there is no limit to the number of patients they attend to every clinic day, even though there was insufficient staff strength to adequately handle such a high

population.

"and the queue is so long in the clinic that it takes time before you even see all of them. so, when they are coming, some are already angry that they've been kept waiting." (A female Doctor, X008).

"I think it is because some of them don't really get what you are telling them and in a bit to rush up so, you just ah...they want to go as they actually came long through waiting for the whole crowd and all. they will just be telling you yes,and in our centres, most of our clinics are fully eh packed. you know, ... we don't have a limit to the number of patient's we see in a day". (A female Doctor, X006).

Meanwhile, one of the patients added that bribe collection takes place leading to favouritism by some of the records officers. Bribe collection by the record officers result in queue jumping in the clinic; a claim that was supported by other patients.

"..... the record people, they are not even helping matter kind of. They are not doing their job, maybe kind of searching for the file, that we are, this eh patients' file. they will be there looking for money. those that will come and give them money. Maybe those people came early, they will not concentrate on those ones, instead they will be collecting money and then those will be waiting for a very long time. and if you don't give them money, you end up going, the last." (A female Patient, Y004).

"normally I will waste time, the.... folder will go to somewhere come back, I will wait". (A female Patient, Y012).

"all along it has not been so poor. until the recent issue with my record. when my folder could not be found..... aside from that, both the attention and everything has been fine". (A male Patient, Y002).

Lastly, besides the issue of clinic delay, some of the patients were also concerned about lack of privacy in the clinic. For instance, one patient emphasised how this bothers him, because he believes that the situation could result in unwarranted disclosure of certain information about him.

"...that environment that we are used to attend to doctor is very eh, it's a poor place. That place is supposed to be a private. it's not private, everything we are

together in that eh hall.... that place is supposed to be...it's not for everybody eh.... anybody can never know what happens there. But that there, only that is section of.... these people. So that is the bothering me.” (A male Patient, Y015).

Patient-Clinician Relationship

One of the doctors explained that the major problem they have when interacting with their HIV patients before the MI training is a power differential which makes the patients believe that the doctors cannot truly empathise with them and are only keen to instruct them to adhere to the medication.

“because the barrier we've... always have with patients is this doctor relationship. eh doctor-patient relationship. where the patient sees the doctor as someone from afar. who doesn't know what he is going through and just issues orders on how to take his drugs” (A female Doctor, X008).

The same doctor further attributed the perception of the patients about distrust of genuine care from the doctors during consultation sessions to high prevalence of stigma in the society. This was confirmed by one of the patients who emphasised that attitude of the clinicians makes them feel discriminated and that such feeling makes them distrust the intention of the clinicians to care for them, and sometimes makes them want to change clinic.

“.... you know in our society, there is stigmatization. So, they feel you don't know what they are going through.” (A female Doctor, X008).

“not just even the doctors. the nurses, their approach to the.... clients in the facility..... the way they answer people and eh, talk about, look at the people as if maybe they are not part of human beings.....some clients for the session feel that maybe people neglected them, people are discriminating them, they are I mean, discriminating them and.....when you feel, feel this kind of a thing, you are challenged. you think.....nobody is here caring for you.” (A male Patient, Y007).

“I remember ehm two months back, somebody was eh telling me about... ehm challenge of uhm, she suffered, I mean her time of coming to the facility and eh because of that the doctor was talking to her anyhow, and she felt that she would even, she should, would have even changed the.... hospital, there to another place...” (A male Patient, Y007).

According to this same patient (Y007), evidence of the discriminatory attitude of the doctors and other health workers towards them is the communication approach. This view was corroborated by another patient who reported how sad they feel sometimes after communicating with the doctors, who also tend not to listen when they attempt to express their challenges.

“sometime, when we talk to them, they don’t listen to what we are talking about, or understand what, what they are doing. so, when we are talking to them, they will be telling us sometimes that they are not responsible for our sickness. They will be telling us all sort of things that make us feel bad.” (A female Patient, Y020).

However, there was evidence of significantly blurred boundaries between the doctors and the patients which emerged from the responses of the patients. For example, doctors go as far as trying to help patients resolve personal life issues apart from the health challenges, and by opening communication channels beyond the HIV clinic hours for the patients.

“I tell all my em, my personal thing and it, and it, she said he will do, he will try to help me in some eh area. She even collected....my...wife number, because we have some issue. But I tell her everything. So....it made.....me.... happy.” (A male Patient, Y015).

Unfortunately, the relationships that may engender blurred boundaries is not consistently experienced by all the patients, because some of them seem to have favourite doctors. Two of the patients confirmed this by referring to the level of attention and care that they usually get from specific doctors in comparison with others.

*“no, everything has been okay. the...uhm the doctor ***** or what is that her name ***** she has been good to me. She has been trying her best as a mother. She did the work, she always do her work as a doctor”. (A male Patient, Y005).*

*“I have not met a doctor, since I have been coming to ****, I have never met a doctor like that doctor before. Because of what that doctor does for me whenever I come to ****, like this, I always like to come and see her in the office. Because, she will let me understand, she will let me, she will tell me how I will..... that I should.....she will explain everything to me. She will listen, she will let me know what she is doing, to help me.” (A female Patient, Y020).*

7.4 Counselling Approach for Adherence

There were two different existing approaches used by the doctors to motivate their HIV patients to adhere to their drugs prior to the MI training. These include: interactive and encouraging approach as well as a prescriptive approach.

Interactive and Encouraging Approach

Two of the patients reported that the doctors usually interact with them at a certain level that enables them to express their health concerns, without holding back. This pattern of consultation involves the doctors listening to and understanding the patients properly before taking any actions on their concerns, while pleading with them to adhere to their drugs. Although one of the doctors confirmed that they encourage the patients to take the drugs, she also stressed that merely encouraging the patient is not effective as the patients end up struggling to adhere to their medications after talking with them; a challenge which she attributed to a lack of a standard approach to motivate the patients.

“whenever I visit them.... I will explain myself very well to them. they will give me time, ask me how am feeling and I will tell them everything.” (A male Patient, Y019).

“whenever I... go there, the doctor used to talk to me pertaining the drugs.... they will plead with you to continue the drug, don't stop it....I..do ask some questions when.....I have any reaction and the doctor will now take time and explain to me. if there is anything you will do, he will now go ahead and do it. If there is any other thing, he will tell me I should go on with the drugs I should not stop it.....” (A male Patient, Y006).

“but we don't really know how to encourage them to take their drug. So, it was quite an issue initially for them, for these patients to comply to their medication. there was no standard approach initially.....we don't really have any approach. So, it was really kind of difficult. We just try to encourage them to take their medication”. (A female Doctor, X004).

Commanding and Prescriptive Approach

Five of the patients reported that they are usually given instructions to adhere to the drug or how to take it by the doctors. Common use of this prescriptive and commanding approach was also confirmed by five doctors who emphasised that their usual approach is not collaborative but mostly paternalistic.

“well the counselling was okay. from what they said. they said we should stop keeping anything. we should always keep to our drugs and...try to make necessary things that we know is good for our health.” (A male Patient, Y005).

“uhm...actually, it was more of prescriptive.....as in like a routine. It wasn't collaborative.” (A female Doctor, X009).

“the usual approach was more of an....autocratic approach. you must take your drugs. you must take them every day.” (A female Doctor, X001).

Moreover, some of the patients also emphasised that they receive the prescriptive instructions by being shouted at or being scornfully told to return to the same drug even when they complain about negative experiences with the drugs. This was corroborated by one of the doctors who pointed out that they commonly confront their non-adherent patients with their test results to motivate them to adhere to the drug.

“the way they counsel people before. they always, shout” (A male Patient, Y005).

“they normally just eh...even if you have complaint, they will say look at you.... go and take drugs. So, go... and collect the, just try....and take the drug.” (A male Patient, Y015).

“we normally see our patients and ehm the normal thing we do is scold those patients who don't take their drugs.... So, most of the time we use most of their results to actually challenge them and talk to them on the need ...for their medication.” (A female Doctor, X006).

Meanwhile, two patients were concerned about the lack of interest of the doctors in their challenges. They emphasised that even though they may tell the doctors that they do not have any problems, they expect the doctors to show genuine interest by asking probing questions, which does not usually happen. This concern was also corroborated by four of the doctors who stressed that they try to avoid knowing what challenges the patients have or may have

and why they are not adhering to the medications.

*“normally they will ask me, do you have any problem? I will say no..and that is all.”
(A female Patient, Y012).*

*“they won’t even ask you much questions that you will be able to start telling them
maybe this is the problem you are having and and this is your challenge, this or
whatever this is.” (A female Patient, Y004).*

*“but before, you don’t want to know whether they were, they have side effects....to
be sure whether they are not even keeping it and coming to collect the drug...to
take their drug.... whether they will adhere or not.....we just tell them, take your
drug in the morning, in the evening. By ordering them. We don’t even want to have
their own feeling, that do they like taking drug, the drug that you’ll take throughout
your lifetime...” (A female Doctor, X005).*

However, the doctors seem to be dissatisfied with the prescriptive approach as two of them blamed the use of the approach on the low capacity of the clinic to meet the needs of the high population of patients that they attend to, which in turn limits the time that they could spend with the patients.

*“That’s actually what we do, and most of the time.... we don’t normally take out
time to even sit down with the patient. you know. ask and know what problems
do they have, that I can solve them and can help them solve them. ehm but
because ehm, we normally have a handful of patients....” (A female Doctor, X006).*

*“the usual approach is this. We have so many patients in the clinic, going into
hundreds per week and we have few doctors, so we are pressed for time. As much
as possible we try to...issue the prescription and at the same time reach out to the
patient.” (A female Doctor, X008).*

7.5. Impact of MI Training

Study participants had diverse perceptions about the MI approach after the MI training and their experiences during the practice sessions. These perceptions were in relation to the clinical consultation practice with the approach and satisfaction with the approach.

Practice Change

While the patients observed certain differences in the practice of the doctors during the practice sessions, the doctors also expressed the influence that the MI training had on their

practice. For instance, patients reported feeling valued and accepted after the MI practice sessions. To some of the patients, the approach of the doctors in the session made them feel free of discrimination. According to the patients, this feeling goes beyond the clinical setting and they attributed this experience to the pattern of discussion they had with the doctor through which they felt like they were talking with someone who is keen to listen to and understand them. This report was corroborated by the doctors who reported that due to the MI training they tend to listen more to their patients during the consultations for ART.

"I feel at home that very day. I was very very okay.....the way she treat and eh she attended to me, make me...to come out bold....and say my mind out. and I feel like I belong to the society. So, I was very happy. So, I think that helps me a lot." (A male Patient, Y007).

"because I feel like somebody is ready to listen to me and she is ready to advise me..... So, I believe, she herself as, that attended to me two days back her mind-set.....make her to even listen to me, and attend to me, the way...I feel like they should be doing to other." (A male Patient, Y007).

"the counselling approach during this eh study eh, was the.... Motivational Interviewing, which actually helped us to, eh to that the patient, that we should listen more.... to these patients. So that makes the patients to be more responsive.....and overall we also found out that eh it also saves time because we were able to listen more to the patients than we doing all the talking." (A female Doctor, X005).

Moreover, the patients observed certain differences in the attitudes of the doctors during the practice sessions which includes respect and an increased level of attention from the doctors to their concerns. This observation led the patients to emphasise that they would prefer that the same doctors attend to them every time.

"what eh really happened with me, with my doctor in the session was, the doctor was nice....I am just recommending it....like one-on-one with my doctor yesterday was different to the other ones....we've been having... the particular one with the one yesterday was eh he give us attention. He carefully explain everything to us, and to me especially." (A male Patient, Y001).

"in fact, as I see the one I met yesterday, with the previous one. In, fact, I even told her yesterday, why not she will be the doctor that will always attend to me. because, the way she spoke to me, I was so happy. no any other that, other

doctor they are not...doing good. they are doing good. but in the manner, the way she talked to me. She call me, she talked to me.” (A male Patient, Y006).

Another shift in the practice approach of the doctors identified by the patients is in respect of the questions asked by the doctors. However, what was more appealing to the patients was not just the questions but how the questions revealed the interest of the doctors beyond their drug or health status to certain aspects of their personal lives that could affect their drug-taking behaviour or health outcomes. The doctors corroborated this practice change due to the MI training by emphasising the benefits of using open-questions during their consultation sessions. For instance, one of the doctors found it helpful to overcome common barriers to communication with their patient during clinical consultations as well as helping her to learn how to be respectful when asking the questions.

“...ask about my family. Ask about my condition, the how drug is working in my body. So, the doctor attend to me very well..... that doctor that attend to me that day...I attend the hospital talk to me very well and attend and ask everything, even my ... own personal problem which can cause drug not to work.” (A male Patient, Y015).

“and they are more polite ways of asking these questions, as in from the MI, it's like would you like this?....MI study actually ehm..helped us to, you know, bring up lots of factors that, drawing out lot of factors that may have been causing you know, some...some breach in the communication pattern and the benefit to patients and also to doctors.” (A female Doctor, X006).

Due to the doctors' improved questioning approach, some of the patients were very pleased with the responses of the doctors to other aspects of their lives. Such aspects of their lives include fear of job loss due to stigmatisation, lack of job, family issues and social relations. This change in practice was confirmed by one of the doctors who reported how she focused discussion on stigma related issues with a patient, because that was the problem she identified during one of the MI practice sessions.

“but I complained bitterly with her yesterday pertaining my job. sometimes they use to.... when you tell your...boss in the office, this is what you have. it will result to... a certain time that they will even sack you. But when I discussed this with her yesterday, she say whenever all these kind of situation happen I should let the doctors know about it. and they will know about that situation immediately in my office..... because it happened to me, I lost my job, first job and before I secure

this one am doing now.” (A male Patient, Y006).

*“Like there one of the patients that I say, that the problem was the social stigma.”
(A female Doctor, X006).*

Furthermore, some of the doctors reported learning how to collaborate and empathise with their patients with the aim of improving adherence to medication based on the use of MI skills. For instance, they started collaborating more with and involving the patient's view in making decisions on how to achieve medication adherence. However, in respect of empathy, one of the doctors stressed that the MI training did not only make her realise the need to empathise with HIV patients but also with all patients with chronic conditions.

“another thing again was about the change talk and where, where.... allow them to move to, tell us what they wanted, and eh how they will go about it, and we also reason together... how they feel they will be able to adhere to their treatment.” (A female Doctor, X005).

“I was able to see things from the patient's perspective.....particular set of patients with all the patients that have chronic diseases, that requires long term management. It has helped me to be able to see things in their perspective.” (A female Doctor, X001).

Lastly, while the patients observed that they were enabled to express themselves during the MI practice sessions compared with their previous consultation experiences, the doctors reported learning how to better motivate their patients to adhere to their treatment through the MI approach. For instance, the patients were not only able to express themselves freely in the practice sessions, but they were also able to discuss their major concerns with the doctors.

“and I was able to open up to her more than what I've been doing before that very day.... the way she treat and eh she attended to me, make me to be bold, to come out bold and say my mind out.” (A male Patient, Y007).

“I express myself that the only reason that the only thing that could make me fear kind of is just that particular problem of recording, record people that are the one giving us the stress.... I could really express myself yesterday, unlike other days.” (A female Patient, Y004).

“well, initially we actually have no approach. but uhm most of the counselling.... stuff we are doing now is actually from the approach we learnt from the MI study.

.....so now, we have a proper approach with the use of the MI....” (A female Doctor, X004).

However, apart from practice change during the consultation sessions, changes arising from the MI approach occurred in respect of the inconsistent standard of consultation approach among the doctors and how widely the approach could be needed in the study context.

Equalised Practice

The doctors reported that the MI skills that they learnt during the training made the clinical consultation approach among them to be equitable. For instance, one of the doctors noted that before the MI training, patients usually have favourite doctors that they prefer to meet for their clinical appointments because they believed that only such doctors could meet their consultation needs. However, the preference for certain doctors among the patients no longer occur because they all seem to be practising the MI techniques which engender empathy.

“because ehm, we feel like, before the MI, when the patient comes, is like spending more time ehn with them. that was like ehm eh, one eh whether two doctors is better and the patients will want to choose them, will want to go to that person. but after the MI training, we found that.... we even apply it to all our patients across board.....in fact, they don't have to start choosing that they want to see this doctor, they want to see that doctor. but it now cuts across board. that all of us that went, that did the training, because we are now applying, and the patients now saw...”
(A female Doctor, X005).

Domino Effect

Skills that the doctors learnt from the MI training were not only applied with HIV patients, but they started using them with other patients with chronic conditions such as hypertension and diabetes to motivate them to adhere to their medication. Moreover, one of the doctors also noted that contrary to what happened before the MI training and irrespective of what chronic condition their patients suffer from, the patients now feel more comfortable with the consultation approach of the doctors. This is even though the doctors were trained to use MI to promote medication adherence among their HIV patients for the study. This same doctor emphasised that the need to sustain adherence counselling for the patients after they have initiated treatment became obvious because of the MI skills that they learnt from the training. She stated that before the study, once the patients have been counselled about the drugs before they started treatment, the doctors no longer believe that the patients may need support to adhere to their treatment on an ongoing basis. However, the MI training has changed that

view among the doctors.

".... I actually don't think this MI, the...approach should be just for HIV patients. We can also use it for other patients like ehm other patients that, diabetic patients. We use it to encourage them to take their medication and ehm hypertensive patients." (A female Doctor, X004).

"whether they are diabetic patients or hypertensive patients that the patients now feel more relaxed..... now we counsel them, the counselling is ongoing. at every visit we counsel them to adhere to their drugs, and before then, in fact, once we have counselled them we don't bother counselling them anymore. But now we found the need that counselling must be sustained. So, we don't just counsel them before ... the testing... or before the treatment begins, but we found out that it is an ongoing ehn counselling approach....." (A female Doctor, X005).

Satisfaction with Practice

The MI approach was mostly well accepted among the participant groups in the study and the participants stated diverse reasons to support their satisfaction with the approach. For instance, some of the doctors stated that the MI approach was very easy to use, and they found no aspect of it difficult to practice. They further stated that they had to shift from their previous consultation approach to the use of MI because they got better consultation outcomes with their patients in respect of communication. However, two of the doctors pointed out some difficulties that they encountered while using the MI. One of them noted that the approach was difficult to use because the patients decide the trend of the discussion in MI, but she further stressed that she felt the need to adopt the MI approach ahead of her previous approach because of the patients' better responses. The second doctor pointed out that she found the MI approach difficult to practice because she is meant to share treatment decision making with the patient. To her, this makes the approach difficult because she believed that treatment of HIV has a narrow range of options unlike other diseases.

"I don't think there is any aspect that actually was difficult.... it was quite an easy, in fact, since we have started applying.....it's so much better for us... it's very easy." (A female Doctor, X005).

".... it's the client that are the...important, as in they determine what we are going to do with them. So....it was difficult quite alright, but I still feel they responded better to MI approach. I didn't see any reason why I should use the former approach.... when I saw the patients, responded better with motivational

interviewing.” (A female Doctor, X009).

“well the part that was a little difficult was asking the patient to pick option. because there ain't, there aren't so many options to the patient's care as regard drugs or what to do in HIV infection.” (A female Doctor, X008).

While some of the doctors stated having slight difficulties with the use of the MI, responses from eight of the patients revealed that they were all satisfied with the approach used by their doctors during the practice sessions. Specifically, one of the patients emphasised that if HIV patients have similar experience as he had with his doctor during the practice session, they will not be feeling shamed and stigmatized as they usually experienced before the study. This statement is consistent with the response of another patient who stressed that unlike the practice session that he attended for this study, he has concerns to talk about in respect of the previous consultation approach in the clinic.

“if I have a patient, or have a client, or myself being to the facility and somebody attended to me that way she attended to me, I don't need to.... I mean come back with some of these things that maybe sometimes you go to facility and you see some people crying, some people coming back to regret why they are still alive. So, that very day was a very good day to me. Meeting with her and the way she spoke to me, I mean I was like should be the person I will always be meeting there.” (A male Patient, Y007).

“the only thing that cannot, uhm.... satisfied with is that eh...nothing...for the last one, if it was before, I have issue that I want to talk about, but for the last one that, ah doctor attended to me very well...” (A male Patient, Y015).

Preferred MI techniques

Interest of the doctors in the MI approach and the retention of the knowledge that they got from the MI training further demonstrates the extent to which they were satisfied with the approach. For instance, the six doctors who responded to the post-practice interviews recalled at least one MI technique and spirit that they learnt from the MI training and they described the purpose of the stated techniques. Commonly recalled skills among the doctors include: open-questions; confidence ruler; focusing; agenda mapping; identifying change talk; reflection; affirmation; summarising; being non-judgemental; supporting patient's autonomy; and collaboration.

"I could remember the reflection aspect. I could also remember the open questions. we also talked about confidence ruler." (A female Doctor, X004).

"remember the spirit of eh motivational interviewing, most especially the aspect of eh asking an eh open ended question, and then ehm also finding the OARS ehn ehn. so, I think OARS- affirmation, reflection, then before we summarize.....with the MI approach the... DARN CAT approach change talk." (A female Doctor, X005).

Apart from retention of knowledge, some of the doctors favoured using certain techniques in practice. Two doctors favoured using open-ended questions, one of them favoured using confidence ruler and reflection, while affirmation was favoured by another doctor.

"almost all the areas of the study were actually useful for my work, but I really like the confidence ruler because it actually helped us and guided us to engage these patients in making decisions. So, that was also a very good aspect for us. then, also on the reflection aspect." (A female Doctor, X004)

"as in, ever since the MI training. I've been using it a lot. you know, I noticed that when you ask the, when you give the question that is not direct, with patients about his or her problems, you tend to get more answers from them than when you are direct about it." (A female Doctor, X006).

Hybrid Approach

There are indications that the doctors may not be adequately motivated to use the MI approach consistently with their patients, due to a prevailing perception about adherence counselling for ART among the counsellors. This perception is associated with the belief that not all HIV patients require the patient-centred approach of MI. In this regard, the doctors felt that they would only need to apply the MI approach if they consider that the patient's circumstance does not require the existing approach to counselling in the clinic. Moreover, the doctors also want to decide how much of the MI techniques they need to use with the patients, even when they consider a patient's circumstance suitable for the approach. For instance, one of the doctors suggested that application of the MI approach may be appropriate only when the patient is having issues with medication adherence and that they may have to select only few MI skills to use depending on the circumstance of the patient. This view was shared by three other doctors, among which one confirmed that she was not using the MI techniques comprehensively with all the patients she attended to but with only those she felt needed it. Meanwhile, another doctor also emphasised that she could not apply all the MI techniques

due to the high patient population that they attend to. This suggests that apart from the perception of the counsellors, low capacity of the clinic which makes it difficult for the doctors to adequately meet the needs of the high patient population may also affect the consistent application of the MI approach.

“but we can actually use it, just that we won't use all, maybe we summarise some aspect of the study just take some key point and still use it for patient. so, like maybe I have a patient in front of me and the patient does not have any issue with his medication, am not going to be applying the....MI approach for that particular patient.” (A female Doctor, X004).

“what I do with all the patient is that, ehm...I don't, I don't go in deeply with every patient. those that I feel, that will need.... some motivational interviewing ... I carry it out for them.” (A female Doctor, X006).

“if we have..... a more.... appropriate setting where we don't have such a large patient load, then it will be easier to go through all the ... techniques of the..... motivational interviewing..... sometimes we might want to be nice but because of the pressure of work, there is always that tendency to reduce to trying asking questions concerning taking their drugs.....” (A female Doctor, X001).

Time

Time barrier was cited as a major concern to the possibility of practising MI in the clinic by some of the doctors. Four of them indicated that use of MI with all their patients will lead to longer clinical waiting time, because the MI approach takes longer time than their prescriptive approach, which may discourage their patients from coming to the clinic. Meanwhile, this time barrier is a longstanding threat to patient retention and engagement in the clinic context and it appears to be beyond the control of the doctors because it is associated with the low capacity of the clinic in respect of staff strength to meet the needs of the high number of patients that they attend to.

“you know the patients that we have over here in Nigeria, there is quite a lot of patients. So, if we want to be using it on a very friendly its going to create more time, more patients waiting. and it's going to discourage some patients from coming to the clinic.....” (A female Patient, X004).

“..... it's the time it takes.....I said it's so much easy to just oh! this patient is a, okay, what drug are you on? And just write the drugs and everybody goes....MI will take longer” (A female Doctor, X008).

“that's the only part that makes it difficult to practice in our own setting.... where, time for our patient is actually very small.” (A female Doctor, X006).

7.6 Chapter Summary

This chapter has presented four main themes as well as the sub-themes that emerged from the qualitative data obtained from both study participant group (counsellors and HIV patients). The chapter discussed the prevailing socio-cultural and organisational factors that affect the existing approach to ART adherence counselling in the study context. Within this context, the prevalent consultation approach used to support the patients to take their drugs is largely commanding and prescriptive with few evidence of the use of encouragement. The chapter also found that although the MI approach was well accepted by both participant groups, the counsellors also found it very helpful for their practice. However, the prevailing organisational and socio-cultural constraints in the study context as well as the perception of some of the counsellors to HIV treatment support affected how they perceived the use of MI for routine practice in the study context.

CHAPTER EIGHT: SYNTHESIS OF STUDY FINDINGS

8.0 Chapter Overview

This chapter presents an integrated synthesis of the quantitative and qualitative findings from the study to meet the four research objectives. The chapter therefore focuses on discussing the situation of the current approach to ART adherence counselling in practice in Nigeria, fidelity of the adherence counsellors to MI, acceptability of the approach in Nigeria and the factors that facilitate or inhibit its routine application.

8.1 Current Approach to ART Adherence Counselling in Nigeria

The qualitative findings in this study revealed that the prevailing approach used by the adherence counsellors to motivate HIV patients to adhere to HIV drugs in the study context is commanding and prescriptive with no focus on the assessment of adherence. The counsellors use this approach because they do not have a standard approach to motivate the HIV patients. However, the qualitative findings also show that the adherence counsellors were dissatisfied with the commanding and prescriptive approach, because they found it to be ineffective for their line of work.

Lack of a standard approach is only a part of the challenges faced by the counsellors, because another part of their problem is that the existing approach is practised within a context plagued with both socio-cultural and organisational constraints. In this regard, the qualitative findings revealed that the counsellors deal with HIV patients who struggle with myriads of needs, top of which is their individual financial challenges. Apart from the difficulty faced by the counsellors to motivate the patients to adhere to their treatment due to the imbalance of priority created by financial challenges, some of the patients do not turn up for the ART consultation session because of the cost of transportation. Therefore, on one hand, the poor state of the economy of the country leading to lack of affordable public transport for most of the HIV patients who could not afford the available means of commercial transport contributes to making the job of the counsellors difficult. On the other hand, the qualitative findings have also shown that high prevalence of stigma and discrimination in the country prevents most of the HIV patients from getting employed to afford the available means of public transportation. Hence, even though the economic situation of the country and the financial challenges of the patients as well as the prevalent stigma and discrimination for HIV in the country are beyond the control of the adherence counsellors, these social-cultural factors affect the quality of their practice.

Moreover, the qualitative findings show that without any standard and effective approach, the counsellors are tasked with the need to motivate HIV patients whose health belief systems

are primarily rooted in religious interventions instead of the medical approach that involves use of medications and adherence counselling. Therefore, the counsellors resort to the use of a power-based commanding approach to motivate the patients. Consequently, the counsellors face the problem of distrust from the patients due to power imbalance between them and the HIV patients. This power imbalance could be associated with the huge gap in the educational attainment between the counsellors and patients that is evident from the quantitative findings.

The qualitative findings further revealed that counsellors are expected to motivate HIV patients who are very anxious to leave the ART consultation session or are angry because of the long waiting period in the hospital before they could have a chance to meet with the counsellors. While the long waiting period is primarily due to long queue resulting from high patient population, it is also due to favouritism engendered by bribing. In respect of the patient population, the qualitative findings revealed that stigma and discrimination contribute to the high number of patients who visit the clinic, because most HIV patients come to the clinic to avoid using the hospitals in their own communities. Unfortunately, the capacity of the clinic to meet the needs of the high population of patients is low in terms of staff strength. This can be corroborated with the quantitative data which established that the 785 HIV patients who presented in the clinic during the recruitment period were attended to by only seven doctors and a nurse, with an average of 112 patients per doctor per month. Despite this huge workload burden, the adherence counsellors are expected to provide each of the patients with good quality ART consultation session which includes effective adherence counselling.

Although the burden of the workload due to the low capacity of the clinic on the practice of the counsellors is enormous, the patients in turn bear the consequence as they end up receiving a consultation time with poor quality. This is despite waiting for a long time in a corridor which may expose their health status to other community members who use the same corridor. The qualitative findings corroborate this threat in respect of the corridor by revealing the concerns of some of the patients about the likelihood of unwarranted disclosure of their health status due to the openness of the corridor.

Lastly, this study revealed that the patients lack agency despite the high level of stress that they experience while accessing their routine HIV treatment support services. Due to lack of agency for the patients, the qualitative findings revealed that they became selective by demanding to see specific doctors that they believe could offer them a more interactive ART consultation session. The patients also resort to bribing to avoid the long queue in the clinic. Unfortunately, most of these patients struggle to earn a living due to the stigma and discrimination associated with their health condition, which prevents them from getting or retaining jobs in the society. Ironically, the HIV patients part with their hard-earned money to

expedite their consultation slot with the adherence counsellors who were not empowered with a standard approach to motivate them in consultation rooms that do not promote confidentiality.

8.2 Fidelity of the Counsellors to MI

Within the same context for the commanding and prescriptive approach to ART adherence counselling, the counsellors failed to achieve optimum fidelity to MI in respect of MI spirit and percent MI-consistent responses. However, statistically significant improvement in skills were demonstrated by two of the counsellors over the time points assessed in the study (the first and last practice sessions). Within the same period, two other counsellors lost significant quality of skills that they achieved from their first sessions. While these findings show that the adherence counsellors can use the skills of MI, they may struggle to practise the approach with optimum fidelity without further training support. These quantitative findings also revealed that the adherence counsellors can use the techniques of MI within their practice setting regardless of the language and cultural differences between them and the patients. This is because the counsellors practised the approach by using English and the local languages which include Hausa, Yoruba and Pidgin. Therefore, it can be inferred that this pattern of findings confirmed that the processes and methods of MI fit well with the numerous languages in Nigeria.

8.3 Acceptability of MI among Study Sample

There was a high level of enthusiasm about the MI approach among the adherence counsellors. This was evident in the quantitative findings in respect of the attitude of the adherence counsellors to the MI training activities and the frequency of use of the approach by each doctor with minimum of two MI practice sessions (coinciding with routine clinical sessions for the patients) during the period of the study. Some of the doctors used the approach during four sessions, while one doctor used it three times. The qualitative findings further corroborated the evidence of enthusiasm by revealing the extent of knowledge that the counsellors retained after the MI training and the declaration of some of the MI techniques as the preferred techniques by the doctors. The preferred techniques were found to be very relevant to the line of work of the adherence counsellors

In addition to the enthusiasm of the counsellors, the qualitative findings show that there was a widespread satisfaction about the MI approach among the study cohorts (the six doctors and eight of the 12 HIV patients) irrespective of the low MI quality of the practice sessions. This level of satisfaction was associated with how the MI approach addressed most of the identified constraints to the quality of ART adherence counselling in the study setting. For

instance, the impact of the MI approach on the practice of the counsellors helped them to change the perception of some of the HIV patients about stigma. The approach also helped to bridge the power gap between the counsellors and HIV patients. Contrary to the inconsistent occurrence of blurred boundary between the adherence counsellors and patients before the study, the MI approach elicited a consistent approach to counselling among the doctors which eradicated the need for patients to be selective about who attends to them. The MI approach also helped the patients to freely express themselves within a collaborative consultation session, which was in stark contrast to their routine experiences before the study. More importantly, the MI approach provided the counsellors with a standard approach to motivate HIV patients which they found to be more efficient than their previous approach to counselling. This discovery and empowerment of the counsellors led to the application of the approach in consultations sessions with all other patients with chronic conditions, even though such practice extension was not required for this study. These influences of the MI approach on the practice and experience of the counsellors and patients respectively suggests that the approach is not only consistent with the cultural and contextual views of the adherence counsellors and HIV patients but can also improve them. Despite all the positive influences that the MI had on ART consultation practice in the study context, the qualitative findings revealed that some of the counsellors may not use the approach for routine practice because of some inhibiting factors.

8.4 Facilitators and Inhibitors to the Routine Application of MI

Critical realism emphasises the need to identify the underlying mechanisms that influence the observed regularities (Bryman, 2016, p.25). The regularities in focus for this study are the fidelity and acceptability of MI in Nigeria. Taking these regularities as the points of departure, the quantitative and qualitative findings in this study revealed the influence of different factors on the fidelity of the counsellors to MI and the acceptability of the approach in the study setting.

Fidelity: The quantitative findings show that the adherence counsellors will need more training support to use the MI approach with optimum level of fidelity as well as to enable them to retain that level of skill. In this regard, it could be argued that the MI training may either be a facilitator or an inhibitor to the routine implementation of the approach, depending on the extent of the training support needs of the counsellors and how much of that need is met. This is because despite the overall low level of fidelity to MI among the counsellors in this study, some counsellors achieved a progressive pattern with the use of the approach while others declined, except for one who did not achieve any change in skills during the period of the study. Therefore, as Emmons and Rollnick (2001) suggested that trainers will often be faced

with a group of trainees with wide range of abilities, the training needs of the adherence counsellors in this study will be different.

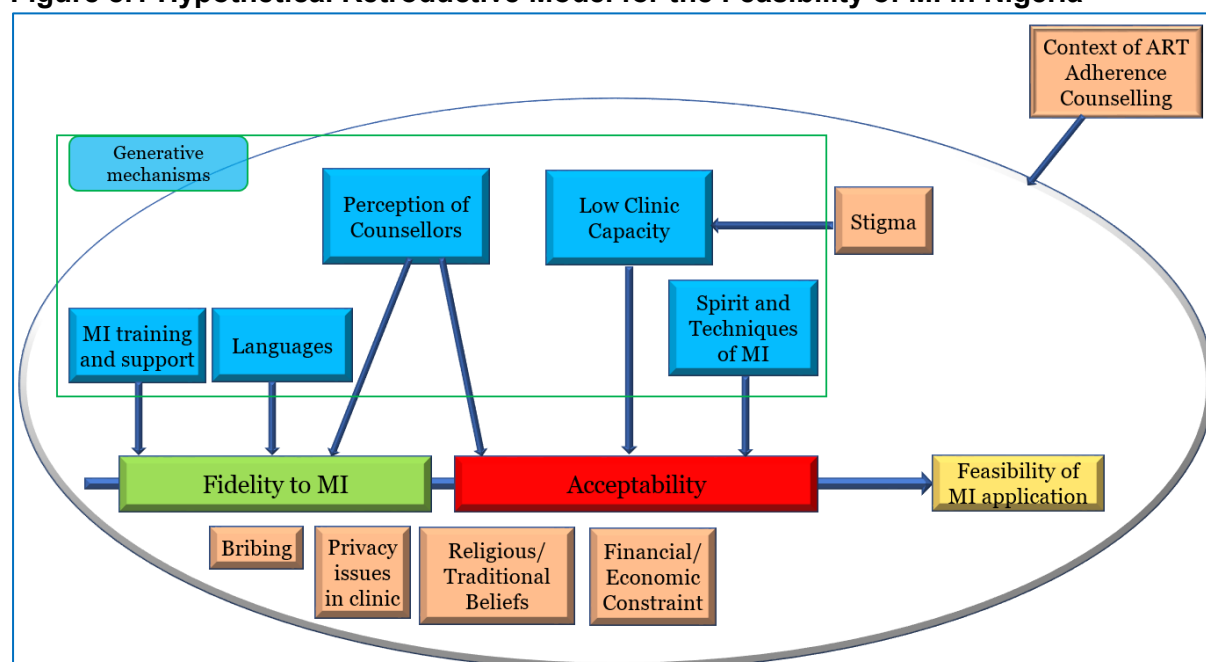
Furthermore, this study found no correlation between the fidelity of the counsellors to MI with the time spent on each session, the language (s), and the length of clinical experience. Despite the lack of correlations, the quantitative findings revealed that the acceptable communication pattern in Nigeria which permits the use of hybrid of languages within a conversation facilitated the use of the MI skills applied in each session. This was especially valuable between the doctors and patients who could not use English properly. However, the qualitative findings show that perception of some of the doctors about the adherence support needs of patients could have contributed to the observed low level of fidelity among the counsellors. Therefore, hybrid of languages could facilitate routine practice of MI, while the perception of the counsellors could have an inhibiting effect on their fidelity to the approach.

Acceptability: The qualitative findings show that despite the widespread satisfaction with the MI approach, the adherence counsellors may not be willing to use the MI approach due to their perception about ART adherence support and low capacity of the clinic in terms of numbers of counsellors. Although the burden resulting from the low clinic capacity could be attributed to the organisational policy and structure that failed to make provisions for adequate number of the clinical staff, it is also associated with stigma which contributes to the high population of patients visiting the clinic. However, because the use of MI addressed some of the pre-existing problems associated with ART consultation sessions in the study setting, which largely influenced satisfaction with the approach it could be inferred that the spirit and techniques of MI facilitated its acceptability among the study groups. Therefore, while perception of the counsellors and low clinic capacity are inhibitors to the acceptability of MI, the MI approach itself facilitated its acceptance in the study.

Based on the above findings and guided by the retroductive reasoning for critical realism, figure 8.1 presents a complete hypothetical model for the feasibility of MI in Nigerian clinical setting for HIV treatment adherence. This model shows the connections between the identified generative mechanisms (facilitating and inhibiting factors), the observed regularities and the feasibility of the application of MI in Nigeria. Besides the identified generative mechanisms and after excluding the other contextual constraints that the study has shown that the use of MI can address, this model also presents the remaining contextual constraints that the study has not established a direct connection with in respect of the MI practice session. However, this study has established direct connections between the outstanding contextual constraints and the routine ART consultation sessions. These outstanding contextual constraints include Bribing, Privacy issues in the clinic, Religious/Traditional Beliefs, Financial/Economic

constraints and Stigma. Although the outstanding contextual constraints have the potential to influence the quality of the ART counselling session whether MI or the commanding and prescriptive approach is used, this study found only an association between stigma and one of the identified generative mechanisms. Lastly, despite the influence of MI on anticipated stigma from the HIV patients as observed in this study, the high prevalence of stigma in Nigeria means that HIV patients will still be subjected to stigma by other health practitioners who were not trained to use MI or by the enacted stigma in the society.

Figure 8.1 Hypothetical Retroductive Model for the Feasibility of MI in Nigeria



8.5 Chapter Summary

By triangulating the quantitative findings with the qualitative findings obtained from this study, this chapter has presented the synthesised findings that addressed the four research objectives. In this regard, this chapter has presented the situation of the current approach to ART adherence counselling in practice in Nigeria, fidelity of adherence counsellors to the MI approach, acceptability of the approach in Nigeria and the factors that may facilitate or hinder its routine application in the HIV clinic for ART adherence.

CHAPTER NINE: DISCUSSION

9.0 Chapter Overview

This chapter presents an integrated summary of the study findings and their relevance in relation to existing knowledge. The chapter further discusses the strengths and the limitations of the study.

9.1 Integrated Summary of Findings

The main purpose of this study is to determine whether MI can be used for ART adherence counselling or consultation sessions in the HIV clinical contexts in Nigeria. In this regard, this study has provided knowledge about the ability of ART adherence counsellors in Nigeria to practise MI with optimum fidelity. It has also provided knowledge about how acceptable the MI approach is in the HIV clinical setting for ART adherence counselling. Lastly, the study has also provided knowledge about the contextual and cultural factors that could facilitate or inhibit the application of MI for ART adherence support in Nigeria. The findings from this study contribute to knowledge in numerous ways which are discussed in relation to existing bodies of knowledge in the next few sections.

9.2 Fidelity to MI in Nigeria

Findings from this study revealed that the ART adherence counsellors struggled to achieve optimum fidelity to MI. This difficulty at achieving fidelity to MI after training is consistent with reports from previous studies that were carried out in different countries including South Africa, USA and Sweden (Allicock et al., 2017; Bean et al., 2012; Bohman et al., 2012; Dewing et al., 2013; Dewing et al., 2014; Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011; Mullin et al., 2015; Ostlund et al., 2015; Eno et al., 2016). Meanwhile the sub-optimal level of fidelity in this study, the skills of some of the adherence counsellors improved over several practice sessions without further training or supervision. This pattern of finding is supported by the findings of another study that explored the fidelity of lay ART adherence counsellors to MI in South Africa (Evangeli, Longley and Swartz, 2011). The study demonstrated that MI skills of health practitioners can improve over time after initial training without any supervision and feedback session (Evangeli, Longley and Swartz, 2011). Conversely, studies of trained African-American peer counsellors (Allicock et al., 2017) and probation officers and community correction counsellors without specified racial background (Miller and Mount, 2001) in USA have shown that trained therapists may not only struggle to retain their MI skills but also tend to revert to baseline skills level. Hence, the fidelity challenge observed in this study may not be due to the racial or ethnic background of the counsellors but because learning the MI approach is not easy (Mitcheson, Bhasvar and McCambridge, 2009). It also

suggests that transferring of MI skills from training to practice may be more difficult among health practitioners trained to practise the approach with clients in the treatment context compared to therapists trained to use the techniques in controlled research settings. In recognition of the difficulty to learn the complex skills of MI, Miller and Moyers (2006) propose an eight-sequential stage model to learn the approach, which involves learning the earlier stages as a prerequisite before moving on to the more complex and more specific latter skills.

Despite the low fidelity to MI among the counsellors in this study, significant improvement in the skills of some of the counsellors indicates that they might have the potential to achieve the optimum fidelity threshold if provided with skills enhancement support such as supervision and feedback (de Roten et al., 2013; The Health Foundation, 2011, pp.17-19) or booster training sessions (Dewing et al., 2014). Although evidence from a meta-analysis has demonstrated that skills of therapists may improve with or without feedback, it also suggests that feedback improves the skills of MI trainees on an average scale (de Roten et al., 2013). This has been confirmed among South African lay adherence counsellors who were exposed to a booster training session and supervision a year after initial training in South Africa (Dewing et al., 2014). Skills of the lay adherence counsellors in the study increased in many MI indices compared to slight improvements observed among lay counsellors in another South African cohort without the booster training and supervision (Evangeli, Longley and Swartz, 2011). However, counsellors in this current study were not exposed to such skill enhancement support. It can therefore be safely assumed that counsellors in this study could consistently practice MI with optimum fidelity if provided with ongoing MI skills enhancement support.

The observed skills improvement over sessions among counsellors in this study has shown that skills enhancement support to improve MI skills also requires continued practice opportunities. This pattern of finding is supported by the findings from a South African study without a booster session and supervision. In the study, there were improvements in some MI indices among lay counsellors who remain employed 12 months after the MI training (Evangeli, Longley and Swartz, 2011). This pattern of findings is consistent with the argument made by Emmons and Rollnick (2001) that it is only with practice and experience with use of MI strategies that practitioners will be able to consolidate and refine their counselling skills. Hence, counsellors in this current study have the potential to improve their skills over time till they achieve consistent and optimum fidelity to MI if they remain in service to continue practising the MI skills when supporting their patients on daily basis.

Meanwhile, findings from this study did not establish a valid association between the lengths of experience of the counsellors with their fidelity to the MI approach. Impact of the length of clinical experience has been assessed in a recent study in USA that examined trends in MI-

related knowledge, attitude, and behaviours after ten years of interprofessional workshops among health practitioners from diverse occupational roles (Cook et al., 2017). In the study, years of clinical experience predicted MI-consistent attitude among the cohort (Cook et al., 2017). Evangelini, Longley and Swartz (2011) also found a positive and significant association between length of practice and fidelity of counsellors to some MI indices. While, evidence from these two previous studies are not sufficient to generalise, findings from this current study suggests that there is a possibility that MI could be used by health practitioners irrespective of their length of clinical experience. This is relevant to the increasingly popular task shifting strategy which involves reassigning of certain tasks to health workers with shorter training and fewer qualifications to optimize the available human resources for the care of HIV patients (WHO, 2016, p.262). Unfortunately, the findings of this study revealed that contrary to the practice in South Africa in which lay counsellors carry out the ART adherence counselling for HIV patients (Dewing et al., 2013; Dewing et al., 2014; Dewing et al., 2015; Evangelini et al., 2009; Evangelini, Longley and Swartz, 2011), such extent of task-shifting implementation has not been reached in the Nigerian context as there was no involvement of lay counsellors in the HIV treatment consultation.

9.3 Acceptability of MI in Nigeria

The prevailing counselling approach identified in this study for ART adherence during HIV treatment consultation is commanding and prescriptive. This finding indicates that while adopting the global focus of increased treatment coverage via universal access to the ART for all HIV patients (WHO, 2016), practice in the Nigerian clinical setting is more focused on the treatment prescription with little or no attention to whether the patients take the drug as expected or not. This is not unique to the Nigerian setting as similar findings have been reported in qualitative studies in South Africa (Coetzee, Kagee and Bland, 2016; Dewing et al., 2012). For instance, Coetzee, Kagee and Bland (2016) reported that the routine counselling provided for caregivers of children who are receiving HIV treatment in South Africa consisted of attendance recording, reporting of test results to the caregivers, emphasising dosing times and asking caregivers to name medications and dosage amounts. Meanwhile, the HIV caregivers were seldom asked to demonstrate how they measure the medication and they were not probed for problems regarding the treatment even when the test results reveal unsuppressed viral load (Coetzee, Kagee and Bland, 2016). Dewing et al. (2012) also reported that although Egan's client-centred "Skilled Helper" counselling model is the predominant model used for HIV treatment counselling in Cape Town, the lay adherence counsellors in their study neither adhered to the Egan's model nor to a client-centred approach to counselling. Rather, the counsellors mainly used information-giving and advice as strategies for addressing non-adherence to ART. This pattern of findings indicates that actual practice

for ART adherence counselling in Nigeria and South Africa, which are the two countries with the highest burden of HIV/AIDS (UNAIDS, 2017) is at variance with the patient-centred approach recommended by the WHO (2003, p.3). However, the adherence counsellors and patients in this study were not satisfied with the prevailing commanding and prescriptive approach.

Contrary to the views about the commanding and prescriptive approach, this study found that the adherence counsellors and HIV patients were all satisfied with the MI approach. The unanimous satisfaction about MI confirms the view of Miller and Rollnick (2013, p.349) that *“it stretches the imagination to think of people who do not appreciate being welcomed, heard, understood, affirmed, and recognised as autonomous human beings”*. They argued that because good listening crosses cultures well, these features of the MI are universally valued (Miller and Rollnick, 2013, p.349). Their argument was further corroborated in this study because the HIV patients preferred the MI approach to the prevailing approach to counselling in their HIV clinic irrespective of the low quality of the MI sessions. This indicates that application of some of the MI techniques was sufficient to meet the needs of the HIV patients in Nigeria. In this regard, the observed satisfaction with MI in this study was associated with the positive impacts of the approach on the consultation experiences of the patients and counsellors. These include impacts of the MI approach on some of the identified constraints to ART adherence consultation sessions in Nigeria such as lack of a standard approach to motivate patients to adhere, stigma, and inconsistent power relationships.

Empowerment for Counsellors: Despite the frustration of the adherence counsellors in this study with the commanding and prescriptive approach, they continued to use the approach because they were not empowered with a standard and effective approach to motivate patients to adhere to medications for chronic conditions. However, this study revealed that the MI approach provide the adherence counsellors with a standard and effective approach to support the medication adherence of their patients. Due to the empowerment, the adherence counsellors became more confident to provide support for the HIV patients in respect of ART adherence. This confidence boost is consistent with findings from some previous studies. For instance, Sargeant et al. (2008) reported that many trainee clinicians felt more comfortable and/or confident when interacting with patients in need of lifestyle changes after they were empowered with MI training. Willie, Irwin and Morrow (2012) also reported a renewed inspiration and motivation to facilitate behaviour change among trainee clinicians after MI training workshop. Beyond facilitating the ability of the clinicians to motivate patients, Ostlund et al. (2014) also reported that MI training elicited the empathy of trainees towards patients just as reported among the adherence counsellor cohort in this study. Irrespective of the

consistency between the findings from the previous studies with this study, this study adds to knowledge by providing the evidence in respect of HIV treatment, because the previous studies were not carried out in the HIV clinic setting. Moreover, the finding from this study also reveals the ordeal that the adherence counsellors encounter on their job in Nigeria as they are tasked to carry out a key strategic element of the global fight against HIV without the requisite skills. This lack of requisite skills became more evident when the adherence counsellors started applying the MI approach to consultation sessions beyond the needs of this study.

Impact on Stigma: Stigma is a major predictor of patients' engagement in HIV care and adherence outcomes. Findings from this study has shown that MI has the potential to address anticipated stigma among the HIV patients in Nigeria. Some existing studies have also demonstrated the potential of MI to reduce stigma (Conner et al., 2015; Livingston et al., 2011; Luty, Umoh and Nuamah, 2009). For instance, a systematic review exploring the effectiveness of interventions to reduce stigma related to substance use disorder found that MI was an effective strategy to reduce social stigma (Livingston et al., 2011; Luty, Umoh and Nuamah, 2009). Another study in the USA has shown that peer educator intervention for depressed older adults that include the use of MI produced significant reduction of internalised stigma (Conner et al., 2015). Principles of MI have also been drawn upon in the development of a religious based intervention to reduce HIV-related stigma in the USA (Derosé et al., 2014). However, this current study has shown that without the design of complex interventions (Conner et al., 2015; Derosé et al., 2014) or a brief MI intervention design (Luty, Umoh, Nuamah, 2009), MI counsellors can indirectly empower the patients to overcome anticipated stigma by using the approach in their routine clinical sessions. Considering the psychological stress that patients endure to overcome stigma and the threat it poses to the global fight against HIV, the finding from this study indicates that MI can contribute to the tool-kit to combat stigma.

Impact on Power Imbalance: This study revealed that a major challenge faced by adherence counsellors in Nigeria to motivate HIV patients to adhere to ART is the power imbalance between the patients and the health practitioners. The study also established that after the MI training, the MI approach enhanced the ability of the adherence counsellors to empathise and collaborate with the HIV patients during routine ART consultation sessions. This is consistent with the findings of a cluster randomised controlled trial carried out in South Africa which compared the impact of a MI training and supervision on lay adherence counsellors with the usual counselling approach (Dewing et al., 2015). The study found that the practice of the counsellors who received the MI training was more consistent with client-centred approach to counselling than the control counsellors. In this current study, the levelling of power in the

consultation sessions engendered by the MI was found to be helpful to the adherence counsellor and was satisfying to the HIV patients because it allowed them to freely express their challenges without being ignored or scorned.

However, beyond the promotion of a collaborative ART consultation session this study found that use of the MI unified the counselling approach of the counsellors; an impact that reduced the workload burden on some of the counsellors that were frequently preferred to others by the HIV patients before the study. This finding about uniformity in practice approach after MI training is supported by some previous studies that have reported that after attending MI training, counsellors tend to perceive it to be better than their usual approach (Rubak et al., 2006; Soderlund et al., 2011; Willie, Irwin and Morrow, 2012). Therefore, the MI approach has the potential to be helpful to healthcare policy makers when considering the need to standardise practice in clinical settings.

9.4 Critical Realism and Study Findings

Critical realism emphasises the need to go beyond mere declaration of the low fidelity to MI among the adherence counsellors and a widespread satisfaction to the approach, to analysis of the mechanisms, processes and structures that account for these results (Denzin and Lincoln, 2011, p.11). For instance, despite the widespread satisfaction with the MI approach, this study revealed that the approach may not be routinely used by the counsellors. Without exploring further than the statement of fidelity to MI and the satisfaction to the approach, knowledge of the factors that may inhibit the implementation of the approach in the Nigerian clinical context might have been missed. The central focus of critical realism is to discover the underlying mechanisms that could be manipulated to introduce changes that can transform the status quo (Bryman, 2016, p.25). Through the retroductive reasoning, this study found five factors that could directly facilitate or inhibit the routine application of MI in Nigeria (MI Training and Support; MI Spirit and Techniques; Languages; Perception of Counsellors about ART adherence support; and Low Clinic Capacity). However, the study also found five other factors with the potential to indirectly influence the use of MI since they operate as inhibitors in the context of ART adherence support in Nigeria. These factors include: Stigma; Bribing; Privacy issues in clinic; Religious/traditional beliefs; and Financial/Economic Constraints. Each element within both groups of factors and their relevance are discussed in the next sections.

9.4.1 MI Approach and MI Training in Nigeria

Impact of the skills and techniques of MI on the acceptability of the approach in Nigeria have been highlighted earlier. This confirms that the principles and processes of the MI approach fit well within the Nigerian multicultural context. These include the autonomy support, collaboration and promotion of patients' self-efficacy to cope with predictors of behaviour change such as stigma. In addition, this study also found that MI enhanced the self-efficacy of the adherence counsellors. Although the MI approach was primarily designed to promote client's self-efficacy (Miller and Rollnick, 2013, p.214) this study corroborates the findings from previous studies that have reported that MI enhances the self-efficacy of the therapists (Iarussi et al., 2013; Marley et al., 2011). However, such MI dependent self-efficacy cannot be developed without MI training and support which has been found in this study to be needed on an ongoing basis to achieve optimum fidelity and to maintain the fidelity level of the adherence counsellors in Nigeria.

Meanwhile, it could be argued that a five-hour total duration of MI training provided for the adherence counsellors could have limited their ability to use the MI skills as observed in this study. While, longer and more intensive training sessions for MI are commonly associated with greater improvements in skills than short or one-off sessions, there is currently no consensus about the best length of training for enhancing MI skills (The Health Foundation, 2011, p.19). However, Miller and Rollnick (2013, pp.329-330) cautioned that attending a single workshop is unlikely to improve MI competence and that one should not expect practical skills to emerge from an introductory workshop. This reinforces the need for more training and support for the adherence counsellors.

Despite the need for more training and support, this study has revealed that the clinical setting in Nigeria may not provide facilities with conditions that will enable proper learning in training. For instance, the MI training for this study was carried out in extreme heat with dysfunctional air-conditioning systems, immediately following a busy session of the clinic. This type of learning condition highlights the organisational constraints to professional development for health workers in Nigeria. Therefore, even if the MI training and an ongoing support for the ART adherence counsellors were designed and prepared, the learning environment in Nigeria may not be convenient for learning. It could therefore be argued that it might have been difficult for the adherence counsellors in this study to transmit the knowledge gained in this learning condition to practice with optimum fidelity to MI.

9.4.2 Languages and MI in Nigeria

This study has demonstrated the importance of local languages in the healthcare context in Nigeria as they allowed the practice of MI in other languages apart from English. A more significant contribution of languages in this study is the role of pidgin within which facilitated MI conversations between the counsellors and HIV patients who do not speak the same first language. Although evidence from a recent study carried out in Northern Nigeria elicited the communication potentials of pidgin in the clinical context in Nigeria, its use was found as an unexpected outcome because the study was designed to be implemented in English and Hausa (Abdull et al., 2017). This current study however established that pidgin can satisfactorily bridge the gap in instances where the use of English language may fail in the Nigerian context. This is important not just for the HIV clinical context but also in Nigeria society where more individuals speak pidgin than English language as evident in this study. It is therefore, not surprising that the concerns for wider reach of health interventions has led to an increasing use of creolised languages like the Nigerian pidgin in studies (Bernstein et al., 2010; Joseph et al., 2016; Lasser et al., 2009). Despite the potentials of the use of pidgin, the language policy in Nigeria has not adopted it for official use (Federal Republic of Nigeria, 1999).

To date, this study is the first to assess the use of MI in the local Nigerian languages apart from English with the fidelity of the counsellors in all the sessions assessed. Findings from this study add to existing knowledge about the use of MI in multilingual contexts by increasing the spectrum of languages in which it can be practised with optimum fidelity beyond the South Africa languages (Dewing et al., 2013; Evangeli et al., 2009) to include Pidgin and Yoruba languages. Although Hausa language was not included in the protocol of this study, use of some common words from the language in some sessions is consistent with the unexpected finding in the study by Abdull et al. (2017). However, the finding from this study also confirmed the finding by Evangeli et al. (2009) that MI sessions may be carried out not just with a single language but also with a hybrid of up to four languages in a multilingual society. Despite the low fidelity to MI in this study, use of one or multiple language was not associated with the competency of the counsellors. Hence, this study has demonstrated that MI can be carried out with not just English language but also with Nigerian local languages without any effect on the fidelity of the counsellors. Findings from this study therefore opened opportunities to increase the reach of evidence-based consultation approach like MI by ensuring that patients who cannot speak English can benefit equally from quality counselling or consultation sessions towards adherence to medications.

Moreover, counsellors in this study used all languages that they usually utilise during their routine practice except for Igbo language, therefore this study was carried out with the same linguistic diversity obtainable in routine sessions in the study context. Hence, this study has added to knowledge about successful implementation of MI in treatment settings. However, further empirical studies are still needed to confirm the impact of the languages on the MI behaviour of health practitioners as this study was not designed for generalisation.

Lastly, this study further revealed that the counsellors used languages that they did not acknowledge using for routine practice before the study. This shows that the study counsellors attempted to use their deeper linguistic competence to ensure that they practised the MI skills with their patients. This finding demonstrates the interest of the counsellors to practise MI skills, but also suggests how committed the counsellors could be if empowered with the right skills to work with.

9.4.3 Low Clinic Capacity and MI in Nigeria

One of the reasons why the adherence counsellors may not be motivated enough to use the MI on a regular basis is due to concerns about the time the approach takes compared to the commanding and prescriptive approach. Literature is awash with evidence citing lack of time as a barrier to the practice of MI for clinicians after being trained to use the approach in their treatment settings (Bofill et al., 2015; Ostlund et al., 2014; Shannon, Donovan-Hall and Bruton, 2017; Sargeant et al., 2008; Soderlund et al., 2011; Soderlund and Nilsen, 2009). Consistent with the finding reported in this study, Soderlund and Nilsen (2009) reported that long queues and crowded premises often restrict the time available for pharmacists in their study to practise MI. Ostlund et al. (2014) also reported that primary care nurses in their study could not use MI in the context of every encounter because they often had too little time with patients and too many patients to be able to use MI properly. These bodies of evidence suggest that low clinic capacity in respect of staff strength is a common concern in health care settings globally. While these other studies were not carried out in the HIV treatment context, the majority of physicians attending to HIV patients in an Argentine study indicated having enough time to practise MI in their clinic context. However, the HIV clinic context in Argentina may not be comparable to the Nigerian context in terms of patient population based on the relatively higher burden of the disease in Nigeria (UNAIDS, 2017). In addition, from the last records available to The World Bank (2018b), Nigeria (2010 record) has approximately 11% of the number of physicians available per 1000 people in Argentina (2013 record). Therefore, findings from this study represents the workload burden of HIV treatment contexts with very low clinic capacity.

Despite the huge workload, the adherence counsellors in this study felt the need to attend to all the patients who attend their clinic for treatment consultation on each HIV clinic day. Besides the need to use a patient-centred approach, this attitude demonstrates the commitment of the counsellors to the global fight against HIV/AIDS. While this is commendable from a public health perspective, this study established that the low capacity of the clinic is a consistent barrier to offer quality consultation session to the HIV patient. The low capacity of the clinic and the concomitant workload could result in psychological stress or breakdown for the adherence counsellors. For instance, a systematic review and meta-analysis by Madsen et al. (2017) has established that work strain could precipitate clinical depression among employees. It may therefore be difficult to motivate the adherence counsellors to use the MI approach in this clinic context with low capacity to meet the demands of work.

However, due to the lack of time because of the clinic capacity some of the adherence counsellors were eager to use the commanding and prescriptive approach so they could attend to all their patients, even though they knew it was not an effective approach. While the time spent on each MI session had no association with the observed fidelity in this study, the HIV patients were more satisfied with the MI compared with their consultation experiences before the study irrespective of the duration of the MI sessions. Therefore, the focus of the counsellors to attend to all patients which threatens their use of the MI approach on routine basis is at stark variance with the conversation needs of the patients they are eager to care for. Discordance in the consultation goal of the counsellors and the conversation needs of the patients has been reported in a previous study carried out by Shannon, Donovan-Hall and Bruton (2017) among respiratory clinicians in UK. In the study, the clinicians identified time as a significant barrier to their practice, yet they also acknowledged that taking time to listen and to respond to the patient's needs and priorities is a worthwhile investment. This suggests the tendency for clinicians to cite time as an excuse for not practising MI even when their patients prefer them to. Legare and Witteman (2013) argued that perceived time constraint is the most frequently cited barrier to any change in clinical practice. They emphasised that health practitioners cite this time barrier even though there is no robust evidence that more time is required to engage in a patient-centred approach in clinical practice than to offer usual care (Legare and Witteman, 2013). This argument has been corroborated in a study carried out by Rubak et al. (2006) among general practitioners (GP) in Denmark. In the study, the GPs reported that the MI approach was not more time consuming than the traditional advice-giving approach (Rubak et al., 2006). Based on their argument, Legare and Witteman (2013) suggested that this fact should be emphasised during training in shared-decision making for

clinicians. Similar approach may also need to be adopted during MI training for clinicians, especially in the Nigerian context.

9.4.4 Perception of Counsellors about ART Adherence Support

Another reason that may inhibit the use of the MI approach with optimum fidelity by the adherence counsellors was the tendency to want to make the decision about when and how much of MI is needed for each HIV patient. Hence, some of the adherence counsellors hinted at picking and choosing patients to apply the MI approach with. This approach has the potential to lead to an inconsistent pattern of the use of the approach in routine practice or not using it at all. For instance, Soderlund and Nilsen (2009) reported that a facilitator to use of the MI approach by the pharmacists in their study is the freedom to determine appropriate clients and/or health-related behaviours for their MI counselling. However, within the same study, the pharmacists chose patients they consider easy to talk to. Diabetes and smoking were considered as favourable subjects, while the pharmacists avoided addressing certain health-related behaviours and alcohol abuse because they were deemed to be sensitive and relatively more difficult respectively (Soderlund and Nilsen, 2009). Based on this evidence, the adherence counsellors may avoid using the MI approach with the HIV patients who are not adhering to their treatment and presenting as difficult if they are the ones who decide whom to apply the approach with. Moreover, such approach will run contrary to the Nigerian National guideline for treatment of HIV which recommends an ongoing adherence counselling for all HIV patients on ART on every clinic visit (FMOH, 2016, p.91). In addition, this perception highlights the impact of the prevailing paternalistic approach in the study context on the attitude of the adherence counsellors, despite the MI training. This confirms the argument that the behaviour change of practitioners is as big a challenge as that of their clients (Emmons and Rollnick, 2001).

Meanwhile, because MI is a behaviour change counselling approach and as some of the counsellors in this study argued, it may be more appropriate for use with patients with adherence issue with the HIV treatment. However, evidence from this study has revealed that the MI approach enabled the counsellors to focus the treatment discussions on social and personal life issues that could affect the drug-taking behaviours of the patients even when the patient did not report adherence issues. Moreover, this study also revealed that the patients want the counsellors to probe further than merely focusing the session on their drugs as they may have other issues which might be of higher priority to them than the HIV drugs. This is consistent with the argument of Emmons and Rollnick (2001) that it is important to acknowledge that efforts to target behaviour change in isolation from the social context in which the behaviour occurs is likely to be limited. They further stressed the need to broaden

MI strategies to incorporate social contextual concerns (Emmons and Rollnick, 2001). Recognition of situations where the agenda of the patient and counsellors may not match is the reason why MI as a patient-centred approach supports agenda mapping which involves identifying one step to focus on within an ongoing process of change (Emmons and Rollnick, 2001; Miller and Rollnick, 2013, p.106). According to Miller and Rollnick (2013, p.13) if done properly, agenda setting can provide a relief to clients who feel ensnared by their problems thereby giving them a chance to leave some things aside for a while as they focus on others. Therefore, the adherence counsellors in this study still need further training on the principles of MI to change their perception towards practising the approach in their clinic context.

Furthermore, the tendency for the adherence counsellors to want to make judgements about how much of MI is needed for some patients is supported by the recommendations of Emmons and Rollnick (2001) that a brief form of MI will be required in a public health setting where time for most encounters are brief. Such brief approach could allow for selection of certain techniques of MI to apply with the HIV patients based on the implicit judgement of the readiness of the patients to change (Emmons and Rollnick, 2001). While the selective approach could meet the needs of the adherence counsellors within the limited time available to them, Emmons and Rollnick (2001) have advised that the brief form of MI may only be useful to jump-start the motivational approach. They emphasised that the brief approach may require repeated contacts in order to initiate the behaviour change process. Thus, the counsellors cannot rely on the brief form of MI in all situations depending on the stage of readiness for change of the patient. Since, the adherence counsellors in this study are still struggling to achieve optimum fidelity to MI, adoption of a selective application of the approach may further limit their ability to effectively support HIV patients to adhere to ART. Therefore, as cautioned by experts (Emmons and Rollnick, 2001; Miller and Rollnick, 2009) the adherence counsellors need to first see the MI approach as an interpersonal style shaped by the guiding principles of what triggers the behaviour change process, instead of being a collection of techniques from which they can draw some for application with a group of people.

9.4.5 Stigma for HIV/AIDS in Nigeria

According to the recent report from the United Nations, the estimated prevalence of stigma against people living with HIV/AIDS in Nigeria is 46.8% (UNAIDS, 2017, p.70). This estimate refers to people who reported that they would not buy vegetables from a shopkeeper living with HIV (UNAIDS, 2017). This high tendency for enacted stigma highlights the impact of the health condition on the source of income and livelihood of the HIV patients in Nigeria. It is therefore conceivable that the HIV patients would keep trying to avoid an unwarranted disclosure of their health status. The finding from this study in respect of how the HIV patients

travel for long distance to use the HIV clinic to avoid using HIV clinics in their own communities is consistent with findings from a previous study in Nigeria (Okoye, Diekedie and Afemikhe, 2015). Unfortunately, this study shows that the migratory strategy from the HIV patients towards a safer healthcare context increases the workload burden of the adherence counsellors if the clinic capacity is low in respect of staff strength to cope with the population. Consequently, the low clinic capacity makes it difficult for the adherence counsellors to provide quality ART counselling or consultation session for the patients. However, this study adds that stigma promotes distrusts for the counsellors among the patients. Trust is a fundamental requirement for the successful practice of the MI approach, because the MI therapists seek to create a positive interpersonal atmosphere that is conducive to behaviour change (Miller and Rollnick, 2013, p.15). Hence, prevalence of stigma in Nigeria has the potential to make the practice of MI difficult for the adherence counsellors within the consultation session.

In addition, the prevalent stigma in the society also results in the disengagement of the HIV patient if they feel that their HIV status has been made known to certain individuals because of the delay in the clinic, thereby creating a gap in the continuity of care for the patients. MI is not a magic panacea that requires one dose and exposure, the approach promotes the provision of ongoing support which is central to behaviour change (Emmons and Rollnick, 2001) which is also consistent with the protocol for HIV treatment continuum. Therefore, if the patient is disengaged from the clinic because of stigma, provision of such ongoing support through MI will be disrupted, thereby threatening the effectiveness of the approach.

Despite the high prevalence and impact of stigma on the lives of the HIV patients, this study shows that there is currently no protection for them in Nigeria. Ironically, the Nigerian government signed an anti-discrimination bill into law that protects the right and dignity of PLHIV in 2015 (UNAIDS, 2015). The law makes it illegal to discriminate against people based on their HIV status. However, this study has confirmed that the law has neither been implemented nor is it having any impact on the beliefs and attitudes of the study community as well as the health practitioners.

9.4.6 Bribing in the HIV Clinic

A global report in 2006 shows that bribery and corruption have the potential to prevent HIV patients from having access to the much-needed treatment and care (Transparency International, 2006). While some countries such as UK, Cote D'Ivoire and Senegal have significantly improved in their transparency index since 2012, Nigeria's transparency index remains at 27/100 and at 148th position out of 180 as at the last report in 2017 (Transparency International, 2018). Therefore, giving of bribe by the HIV patients and the taking of the bribe

by the non-clinical staff of the hospital is on one hand a reflection of the pervasive and prevalent corruption level in Nigeria. On the other hand, bribing in the hospital was due to lack of agency to protect the rights of the patients and to prevent them from extortion. The WHO recommends the need to offer safe, acceptable and appropriate clinical and non-clinical services in a timely fashion to HIV patients with the aim of improving health outcomes and quality of life in general (WHO, 2016, p.xliv). Actual practice which forced the patients to resort to bribing in this study shows that while the care provided for HIV patients in Nigeria is not in a timely fashion, it is also not consistent with the acceptable recommendations of the WHO. The experience of extortion may hinder the engaging process which is the relational foundation for MI. According to Miller and Rollnick (2013, p.37) the forces that undermine engagement often come from pressures outside the conversation. They stressed that the culture within a service which may include its design, procedures and protocols could render the patient passive. Hence, bribing in the HIV clinical setting has the potential to make MI difficult to practise by the adherence counsellors in Nigeria.

9.4.7 Privacy issues in the HIV Clinic

While integrating the HIV clinic in this study into the MOPD might have served to promote the confidentiality of the HIV patients, the health providers and the activities occurring in the clinic as specified by the WHO (2016, p.18), the location of the waiting corridor is a source of concern for the HIV patients. The patients' concerns about the waiting corridor borders on the unfettered access of other service users in the hospital to the same waiting corridor where the HIV patients are kept for long before meeting the counsellors for the ART adherence consultation. Therefore, the structure of the hospital threatens the safety of the HIV patients as it has high tendency to expose them to the prevalent stigma in the country. Although the positioning of the waiting corridor creates a pressure outside the HIV treatment conversation between the counsellor and patients, the arrangement of the consultation rooms in the clinic further makes it more difficult for the confidentiality of the patients to be protected during consultation. This is because two different consultations sessions are carried out simultaneously in two of the three consultation rooms in the clinic. This may also make it difficult for the adherence counsellors to successfully engage with the HIV patients. According to Miller and Rollnick (2013, pp.26-27) one of the factors outside the immediate conversation that could undermine the engaging process is the client's state of mind on entering the consultation room. Hence, having two different consultation sessions occurring simultaneously is likely to make the HIV patient feel uncomfortable about engaging properly with the counsellor.

9.4.8 Religious/Traditional Beliefs and MI in Nigeria

Findings from this study support previous studies that have reported that traditional or religious beliefs could influence HIV patients to abandon their ART (Charurat et al., 2010; Ekwunife, Oreh and Ubaka, 2012; Falang, Akubaka and Jimam, 2012; Oku et al., 2013a; Oku et al., 2013b; Oku et al., 2014; Olowokere et al., 2008). In this regard, studies have shown that most Africans prefer to construct their health conditions within their cultural (Sarfo, 2015) or religious belief systems (Chukwuneke et al., 2012). People whose health beliefs are shaped in this way tend to reject the biomedical model of healthcare system provided for them (Chukwuneke, 2012) and may not return for follow-up treatment consultations. One could argue that MI should be practised in a manner congruent with the cultural and religious beliefs in Nigeria, based on the prevalent attitude to biomedical healthcare model in the African context. Fortunately, the MI provides the skill to support the patients despite the resistance that they may present due to their health beliefs by rolling with resistance (Resnicow and McMaster, 2012). However, even if MI is practised with optimum fidelity, the adherence counsellors will not be able to support the HIV patients with the approach if they are not presenting for the consultation sessions in the clinic due to their health beliefs.

9.4.9 Financial/Economic Constraint and MI in Nigeria

According to a recent report in 2017, a large pocket of the Nigeria's population lives in poverty and without adequate access to basic services (The World Bank, 2017). The World Data Lab (2018; <http://worldpoverty.io/>) estimated that 42.6% of the 195 million population of the country lives in extreme poverty. At the core of the high poverty level in the country is the lack of job opportunities (The World Bank, 2017). This study shows that one of the key basic services that could improve the quality of life of some of the HIV patients is the provision of affordable cost of transportation. While the financial circumstance of the individual HIV patients to cope with the available cost of transportation might have been worsened by the prevalent stigma in the country, the overarching economic situation of the country contribute to the chaotic life that the patients experience while trying to have access to care. This is because the patients could have access to basic and affordable means of transport if the economic situation of the country is better. Therefore, without addressing the economic situation of the country and devising a sustainable strategy to improve the financial circumstances of some of the HIV patients, the adherence counsellors will not be able to apply the MI approach if the patient could not keep up with their routine appointments.

9.5 Broader Perspective for Dissemination of MI in Nigeria

The findings from this study have shown that the implementation of MI for ART adherence in Nigeria requires a wider consideration beyond the immediate clinical conversation for behaviour change and the expected outcome of such conversation. A narrow focus on the patient's outcome such as in the previous studies in Nigeria (Abdull et al., 2017; Holstad et al., 2012) presents an incomplete picture that does not support the routine implementation of the approach in the real-life context. Such narrow focus on few but not all the identified factors in this study might result in poor patient's outcomes that is not different from the status quo (Abdull et al., 2017) or a high level of positive patient outcomes that may not be generalisable (Holstad et al., 2012). Evidence from this study has shown that such limited approaches will amount to an unwarranted waste of resources. For instance, the study carried out by Abdull et al. (2017) involved the training of therapists to use MI in the English languages that could not be used in the actual practice setting. The second study by Holstad et al. (2012) also focused on the use of MI in only English language which this current study has shown as impractical all the times in the Nigerian clinical context. Contrary to the limitations from the existing studies, this study has demonstrated the need to consider the feasibility of using MI in Nigeria from the different levels of the ecological model of behaviour change. These include: intrapersonal level (perception of the counsellors, and financial circumstance of patients); interpersonal level (MI training and support); organisational level (clinic capacity, privacy issues in the clinic, and bribing); community level (religious and traditional beliefs, stigma and languages); and policy level (economic situation of the country).

9.6 Strengths and Limitations of the Study

Several features of this study contribute to its strengths and its weaknesses. For instance, unlike in previous studies that have investigated the feasibility of using MI in routine clinical settings (Bofill et al., 2015; Ostlund et al., 2014; Ragaisis, 2017; Rubak et al., 2006; Shannon, Donovan-Hall and Bruton, 2017; Soderlund and Nilsen, 2009), this study explored the perspectives of both patients and health practitioners to inform knowledge. As recommended by Bowen et al. (2009) when disseminating and implementing an intervention in diverse practice systems, it is important to understand the perspectives of the different stakeholders who will affect and be affected by the intervention. Therefore, this study addressed the limitations of the previous studies by incorporating the perceptions of key stakeholders that are relevant for the implementation of MI for routine practice in HIV clinic for treatment adherence support.

Although this study was not designed to generalise findings, the recruitment procedure led to a study population similar to the general population in respect of gender, linguistic and ethnic

distribution. For instance, the gender distribution pattern among the participants is consistent with the gender distribution among the HIV patients in Nigeria. In addition, there was no significant difference in the gender distribution among the study participants and the non-responders to the study. Despite the small population of the study, the 30 individuals produced a linguistic distribution representing 15 ethnolinguistic groups in the country with at least a representation from five of the six geographical regions of the country. Hence, as specified by Ryan, Coughlan and Cronin (2007) the selection of the setting and the participants contribute to the transferability of the study because the findings could be relevant to individuals who were not involved in the study.

As recommended by Pluye et al. (2011) the response rate in the structured observation phase can be considered acceptable as it was never below 80% (involving 25 out of 30) of the study participants. Although representativeness is usually expected to be the goal of the quantitative strand of a mixed method study (Gray, 2014, p.225) and so time sampling which involves selection of time periods during which observations will occur is usually recommended to enhance generalisability of observation data (Gray, 2014, p.430; Polit and Beck, 2017, p.173). However, due to the sensitivity and the need for confidentiality of personal information among the study cohorts, event sampling which involves waiting for the occurrence of events (Polit and Beck, 2017, p.173) between the counsellors and the HIV patients becomes necessary. Despite the problems of generalisation associated with the event sampling observation, the outcome data is significantly higher than 80% which is the threshold for response rate for quantitative studies without randomisation (Pluye et al., 2011). Even though participation was lowest among study cohorts during the post-practice interviews which involved 18 out of the total of 30 individuals, a relatively small sample size is often sufficient for qualitative studies because its purpose is not to generalise (Gray, 2014, p.225; Ryan, Coughlan and Cronin, 2007). Hence, it could be argued that overall in the study chances of attrition bias is limited.

Use of the mixed method approach in this study has enhanced depth of knowledge about the feasibility of using MI for ART adherence. Apart from the focus on generating diversity of views through the quantitative and qualitative approaches the qualitative findings from the study also led to the enrichment of the quantitative data. For instance, evidence about the fidelity to MI from the OnePass assessment was not only complemented by the qualitative findings, but it also provided further insight about the constraints to the routine practice of the approach. Therefore, as argued by Bryman (2016, Pp.647-648) the study design did not only provide diversity of views but also led to the enrichment of finding from one aspect of the study to another.

Use of investigator triangulation at different points in this study also enhanced the credibility and reliability of the findings. For instance, involvement of the study supervisors (Dr McMaster and Prof Redsell) in the thematic analysis of the qualitative data serves to minimise bias that could have emerged from the principal investigator (PI) as a person (Flick, 2014, p.183). Additionally, involvement of the primary supervisor (Dr McMaster) in the assessment of the MI fidelity for the adherence counsellors through OnePass coding system serves to minimise measurement errors that might have stemmed from the PI.

The study was also carried out in real clinical scenarios between the health practitioners and the recruited HIV patients without disruption to the existing care plan for the patients. For instance, observation records were planned and executed between the study groups during existing clinical appointment slots for each patient. This flexible study structure therefore allows for the transferability of the study findings to other HIV care clinical settings without a need for adaptations. Moreover, execution of the 19 observation schedules during real clinical appointments between the health practitioners and the patients confirms that the study subjects were comfortable in carrying out their routine activities during the observation. According to Gray (2014, p. 422) this unobtrusive observation pattern must have minimised bias that might be attributable to the observer.

Despite all the highlighted strengths of the study, there are also certain limitations that could have introduced bias to the findings. For instance, limited training hours for the health practitioners could have affected their learning of the MI approach. Based on evidence from existing studies on MI training (Barwick et al., 2012; de Roten et al., 2013; Hall et al., 2015; Madson, Loignon and Lane, 2009; Schwalbe, Oh and Zweben, 2014; Soderlund et al., 2011) one would not expect to see significant changes to practice, or basic proficiency in MI after just five hours of workshop training. However, the hours used for the MI training in this study was limited because the health practitioners could not allocate more hours to the training due to their workload. Emmons and Rollnick (2001) have stressed that relatively limited time is typically available for training of General Practitioners (GPs) which can make training for the GPs considerably challenging. It is therefore not surprising that time constraint to training occurred in this study since the majority (78%) of the recruited adherence counsellors were doctors. This contributes to knowledge about the challenges that may occur during MI training when the trainees are not motivated by top down directive from their organisation to utilise the approach or because of lack of incentives (Mitcheson, Bhavsar and McCambridge, 2015; Moyers et al., 2007). This limitation could therefore have affected the reliability of the MI scores recorded for the adherence counsellors.

Moreover, because the PI was new to the use of OnePass coding system, there is a possibility that the MI fidelity scores allocated to the behaviours of the adherence counsellors could have been underestimated or overestimated which could have affected the inter-rater reliability assessment that resulted in a poor to fair clinical significance. Interrater reliability assessment involves having two or more observers independently applying the measure with the same people to see if the scores are consistent across raters (Polit and Beck, 2017, p.175). The poor to fair reliability coefficients of correlation suggests that there is a great room for measurement error between the two judges. However, the poor to fair reliability coefficients could also be because scores in OnePass are based on subjective impressions of the judge and not on behaviour counts as in MITI (McMaster and Resnicow, 2015). Hence, it may be difficult to achieve a high level of correlation between judges based on their impressions. However, the process of judgement between the two judges would need to be improved if the assessment is to be repeated.

Additionally, intra-rater reliability across time was not tested in the study. Intra-rater reliability assessment would have allowed the determination of whether the same level of consistency was maintained for the same subjects over particular points in time by the same judge (Cicchetti, 1994). This limitation could have reduced the reliability of the study findings.

Despite the improvement observed in the performance pattern of some of the health practitioners in this study, it is highly possible that they might have attempted to produce better practice as a result of being audio-recorded. It is also arguable that the performance of the health practitioners could have been worsened due to the audio-recording. This uncertainty could be attributed to social desirability bias which is a tendency for research participants to misrepresent attitudes or extreme response bias which is a tendency to express extreme attitudes (Polit and Beck, 2017, p.171).

Furthermore, short duration of the study might have also limited the generalisability of the findings. According to Gray (2014, p.430) claims for generalisability of the study findings could be strengthened if the researcher is able to stay in the field long enough to observe or experience the full range of routines and behaviours that typify the case. It could therefore be argued that a longer study period could have allowed for the nurse practitioner who could not practise the MI approach with a patient during the study period to provide a recorded practice session. Such opportunity could have provided a different pattern to the reported fidelity to MI in this study. However, each patient that the nurse practitioner attends to still had to meet with any of the doctors who participated in this study for the HIV treatment consultation. Besides, the purpose of the encounter between the HIV patient and the nurse was to prepare the patient

for the encounter with the doctors. Hence, the duration of the study allowed for the collection of the fidelity data from the major practice individuals.

Moreover, a longer study period could also have allowed the three patients who missed their scheduled appointment to participate in the study. However, lack of funding and inadequate resources for this study prevented the potential for such longer stay in the field. Hence, in respect of the patients, lack of prolonged engagement in the field as pointed out by Ryan, Coughlan and Cronin (2007) limits the credibility of the findings.

This study also contravenes the existing recommendation for the study design for implementation test of feasibility of interventions. According to Bowen et al. (2009) a pre-and-post study design is necessary to evaluate small scale demonstration project testing whether the intervention can be deployed in the target clinical setting using surveys and observations. Apart from the use of only post-training interviews instead of surveys for the evaluation of experiences of the participants, a pre-training assessment of MI fidelity was not carried out in this study, thereby preventing the opportunity of ascertaining the baseline skills level of the health practitioners. Therefore, the validity of the fidelity scores could have been limited as it could be argued that the health practitioners might have had similar skills as observed after the MI training before the MI training. However, the focus of the study was not to assess improvement in the skills of the health practitioners after training but to assess if they could use the MI approach. Since, none of the health practitioners in this study had prior experience with MI, it will be unfair to assess their MI skill levels before learning the MI approach.

The fact that the study was also carried out in just one clinic limits the generalisability of the study findings. For instance, facilities and resources in other clinic settings might have provided a more comfortable setting for the MI training and create the opportunity for longer MI training hours for the health practitioners or could have resulted in different perceptions about the MI approach from the participants. However, due to lack of resources and funding for the current study, such multi-site approach could not be carried out.

Overall, non-response bias which refers to the difference between the actual study participants and those who declined to participate in the study (Polit and Beck, 2017, 2017, p.167) also limits the generalisability of the study findings. Although all invited health practitioner agreed to participate in the study, only 21 of the 86 patients invited to participate in the study agreed to participate. Thus, it can be argued that the 65 patients who could not participate in the study could have produced different findings to what was reported in this study. While there are different reasons for not participating in the study, telephone contact challenges were the most prevalent barriers to more patient participation in the study; a challenge which mostly led to

further attrition during the study activities. Apart from just network challenges and loss of mobile devices, some of the telephone contact issues are associated with the cultural patterns in the study context. For instance, one of the invited patients could not engage with the PI to discuss the study to determine if she will participate because the husband would rather want to be listening to the conversation on telephone. This could be associated with the higher decision-making power enjoyed by men in the Nigerian context. Evidence from a study has shown that financial dependence on husbands or gender inequality in decision-making about health care in Nigeria prevents access of women to health care facilities (Azuh, Fayemi and Ajayi, 2015; Lamstein, 2017). However, gender roles in decision-making for health care in Nigeria differ depending on the geographical region. In this regard, evidence from a survey has demonstrated that women from the South-west region of Nigeria were more likely to make their own health care decisions than women from the North-west region (Osamor and Grady, 2017). Therefore, these cultural factors and the significance of telephone contact challenges should be considered strongly when making decisions about implementing research in Nigeria.

Patients also struggled to understand some of the post-practice interview questions thereby leading to reframing of the questions to assist them to make relevant contributions to the study. This challenge indicates that the interview questions were not easy to understand for the patients and the reframing of the questions might have introduced bias from the interviewer into the data which could have resulted from leading the patients (Bryman, 2016, p.475). This therefore, limits the procedural rigour of the study (Ryan, Coughlan and Cronin, 2007).

Lastly, responses from both study cohorts (HIV patients and counsellors) to the interview questions were also narrow, suggesting that the interviewing guide must have limited the answers of the participants to cover areas that are needed by the researcher but not much from the perspectives of the participants. This must have led to the introduction of the interviewer's bias and expectations (Bryman, 2016, p.475) into the study findings, thereby reducing the procedural rigour. This could also have been due to social desirability bias or extreme response biases due to the power imbalance between the researcher and the participants. For instance, due to a perceived higher power of the researcher by the researched (Raheim et al., 2016) the study participants might have attempted to meet the researcher's need by misrepresenting their attitude or perceptions about the investigated issues. Findings from this study therefore need to be interpreted in relation to the identified limitations.

9.7 Chapter Summary

This chapter has presented the integrated summary of study findings in relation to existing knowledge in respect of the fidelity and acceptability to MI in Nigeria. The chapter also critically discussed the relevance of the factors identified with the potential to influence the implementation of MI in a routine clinical setting. Lastly, the chapter also presented the strengths and limitations of the study.

CHAPTER TEN: RECOMMENDATIONS AND CONCLUSION

10.0 Chapter Overview

This chapter presents the arguments for practice change and future research thinking based on the findings of this study. The chapter also presents a conclusive summary to the study and reflexivity.

10.1 Recommendations

Numerous issues have been highlighted in the findings from this study. These issues emerged from the implications that the study findings could have on the practice of the ART adherence counsellors and the HIV patients. The issues indicate the need for urgent modifications in the organisational and socio-cultural contexts in Nigeria to improve the conditions within which the adherence counsellors practise, the healthcare experiences and the quality of life of the HIV patients, and the practice approach to public health research.

10.1.1 Implications for Practice

Antiretroviral Therapy Support Policies

This study has established that the approach to ART adherence support in real life practice in Nigeria contradicts the recommendations of the WHO global strategy on patient-centred services (WHO, 2016, p.280). The global strategy stressed that all people should have access to health services provided in a way that responds to their needs and that are equitable, safe, effective, efficient, timely and of an acceptable quality (WHO, 2016, p.280). This contradiction indicates that there is a wide gap between the publication of such recommendations for best practice and the actual practice in the HIV clinical contexts that are similar to the one described in this study, especially in Africa. Since similar findings have been reported in South Africa, there is a high likelihood that the practice in the HIV clinical contexts in other sub-Saharan African countries will be similar to what has been reported in this study about the Nigerian clinic (Coetzee, Kagee and Bland, 2016; Dewing et al., 2012). Little or nothing can be achieved in respect of ART adherence when the adherence counsellors do not explore the adherence status of the HIV patients during the routine clinical appointments, only to command them to continue taking the prescribed treatment. Ironically, the local guideline in Nigeria emphasises the need to assess adherence at every HIV clinic visit for the patients (FMOH, 2016, p.91). Therefore, beyond mere publication of global or national guidelines there is a need for regular monitoring of the implementation of the strategies highlighted in such public health guidelines. However, based on the findings of this study such implementation monitoring will need to be executed while also considering the organisational constraints identified in this study.

One of the organisational constraints identified in this study is the low clinic capacity in respect of staff strength. Task shifting is a strategy that can help to provide a cheaper work force that could reduce the workload of the doctors and the nurses (WHO, 2016). However, within the limit of the evidence available in this study, task shifting has not been adopted in the Nigerian context for ART adherence support; a situation contrary to the scaled-up use of lay adherence counsellors in South Africa (Evangeli et al., 2009; Evangeli, Longley and Swartz, 2011; Dewing et al., 2012; Dewing et al., 2013; Dewing et al., 2014; Dewing et al., 2015). Considering the workload burden on the doctors and the negative experiences of the HIV patients due to clinic delays and the low quality of the eventual consultation session that is available to the patients due to lack of time, policy makers need to expedite the implementation of the task shifting strategy in Nigeria. Unfortunately, actualising a system change with task shifting may be a difficult task due to the poor economic policy in the country which has a very low budget for the health sector. For instance, since 2012 the budget allocation for the health sector has been consistently dwindling from 6% to 5.6% (Budget Office of the Federation, 2018). This pales significantly to the South African budget in 2017/2018 which allocated 13.5% to the health program of the nation. Compared to the situation in Nigeria, this budget proportion in South Africa appears to be stable (United Nations Children's Fund, 2018). The low budget proportion highlights the low priority for the health of the 195 million population of in Nigeria where the budget provision for 469 national legislators was 1.7% of the national budget (Budget Office of the Federation, 2018). Therefore, it may be unfair to expect the hospital management to employ and train non-professionals to carry out treatment adherence counselling for HIV patients when there may not be adequate funding to accommodate such staff boost. Hence, the Nigerian government needs to be sensitised on the need to improve the economic policy for health in the country to also improve the work experiences of the health practitioners and healthcare experiences of the HIV patients.

Agency for Patients

Evidence from this study indicates the need to promote avenues through which the voices of the HIV patients could be heard and acted upon to a satisfactory conclusion. Lack of such agency resulted in the resignation of the HIV patients to part with money to have access to care that is expected to be free. There is currently no safe pathway for patients to seek redress for abuse, neglect or extortion that they experience while accessing healthcare in Nigeria. Although part 3 section 10 of the Nigerian National Health Act (2014) provides guideline for patients to lay complaints about how they were treated at a healthcare establishment with an assurance that such complaints will be investigated fairly. The policy statement emphasises that the procedure for laying complaint should be displayed by all health establishments in a

manner that is visible for any person entering the establishment and that the procedure should be communicated to the service users on a regular basis. This policy procedure empowers the health administrators and practitioners as the defendant, jury and judge on the feedback from the patients in respect of the experience with the quality of the health care services that they receive. This arrangement could make the patients apprehensive that they may be victimised due to their complaints. Meanwhile, as evident in this study, the existing system within which the patients receive treatment and care also reinforces the stigma that they face, and this would impact on their willingness to complain to the health practitioners and administrators from the same system. Therefore, there is a need to establish a more inclusive policy that promotes equality and to address inequalities while accessing health services in Nigeria such as the NHS England Patient and Public Partners Policy (National Health Service, 2017).

Implementation of the Bill against Stigma and Discrimination

The Nigerian government needs to go beyond mere establishment of the law to abolish stigma against people living with HIV (PLHIV), but to also establish a clear pathway to enforce the law when there are reported infractions. It could be argued that countries that have a well implemented and structured law against discrimination like the UK still report significant proportion of incidence of stigma at workplace, healthcare settings and the general society (Baylis et al., 2017; Stigma Index UK, 2015). Even though most (59%) of the PLHIV in the UK are aware of the Equality Act 2010 which provides protection against discrimination for HIV patients, majority (73%) of the respondents to a national survey did not seek redress despite reporting instances of discrimination (Stigma Index UK, 2015). From the survey, reasons that prevented the PLHIV from seeking redress under the provisions of the Equality Act 2010 include lack of confidence that the outcome would be successful, feeling intimidated or scared and/or insufficient financial resources (Stigma Index UK, 2015). Therefore, while implementing the law against stigma in Nigeria is important, the government and non-governmental organisations also need to provide a framework that will embolden the HIV patients to report any infractions on their rights with an assurance that they will get justice irrespective of their financial status. In addition, beyond the implementation of the law against stigma, there is also a need for regular public education and sensitisation to address the prevalent myths and misinformation that underpin the stigma and discrimination in Nigeria.

Review of Nigerian Language Policy for Healthcare Settings

Findings from this study makes an argument in favour of the Nigerian Pidgin which the policy makers in the country need to take into cognizance. This evidence indicates the need to grant the Nigerian Pidgin similar status as the three major languages in the country (Hausa, Igbo and Yoruba), especially in healthcare consultation sessions. Although it has been argued that the Nigerian Pidgin should not be adopted for official purposes because of its lack of structure (Igboanusi, 2008). However, such strict stance of the language policy reduces the language options when the health practitioners are interacting with patients who speak different local language and who are not well educated to speak English. Unfortunately, such stance may further widen the power gap between the patients and the health practitioners.

Need for Affordable Transportation System

A key research need among public health experts is the need to identify and address economic barriers to health (Haberer et al., 2017). Unfortunately, there is currently no consensus about the best way to address the economic barriers to health. A major impact of economic barriers on the health of the HIV patients in this study is their inability to afford the cost of transportation to meet up with their clinical appointments. While the Nigerian government appropriated up to 3.5% of the national budget for 2017 to transportation (Budget Office of the Federation, 2018), findings from this study show that there is currently no affordable means of transportation for low or no income earners in the country. There is therefore a need to alleviate the burden of transportation cost for some of the HIV patients who have little or no means of income due to their health condition. Similar to the travel concession scheme for the older adults and disabled people in the UK, the Nigerian government could introduce the travel concession scheme for the HIV patients who need such support. Although the transport cost concession could motivate patients to misreport their circumstances to qualify for the scheme, this problem could be mitigated by using objective measures or by making the approach universal (Haberer et al., 2017).

Need to Introduce MI into the Curriculum of Health Practitioners

Existing evidence has established that basic skills of MI are increasingly being integrated into the standard curriculum of medical, nursing, pharmacy and dental students in USA (The Health Foundation, 2011). Since, this study found that MI addressed the skills deficit of the health practitioners in respect of how to motivate patients with chronic conditions to adhere to their medications, introduction of the approach into the educational curriculum in the medical schools might empower them from an early stage. Although the previous evidence is mixed

in respect of the benefits of including training in MI as part of the core curriculum of medical students (The Health Foundation, 2011), findings from this study suggest that the health practitioners in the Nigerian context could benefit from enhanced skills through the MI training. If effective, the curriculum plan which includes basic training in MI will have a huge impact on the practice of the health practitioners throughout the country.

Addressing the Organisational Structural Problems

The National Council is the highest policy making body on matters relating to health in Nigeria (National Health Act, 2014). Part of the responsibilities of the council is to ensure the delivery of basic health services to the people of Nigeria and to prioritize other health services that may be provided within the available resources. Based on the findings of this study and the need to ensure privacy and assure the patients of confidentiality, the National Council needs to address the structure of the consultation rooms and the waiting corridor for HIV patients in clinics with similar structure as described in this study. They also need to ensure that facilities where health practitioners learn is conducive for learning.

10.1.2 Implications for Future Research

MI Study in Multilingual Contexts

Few existing studies have explored the applicability of MI in the local languages of multilingual contexts like Nigeria, Singapore and South Africa. Findings from this study show that more can be learnt about how to disseminate the MI approach if the potentials of the local languages are harnessed than by concentrating on standardising it in single languages as it is commonly practised in studies. McMaster and Griva (2015) stressed that practitioners are increasingly interacting with multiple cultures in urban centres with a large influx of nationalities (UK, USA, and Hong Kong) and in communities where there are multiple national languages and local dialects (Singapore and Nigeria). They asserted however that while linguistic differences in the formation of certain parts of speech could affect some parts of the training, trainees respond to the core materials in similar ways across cultures (McMaster and Griva, 2015). This study has shown the benefits of replicating the language pattern in the community in the study. Therefore, researchers need to strive to replicate more of the positive clients' outcomes attributed to MI in a study context that promotes the same linguistic diversity existing in multilingual communities.

Need for a Large Population

This study involved a small population because it was not designed to generalise findings. Therefore, there is a need for a multi-site study with a larger population of the target groups in Nigeria to ascertain the consistency of the factors within the hypothetical retroductive model obtained from this study. However, because most other African contexts have a high likelihood of sharing the same contextual characteristics with Nigeria, the hypothetical retroductive model could also be tested in other African countries to inform how to support HIV patients with their drug adherence.

Broader Perspective to Public Health Research in Africa

The findings of this study show that the common enthusiasm among researchers to fix the public health problems in Africa through evidence-based strategies that have worked in more developed contexts needs to be matched with the commitment to appreciate the uniqueness of the African context. For instance, public health researchers need to understand and take certain cultural and contextual barriers to research activities into cognizance during the planning and implementation of interventions studies in Africa. As elicited from this study, these barriers could be in respect of recruitment or training activities for health practitioners. Although it could be argued that the consideration of the contextual and cultural factors could make public health research in Africa to be more expensive and time consuming. However, as shown in this study, public health research may not produce outcomes that can adequately meet the needs of the target communities without an adequate understanding of the African context.

10.2 Conclusion

This study has shown that there is considerable promise to implementing MI to support behaviour change in HIV patients in Nigeria to adhere to the ART. The study also shows that the approach is acceptable within the Nigerian culture and context. While there is no conclusive evidence about the effect of the languages on the fidelity of counsellors to the approach, this study shows that the approach could be used within the same linguistic pattern that exist in the routine clinical setting in Nigeria. However, some contextual and cultural factors that could limit its potential need to be addressed before the approach can be effectively used for routine practice in the HIV clinic settings in the country. This will include the willingness of the government to enforce the law against stigma and discrimination for PLHIV and provision of a safe feedback system through which infractions on the rights of patients within the hospital system could be addressed. Meanwhile, the health policy makers will also need to enhance the strength of the workforce in the HIV clinics and make provisions

for adequate training facilities for the health workers. More importantly, there is a need for more time to be dedicated for the training of the health practitioners to ensure that they practise the MI approach with optimum fidelity in their clinic context.

10.2.1 Reflexivity

Despite conscious attempts to reduce the influence of researcher's bias on the study, as a human being my previous experiences during education, work and life must have impacted on my approach to this study. For instance, my first-degree background as a microbiologist informed my interest to understand the lived experiences of people living with HIV/AIDS (PLHIV). This led to my involvement in peer-education program in Nigeria in 2007 to prevent HIV and sexually transmitted infections (STI) sponsored by the UNAIDS. This opportunity allowed me to have several informal interviews with PLHIV and to understand the challenges that they face on daily basis while living with the virus. Since I was trained from my first-degree to pay more attention to the importance of statistics towards health decision-making and research goals, such thinking process steered my research interests towards quantitative methodology during my master's degree in public health. However, when I embarked on this project the basic knowledge that I garnered during my master's degree about the importance of qualitative research and my experience during the peer education program greatly influenced my thinking and steered my goal towards the need to understand how best to support the patients and clinicians beyond reducing them to statistical figures. This informed the decision for a mixed-method approach for this study despite my previous lack of formal experience with qualitative research processes. Therefore, my previous experiences through academic endeavours and with the PLHIV influenced my research approach decisions and largely during the designing of the methods and the analyses of the data. This was of course also complemented by my robust experience of the current socio-political situation in Nigeria and its impact on the people.

My work experience in the hospital in the UK as a health practitioner also played a key role in the decision to implement the study in a clinical setting because of my familiarity with such context and the clinicians as well the patients. More importantly this experience allowed me to understand that despite the increasing advocacy for patient-centred care in the hospital system in the UK, some work-environment constraints still make it difficult for us to be consistently patient-centred in service delivery in real-life. This reflection from my own practice also contributed largely to how I designed the data collection process for the study and how I analysed the data.

Meanwhile, my previous work and residence experiences in five geopolitical regions (North-East, North-Central, South-West, South-South and South East) out of the six in Nigeria helped me to understand the common culture and basic elements in the languages used by Nigerians despite the diverse cultural and linguistic diversity. Additionally, my understanding of the widely used but informal Pidgin English language was not only helpful while I was designing the study but also when implementing it in the field and during data analyses. For instance, my cultural and linguistic competences were very helpful during the process of my data collection and for my analytical processes ranging from transcription to translation and the presentation of the findings.

Lastly, this study process itself has not only improved my research skills in respect of qualitative research understanding, but it has also enriched my reasoning about health intervention designs, transfer, adaptation and implementation. This refers most especially towards the need to appreciate the influence of the relevant contextual factors from the different levels of the ecological model of behaviour change. Overall, the study process has boosted my confidence in the planning and execution of research plans in real-life settings.

REFERENCES

- Aasen, E.M., Kvangarsnes, M. and Heggen, K., 2011. Perceptions of patient participation amongst elderly patients with end-stage renal disease in a dialysis unit. *Scandinavian Journal of Caring Sciences*, 26 (1), pp.61-69.
- Abdull, M., M., McCambridge, M., J., Evans, M., J., Muazu, M., F. and Gilbert, M., C., 2017. Can Adapted Motivational Interviewing Improve Uptake of Surgical or Laser Treatment for Glaucoma in Nigeria: Randomized Controlled Trial. *Journal of Glaucoma*, 26 (9), pp.822-828.
- Adamian, M.S., Golin, C.E., Shain, L.S. and DeVellis, B., 2004. Brief motivational interviewing to improve adherence to antiretroviral therapy: development and qualitative pilot assessment of an intervention. (Human Immunodeficiency Virus infected patients). *AIDS Patient Care and STDs*, 18 (4), pp.229-238.
- Adefolalu, A.O. and Nkosi, Z.Z., 2013. The Complex Nature of Adherence in the Management of HIV/ AIDS as a Chronic Medical Condition. *Diseases*, 1 (1), pp.18-35.
- Adefolalu, A.O., Nkosi, Z.Z. and Olorunju, S.A., 2014. Patterns of adherence to scheduling and dietary instructions among patients on antiretroviral therapy in Pretoria, South Africa. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 108 (9), pp.582-588.
- Adejumo, O., Oladeji, B., Akpa, O., Malee, K., Baiyewu, O., Ogunniyi, A., Evans, S., Berzins, B. and Taiwo, B., 2015. Psychiatric disorders and adherence to antiretroviral therapy among a population of HIV-infected adults in Nigeria. *International Journal of STD and AIDS*, 27 (11), pp.938-949.
- Adewuya, A.O., Afolabi, M.O., Ola, B.A., Ogundele, O.A., Ajibare, A.O., Oladipo, B.F. and Fakande, I., 2010. The effect of psychological distress on medication adherence in persons with HIV infection in Nigeria. *Psychosomatics*, 51 (1), pp.68-73.
- Afolabi, B.A., Afolabi, M.O., Afolabi, A.A., Odewale, M.A. and Olowookere, S.A., 2013. Roles of family dynamics on adherence to highly active antiretroviral therapy among people living with HIV/AIDS at a tertiary hospital in Osogbo, south-west Nigeria. *African Health Sciences*, 13 (4), pp.920-926.
- Afolabi, M.O., Ijadunola, K.T., Fatusi, A.O. and Olasode, O.A., 2009. Determinants of adherence to antiretroviral drugs among people living with HIV/AIDS in the Ife-Ijesa Zone of Osun State, Nigeria. *African Primary Health Care and Family Medicine*, 1 (1), pp.1-6.
- Ahmed, R. and Aslani, P., 2014. What is patient adherence? A terminology overview. *International Journal of Clinical Pharmacy*, 36 (1), pp.4-7.
- Akahara, C., Nwolisa, E., Odinaka, K. and Okolo, S., 2017. Assessment of Antiretroviral Treatment Adherence among Children Attending Care at a Tertiary Hospital in South-Eastern Nigeria. *Journal of Tropical Medicine*, 2017, pp.1-5.
- Akinboro, A.O., Salawu, A.A., Awoyemi, R.O. and Ayodele, O.E., 2014. Adherence to Antiretroviral Therapy: Prevalence, Determinants and Impact on Body Weight and Immunological Recovery among People Living with Human Immunodeficiency Virus in Osogbo, Nigeria. *British Journal of Medicine and Medical Research*, 4 (31), pp.5003-5018.

Akinkuotu, E., 2016. EFCC arrests seven health officials over \$4m HIV fund. *Punch Nigeria*, 21 June 2016.

Akobeng, A.K., 2005. Understanding randomised controlled trials. *Archives of Disease in Childhood*, 90 (8), pp.840-844.

Akinnaso, F.N., 1991. Toward the development of a multilingual language policy in Nigeria. *Applied Linguistics*, 12 (1), pp.29-61.

Alakija, K.S., Fadeyi, J.A., Ogunmodede, O. and Desalu, O., 2010. Factors influencing adherence to antiretroviral medication in Ilorin, Nigeria. *Journal of the International Association of Physicians in AIDS Care*, 9 (3), pp.191-195.

Al-Dakkak, I., Patel, S., McCann, E., Gadkari, A., Prajapati, G. and Maiese, E., 2013. The impact of specific HIV treatment- related adverse events on adherence to antiretroviral therapy: A systematic review and meta- analysis. *AIDS Care; Psychological and Socio-medical Aspects of AIDS/HIV*, 25 (4), pp.400-414.

Alden, D.L., Friend, J. and Chun, M.B., 2013. Shared decision making and patient decision aids: knowledge, attitudes, and practices among Hawai'i physicians. *Hawai'i Journal of Medicine and Public Health: A journal of Asia Pacific Medicine and Public Health*, 72 (11), pp.396-400.

Allen, D., Wainwright, M. and Hutchinson, T., 2011. 'Non-compliance' as illness management: Hemodialysis patients' descriptions of adversarial patient-clinician interactions. *Social Science and Medicine*, 73 (1), pp.129-134.

Allicock, M., Golin, C.E., Kaye, L., Grodensky, C., Blackman, L.T. and Thibodeaux, H., 2017. SafeTalk: Training Peers to Deliver a Motivational Interviewing HIV Prevention Program. *Health Promotion Practice*, 18 (3), pp.410-417.

Allison, J., Bes, R. and Rose, G., 2012. *Motivational Interviewing Target Scheme | MITS 2.1 An instrument for practitioners, trainers, coaches and researchers Explanation and Guidance*. [pdf] MI-campus.com. Available at: <<http://www.motivationalinterviewing.org/>> [Accessed 14 August 2017].

Allsop, S., 2007. What is this thing called motivational interviewing? *Addiction*, 102 (3), pp.343-345. Apodaca, T.R. and Longabaugh, R., 2009. Mechanisms of change in motivational interviewing: a review and preliminary evaluation of the evidence. *Addiction*, 104 (5), pp.705-715.

Al-Mahmood, A., 2017. Retraction Notice for "Pharmacist-strengthen adherence to antiretroviral therapy and the contributing factors among HIV-infected paediatric patients in Nigeria". *Bangladesh Journal of Medical Science*, [e-journal] 16 (4). <http://dx.doi.org/10.3329/bjms.v16i4.33644>

Apodaca, T.R. and Longabaugh, R., 2009. Mechanisms of change in motivational interviewing: a review and preliminary evaluation of the evidence. *Addiction*, 104 (5), pp.705-715.

Amalraj, S., Starkweather, C., Nguyen, C. and Naeim, A., 2009. Health literacy, communication, and treatment decision- making in older cancer patients. *Oncology*, 23 (4), pp.369-375.

- Aransiola, J., Imoyera, W., Olowookere, S. and Zarowsky, C., 2014. Living well with HIV in Nigeria? Stigma and survival challenges preventing optimum benefit from an ART clinic. *Global Health Promotion*, 21 (1), pp.13-22.
- Ariss, S.M., 2009. Asymmetrical knowledge claims in general practice consultations with frequently attending patients: Limitations and opportunities for patient participation. *Social science and medicine*, 69 (6), pp.908-919.
- Asekomeh, E.G., Ebong, O.O. and Onwuchekwa, A.C., 2010. Effects of psychosocial parameters on adherence of adult Nigerians to antiretroviral Therapy. *Nigerian Journal of Psychiatry*, [e-journal] 8 (1) Abstract only. <http://dx.doi.org/10.4314/njpsyc.v8i1.53301>.
- Ashraf, I., Ashraf, S., Mohammed, N. and Alam, M.K., 2017. Pharmacist-strengthen adherence to antiretroviral therapy and the contributing factors among HIV infected paediatric patients in Nigeria. *Bangladesh Journal of Medical Science*, 16 (2), pp.281-288.
- Atibioke, O.P. and Osinowo, H.O., 2015. Psychological determinants of treatment adherence among people living with HIV and AIDS in Ibadan, Nigeria. *Ife Psychologia*, 23 (2), pp.89-96.
- Attaran, A., 2007. Adherence to HAART: Africans take medicines more faithfully than North Americans. *PLOS Med*, 4 (2), pp. e83-e84.
- Audu, B., Morgan, R. and Rutter, P., 2013. Qualitative exploration of the relationship between HIV/ AIDS patients' experiences of clinical services and treatment adherence at Maitama District Hospital, Abuja, Nigeria. *AIDS Care*, 26 (2), pp.270-273.
- Avong, Y.K., van Wyk, B., Njab, J., Abimiku, A.G., Ndembi, N., Okuma, J., Ogbanufe, O., Ekong, E., Dakum, P. and Blattner, W.A., 2015. Adherence to Anti-Retroviral Therapy in North Central Nigeria. *Current HIV Research*, 13 (4), pp.268-278.
- Aworinde T., 2016. *Inside Nigeria's booming stolen phones trade*. *Punch Online* [online] 3 January Available at: <<http://punchng.com/inside-nigerias-booming-stolen-phones-trade/>> [Accessed: 24 January 2018].
- Ayeomoni, M.O., 2012. The Languages in Nigerian Socio-political Domains: Features and Functions. *English Language Teaching*, 5 (10), pp.12-19.
- Azuh, D.E., Fayomi, O.O. and Yartey, A.L., 2015. Socio-cultural factors of gender roles in women's healthcare utilization in Southwest Nigeria. *Open Journal of Social Sciences*, 3, pp.105-117.
- Baggaley, R., Doherty, M., Ball, A., Ford, N. and Hirschall, G., 2015. Investigators at World Health Organization Report Findings in HIV/AIDS (The Strategic Use of Antiretrovirals to Prevent HIV Infection: A Converging Agenda). *AIDS Weekly*, 60 (supplementary 3), pp. s159-s160.
- Baldwin, T.T. and Ford, J.K., 1988. TRANSFER OF TRAINING: A REVIEW AND DIRECTIONS FOR FUTURE RESEARCH. *Personnel Psychology*, 41 (1), pp.63-105.
- Bandura, A., 2012. *On the Functional Properties of Perceived Self-Efficacy Revisited*: Journal of Management, 38 (1) pp.9-44.

Bangsberg, D.R., Perry, S., Charlebois, E.D., Clark, R.A., Roberston, M., Zolopa, A.R. and Moss, A., 2001. Non-adherence to highly active antiretroviral therapy predicts progression to AIDS. *AIDS*, 15 (9), pp.1181-1183.

Barrera, M. and Castro, F.G., 2006. A Heuristic Framework for the Cultural Adaptation of Interventions. *Clinical Psychology: Science and Practice*, 13 (4), pp.311-316.

Barry, M.J. and Edgman-Levitan, S., 2012. Shared Decision Making-The Pinnacle of Patient-Centered Care. *The New England journal of medicine*, 366 (9), pp.780-781.

Barwick, M.A., Bennett, L.M., Johnson, S.N., McGowan, J. and Moore, J.E., 2012. Training health and mental health professionals in motivational interviewing: A systematic review. *Children and Youth Services Review*, 34 (9), pp.1786-1795.

Baylis, A., Buck, D., Anderson, J., Jabbal, J. and Ross, S., 2017. *The future of HIV services in England Shaping the response to changing needs*. London: The King's Fund. Available at: <https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/Future_HIV_services_England_Kings_Fund_April_2017.pdf> [Accessed 14 April 2018].

Beena, J. and Jimmy, J., 2011. Patient medication adherence: measures in daily practice. *Oman Medical Journal*, 26 (3), pp.155-159.

Beer, L. and Skarbinski, J., 2014. Adherence to antiretroviral therapy among HIV- infected adults in the United States. *AIDS Education and Prevention*, 26 (6), pp.521-537.

Bean, M.K., Biskobing, D., Francis, G.L. and Wickham, E., 2012. Motivational interviewing in health care: results of a brief training in endocrinology. *Journal of Graduate Medical Education*, 4 (3), pp.357-361.

Bello, S.I., 2011. HIV/AIDS patients' adherence to antiretroviral therapy in Sobi specialist hospital, Ilorin, Nigeria. *Global Journal of Medical research*, 11 (2), pp.52-57.

Bernal, G., Bonilla, J. and Bellido, C., 1995. Ecological validity and cultural sensitivity for outcome research: Issues for the cultural adaptation and development of psychosocial treatments with Hispanics. *Journal of Abnormal Child Psychology*, 23 (1), pp.67-82.

Bernstein, J., Heeren, T., Edward, E., Dorfman, D., Bliss, C., Winter, M. and Bernstein, E., 2011. A Brief Motivational Interview in a Pediatric Emergency Department, Plus 10-day Telephone Follow-up, Increases Attempts to Quit Drinking Among Youth and Young Adults Who Screen Positive for Problematic Drinking. *Academic Emergency Medicine*, 17 (8), pp.890-902.

Bettany-Saltikov, J., 2012. *How to do a systematic literature review in nursing: a step-by-step guide*. Maidenhead: Open University Press.

Blaikie, N., 2010. *Designing Social Research: The Logic of Anticipation*. 2nd ed. Cambridge: Polity Press.

Bloomfield, G.S., Khazanie, P., Morris, A., Rabadan-Diehl, C., Benjamin, L.A., Murdoch, D., Radcliff, V.S., Velazquez, E.J. and Hicks, C., 2014. HIV and noncommunicable cardiovascular and pulmonary diseases in low- and middle-income countries in the ART era: what we know and best directions for future research. *Journal of Acquired Immune Deficiency Syndromes*, 67 Supplement 1, pp. S40-S53.

Bisonó, A., Manuel, J. and Forcehimes, A., 2006. Promoting Treatment Adherence Through Motivational Interviewing. O'Donohue, W. and Levensky, E., eds. 2006. *Promoting Treatment Adherence: A Practical Handbook for Health Care Providers*. [pdf] California: Sage Publications Inc. Chapter 5, pp.71-84. Available at: <<http://sk.sagepub.com/books/promoting-treatment-adherence>> [17 August 2017].

Björk, A., 2014. Stabilizing a fluid intervention: The development of Motivational Interviewing, 1983-2013. *Addiction Research and Theory*, 22 (4), pp.313-324.

Bofill, L., Weiss, S.M., Lucas, M., Bordato, A., Dorigo, A., Fernandez-Cabanillas, G., Aristegui, I., Lopez, M., Waldrop-Valverde, D. and Jones, D., 2015. Motivational Interviewing among HIV Health Care Providers: Challenges and Opportunities to Enhance Engagement and Retention in Care in Buenos Aires, Argentina. *Journal of the International Association of Providers of AIDS Care*, 14 (6), pp.491-496.

Bohman, B., Forsberg, L., Ghaderi, A. and Rasmussen, F., 2012. An Evaluation of Training in Motivational Interviewing for Nurses in Child Health Services. *Behavioural and Cognitive Psychotherapy*, 41 (3), pp.329-343.

Bolduc, P., Roder, N., Colgate, E. and Cheeseman, S.H., 2016. Care of Patients with HIV Infection: Primary Care. *FP Essentials*, 443, pp.31-42.

Bowen, D., Kreuter, M., Spring, B., Coftawoerpel, L., Linnan, L., Weiner, D., Bakken, S., Kaplan, C., Squiers, L., Fabrizio, C. and Fernandez, M., 2009. How We Design Feasibility Studies. *American Journal of Preventive Medicine*, 36 (5), pp.452-457.

Budget Office of The Federation, 2018. *Nigeria Budget Info*. [online] Available at: <<http://budgetoffice.gov.ng/nbi/app/index.php/budget-documents>> [Accessed: 12 April 2018].

Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), pp.77-101.

Brion, J., 2014. The Patient– Provider Relationship as Experienced by a Diverse Sample of Highly Adherent HIV- Infected People. *Journal of the Association of Nurses in AIDS Care*, 25 (2), pp.123-134.

British Broadcasting Corporation, 2012. *African viewpoint: Nigeria's dialling dilemmas*. [online] Available at: <<http://www.bbc.co.uk/news/world-africa-18163200>> [Accessed: 24 January 2018].

Brown, M.T. and Bussell, J.K., 2011. Medication Adherence: WHO Cares? *Mayo Clinic Proceedings*, 86 (4), pp.304-314.

Brueck, R.K., Frick, K., Loessl, B., Kriston, L., Schondelmaier, S., Go, C., Haerter, M. and Berner, M., 2009. Psychometric properties of the German version of the Motivational Interviewing Treatment Integrity Code. *Journal of Substance Abuse Treatment*, 36 (1), pp.44-48.

Bryman, A., 2016. *Social research methods*. 5th ed. Oxford: University Press.

Carlucci, J.G., Kamanga, A., Sheneberger, R., Shepherd, B.E., Jenkins, C.A., Spurrier, J. and Vermund, S.H., 2008. Predictors of adherence to antiretroviral therapy in rural Zambia. *Journal of Acquired Immune Deficiency Syndromes*, 47 (5), pp.615-622.

Chakrabarti, S., 2014. What's in a name? Compliance, adherence and concordance in chronic psychiatric disorders. *World Journal of Psychiatry*, 4 (2), pp.30-36.

Charurat, M., Oyegunle, M., Benjamin, R., Habib, A., Eze, E., Ele, P., Ibanga, I., Ajayi, S., Eng, M., Mondal, P., Gebi, U., Iwu, E., Etiebet, M., Abimiku, A., Dakum, P., Farley, J. and Blattner, W., 2010. Patient Retention and Adherence to Antiretrovirals in a Large Antiretroviral Therapy Program in Nigeria: A Longitudinal Analysis for Risk Factors (Retention and Adherence to ART). *PLOS ONE*, 5 (5), pp.1-9.

Chiegil, R.J., Zungu, L.I. and Jooste, K., 2014. End-user centeredness in antiretroviral therapy services in Nigerian public health facilities. *South African Family Practice*, 56 (2), pp.139-146.

Chineke, H.N., Adogu, P.O., Uwakwe, K.A. and Ewuzie, M.U., 2015. Assessment of level of adherence to antiretroviral therapy among human immune deficiency virus/acquired immune deficiency syndrome patients at Imo State University Teaching Hospital, Orlu, Nigeria. *The Nigerian Journal of General Practice*, 13 (1), pp.21-1193.

Choopanya, K., Martin, M., Suntharasamai, P., Sangkum, U., Mock, P.A., Leethochawalit, M., Chiamwongpaet, S., Kitisin, P., Natrujirote, P., Kittimunkong, S., Chuachoowong, R., Gvetadze, R.J., McNicholl, J.M., Paxton, L.A., Curlin, M.E., Hendrix, C.W. and Vanichseni, S., 2013. Antiretroviral prophylaxis for HIV infection in injecting drug users in Bangkok, Thailand (the Bangkok Tenofovir Study): a randomised, double-blind, placebo-controlled phase 3 trial. *Lancet (London, England)*, 381 (9883), pp.2083-2090.

Chukwuneke, F.N., Ezeonu, C.T., Onyire, B.N. and Ezeonu, P.O., 2012. Culture and biomedical care in Africa: the influence of culture on biomedical care in a traditional African society, Nigeria, West Africa. *Nigerian Journal of Medicine*, 21 (3), pp.331-333.

Cicchetti, D.V., 1994. Guidelines, Criteria, and Rules of Thumb for Evaluating Normed and Standardized Assessment Instruments in Psychology. *Psychological assessment*, 6 (4), pp.284-90.

Clucas, C., Harding, R., Lampe, F., Anderson, J., Date, H., Johnson, M., Edwards, S., Fisher, M. and Sherr, L., 2011. Doctor-patient concordance during HIV treatment switching decision making. *HIV Medicine*, 12 (2), pp.87-96.

Clyne, W., Granby, T. and Picton, C., 2007. *A competency framework for shared decision-making with patients: achieving concordance for taking medicines*. [pdf] Staffordshire: National Prescribing Centre.

Clyne, W. and Colin-Thomé, D., 2008. Putting concordance into practice: core consulting skills. *Prescriber*, 19 (4), pp.33-35.

Coetzee, B., Kagee, A. and Bland, R., 2016. Shortcomings of adherence counselling provided to caregivers of children receiving antiretroviral therapy in rural South Africa. *AIDS Care*, 28 (supplement 2), pp.60-65.

Cohen, M.S., Chen, Y.Q., McCauley, M., Gamble, T., Hosseinipour, M.C., Kumarasamy, N., Hakim, J.G., Kumwenda, J., Grinsztejn, B., Pilotto, J.H.S., Godbole, S.V., Mehendale, S., Chariyalertsak, S., Santos, B.R., Mayer, K.H., Hoffman, I.F., Eshleman, S.H., Piwowar-Manning, E., Wang, L., Makhema, J., Mills, L.A., de Bruyn, G., Sanne, I., Eron, J., Gallant, J., Havlir, D., Swindells, S., Ribaud, H., Elharrar, V., Burns, D., Taha, T.E., Nielsen-Saines, K.,

Celentano, D., Essex, M. and Fleming, T.R., 2011. Prevention of HIV- 1 Infection with Early Antiretroviral Therapy. *The New England Journal of Medicine*, 365 (6), pp.493-505.

Colbert, A.M., Sereika, S.M. and Erlen, J.A., 2012. Functional health literacy, medication-taking self-efficacy and adherence to antiretroviral therapy. *Journal of Advanced Nursing*, 69 (2), pp.295-304.

Colvin, C.J., Konopka, S., Chalker, J.C., Jonas, E., Albertini, J., Amzel, A. and Fogg, K., 2014. A systematic review of health system barriers and enablers for antiretroviral therapy (ART) for HIV-infected pregnant and postpartum women. *PLOS ONE*, 9 (10), pp.1-17.

Conner, K.O., Mckinnon, S.A., Ward, C.J., Reynolds, C.F. and Brown, C., 2015. Peer Education as a Strategy for Reducing Internalized Stigma Among Depressed Older Adults. *Psychiatric Rehabilitation Journal*, 38 (2), pp.186-193.

Cook, P.F., Manzouri, S., Aagaard, L., O'Connell, L., Corwin, M. and Gance-Cleveland, B., 2017. Results From 10 Years of Interprofessional Training on Motivational Interviewing. *Evaluation and the Health Professions*, 40 (2), pp.159-179.

Cook, P.F., McCabe, M.M., Emiliozzi, S. and Pointer, L., 2009. Telephone Nurse Counseling Improves HIV Medication Adherence: An Effectiveness Study. *Journal of the Association of Nurses in AIDS Care*, 20 (4), pp.316-325.

Cooperman, N., Heo, M., Berg, K., Li, X., Litwin, A., Nahvi, S. and Arnsten, J., 2012. Impact of adherence counseling dose on antiretroviral adherence and HIV viral load among HIV-infected methadone maintained drug users. *AIDS Care*, 24 (7), pp.828-835.

Cooperman, N.A., Parsons, J.T., Chabon, B., Berg, K.M. and Arnsten, J.H., 2007. The development and feasibility of an intervention to improve HAART adherence among HIV-positive patients receiving primary care in methadone clinics. *Journal of HIV/AIDS and Social Services*, 6 (1-2), pp.101-120.

Corless, I.B., Guarino, A.J., Nicholas, P.K., Tyer-Viola, L., Kirksey, K., Brion, J., Dawson Rose, C., Eller, L.S., Rivero-Mendez, M., Kemppainen, J., Nokes, K., Sefcik, E., Voss, J., Wantland, D., Johnson, M.O., Phillips, J.C., Webel, A., Ipinge, S., Portillo, C., Chen, W.-., Maryland, M., Hamilton, M.J., Reid, P., Hickey, D., Holzemer, W.L. and Sullivan, K.M., 2013. Mediators of antiretroviral adherence: A multisite international study. *AIDS Care; Psychological and Socio-medical Aspects of AIDS/HIV*, 25 (3), pp.364-377.

Cornelius, L.J., Ereka, S.C., Okundaye, J.N. and Sam-Agudu, N.A., 2018. A Socio-Ecological Examination of Treatment Access, Uptake and Adherence Issues Encountered By HIV-Positive Women in Rural North-Central Nigeria. *Journal of Evidence-Informed Social Work*, 15 (1), pp.38-51.

Coughlan, M., Cronin, P. and Ryan, F., 2007. Step-by- step guide to critiquing research. Part 1: quantitative research. *British Journal of Nursing*, 16 (11), pp.658-663.

Coulter, A. and Collins, A., 2011. *MAKING SHARED DECISION-MAKING A REALITY: No decision about me, without me*. [pdf] London: The Kings Fund. Available at: <http://www.kingsfund.org.uk/sites/files/kf/Making-shared-decision-making-a-reality-paper-Angela-Coulter-Alf-Collins-July-2011_0.pdf> [Accessed 22 June 2016].

Coulter, A., Härter, M., Moumjid-Ferdjaoui, N., Perestelo-Perez, L. and Van der Weijden, T., 2015. European experience with shared decision making. *The International Journal of Person Centered Medicine*, 5 (1), pp.9-14.

Coulter, A., Parsons, S. and Askham, J., 2008. Where are the patients in decision-making about their own care? [pdf] Copenhagen: World Health Organization Regional Office for Europe. Available at: <<http://www.who.int/management/general/decisionmaking/WhereArePatientsinDecisionMaking.pdf>> [Accessed 15 June 2016].

Coyne, I., Amory, A., Kiernan, G. and Gibson, F., 2014. Children's participation in shared decision-making: Children, adolescents, parents and healthcare professionals' perspectives and experiences. *European Journal of Oncology Nursing*, 18 (3), pp.273-280.

Cribb, A., 2011. *Involvement, Shared Decision-Making and Medicines*. [pdf] London: Royal Pharmaceutical Society. Available at: <<http://www.rpharms.com/news-story-downloads/rpsresearchreport.pdf>> [Accessed 25 January 2016].

Cruciani, M. and Malena, M., 2015. Combination dolutegravir- abacavir- lamivudine in the management of HIV/ AIDS: clinical utility and patient considerations. *Patient Preference and Adherence*, 9, pp.299-310.

Cushing, A. and Metcalfe, R., 2007. Optimizing medicines management: From compliance to concordance. *Therapeutics and Clinical Risk Management*, 3 (6), pp.1047-1058.

Da Silva, D., 2012. *Helping people share decision making: A review of evidence considering whether shared decision making is worthwhile*. [pdf] London: The Health Foundation. Available at: <<http://www.health.org.uk/sites/default/files/HelpingPeopleShareDecisionMaking.pdf>> [Accessed 26 June 2016].

Deci, E.L. and Ryan, R.M., 2012. Self-determination theory in health care and its relations to motivational interviewing: a few comments. *The International Journal of Behavioral Nutrition and Physical Activity*, 9 (24), pp.1-6.

de Fatima, B., Ceccato, M.D., Rocha, G.M., de, A.A., Campos, L.N. and Guimarães, M.D., 2013. Gender differences in non- adherence among Brazilian patients initiating antiretroviral therapy. *Clinics (São Paulo, Brazil)*, 68 (5), pp.612-620.

De las Cuevas, C., 2011. Towards a clarification of terminology in medicine taking behavior: compliance, adherence and concordance are related although different terms with different uses. *Current Clinical Pharmacology*, 6 (2), pp.74-77.

Dellasega, C., Añel-Tiangco, R.M. and Gabbay, R.A., 2011. How patients with type 2 diabetes mellitus respond to motivational interviewing. *Diabetes Research and Clinical Practice*, 95, pp.37-41.

Denison, J.A., Koole, O., Tsui, S., Menten, J., Torpey, K., van Praag, E., Mukadi, Y., Colebunders, R., Auld, A.F. and Agolory, S., 2015. Incomplete adherence among treatment-experienced adults on antiretroviral therapy in Tanzania, Uganda and Zambia. *AIDS*, 29 (3), pp.361-371.

Denzin, N.K. and Lincoln, Y.S., 2011. *The Sage handbook of qualitative research*. 4th ed. California: Sage.

Derose, K.P., Bogart, L.M., Kanouse, D.E., Felton, A., Collins, D.O., Mata, M.A., Oden, C.W., Dominguez, B.X., Florez, K.R., Hawes-Dawson, J. and Williams, M.V., 2014. An intervention to reduce HIV-related stigma in partnership with African American and Latino churches. *AIDS Education and Prevention*, 26 (1), pp.28-42.

de Roten, Y., Zimmermann, G., Ortega, D. and Despland, J., 2013. Meta-analysis of the effects of MI training on clinicians' behavior. *Journal of Substance Abuse Treatment*, 45 (2), pp.155-162.

Deumert, A., 2010. 'It would be nice if they could give us more language' – Serving South Africa's multilingual patient base. *Social Science and Medicine*, 71 (1), pp.53-61.

Dewing, S., Mathews, C., Schaay, N., Cloete, A., Simbayi, L. and Louw, J., 2015. Improving the Counselling Skills of Lay Counsellors in Antiretroviral Adherence Settings: A Cluster Randomised Controlled Trial in the Western Cape, South Africa. *AIDS and Behavior*, 19 (1), pp.157-165.

Dewing, S., Mathews, C., Cloete, A., Schaay, N., Simbayi, L. and Louw, J., 2014. Lay Counsellors' Ability to Deliver Counselling for Behaviour Change. *Journal of Consulting and Clinical Psychology*, 82 (1), pp.19-29.

Dewing, S., Mathews, C., Cloete, A., Schaay, N., Shah, M., Simbayi, L. and Louw, J., 2013. From Research to Practice: Lay Adherence Counsellors' Fidelity to an Evidence-Based Intervention for Promoting Adherence to Antiretroviral Treatment in the Western Cape, South Africa. *AIDS and Behavior*, 17 (9), pp.2935-2945.

Dewing, S., Mathews, C., Schaay, N., Cloete, A., Louw, J. and Simbayi, L., 2012. "It's Important to Take Your Medication Everyday Okay?" An Evaluation of Counselling by Lay Counsellors for ARV Adherence Support in the Western Cape, South Africa. *AIDS and Behavior*, 17 (1), pp.203-212.

Dewing, S., Mathews, C., Schaay, N., Cloete, A., Simbayi, L. and Chopra, M., 2011. The Feasibility of Implementing a Sexual Risk Reduction Intervention in Routine Clinical Practice at an ARV Clinic in Cape Town: A Case Study. *AIDS and Behavior*, 15 (5), pp.905-910.

Dilorio, C., McCarty, F., Resnicow, K., McDonnell Holstad, M., Soet, J., Yeager, K., Sharma, S.M., Morisky, D.E. and Lundberg, B., 2008. Using motivational interviewing to promote adherence to antiretroviral medications: A randomized controlled study. *AIDS Care*, 20 (3), pp.273-283.

Dilorio, C., Resnicow, K., McDonnell, M., Soet, J., McCarty, F. and Yeager, K., 2003. Using Motivational Interviewing to Promote Adherence to Antiretroviral Medications: A Pilot Study. *Journal of the Association of Nurses in AIDS Care*, 14 (2), pp.52-62.

Dillard, P.K., Zuniga, J.A. and Holstad, M.M., 2016. An integrative review of the efficacy of motivational interviewing in HIV management. *Patient Education and Counselling*, (1), pp.11.

Dixon, A., 2008. *Motivation and Confidence: what does it take to change behaviour?* [pdf] London: The King's Fund. Available at: <https://www.kingsfund.org.uk/sites/default/files/field/field_document/motivation-confidence-

[health-behaviour-kicking-bad-habits-supporting-papers-anna-dixon.pdf](#)> [Accessed 26 October 2018].

Easthall, C., Song, F. and Bhattacharya, D., 2013. A meta-analysis of cognitive-based behaviour change techniques as interventions to improve medication adherence. *BMJ Open*, 3 (8), pp.1-17.

Ebonyi, A.O., Ejeliogu, E.U., Okpe, S.E., Shwe, D.D., Yiltok, E.S., Ochoga, M.O. and Oguiche, S., 2015. Factors associated with antiretroviral treatment interruption in human immunodeficiency virus (HIV)-1-infected children attending the Jos University Teaching Hospital, Jos, Nigeria. *Nigerian Medical Journal: Journal of the Nigeria Medical Association*, 56 (1), pp.43-47.

Ehlers, V.J. and Tshisuyi, E.T., 2015. Adherence to antiretroviral treatment by adults in a rural area of Botswana. *Curationis*, 38 (1), pp.1-8.

Ejekam, C.S., Onajole, A., Okany, C., Lesi, O. and Oridota, E., 2014. Adherence to Antiretroviral Drugs and Its Determinants among Human Immunodeficiency Virus(HIV) Patients Attending HIV Clinic in a Teaching Hospital in Nigeria. *Pharmacoepidemiology and Drug Safety*, [e-journal] 23 (S1), pp.15-15. [Abstract not available].

Ekama, S.O., Herbertson, E.C., Addeh, E.J., Gab-Okafor, C.V., Onwujekwe, D.I., Tayo, F. and Ezechi, O.C., 2012. Pattern and determinants of antiretroviral drug adherence among Nigerian pregnant women. *Journal of Pregnancy*, 2012, pp.1-6.

Ekwunife, O.I., Oreh, C. and Ubaka, C.M., 2012. Concurrent use of complementary and alternative medicine with antiretroviral therapy reduces adherence to HIV medications. *International Journal of Pharmacy Practice*, 20 (5), pp.340-343.

Elangovan, A.R. and Karakowsky, L., 1999. The role of trainee and environmental factors in transfer of training: an exploratory framework. *Leadership and Organization Development Journal*, 20 (5), pp.268-276.

El-Khatib, Z., Ekstrom, A., Coovadia, A., Abrams, E., Petzold, M., Katzenstein, D., Morris, L. and Kuhn, L., 2011. Adherence and virologic suppression during the first 24 weeks on antiretroviral therapy among women in Johannesburg, South Africa - a prospective cohort study. *BMC Public Health*, 11 (88), pp.1-13.

Elwyn, G., Dehlendorf, C., Epstein, R.M., Marrin, K., White, J. and Frosch, D.L., 2014. Shared Decision Making and Motivational Interviewing: Achieving Patient- Centered Care Across the Spectrum of Health Care Problems. *Annals of Family Medicine*, 12 (3), pp.270-275.

Emmons, K.M. and Rollnick, S., 2001. Motivational interviewing in health care settings: Opportunities and limitations. *American Journal of Preventive Medicine*, 20 (1), pp.68-74.

Eno, P., J., Bohman, B., Forsberg, L., Beckman, M., Tynelius, P., Rasmussen, F. and Ghaderi, A., 2016. Proficiency in Motivational Interviewing among Nurses in Child Health Services Following Workshop and Supervision with Systematic Feedback. *PLOS ONE*, 11 (9), pp.1-13.

Erah, P.O. and Arute, J.E., 2008. Adherence of HIV/AIDS patients to antiretroviral therapy in a tertiary health facility in Benin City. *African Journal of Pharmacy and Pharmacology*, 2 (7), pp.145-152.

Evangelini, M., Engelbrecht, S., Swartz, L., Turner, K., Forsberg, L. and Soka, N., 2009. An evaluation of a brief motivational interviewing training course for HIV/AIDS counsellors in Western Cape Province, South Africa. *AIDS Care*, 21 (2), pp.189-196.

Evangelini, M., Longley, M. and Swartz, L., 2011. No reductions and some improvements in South African lay HIV/AIDS counsellors' motivational interviewing competence one year after brief training. *AIDS Care*, 23 (3), pp.269-273.

European Patient's Forum, 2015. *Adherence and Concordance EPF Position Paper*. [pdf] Brussel: European Union's Health Programme. Available at: <http://www.eu-patient.eu/globalassets/policy/adherence-compliance-concordance/adherence-paper-final-rev_external.pdf> [Accessed 04 July 2014].

Falang, K.D., Akubaka, P. and Jimam, N.S., 2012. Patient factors impacting antiretroviral drug adherence in a Nigerian tertiary hospital. *Journal of Pharmacology and Pharmacotherapeutics*, 3 (2), pp.138-142.

Federal Ministry of Health, 2016. *NATIONAL GUIDELINES FOR HIV PREVENTION TREATMENT AND CARE NATIONAL AIDS AND STI's CONTROL PROGRAMME FEDERAL MINISTRY OF HEALTH 2016*. [pdf] Abuja: Federal Ministry of Health. Available at: <<http://apps.who.int/medicinedocs/documents/s23252en/s23252en.pdf>> [Accessed 18 December 2017].

Federal Ministry of Health, 2011. *National Guideline for HIV counselling and Testing*. [pdf] Abuja: Federal Ministry of Health of Nigeria. Available at: <https://aidsfree.usaid.gov/sites/default/files/hts_policy_nigeria.pdf> [Accessed 03 December 2015].

Federal Ministry of Health, 2010. *NATIONAL GUIDELINES FOR HIV AND AIDS TREATMENT AND CARE IN ADOLESCENTS AND ADULTS*. [pdf] Abuja: Federal Ministry of Health Nigeria. Available at: <http://www.who.int/hiv/pub/guidelines/nigeria_art.pdf> [Accessed 03 December 2010].

Federal Republic of Nigeria, 1999. *Constitution of the Federal Republic of Nigeria 1999*. [pdf] Abuja: Federal Republic of Nigeria. Available at: <http://publicofficialsfinancialdisclosure.worldbank.org/sites/fdl/files/assets/law-library-files/Nigeria_Constitution_1999_en.pdf> [Accessed 23 August 2015].

Fehr, J., Nicca, D., Sendi, P., Wolf, E., Wagels, T., Kiss, A., Bregenzer, T., Vernazza, P., Jäger, H., Spirig, R. and Battegay, M., 2005. Starting or Changing Therapy – A Prospective Study Exploring Antiretroviral Decision-Making. *Infection*, 33 (4), pp.249-256.

Field, C. and Caetano, R., 2010. The Role of Ethnic Matching Between Patient and Provider on the Effectiveness of Brief Alcohol Interventions with Hispanics. *Alcoholism: Clinical and Experimental Research*, 34 (2), pp.262-271.

Finocchiaro-Kessler, S., Catley, D., Berkley-Patton, J., Gerkovich, M., Williams, K., Banderas, J. and Goggin, K., 2011. Baseline predictors of ninety percent or higher antiretroviral therapy adherence in a diverse urban sample: the role of patient autonomy and fatalistic religious beliefs. *AIDS Patient Care and STDs*, 25 (2), pp.103-111.

Flick, U., 2014. *An introduction to qualitative research*. 5th ed. London: SAGE.

Flickinger, T., Saha, S., Moore, R.D. and Beach, M.C., 2013. HIGHER QUALITY COMMUNICATION AND RELATIONSHIPS ARE ASSOCIATED WITH IMPROVED PATIENT ENGAGEMENT IN HIV CARE. *Journal of General Internal Medicine*, 63 (3), pp.362-366.

Fried, T.R., Tinetti, M.E. and Iannone, L., 2011. Primary care clinicians' experiences with treatment decision making for older persons with multiple conditions. *Archives of Internal Medicine*, 171 (1), pp.75-80.

Frieden, T.R., 2010. A framework for public health action: the health impact pyramid. *American Journal of Public Health*, 100 (4), pp.590-595.

Forsberg, L., Berman, A., Källmén, H., Hermansson, U. and Helgason, A., 2008. A Test of the Validity of the Motivational Interviewing Treatment Integrity Code. *Cognitive Behaviour Therapy*, 37 (3), pp.183-191.

Fox, M.P., Berhanu, R., Steegen, K., Firnhaber, C., Ive, P., Spencer, D., Mashamaite, S., Sheik, S., Jonker, I., Howell, P., Long, L. and Evans, D., 2016. Intensive adherence counselling for HIV-infected individuals failing second-line antiretroviral therapy in Johannesburg, South Africa. *Tropical Medicine and International Health*, 21 (9), pp.1131-1137.

Fuller, S.M., Koester, K.A., Guinness, R.R. and Steward, W.T., 2016. Patients' Perceptions and Experiences of Shared Decision-Making in Primary HIV Care Clinics. *Journal of the Association of Nurses in AIDS Care*, pp.1-10.

Gayawan, E., Arogundade, E.D. and Adebayo, S.B., 2014. Possible determinants and spatial patterns of anaemia among young children in Nigeria: a Bayesian semi-parametric modelling. *International Health*, 6 (1), pp.35-45.

Genberg, B.L., Lee, Y., Rogers, W.H. and Wilson, I.B., 2014. Four types of barriers to adherence of antiretroviral therapy are associated with decreased adherence over time. *AIDS and Behaviour*, 19 (1), pp.85-92.

Ghidei, L., Simone, M., Salow, M., Zimmerman, K., Paquin, A., Skarf, L., Kostas, T. and Rudolph, J., 2013. Aging, Antiretrovirals, and Adherence: A Meta-Analysis of Adherence among Older HIV- Infected Individuals. *Drugs and Aging*, 30 (10), pp.809-819.

Gill, C.J., Hamer, D.H., Simon, J.L., Thea, D.M. and Sabin, L.L., 2005. No room for complacency about adherence to antiretroviral therapy in sub-Saharan Africa. *AIDS*, 19 (12), pp.1243-1249.

Goar, S.G., Audu, M.D., Agbir, M.T. and Matawal, B., 2015. Substance abuse and adherence to antiretroviral therapy among patients attending clinic at a specialist hospital in Jos, Nigeria. *African Journal of Drug and Alcohol Studies*, 14 (1), pp.37-47.

Gourlay, A., Wringe, A., Birdthistle, I., Mshana, G., Michael, D. and Urassa, M., 2014. "It is like that, we didn't understand each other": exploring the influence of patient-provider interactions on prevention of mother-to-child transmission of HIV service use in rural Tanzania. *PLOS ONE*, 9 (9), pp.374-382.

Goggin, K., Gerkovich, M., Williams, K., Banderas, J., Catley, D., Berkley-Patton, J., Wagner, G., Stanford, J., Neville, S., Kumar, V., Bamberger, D. and Clough, L., 2013. A Randomized

Controlled Trial Examining the Efficacy of Motivational Counselling with Observed Therapy for Antiretroviral Therapy Adherence. *AIDS and Behaviour*, 17 (6), pp.1992-2001.

Golin, C.E., Earp, J., Tien, H.C., Stewart, P., Porter, C. and Howie, L., 2006. A 2-arm, randomized, controlled trial of a motivational interviewing-based intervention to improve adherence to antiretroviral therapy (ART) among patients failing or initiating ART. *Journal of Acquired Immune Deficiency Syndromes*, 42 (1), pp.42-51.

Granich, R., Gupta, S., Hersh, B., Williams, B., Montaner, J., Young, B. and Zuniga, J.M., 2015. Trends in AIDS Deaths, New Infections and ART Coverage in the Top 30 Countries with the Highest AIDS Mortality Burden; 1990-2013. *PLOS ONE*, 10 (7), pp.1-16.

Granich, R.M., Gilks, C.F., Dye, C., De Cock, K. M. and Williams, B.G., 2009. Universal voluntary HIV testing with immediate antiretroviral therapy as a strategy for elimination of HIV transmission: a mathematical model. *Lancet*, 373 (9657), pp.48-57.

Grant, R.M., Lama, J.R., Anderson, P.L., McMahan, V., Liu, A.Y., Vargas, L., Goicochea, P., Casapia, M., Guanira-Carranza, J., Ramirez-Cardich, M., Guanira-Carranza, J., Fernández, T., Veloso, V.G., Buchbinder, S.P., Chariyalertsak, S., Schechter, M., Bekker, L., Mayer, K.H., Kallás, E.G., Amico, K.R., Mulligan, K., Bushman, L.R., Hance, R.J., Ganoza, C., Defechereux, P., Postle, B., Wang, F., McConnell, J.J., Zheng, J., Lee, J., Rooney, J.F., Jaffe, H.S., Martinez, A.I., Burns, D.N. and Glidden, D.V., 2010. Pre-exposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men. *The New England Journal of Medicine*, 363 (27), pp.2587-2599.

Gray, D.E., 2014. *Doing research in the real world*. 3rd ed. London: SAGE Publications.

Gray, C.D. and Kinnear, P.R., 2012. *IBM SPSS Statistics 19 Made Simple*. Essex: Taylor and Francis.

Griffiths, C., Miles, K., Aldam, D., Cornforth, D., Minton, J., Edwards, S. and Williams, I., 2007. A nurse- and pharmacist- led treatment advice clinic for patients attending an HIV outpatient clinic. *Journal of Advanced Nursing*, 58 (4), pp.320-326.

Gwadz, M., Cleland, C.M., Applegate, E., Belkin, M., Gandhi, M., Salomon, N., Banfield, A., Leonard, N., Riedel, M., Wolfe, H., Pickens, I., Bolger, K., Bowens, D., Perlman, D. and Mildvan, D., 2015. Behavioural Intervention Improves Treatment Outcomes Among HIV-Infected Individuals Who Have Delayed, Declined, or Discontinued Antiretroviral Therapy: A Randomized Controlled Trial of a Novel Intervention. *AIDS and Behaviour*, 19 (10), pp.1801-1817.

Haberer, J.E., Sabin, L., Amico, K.R., Orrell, C., Galárraga, O., Tsai, A.C., Vreeman, R.C., Wilson, I., Sam-Agudu, N., Blaschke, T.F., Vrijens, B., Mellins, C.A., Remien, R.H., Weiser, S.D., Lowenthal, E., Stirratt, M.J., Sow, P.S., Thomas, B., Ford, N., Mills, E., Lester, R., Nachega, J.B., Bwana, B.M., S., F., Mbuagbaw, L., Munderi, P., Geng, E. and Bangsberg, D.R., 2017. Improving antiretroviral therapy adherence in resource-limited settings at scale: a discussion of interventions and recommendations. *Journal of the International AIDS Society*, 20 (21371), pp.1-15.

Habib, A., Shepherd, J., Eng, M., Babashani, M., Jumare, J., Yakubu, U., Gebi, U., Saad, M., Ibrahim, H. and Blattner, W., 2008. Adherence to Anti-Retroviral Therapy (ART) During Muslim Ramadan Fasting. *AIDS and Behavior*, 13 (1), pp.42-45.

Hall, K., Staiger, P.K., Simpson, A., Best, D. and Lubman, D.I., 2015. After 30 years of dissemination, have we achieved sustained practice change in motivational interviewing? *Addiction*, 111 (7), pp.1144-1150.

Hanif, H., Bastos, F.I., Malta, M., Bertoni, N., Surkan, P.J., Winch, P.J. and Kerrigan, D., 2013. Individual and contextual factors of influence on adherence to antiretrovirals among people attending public clinics in Rio de Janeiro, Brazil. *BMC Public Health*, 13 (574), pp.1-10.

Heestermans, T., Browne, J.L., Aitken, S.C., Vervoort, S.C. and Klipstein-Grobusch, K., 2016. Determinants of adherence to antiretroviral therapy among HIV-positive adults in sub-Saharan Africa: a systematic review. *BMJ Global Health*, 1 (4), pp.1-13.

Henderson, S., 2003. Power imbalance between nurses and patients: a potential inhibitor of partnership in care. *Journal of Clinical Nursing*, 12 (4), pp.501-508.

Henegar, C., Westreich, D., Maskew, M., Brookhart, M., Miller, W., Majuba, P. and Van Rie, A., 2014. Comparison of Pharmacy- Based Measures of Adherence to Antiretroviral Therapy as Predictors of Virological Failure. *AIDS and Behaviour*, 19 (4), pp.612-618.

Hettema, J., Steele, J. and Miller, W.R., 2005. Motivational interviewing. *Annual Review of Clinical Psychology*, 1, pp.91-111.

Higgins, J. and Green, S., 2008. *Cochrane handbook for systematic reviews of interventions*. Chichester: John Wiley & Sons Ltd.

Hill, S. and Kavookjian, J., 2012. Motivational interviewing as a behavioural intervention to increase HAART adherence in patients who are HIV-positive: A systematic review of the literature. *AIDS Care*, 24 (5), pp.583-592.

Hodgson, I., Plummer, M.L., Konopka, S.N., Colvin, C.J., Jonas, E., Albertini, J., Amzel, A. and Fogg, K.P., 2014. A Systematic Review of Individual and Contextual Factors Affecting ART Initiation, Adherence, and Retention for HIV-Infected Pregnant and Postpartum Women. *PLOS ONE*, 9 (11), pp.1-15.

Holstad, M.M., Essien, E.J., Ekong, E., Higgins, M., Teplinskiy, I. and Adewuyi, M.F., 2012. Motivational Groups Support Adherence to Antiretroviral Therapy and Use of Risk Reduction Behaviours in HIV Positive Nigerian Women: A Pilot Study. *African Journal of Reproductive Health*, 16 (3), pp.14-26.

Holstad, M., Dilorio, C., Kelley, M., Resnicow, K. and Sharma, S., 2011. Group Motivational Interviewing to Promote Adherence to Antiretroviral Medications and Risk Reduction Behaviours in HIV Infected Women. *AIDS and Behaviour*, 15 (5), pp.885-896.

Horne, R., Weinman, J., Barber, N., Elliott, R., Morgan, M., Cribb, A. and Kellar, I., 2005. Concordance, adherence and compliance in medicine taking. *London: NCCSDO*, pp.1-311.

Iarussi, M.H., Tyler, J.M., Littlebear, S. and Hinkle, M.S., 2013. Integrating Motivational Interviewing into a Basic Counseling Skills Course to Enhance Counselling Self-Efficacy. *Professional Counselor*, 3 (3), pp.161-174.

IBM, 2011. *One-Sample T Test*. [online] Available at: <http://che-stu-027:58386/help/index.jsp?topic=/com.ibm.spss.statistics.coach/statcoach_main.htm> [Accessed: 25 December 2017].

Igwegbe, A.O., Ugboaja, J.O. and Nwajiaku, L.A., 2010. Prevalence and determinants of non-adherence to antiretroviral therapy among HIV-positive pregnant women in Nnewi, Nigeria. *International Journal of Medicine and Medical Sciences*, 2 (8), pp.238-245.

Igboanusi, H., 2008. Empowering Nigerian Pidgin: A Challenge for Status Planning? *World Englishes*, 27 (1), pp.68-82.

Ihemere, K.U., 2006. A basic description and analytic treatment of noun clauses in Nigerian Pidgin. *Nordic Journal of African Studies*, 15 (3), pp.296-313.

IMS Institute Healthcare Informatics, 2016. *2013 Avoidable Costs in U.S. Healthcare*. [online] Available at: <<http://www.imshealth.com/en/thought-leadership/ims-institute/reports/avoidable-costs#ims-form>> [Accessed: 26 June 2016].

Ingersoll, K.S., Farrell-Carnahan, L., Cohen-Filipic, J., Heckman, C.J., Ceperich, S.D., Hettima, J. and Marzani-Nissen, G., 2011. A pilot randomized clinical trial of two medication adherence and drug use interventions for HIV + crack cocaine users. *Drug and Alcohol Dependence*, 116 (1-3), pp.177-187.

Institute of Medicine, 2001. *CROSSING THE QUALITY CHASM: A NEW HEALTH SYSTEM FOR THE 21ST CENTURY*. [pdf] Washington: National Academy Press. Available at: <<http://iom.nationalacademies.org/~media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.pdf>> [Accessed 06 March 2016].

Iroha, E., Esezobor, C.I., Ezeaka, C., Temiye, E.O. and Akinsulie, A., 2010. Adherence to antiretroviral therapy among HIV-infected children attending a donor-funded clinic at a tertiary hospital in Nigeria. *African Journal of AIDS Research*, 9 (1), pp.25-30.

International Association of Providers of AIDS Care, 2014. *WHAT IS ANTIRETROVIRAL THERAPY (ART)*. International Association of Providers of AIDS Care. Available at: <http://www.aidsinfonet.org/uploaded/factsheets/40_eng_403.pdf> [Accessed 05 March 2018].

Jiang, W., 2000. The relationship between culture and language. *ELT Journal*, 54 (4), pp.328-334.

Joint United Nations Programme on HIV/AIDS, 2017. *UNAIDS DATA 2017*. [pdf] Geneva: United Nations. Available at: <http://www.unaids.org/sites/default/files/media_asset/20170720_Data_book_2017_en.pdf> [Accessed 11 December 2017].

Joint United Nations Programme on HIV/AIDS, 2015. *UPDATE Nigeria passes law to stop discrimination related to HIV*. [online] Available at: <http://www.unaids.org/en/resources/presscentre/featurestories/2015/february/20150211_nigeria_law> [Accessed: 7 January 2018].

Joint United Nations Programme on HIV/AIDS, 2014. *The GAP Report*. [pdf] Geneva: United Nations. Available at: <http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS_Gap_report_en.pdf> [Accessed 21 October 2015].

Jones, D., Sued, O., Cecchini, D., Bofill, L., Cook, R., Lucas, M., Bordato, A., Cassetti, I., Cahn, P. and Weiss, S., 2016. Improving Adherence to Care Among "Hard to Reach" HIV-Infected Patients in Argentina. *AIDS and Behavior*, 20 (5), pp.987-997.

Joseph-Williams, N., Elwyn, G. and Edwards, A., 2014. Knowledge is not power for patients: A systematic review and thematic synthesis of patient-reported barriers and facilitators to shared decision making. *Patient education and counseling*, 94 (3), pp.291-309.

Joseph, N.P., Bernstein, J., Pelton, S., Belizaire, M., Goff, G., Horanieh, N. and Freund, K.M., 2016. Brief Client-Centered Motivational and Behavioural Intervention to Promote HPV Vaccination in a Hard-to-Reach Population: A Pilot Randomized Controlled Trial. *Clinical Pediatrics*, 55 (9), pp.851-859.

Kamau, T.M., Olson, V.G., Zipp, G.P. and Clark, M., 2011. Coping self- efficacy as a predictor of adherence to antiretroviral therapy in men and women living with HIV in Kenya. *AIDS Patient Care and STDs*, 25 (9), pp.557-561.

Kaplan, W., 2013. *Priority Medicines for Europe and the World "A Public Health Approach to Innovation": Human Immunodeficiency Virus (HIV)/ Acquired Immune Deficiency Syndromes (AIDS)*. [pdf] Geneva: WHO. Available at: <http://www.who.int/medicines/areas/priority_medicines/BP6_7HIV.pdf> [Accessed 20 October 2015].

Kaplan, R.M. and Frosch, D.L., 2005. Decision making in medicine and health care. *Annual Review of Clinical Psychology*, 1, pp.525-556.

Kasumu, L. and Balogun, M., 2014. Knowledge and attitude towards antiretroviral therapy and adherence pattern of HIV patients in southwest Nigeria. *International Journal of Infection Control*, 10 (3), pp.1-8.

Katz, I.T., Ryu, A.E., Onuegbu, A.G., Psaros, C., Weiser, S.D., Bangsberg, D.R. and Tsai, A.C., 2013. Impact of HIV-related stigma on treatment adherence: systematic review and meta-synthesis. *Journal of the International AIDS Society*, 16 (3 Supplement 2), pp.1-25.

Kelham, C. and Shaw, J., 2006. Concordance: better use of medicines through partnership. *Prescriber*, 17 (18), pp.13-17.

Koken, J.A., Naar-King, S., Umasa, S., Parsons, J.T., Saengcharnchai, P., Phanuphak, P. and Rongkavilit, C., 2012. A Cross-Cultural Three-Step Process Model for Assessing Motivational Interviewing Treatment Fidelity in Thailand. *Health Education and Behaviour*, 39 (5), pp.574-582.

Konkle-parker, D.J., Erlen, J.A., Dubbert, P.M. and May, W., 2012. Pilot testing of an HIV medication adherence intervention in a public clinic in the Deep South. *Journal of the American Academy of Nurse Practitioners*, 24 (8), pp.488-498.

Konkle-Parker, D., Erlen, J.A. and Dubbert, P.M., 2010. Lessons learned from an HIV adherence pilot study in the Deep South. *Patient Education and Counselling*, 78 (1), pp.91-96.

Kremer, H., Ironson, G. and Porr, M., 2009. Spiritual and mind- body beliefs as barriers and motivators to HIV- treatment decision- making and medication adherence? A qualitative study. *AIDS Patient Care and STDs*, 23 (2), pp.127-134.

Kucukarslan, S.N., Lewis, N.J.W., Shimp, L.A., Gaither, C.A., Lane, D.C. and Baumer, A.L., 2012. Exploring patient experiences with prescription medicines to identify unmet patient needs: Implications for research and practice. *Research in Social and Administrative Pharmacy*, 8 (4), pp.321-332.

Kumpfer, K.L., Pinyuchon, M., Teixeira, D.M. and Whiteside, H.O., 2008. Cultural adaptation process for international dissemination of the strengthening families program. *Evaluation & the health professions*, 31 (2), pp.226-239.

Kunapareddy, C.J., Nyandiko, W., Inui, T., Ayaya, S., Marrero, D.G. and Vreeman, R., 2014. A Qualitative Assessment of Barriers to Antiretroviral Therapy Adherence Among Adolescents in Western Kenya. *Journal of HIV/AIDS and Social Services*, 13 (4), pp.383-401.

Krummenacher, I., Cavassini, M., Bugnon, O. and Schneider, M., 2011. An interdisciplinary HIV- adherence program combining motivational interviewing and electronic antiretroviral drug monitoring. *AIDS Care*, 23 (5), pp.550-561.

Laisaar, K., Uusküla, A., Sharma, A., Dehovitz, J.A. and Amico, K.R., 2013. Developing an adherence support intervention for patients on antiretroviral therapy in the context of the recent IDU-driven HIV/AIDS epidemic in Estonia. *AIDS Care*, 25 (7), pp.863-873.

Lamstein, S.A., 2017. Women's empowerment in Nigeria: baseline data from an evaluation of the Community Infant and Young Child Feeding (C-IYCF) Counselling Package. *Lancet Global Health*, 5, pp.29-29.

Lane, C., Huws-Thomas, M., Hood, K., Rollnick, S., Edwards, K. and Robling, M., 2005. Measuring adaptations of motivational interviewing: The development and validation of the behaviour change counselling index (BECCI). *Patient Education and Counselling*, [e-journal] 56 (2), pp.166-173. <http://dx.doi.org/10.1016/j.pec.2004.01.003>

Langebeek, N., Gisolf, E.H., Reiss, P., Vervoort, S.C., Hafsteinsdóttir, T.B., Richter, C., Sprangers, M.A.G. and Nieuwkerk, P.T., 2014a. Predictors and correlates of adherence to combination antiretroviral therapy (ART) for chronic HIV infection: a meta-analysis. *BMC medicine*, 12 (142), pp.1-14.

Langebeek, N., Sprenger, H., Gisolf, E., Reiss, P., Sprangers, M., Legrand, J., Richter, C. and Nieuwkerk, P.T., 2014b. A simplified combination antiretroviral therapy regimen enhances adherence, treatment satisfaction and quality of life: results of a randomized clinical trial. *HIV Medicine*, 15 (5), pp.286-290.

Lasser, K.E., Murillo, J., Medlin, E., Lisboa, S., Valley-Shah, L., Fletcher, R.H., Emmons, K.M. and Ayanian, J.Z., 2009. A multilevel intervention to promote colorectal cancer screening among community health center patients: results of a pilot study. *BMC Family Practice*, 10 (1), pp.1-7.

Laws, M., Lee, Y., Rogers, W., Beach, M., Saha, S., Korthuis, P., Sharp, V., Cohn, J., Moore, R. and Wilson, I., 2014. Provider-Patient Communication About Adherence to Anti-Retroviral Regimens Differs by Patient Race and Ethnicity. *AIDS and Behavior*, 18 (7), pp.1279-1287.

Laws, M.B., Rose, G.S., Bezreh, T., Beach, M.C., Taubin, T., Kogelman, L., Gethers, M. and Wilson, I.B., 2012. Treatment acceptance and adherence in HIV disease: patient identity and the perceived impact of physician-patient communication. *Patient Preference and Adherence*, 6, pp.893-903.

- Lau, A.S., 2006. Making the Case for Selective and Directed Cultural Adaptations of Evidence-Based Treatments: Examples from Parent Training. *Clinical Psychology: Science and Practice*, 13 (4), pp.295-310.
- Légaré, F. and Witteman, H.O., 2013. Shared decision making: examining key elements and barriers to adoption into routine clinical practice. *Health Affairs (Project Hope)*, 32 (2), pp.276-284.
- Lehane, E. and McCarthy, G., 2009. Medication non-adherence- exploring the conceptual mire. *International Journal of Nursing Practice*, 15 (1), pp.25-31.
- Letourneau, E., Ellis, D., Naar-King, S., Chapman, J., Cunningham, P. and Fowler, S., 2013. Multisystemic therapy for poorly adherent youth with HIV: Results from a pilot randomized controlled trial. *AIDS Care*, 25 (4), pp.507-514.
- Levit, L., Balogh, E., Nass, S. and Ganz, P.A., 2013. *Delivering High-Quality Cancer Care Charting a New Course for a System in Crisis*. Washington: National Academies Press.
- Lian, O.S. and Robson, C., 2017. "It's incredible how much I've had to fight." Negotiating medical uncertainty in clinical encounters. *International Journal of Qualitative Studies on Health and Well-being*, 12 (1), pp.1-13.
- Livingston, J.D., Milne, T., Fang, M.L. and Amari, E., 2011. *The effectiveness of interventions for reducing stigma related to substance use disorders: a systematic review*: Addiction. 107 (1) pp.39-50.
- Longtin, Y., Sax, H., Leape, L.L., Sheridan, S.E., Donaldson, L. and Pittet, D., 2010. Patient Participation: Current Knowledge and Applicability to Patient Safety. *Mayo Clinic Proceedings*, 85 (1), pp.53-62.
- Luty, J., Umoh, O. and Nuamah, F., 2009. Effect of Brief Motivational Interviewing on Stigmatised Attitudes towards Mental Illness. *Psychiatric Bulletin*, 33 (6), pp.212-214.
- Lyimo, R.A., Stutterheim, S.E., Hospers, H.J., de Glee, T., van, D.V. and de Bruin, M., 2014. Stigma, disclosure, coping, and medication adherence among people living with HIV/ AIDS in Northern Tanzania. *AIDS Patient Care and STDs*, 28 (2), pp.98-105.
- Lyimo, R.A., de Bruin, M., van, D.B., Hospers, H.J., van, D.V. and Mushi, D., 2012. Determinants of antiretroviral therapy adherence in northern Tanzania: a comprehensive picture from the patient perspective. *BMC public health*, 12, pp.1-8.
- Madsen, I.E., Nyberg, S.T., Magnusson H., L., Ferrie, J.E., Ahola, K., Alfredsson, L., Batty, G.D., Bjorner, J.B., Borritz, M., Burr, H., Chastang, J., de Graaf, R., Dragano, N., Hamer, M., Jokela, M., Knutsson, A., Koskenvuo, M., Koskinen, A., Leineweber, C., Niedhammer, I., Nielsen, M.L., Nordin, M., Oksanen, T., Pejtersen, J.H., Pentti, J., Plaisier, I., Salo, P., Singh-Manoux, A., Suominen, S., ten Have, M., Theorell, T., Toppinen-Tanner, S., Vahtera, J., Väänänen, A., Westerholm, P.J., Westerlund, H., Fransson, E.I., Heikkilä, K., Virtanen, M., Rugulies, R. and Kivimäki, M., 2017. *Job strain as a risk factor for clinical depression: systematic review and meta-analysis with additional individual participant data*: Psychological Medicine. 47 (8) pp.1342-1356.

- Maduka, O. and Tobin-West, C.I., 2013. Adherence counselling and reminder text messages improve uptake of antiretroviral therapy in a tertiary hospital in Nigeria. *Nigerian Journal of Clinical Practice*, 16 (3), pp.302-308.
- Maduka, O. and Tobin-West, C.I., 2015. Barriers to HIV treatment adherence: Perspectives from the nonadherent at a treatment center in South-South, Nigeria. *Annals of African Medicine*, [e-journal] 14 (3), pp.159-160.
- Madson, M.B., Loignon, A.C. and Lane, C., 2009. Training in motivational interviewing: A systematic review. *Journal of substance abuse treatment*, 36 (1), pp.101-109.
- Maneesriwongul, W., Prajanket, O. and Saengcharnchai, P., 2012. Effects of motivational interviewing or an educational video on knowledge about HIV/AIDS, health beliefs and antiretroviral medication adherence among adult Thais with HIV/AIDS. *Pacific Rim International Journal of Nursing Research*, 16 (2), pp.124-137.
- Marelich, W.D., Roberts, K.J., Murphy, D.A. and Callari, T., 2002. HIV/AIDS patient involvement in antiretroviral treatment decisions. *AIDS Care*, 14 (1), pp.17-26.
- Marley, S.C., Carbonneau, K., Lockner, D., Kibbe, D. and Trowbridge, F., 2011. Motivational interviewing skills are positively associated with nutritionist self-efficacy. *Journal of Nutrition Education and Behavior*, 43 (1), pp.28-34.
- Martino, S., Haeseler, F., Belitsky, R., Pantaloni, M. and Fortin, A.H., 2007. Teaching brief motivational interviewing to Year three medical students. *Medical education*, 41 (2), pp.160-167.
- Mathes, T., Pieper, D., Antoine, S. and Eikermann, M., 2013. Adherence-enhancing interventions for highly active antiretroviral therapy in HIV-infected patients—a systematic review. *HIV Medicine*, 14 (10), pp.583-595.
- Mbuagbaw, L., Thabane, L., Ongolo-Zogo, P., Yondo, D., Noorduyn, S., Smieja, M. and Dolovich, L., 2012. Trends and determining factors associated with adherence to antiretroviral therapy (ART) in Cameroon: a systematic review and analysis of the CAMPS trial. *AIDS Research and Therapy*, 9 (37), pp.1-10.
- McMaster, F. and Griva, K., 2015. Motivational Interviewing across cultures: Training notes. *European Health Psychologist*, 17 (3), pp.122-128.
- McMaster, F. and Resnicow, K., 2015. Validation of the one pass measure for motivational interviewing competence. *Patient education and counselling*, 98 (4), pp.499-505.
- McRae-Clark, A., Baker, N.L., Sonne, S.C., Devane, C.L., Wagner, A. and Norton, J., 2015. Concordance of direct and indirect measures of medication adherence in a treatment trial for cannabis dependence. *Journal of Substance Abuse Treatment*, 57, pp.70-74.
- Meloni, T.S., Chaplin, B., Chang, C., Rawizza, H., Okonkwo, P. and Phyllis, J.K., 2015. Patterns of adherence and loss to follow-up in pediatric patients on ART in Nigeria. *Current HIV Research*, 13 (3), pp.210-218.
- Miller, S.T., Marolen, K.N. and Beech, B.M., 2010. Perceptions of physical activity and motivational interviewing among rural African-American women with type 2 diabetes. *Women's Health issues*, 20 (1), pp.43-49.

Miller, W.R. and Moyers, T.B., 2006. Eight stages in learning motivational interviewing. *Journal of Teaching in the Addictions*, 5 (1), pp.3-17.

Miller, W.R. and Mount, K.A., 2001. A SMALL STUDY OF TRAINING IN MOTIVATIONAL INTERVIEWING: DOES ONE WORKSHOP CHANGE CLINICIAN AND CLIENT BEHAVIOR? *Behavioural and Cognitive Psychotherapy*, 29 (4), pp.457-471.

Miller, W., Moyers, T., Ernst, D. and Amrhein, P., 2008. *Manual for the Motivational Interviewing Skill Code (MISC) Version 2.1*. [pdf] New Mexico: Center on Alcoholism, Substance Abuse, and Addictions, The University of New Mexico. Available at <<http://www.motivationalinterviewing.org/>> [Accessed 14 August 2017].

Miller, W.R. and Rollnick, S., 2014. The effectiveness and ineffectiveness of complex behavioural interventions: Impact of treatment fidelity. *Contemporary Clinical Trials*, 37 (2), pp.234-241.

Miller, W.R. and Rollnick, S., 2013. *Motivational Interviewing, Third Edition Helping People Change*. 3rd ed. New York: Guilford Publications.

Miller, W.R. and Rollnick, S., 2012. Meeting in the middle: motivational interviewing and self-determination theory. *International Journal of Behavioural Nutrition and Physical Activity*, 9 (25), pp.1-2.

Miller, W.R. and Rollnick, S., 2009. Ten Things that Motivational Interviewing Is Not. *Behavioural and Cognitive Psychotherapy*, 37 (2), pp.129-140. Miller, W.R. and Rollnick, S., 2012. Meeting in the middle: motivational interviewing and self-determination theory. *International Journal of Behavioural Nutrition and Physical Activity*, 9 (25), pp.1-2.

Miller, W.R. and Rose, G.S., 2009. Toward a Theory of Motivational Interviewing. *American Psychologist*, 64 (6), pp.527-537.

Miller, W. and Rollnick, S., 2004. Talking Oneself into Change: Motivational Interviewing, Stages of Change, and Therapeutic Process. *Journal of Cognitive Psychotherapy*, 18 (4), pp.299-308.

Miller, W.R., Yahne, C.E., Moyers, T.B., Martinez, J. and Pirritano, M., 2004. A Randomized Trial of Methods to Help Clinicians Learn Motivational Interviewing. *Journal of consulting and clinical psychology*, 72 (6), pp.1050-1062.

Mills, E.J., Lester, R., Thorlund, K., Lorenzi, M., Muldoon, K., Kanter, S., Linnemayr, S., Gross, R., Calderon, Y., Amico, K.R. and Amico, K.R., 2014. Interventions to promote adherence to antiretroviral therapy in Africa: a network meta-analysis. *The Lancet HIV*, 1 (3), pp. e104-e111.

Mills, E.J., Nachega, J.B., Bangsberg, D.R., Singh, S., Rachlis, B., Wu, P., Wilson, K., Buchan, I., Gill, C.J. and Cooper, C., 2006a. Adherence to HAART: a systematic review of developed and developing nation patient-reported barriers and facilitators. *PLOS Med*, 3 (11), pp.2039-2064.

Mills, E.J., Nachega, J.B., Buchan, I., Orbinski, J., Attaran, A., Singh, S., Rachlis, B., Wu, P., Cooper, C. and Thabane, L., 2006b. Adherence to antiretroviral therapy in sub-Saharan Africa and North America: a meta-analysis. *JAMA*, 296 (6), pp.679-690.

- Mitcheson, L., Bhavsar, K. and McCambridge, J., 2009. Randomized trial of training and supervision in motivational interviewing with adolescent drug treatment practitioners. *Journal of Substance Abuse Treatment*, 37 (1), pp.73-78.
- Mishra, S.I., Gioia, D., Childress, S., Barnett, B. and Webster, R.L., 2011. Adherence to medication regimens among low-income patients with multiple comorbid chronic conditions. *Health & Social Work*, 36 (4), pp.249-258.
- Modiano, M., 2001. Linguistic imperialism, cultural integrity, and EIL. *ELT Journal*, 55 (4), pp.339-347.
- Moyers, T.B., 2014. The Relationship in Motivational Interviewing. *Psychotherapy*, 51 (3), pp.358-363.
- Moyers, T., 2004. History and Happenstance: How Motivational Interviewing Got Its Start. *Journal of Cognitive Psychotherapy*, 18 (4), pp.291-298.
- Moyers, T.B. and Martin, T., 2006. Therapist influence on client language during motivational interviewing sessions. *Journal of substance abuse treatment*, 30 (3), pp.245-251.
- Moyers, T.B., Martin, T., Manuel, J.K., Miller, W.R. and Ernst, D., 2010. Revised global scales: Motivational interviewing treatment integrity 3.1.1 (MITI 3.1.1). *Unpublished manuscript. Albuquerque*, pp.1-29.
- Moyers, T.B., Martin, T., Manuel, J.K., Hendrickson, S.M.L. and Miller, W.R., 2005. Assessing competence in the use of motivational interviewing. *Journal of substance abuse treatment*, 28 (1), pp.19-26.
- Moyers, T., Manuel, J. and Ernst, D., 2014. *Motivational Interviewing Treatment Integrity Coding Manual* 4.2.1. [pdf]. Available at <http://www.motivationalinterviewing.org/sites/default/files/miti4_2.pdf> [Accessed 14 August 2017].
- Moyers, T.B., Manuel, J.K., Wilson, P.G., Hendrickson, S.M., Talcott, W. and Durand, P., 2007. A Randomized Trial Investigating Training in Motivational Interviewing for Behavioural Health Providers. *Behavioural and Cognitive Psychotherapy*, 36 (2), pp.149-162.
- Mühlbacher, A. C., Stoll, M., Mahlich, J. and Nübling, M., 2013. Evaluating the concordance of physician judgments and patient preferences on AIDS/HIV therapy - a Discrete Choice Experiment. *Health Economics Review*, 3 (30), pp.1-11.
- Mulder, B.C., van Lelyveld, M.A., Vervoort, S.C., Lokhorst, A.M., van Woerkum, C., Prins, J.M. and de Bruin, M., 2016. Communication Between HIV Patients and Their Providers: A Qualitative Preference Match Analysis. *Health Communication*, 31 (1), pp.35-46.
- Mullen, P.D., 1997. Compliance Becomes Concordance: Making a Change in Terminology Produce a Change in Behaviour. *British Medical Journal*, 314 (7082), pp.691-692.
- Mullin, D.J., Forsberg, L., Savageau, J.A. and Saver, B., 2015. Challenges in Developing Primary Care Physicians' Motivational Interviewing Skills. *Families, Systems and Health*, 33 (4), pp.330-338.

Murray, C.J.L., Ortblad, K.F., Guinovart, C., Lim, S.S., Wolock, T.M., Roberts, D.A., Dansereau, E.A., Graetz, N., Barber, R.M., Brown, J.C., Wang, H., Duber, H.C., Naghavi, M., Dicker, D., Dandona, L., Salomon, J.A., Heuton, K.R., Foreman, K., Phillips, D.E., Fleming, T.D., Flaxman, A.D., Phillips, B.K., Johnson, E.K., Coggeshall, M.S., Abd-Allah, F., Abera, S.F., Abraham, J.P., Abubakar, I., Abu-Raddad, L., Abu-Rmeileh, N., Achoki, T., Adeyemo, A.O., Adou, A.K., Adsuar, J.C., Agardh, E.E., Akena, D., Al Kahbouri, M.J., Alasfoor, D., Albittar, M.I., Alcalá-Cerra, G., Alegretti, M.A., Alemu, Z.A., Alfonso-Cristancho, R., Alhabib, S., Ali, R., Alla, F., Allen, P.J., Alsharif, U., Alvarez, E., Alvis-Guzman, N., Amankwaa, A.A., Amare, A.T., Amini, H., Ammar, W., Anderson, B.O., Antonio, C.A.T., Anwari, P., Årnlöv, J., Arsenijevic, V.S.A., Artaman, A., Asghar, R.J., Assadi, R., Atkins, L.S., Badawi, A., Balakrishnan, K., Banerjee, A., Basu, S., Beardsley, J., Bekele, T., Bell, M.L., Bernabe, E., Beyene, T.J., Bhala, N., Bhalla, A., Bhutta, Z.A., Abdulhak, A.B., Binagwaho, A., Blore, J.D., Basara, B.B., Bose, D., Brainin, M., Breitborde, N., Castañeda-Orjuela, C.A., Catalá-López, F., Chadha, V.K., Chang, J., Chiang, P.P., Chuang, T., Colomar, M., Cooper, L.T., Cooper, C., Courville, K.J., Cowie, B.C., Criqui, M.H., Dandona, R., Dayama, A., De Leo, D., Degenhardt, L., Del Pozo-Cruz, B., Deribe, K., Des Jarlais, D.C., Dessalegn, M., Dharmaratne, S.D., Dilmen, U., Ding, E.L., Driscoll, T.R., Durrani, A.M., Ellenbogen, R.G., Ermakov, S.P., Esteghamati, A., Faraon, E.J.A., Farzadfar, F., Fereshtehnejad, S., Fijabi, D.O., Forouzanfar, M.H., Fra Paleo, U., Gaffikin, L., Gamkrelidze, A., Gankpé, F.G., Geleijnse, J.M., Gessner, B.D., Gibney, K.B., Ginawi, I.A.M., Glaser, E.L., Gona, P., Goto, A., Gouda, H.N., Gughani, H.C., Gupta, R., Gupta, R., Hafezi-Nejad, N., Hamadeh, R.R., Hammami, M., Hankey, G.J., Harb, H.L., Haro, J.M., Havmoeller, R., Hay, S.I., Hedayati, M.T., Pi, I.B.H., Hoek, H.W., Hornberger, J.C., Hosgood, H.D., Hotez, P.J., Hoy, D.G., Huang, J.J., Iburg, K.M., Idrisov, B.T., Innos, K., Jacobsen, K.H., Jeemon, P., Jensen, P.N., Jha, V., Jiang, G., Jonas, J.B., Juel, K., Kan, H., Kankindi, I., Karam, N.E., Karch, A., Karema, C.K., Kaul, A., Kawakami, N., Kazi, D.S., Kemp, A.H., Kengne, A.P., Keren, A., Kereselidze, M., Khader, Y.S., Khalifa, S.E.A.H., Khan, E.A., Khang, Y., Khonelidze, I., Kinfu, Y., Kinge, J.M., Knibbs, L., Kokubo, Y., Kosen, S., Defo, B.K., Kulkarni, V.S., Kulkarni, C., Kumar, K., Kumar, R.B., Kumar, G.A., Kwan, G.F., Lai, T., Balaji, A.L., Lam, H., Lan, Q., Lansingh, V.C., Larson, H.J., Larsson, A., Lee, J., Leigh, J., Leinsalu, M., Leung, R., Li, Y., Li, Y., De Lima, G.M. F., Lin, H., Lipshultz, S.E., Liu, S., Liu, Y., Lloyd, B.K., Lotufo, P.A., Machado, V.M.P., Maclachlan, J.H., Magis-Rodriguez, C., Majdan, M., Mapoma, C.C., Marcenes, W., Marzan, M.B., Masci, J.R., Mashal, M.T., Mason-Jones, A., Mayosi, B.M., Mazorodze, T.T., McKay, A.C., Meaney, P.A., Mehndiratta, M.M., Mejia-Rodriguez, F., Melaku, Y.A., Memish, Z.A., Mendoza, W., Miller, T.R., Mills, E.J., Mohammad, K.A., Mokdad, A.H., Mola, G.L., Monasta, L., Montico, M., Moore, A.R., Mori, R., Moturi, W.N., Mukaigawara, M., Murthy, K.S., Naheed, A., Naidoo, K.S., Naldi, L., Nangia, V., Narayan, K.M.V., Nash, D., Nejjari, C., Nelson, R.G., Neupane, S.P., Newton, C.R., Ng, M., Nisar, M.I., Nolte, S., Norheim, O.F., Nowaseb, V., Nyakarahuka, L., Oh, I., Ohkubo, T., Olusanya, B.O., Omer, S.B., Opio, J.N., Orisakwe, O.E., Pandian, J.D., Papachristou, C., Caicedo, A.J.P., Patten, S.B., Paul, V.K., Pavlin, B.I., Pearce, N., Pereira, D.M., Pervaiz, A., Pesudovs, K., Petzold, M., Pourmalek, F., Qato, D., Quezada, A.D., Quistberg, D.A., Rafay, A., Rahimi, K., Rahimi-Movaghar, V., Rahman, S.U., Raju, M., Rana, S.M., Razavi, H., Reilly, R.Q., Remuzzi, G., Richardus, J.H., Ronfani, L., Roy, N., Sabin, N., Saeedi, M.Y., Sahraian, M.A., Samonte, G.M.J., Sawhney, M., Schneider, I.J.C., Schwebel, D.C., Seedat, S., Sepanlou, S.G., Servan-Mori, E., Sheikhabaei, S., Shibuya, K., Shin, H.H., Shiue, I., Shivakoti, R., Sigfusdottir, I.D., Silberberg, D.H., Silva, A.P., Simard, E.P., Singh, J.A., Skirbekk, V., Sliwa, K., Soneji, S., Soshnikov, S.S., Sreeramareddy, C.T., Stathopoulou, V.K., Stroupoulis, K., Swaminathan, S., Sykes, B.L., Tabb, K.M., Talongwa, R.T., Tenkorang, E.Y., Terkawi, A.S., Thomson, A.J., Thorne-Lyman, A., Towbin, J.A., Traebert, J., Tran, B.X., Dimbuene, Z.T., Tsilimbaris, M., Uchendu, U.S., Ukwaja, K.N., Uzun, S.B., Vallely, A.J., Vasankari, T.J., Venketasubramanian, N., Violante, F.S., Vlassov, V.V., Vollset, S.E., Waller, S., Wallin, M.T., Wang, L., Wang, X., Wang, Y., Weichenthal, S., Weiderpass, E., Weintraub, R.G., Westerman, R., White, R.A., Wilkinson, J.D., Williams, T.N., Woldeyohannes, S.M., Wong, J.Q., Xu, G., Yang, Y.C., Yano, Y., Yentur, G.K., Yip, P., Yonemoto, N., Yoon, S., Younis, M., Yu, C., Jin, K.Y., El, S.Z., Zhao, Y., Zheng, Y., Zhou, M.,

Zhu, J., Zou, X.N., Lopez, A.D. and Vos, T., 2014. Global, regional, and national incidence and mortality for HIV, tuberculosis, and malaria during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*, 384 (9947), pp.1005-1070.

Naar-King, S., Outlaw, A., Green-Jones, M., Wright, K. and Parsons, J.T., 2009. Motivational interviewing by peer outreach workers: a pilot randomized clinical trial to retain adolescents and young adults in HIV care. *AIDS Care*, 21 (7), pp.868-873.

Nachega, J.B., Hislop, M., Nguyen, H., Dowdy, D.W., Chaisson, R.E., Regensberg, L., Cotton, M. and Maartens, G., 2009. Antiretroviral therapy adherence, virologic and immunologic outcomes in adolescents compared with adults in southern Africa. *Journal of acquired immune deficiency syndromes*, 51 (1), pp.65-71.

Nabukeera-Barungi, N., Elyanu, P., Asire, B., Katureebe, C., Lukabwe, I., Namusoke, E., Musinguzi, J., Atuyambe, L. and Tumwesigye, N., 2015. Adherence to antiretroviral therapy and retention in care for adolescents living with HIV from 10 districts in Uganda. *BMC Infectious Diseases*, 15 (1), pp.1-10.

NATIONAL AGENCY FOR THE CONTROL OF AIDS (NACA), 2014. *GLOBAL AIDS RESPONSE Country Progress Report Nigeria GARPR 2014*. [pdf] Abuja: Federal Republic of Nigeria. Available at: http://www.unaids.org/sites/default/files/country/documents/NGA_narrative_report_2014.pdf [Accessed 20 October 2015].

National Health Act, 2014. (Part III). Abuja: NASS

National Health Service, 2017. *NHS England Patient and Public Voice Partners Policy*. [pdf] Leeds: NHS. Available at: <https://www.england.nhs.uk/wp-content/uploads/2017/08/patient-and-public-voice-partners-policy-july-2017.pdf> [Accessed 13 April 2018].

National Health Service, 2016. *Consent to treatment - Children and young people*. [online] Available at: <http://www.nhs.uk/Conditions/Consent-to-treatment/Pages/Children-under-16.aspx> [Accessed: 16 August 2017].

National Population Commission, 2013. *Nigeria Demographic and Health Survey 2013: Preliminary Report*. [pdf] Abuja: National Population Commission. Available at: <https://dhsprogram.com/pubs/pdf/PR41/PR41.pdf> [Accessed 15 October 2016].

Navarro, J., Perez, M., Curran, A., Burgos, J., Feijoo, M., Torrella, A., Caballero, E., Ocana, I., Ribera, E., Crespo, M. and Falco, V., 2014. Impact of an Adherence Program to Antiretroviral Treatment on Virologic Response in a Cohort of Multitreated and Poorly Adherent HIV-Infected Patients in Spain. *AIDS Patient Care and STDs*, 28 (10), pp.537-542.

Ndembi, N., 2015. Adherence to Antiretroviral Therapy, Retention in Care and HIV Drug Resistance in Nigeria. *Current HIV Research*, 13 (4), pp.260-261.

Nielsen-Bohlman, L., 2004. *Health Literacy: A Prescription to End Confusion*. Washington: National Academies Press.

Nieuwkerk, P.T. and Oort, F.J., 2005. Self-reported adherence to antiretroviral therapy for HIV-1 infection and virologic treatment response: a meta-analysis. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 38 (4), pp.445-448.

Nimmon, L. and Stenfors-Hayes, T., 2016. The "Handling" of power in the physician-patient encounter: perceptions from experienced physicians. *BMC Medical Education*, 16 (113), pp.1-9.

Nokes, K., Johnson, M.O., Webel, A., Rose, C.D., Phillips, J.C., Sullivan, K., Tyer-viola, L., Rivero-Méndez, M., Nicholas, P., Kemppainen, J., Sefcik, E., Chen, W., Brion, J., Eller, L., Kirksey, K., Wantland, D., Portillo, C., Corless, I.B., Voss, J., Lipinge, S., Spellmann, M. and Holzemer, W.L., 2012. Focus on Increasing Treatment Self- Efficacy to Improve Human Immunodeficiency Virus Treatment Adherence. *Journal of Nursing Scholarship*, 44 (4), pp.403-410.

Nunes, V., Neilson, J., O'Flynn, N., Calvert, N., Kuntze, S., Smithson, H., Benson, J., Blair, J., Bowser, A., Clyne, W., Crome, P., Haddad, P., Hemingway, S., Horne, R., Johnson, S., Kelly, S., Packham, B., Patel, M. and Steel, J., 2009. *Clinical Guidelines and Evidence Review for Medicines Adherence: involving patients in decisions about prescribed medicines and supporting adherence*. [pdf] London: National Collaborating Centre for Primary Care and Royal College of General Practitioner. Available at: <<https://www.nice.org.uk/guidance/cg76/evidence/full-guideline-242062957>> [Accessed 04 July 2016].

Odili, V.U., Obieche, A.O. and Amibor, K.C., 2016. Adherence to Antiretroviral Therapy and Its Determinants Among HIV-Infected Patients in Nigeria. *Journal of Pharmacy Practice*, pp.1-5.

Oh, H. and Lee, C., 2016. Culture and motivational interviewing. *Patient Education and Counselling*, 99 (11), pp.1914-1919.

Okoronkwo, I., Okeke, U., Chinweuba, A. and Iheanacho, P., 2013. Nonadherence Factors and Sociodemographic Characteristics of HIV- Infected Adults Receiving Antiretroviral Therapy in Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria. *International Scholarly Research Notices- AIDS*, 2013, pp.1-8.

Okoror, T.A., Falade, C.O., Olorunlana, A., Walker, E.M. and Okareh, O.T., 2013. Exploring the Cultural Context of HIV Stigma on Antiretroviral Therapy Adherence Among People Living with HIV/AIDS in Southwest Nigeria. *AIDS Patient Care and STDs*, 27 (1), pp.55-64.

Okoye, U.O., Diekedie, A. and Afemikhe, O.A., 2015. Perceived Barriers to Accessing and Adhering to Antiretroviral Therapy by People Living with HIV/AIDS (PLWHAs) in Akwa Ibom State, Nigeria. *Research on Humanities and Social Sciences*, 2225-0484, pp.107-113.

Oku, A.O., Owoaje, E.T., Oku, O.O. and Monjok, E., 2014. Prevalence and determinants of adherence to highly active anti-retroviral therapy amongst people living with HIV/ AIDS in a rural setting in South-South Nigeria. *African Journal of Reproductive Health*, 18 (1), pp.133-144.

Oku, A.O., Owoaje, E.T., Ige, O.K. and Oyo-Ita, A., 2013a. Prevalence and determinants of adherence to HAART amongst PLHIV in a tertiary health facility in south-south Nigeria. *Biomed Central Infectious Diseases*, 13 (401), pp.1-9.

Oku, A.O., Owoaje, E.T., Oku, O.O. and Monjok, E., 2013b. Prevalence and Determinants of Adherence to Highly Active Antiretroviral Therapy (HAART) amongst a Cohort of HIV Positive Women Accessing Treatment in a Tertiary Health Facility in Southern Nigeria. *Journal of HIV/AIDS Infectious Diseases*, 2 (102), pp.1-8.

Oleribe, O.O., Oladipo, O.A., Ezieme, I.P., Crossey, M.M. and Taylor-Robinson, S.D., 2016. From decentralization to commonization of HIV healthcare resources: keys to reduction in health disparity and equitable distribution of health services in Nigeria. *Pan African Medical Journal*, 24 (266), pp.1-9.

Olisah, V.O., Baiyewu, O. and Sheikh, T.L., 2010. Adherence to highly active antiretroviral therapy in depressed patients with HIV/AIDS attending a Nigerian university teaching hospital clinic: original article. *African journal of psychiatry*, 13 (4), pp.275-279.

Olowookere, S.A., Fatiregun, A.A. and Adewole, I.F., 2012. Knowledge and attitudes regarding HIV/ AIDS and antiretroviral therapy among patients at a Nigerian treatment clinic. *Journal of infection in Developing Countries*, 6 (11), pp.809-816.

Olowookere, S.A., Fatiregun, A.A., Akinyemi, J.O., Bamgboye, A.E. and Osagbemi, G.K., 2008. Prevalence and determinants of nonadherence to highly active antiretroviral therapy among people living with HIV/ AIDS in Ibadan, Nigeria. *The Journal of Infection in Developing Countries*, 2 (05), pp.369-372.

Olowookere, S.A., Fatiregun, A.A. and Osagbemi, K.G., 2009. Awareness and Attitude of Health Workers at a Nigerian HIV Treatment Clinic Toward HIV/ AIDS and HAART Adherence. *Journal of the International Association of Physicians in AIDS Care*, 8 (3), pp.208-212.

Onwuegbuzie, A.J., Johnson, R.B. and Collins, K.M., 2009. Call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches. *International Journal of Multiple Research Approaches*, 3 (2), pp.114-139.

Omosanya, O.E., Elegbede, O.T., Agboola, S.M., Isinkaye, A.O. and Omopariola, O.A., 2013. Effects of stigmatization/discrimination on antiretroviral therapy adherence among HIV-infected patients in a rural tertiary medical center in Nigeria. *Journal of the International Association of Providers of AIDS Care*, 13 (3), pp.260-263.

O'Neil, C. R., Palmer, A.K., Coulter, S., O'Brien, N., Shen, A., Zhang, W., Montaner, J.S.G. and Hogg, R.S., 2012. Factors Associated with Antiretroviral Medication Adherence among HIV- Positive Adults Accessing Highly Active Antiretroviral Therapy (HAART) in British Columbia, Canada. *Journal of the International Association of Physicians in AIDS Care*, 11 (2), pp.134-141.

Onwujekwe, O., Chikezie, I., Mbachu, C., Chiegil, R., Torpey, K.I. and Uzochukwu, B., 2015. Investigating client perception and attitude to decentralization of HIV/AIDS treatment services to primary health centres in three Nigerian states. *Health Expectations*, pp.1-10.

Ortego, C., Huedo-Medina, T.B., Santos, P., Rodríguez, E., Sevilla, L., Warren, M. and Llorca, J., 2012. Sex differences in adherence to highly active antiretroviral therapy: A meta-analysis. *AIDS Care*, 24 (12), pp.1519-1534.

Osamor, P. and Grady, C., 2017. Factors associated with Women's health care decision-making autonomy: empirical evidence from Nigeria. *Journal of Biosocial Science*, 50 (1), pp.70-85.

Östlund, A., Kristofferzon, M., Häggström, E. and Wadensten, B., 2015. Primary care nurses' performance in motivational interviewing: A quantitative descriptive study Clinical presentation, diagnosis, and management. *BMC Family Practice*, 16 (1), pp.1-12.

Östlund, A., Wadensten, B., Kristofferzon, M. and Häggström, E., 2014. Motivational interviewing: Experiences of primary care nurses trained in the method. *Nurse Education in Practice*, 15 (2), pp.111-118.

Outlaw, A.Y., Naar-King, S., Tanney, M., Belzer, M.E., Aagenes, A., Parsons, J.T. and Merlo, L.J., 2013. The initial feasibility of a computer-based motivational intervention for adherence for youth newly recommended to start antiretroviral treatment. *AIDS Care*, pp.1-6.

Palacio, A., Garay, D., Langer, B., Taylor, J., Wood, B. and Tamariz, L., 2016. Motivational Interviewing Improves Medication Adherence: A Systematic Review and Meta-analysis. *Journal of General Internal Medicine*, 31 (8), pp.929-940.

Parsons, J.T., Golub, S.A., Rosof, E. and Holder, C., 2007. Motivational interviewing and cognitive-behavioral intervention to improve HIV medication adherence among hazardous drinkers: a randomized controlled trial. *Journal of Acquired Immune Deficiency Syndromes*, 46 (4), pp.443-450

Parsons, J., Rosof, E. and Punzalan, J., 2005. Integration of motivational interviewing and cognitive behavioural therapy to improve HIV medication adherence and reduce substance use among HIV-positive men and women: *AIDS Patient Care and STDs*, 19 (1), pp.31-39.

Paterson, D.L., Swindells, S., Mohr, J., Brester, M., Vergis, E.N., Squier, C., Wagener, M.M., Singh, N. and Squier, C., 2000. Adherence to protease inhibitor therapy and outcomes in patients with HIV infection. *Annals of Internal Medicine*, 133 (1), pp.21-30.

Peek, M.E., Odoms-Young, A., Quinn, M.T., Gorawara-Bhat, R., Wilson, S.C. and Chin, M.H., 2010. Race and shared decision- making: Perspectives of African-Americans with diabetes. *Social Science and Medicine*, 71 (1), pp.1-9.

Peek, M.E., Tang, H., Cargill, A. and Chin, M.H., 2011. Are there racial differences in patients' shared decision- making preferences and behaviours among patients with diabetes? *Medical Decision Making*, 31 (3), pp.422-431.

Peek, M.E., Wilson, S., Gorawara-Bhat, R., Odoms-Young, A., Quinn, M. and Chin, M.H., 2009. Barriers and Facilitators to Shared Decision- making Among African- Americans with Diabetes. *Journal of General Internal Medicine*, 24 (10), pp.1135-1139.

Pennap, G.R., Abdullahi, U. and Bako, A.I., 2013. Adherence to highly active antiretroviral therapy and its challenges in people living with human immunodeficiency virus (HIV) infection in Keffi, Nigeria. *Journal of AIDS and HIV Research*, 5 (2), pp.52-58.

Peltzer, K., Friend-du, P.N., Ramlagan, S. and Anderson, J., 2010. Antiretroviral treatment adherence among HIV patients in KwaZulu- Natal, South Africa. *BMC Public Health*, 10 (1), pp.1-10.

Pinon, R. and Haydon, J., 2010. *English Language Quantitative Indicators: Cameroon, Nigeria, Rwanda, Bangladesh and Pakistan*. [pdf] London: Euromonitor International Ltd. Available at: <http://www.teachingenglish.org.uk/sites/teacheng/files/Euromonitor%20Report%20A4.pdf> [Accessed 15 April 2015].

Pluye, P., Robert, E., Cargo, M., Bartlett, G., O'cathain, A., Griffiths, F., Boardman, F., Gagnon, M. and Rousseau, M., 2011. Proposal: A mixed methods appraisal tool for systematic mixed studies reviews. *Montréal: McGill University*, pp.1-8.

Polit, D.F. and Beck, C.T., 2017. *Essentials of nursing research: appraising evidence for nursing practice*. 9th ed. Philadelphia: Lippincott Williams & Wilkins.

Polit, D.F. and Beck, C.T., 2008. *Nursing research: generating and assessing evidence for nursing practice*. 8th ed. Philadelphia: Lippincott Williams & Wilkins.

Pollock, K., 2005. *Concordance in medical consultations: a critical review*. Oxford: Radcliffe.

Pradier, C., Bentz, L., Spire, B., Tourette-Turgis, C., Morin, M., Souville, M., Rebillon, M., Jean-Gabriel, F., Pesce, A. and Dellamonica, P., 2003. Efficacy of an educational and counselling intervention on adherence to highly active antiretroviral therapy: French prospective controlled study. *HIV Clinical Trials*, 4 (2), pp.121-131.

Puppawar, G., Mourya, M., Kadhe, G. and Mane, A., 2015. Conducting clinical trials in emerging markets of sub-Saharan Africa: Review of guidelines and resources for foreign sponsors. *Open Access Journal of Clinical Trials*, 7, pp.23-34.

Puskas, C.M., Forrest, J.I., Parashar, S., Salters, K.A., Cescon, A.M., Kaida, A., Miller, C.L., Bangsberg, D.R. and Hogg, R.S., 2011. Women and vulnerability to HAART non-adherence: a literature review of treatment adherence by gender from 2000 to 2011. *Current HIV/AIDS Reports*, 8 (4), pp.277-287.

Rachlis, B.S., Mills, E.J. and Cole, D.C., 2011. Livelihood security and adherence to antiretroviral therapy in low and middle-income settings: a systematic review. *PLoS One*, 6 (5), pp.1-15.

Råheim, M., Magnussen, L.H., Sekse, R.J., Lunde, Å., Jacobsen, T. and Blystad, A., 2016. Researcher–researched relationship in qualitative research: Shifts in positions and researcher vulnerability. *International Journal of Qualitative Studies on Health and Well-being*, 11 (1), pp.1-12.

Ragaisis, K.M., 2017. Psychiatric Inpatient Nurses' Perceptions of Using Motivational Interviewing. *Issues in Mental Health Nursing*, 38 (11), pp.945-955.

Resnicow, K., McMaster, F., Bocian, A., Harris, D., Zhou, Y., Snetselaar, L., Schwartz, R., Myers, E., Gottlieb, J., Foster, J., Hollinger, D., Smith, K., Woolford, S., Mueller, D. and Wasserman, R.C., 2015. Motivational interviewing and dietary counselling for obesity in primary care: an RCT. *Pediatrics*, 135 (4), pp.649-657.

Resnicow, K. and McMaster, F., 2012. Motivational Interviewing: moving from why to how with autonomy support. *The International Journal of Behavioural Nutrition and Physical Activity*, 9 (1), pp.1-9.

Resnicow, K., McMaster, F. and Rollnick, S., 2012. Action reflections: a client centered technique to bridge the WHY–HOW transition in motivational interviewing. *Behavioural and Cognitive Psychotherapy*, 40 (04), pp.474-480.

Resnicow, K., Soler, R., Braithwaite, R.L., Ahluwalia, J.S. and Butler, J., 2000. Cultural sensitivity in substance use prevention. *Journal of Community Psychology*, 28 (3), pp.271-290.

Rosengren, D., Baer, J., Hartzler, B., Dunn, C., Wells, E. and Ogle, R., 2009. *Video Assessment of Simulated Encounters (VASE-R) Administration and Scoring Manual*. [pdf] Washington: Alcohol & Drug Abuse Institute, University of Washington, Available at <<http://www.motivationalinterviewing.org/>> [Accessed 14 August 2017].

Rubak, S., Sandbæk, A., Lauritzen, T., Christensen, B. and Borch-Johnsen, K., 2006. An education and training course in motivational interviewing influence: GPs' professional behaviour - ADDITION Denmark. *British Journal of General Practice*, 56 (527), pp.429-436.

Russel, A., Abidi, S.R. and Abidi, S.S., 2014. shared decision making: using theories and technology to engage the patient in their health journey. *European Federation for Medical Informatics*, pp.303-307.

Ryan, R., Santesso, N., Hill, S., Lowe, D., Kaufman, C. and Grimshaw, J., 2011. Consumer-oriented interventions for evidence-based prescribing and medicines use: an overview of systematic reviews. *Cochrane Database of Systematic Reviews*, [online] 5, CD00768 Available at:< <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007768.pub2>> [Accessed 20 February 2016].

Ryan, R., Santesso, N., Lowe, D., Hill, S., Grimshaw, J., Prictor, M., Kaufman, C., Cowie, G. and Taylor, M., 2014. Interventions to improve safe and effective medicines use by consumers: an overview of systematic reviews. *Cochrane Database of Systematic Reviews*, [online] 4, CD007768 Available at:< <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007768.pub3>> [Accessed 20 February 2016].

Ryan, F., Coughlan, M. and Cronin, P., 2007. Step-by-step guide to critiquing research. Part 2: qualitative research. *British Journal of Nursing*, 16 (12), pp.738-744.

Sahay, S., Reddy, K. and Dhayarkar, S., 2011. Optimizing adherence to antiretroviral therapy. *The Indian Journal of Medical Research*, 134 (6), pp.835-849.

Sallis, F.J., Owen, N. and Fisher, E.B., 2008. Ecological Models of Health Behaviour. In: Glanz, K., Rimer, B.K. and Viswanath, K., eds. 2008. *Health Behavior and Health Education: Theory, Research, and Practice*. 4th ed. San Francisco: Jossey-Bass. Ch. 20, pp.465-485.

Sangeda, R.Z., Mosha, F., Prosperi, M., Aboud, S., Vercauteren, J., Camacho, R.J., Lyamuya, E.F., Van Wijngaerden, E. and Vandamme, A., 2014. Pharmacy refill adherence outperforms self-reported methods in predicting HIV therapy outcome in resource-limited settings. *BMC Public Health*, 14 (1), pp.1-11.

Sarfo, I.A., 2015. The Power of Beliefs on Health Seeking Behaviour: Implication for Therapeutic Relationships for Cardiovascular Care. *European Journal of Medicine*, (4), pp.195-207.

Sargeant, J., Valli, M., Ferrier, S. and MacLeod, H., 2008. Lifestyle counselling in primary care: opportunities and challenges for changing practice. *Medical Teacher*, 30 (2), pp.185-191.

Sarantakos, S., 2013. *Social Research*. 4th ed. Hampshire: Palgrave Macmillan

Sayles, J.N., Wong, M.D., Kinsler, J.J., Martins, D. and Cunningham, W.E., 2009. The association of stigma with self-reported access to medical care and antiretroviral therapy adherence in persons living with HIV/AIDS. *Journal of General Internal Medicine*, 24 (10), pp.1101-1108.

Schwalbe, C.S., Oh, H.Y. and Zweben, A., 2014. Sustaining motivational interviewing: a meta-analysis of training studies. *Addiction*, 109 (8), pp.1287-1294.

Segal, J., 2007. "Compliance" to "Concordance": A Critical View. *Journal of Medical Humanities*, 28 (2), pp.81-96.

Sekoni, A.O., Obidike, O.R. and Balogun, M.R., 2012. Stigma, medication adherence and coping mechanism among people living with HIV attending General Hospital, Lagos Island, Nigeria. *African Journal of Primary Health Care and Family Medicine*, 4 (1), pp.1-10.

Shaahu, V.N., Lawoyin, T.O. and Sangowawa, A.O., 2008. Adherence to highly active antiretroviral therapy (HAART) at a Federal Medical Centre. *African Journal of Medicine and Medical Sciences*, 37 (1), pp.29-36.

Shannon, R., Donovan-Hall, M. and Bruton, A., 2017. Motivational interviewing in respiratory therapy: What do clinicians need to make it part of routine care? A qualitative study. *PLoS ONE*, 12 (10), pp.1-15.

Shi, L., Liu, J., Fonseca, V., Walker, P., Kalsekar, A. and Pawaskar, M., 2010. Correlation between adherence rates measured by MEMS and self-reported questionnaires: a meta-analysis. *Health and Quality of Life Outcomes*, 8, pp.99-99.

Shittu, R.O., Issa, B.A., Olanrewaju, G.T., Odeigah, L.O. and Sule, A.G., 2013. Adherence to Highly Active Antiretroviral Therapy. *Journal of Antivirals & Antiretrovirals*, 6, pp.6-12.

Shubber, Z., Mills, E., Nachega, J., Vreeman, R., Freitas, M., Bock, P., Nsanzimana, S., Penazzato, M., Appolo, T., Doherty, M. and Ford, N., 2016. Patient-Reported Barriers to Adherence to Antiretroviral Therapy: A Systematic Review and Meta-Analysis. *Plos Medicine*, 13 (11), pp.1-14.

Sheeran, P., Maki, A., Montanaro, E., Avishai-Yitshak, A., Bryan, A., Klein, W.M., Miles, E. and Rothman, A.J., 2016. The impact of changing attitudes, norms, and self-efficacy on health-related intentions and behavior: A meta-analysis. *Health Psychology*, 35 (11), pp.1178-1188.

Simoni, J.M., Amico, K.R., Smith, L. and Nelson, K., 2010. Antiretroviral adherence interventions: translating research findings to the real-world clinic. *Current HIV/AIDS Reports*, 7 (1), pp.44-51.

Simoni, J., Kurth, A., Pearson, C., Pantalone, D., Merrill, J. and Frick, P., 2006. Self- Report Measures of Antiretroviral Therapy Adherence: A Review with Recommendations for HIV Research and Clinical Management. *AIDS and Behaviour*, 10 (3), pp.227-245.

Smith, S.K., Dixon, A., Trevena, L., Nutbeam, D. and McCaffery, K.J., 2009. Exploring patient involvement in healthcare decision making across different education and functional health literacy groups. *Social Science and Medicine*, 69 (12), pp.1805-1812.

Snowden, A. and Marland, G., 2012. No decision about me without me: concordance operationalised. *Journal of Clinical Nursing*, 22 (9-10), pp.1353-1360.

Söderlund, L.L. and Nilsen, P., 2009. Feasibility of using motivational interviewing in a Swedish pharmacy setting. *International Journal of Pharmacy Practice*, 17 (3), pp.143-149.

Söderlund, L.L., Madson, M.B., Rubak, S. and Nilsen, P., 2011. A systematic review of motivational interviewing training for general health care practitioners. *Patient Education and Counselling*, 84 (1), pp.16-26.

Söderlund, L.L. and Nilsen, P., 2009. Feasibility of using motivational interviewing in a Swedish pharmacy setting. *International Journal of Pharmacy Practice*, 17 (3), pp.143-149.

Stigma Index UK, 2015. *The People Living with HIV Stigma Survey UK 2015*. [online] Available at: <<http://www.stigmaindexuk.org/research-findings/>> [Accessed: 13 April 2018].

Suleiman, I.A. and Momo, A., 2016. Adherence to antiretroviral therapy and its determinants among persons living with HIV/AIDS in Bayelsa state, Nigeria. *Pharmacy Practice*, 14 (1), pp.1-8.

Sutton, R., Lahuerta, M., Abacassamo, F., Ahoua, L., Tomo, M., Lamb, M.R. and Elul, B., 2017. Feasibility and Acceptability of Health Communication Interventions Within a Combination Intervention Strategy for Improving Linkage and Retention in HIV Care in Mozambique. *Journal of Acquired Immune Deficiency Syndromes*, 74 Supplement 1, pp. S29-S36.

Sweeney, S.M. and Vanable, P.A., 2015. The Association of HIV-Related Stigma to HIV Medication Adherence: A Systematic Review and Synthesis of the Literature. *AIDS and Behavior*, pp.1-22.

Swenson, S.L., Buell, S., Zettler, P., White, M., Ruston, D.C. and Lo, B., 2004. Patient-centered communication: do patients really prefer it? *Journal of General Internal Medicine*, 19 (11), pp.1069-1079.

Tapp, C., Milloy, M., Kerr, T., Zhang, R., Guillemi, S., Hogg, R.S., Montaner, J. and Wood, E., 2011. Female gender predicts lower access and adherence to antiretroviral therapy in a setting of free healthcare. *BMC Infectious Diseases*, 11 (86), pp.1-7.

The British Psychological Society, 2010. *Code of Human Research Ethics*. [pdf] Leicester: The British Psychological Society. Available at: <http://www.bps.org.uk/sites/default/files/documents/code_of_human_research_ethics.pdf> [Accessed 24 September 2017].

The Health Foundation, 2011. *Evidence Scan: Training professionals in motivational interviewing*. [pdf] London: The Health Foundation. Available at: <<http://www.health.org.uk/sites/health/files/TrainingProfessionalsInMotivationalInterviewing.pdf>> [Accessed 14 January 2018].

The World Bank, 2018a. *World Bank Countries and Lending Groups*. [online] Available at: <<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>> [Accessed: 31 January 2018].

The World Bank, 2018b. *Data: Physicians (per 1000 people)*. [online] Available at: <<https://data.worldbank.org/indicator/SH.MED.PHYS.ZS>> [Accessed: 04 April 2018].

The World Bank, 2017. *The World Bank in Nigeria*. [online] Available at: <<http://www.worldbank.org/en/country/nigeria/overview>> [Accessed: 10 April 2018].

Thrasher, A.D., Golin, C.E., Earp, J.A., Tien, H., Porter, C. and Howie, L., 2006. Motivational interviewing to support antiretroviral therapy adherence: The role of quality counselling. *Patient Education and Counselling*, 62 (1), pp.64-71.

Torpey, K., Ogbanufe, O., Babatunde, F., Mosuro, O., Fajola, A., Khamofu, H., Odafe, S. and Barinaadaa, A., 2012. *Adherence and retention on antiretroviral therapy in a public-private partnership program in Nigeria*: Journal of The International AIDS Society, JIAS. [e-journal]. November 2012 ed. Wiley Online Library.15 (S4) pp.1-1. <https://doi.org/10.7448/IAS.15.6.18096>.

Transparency International, 2018. *CORRUPTION PERCEPTIONS INDEX 2017*. [online] Available at: <https://www.transparency.org/news/feature/corruption_perceptions_index_2017> [Accessed: 09 April 2018].

Transparency International, 2006. *Theft, bribery and extortion rob millions of proper healthcare, says Global Corruption Report 2006*. [online] Available at: <https://transparency.ie/news_events/theft-bribery-and-extortion-rob-millions-proper-healthcare-says-global-corruption-report> [Accessed: 11 January 2018].

Tymeczyk, O., Hoffman, S., Kulkarni, S.G., Gadisa, T., Lahuerta, M., Remien, R.H., Elul, B., El-Sadr, W., Melaku, Z. and Nash, D., 2015. HIV Care and Treatment Beliefs among Patients Initiating Antiretroviral Treatment (ART) in Oromia, Ethiopia. *AIDS and Behaviour*, pp.1-11.

Ugwu, R. and Eneh, A., 2013. Factors influencing adherence to paediatric antiretroviral therapy in Portharcourt, South-South Nigeria. *Pan African Medical Journal*, 16 (1), pp.1-8.

UK Data Protection Act 1998. London: HMSO.

Ukwe, C.V., Ekwunife, O.I., Udeogaranya, P.O. and Iwuamadi, U.I., 2010. Self-reported adherence to HAART in South-Eastern Nigeria is related to patients' use of pill box. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 7 (1), pp.10-15.

United Nation Children's Fund, 2018. *HEALTH BUDGET SOUTH AFRICA 2017/2018*. [pdf] Pretoria: UNICEF. Available at: <https://www.unicef.org/esaro/UNICEF_South_Africa_2017_2018_Health_Budget_Brief.pdf> [Accessed 13 April 2018].

Upton, J., Fletcher, M., Madoc-Sutton, H., Sheikh, A., Caress, A. and Walker, S., 2011. Shared decision making or paternalism in nursing consultations? A qualitative study of primary care asthma nurses' views on sharing decisions with patients regarding inhaler device selection. *Health Expectations*, 14 (4), pp.374-382.

U. S. Department of Health and Human Services, 2016. *The Belmont Report*. [online] Available at: <<https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html>> [Accessed: 20 February 2017].

Uusküla, A., Laisaar, K., Raag, M., Lemsalu, L., Lõhmus, L., Rüütel, K. and Amico, K., 2017. Effects of Counselling on Adherence to Antiretroviral Treatment Among People with HIV in Estonia: A Randomized Controlled Trial. *AIDS and Behavior*, 22 (1), pp.224-233.

Uthman, O.A., Magidson, J.F., Safren, S.A. and Nachega, J.B., 2014. Depression and adherence to antiretroviral therapy in low-, middle-and high-income countries: a systematic review and meta-analysis. *Current HIV/AIDS Reports*, 11 (3), pp.291-307.

Uzochukwu, B.S., Onwujekwe, O.E., Onoka, A.C., Okoli, C., Uguru, N.P. and Chukwuogo, O.I., 2008. Determinants of non-adherence to subsidized anti-retroviral treatment in southeast Nigeria. *Health Policy and Planning*, 24 (3), pp.189-196.

van de Glind, I. M., Heinen, M.M., Evers, A.W., Wensing, M. and van Achterberg, T., 2012. Factors influencing the implementation of a lifestyle counselling program in patients with venous leg ulcers: a multiple case study. *Implementation Science*, 7 (104), pp.1-14.

van Loggerenberg, F., Grant, A., Naidoo, K., Murrman, M., Gengiah, S., Gengiah, T., Fielding, K. and Abdool, K.S., 2015a. Individualised Motivational Counselling to Enhance Adherence to Antiretroviral Therapy is not Superior to Didactic Counselling in South African Patients: Findings of the CAPRISA 058 Randomised Controlled Trial. *AIDS and Behavior*, 19 (1), pp.145-156.

van Loggerenberg, F., Gray, D., Gengiah, S., Kunene, P., Gengiah, T., Naidoo, K. and Grant, A., 2015b. A Qualitative Study of Patient Motivation to Adhere to Combination Antiretroviral Therapy in South Africa. *AIDS Patient Care and STDs*, 29 (5), pp.299-306.

Vansteenkiste, M. and Sheldon, K.M., 2006. There's nothing more practical than a good theory: Integrating motivational interviewing and self-determination theory. *British Journal of Clinical Psychology*, 45 (1), pp.63-82.

Vervoort, S., Grypdonck, M., Dijkstra, B.M., Hazelzet, E.B., Fledderus, B., Borleffs, J.C. and Hoepelman, A.M., 2010. Strategies to Promote Adherence to Antiretroviral Therapy Applied by Dutch HIV Nurse Consultants: A Descriptive Qualitative Study. *Journal of the Association of Nurses in AIDS Care*, 21 (6), pp.489-502.

Vrijens, B., De Geest, S., Hughes, D.A., Przemyslaw, K., Demonceau, J., Ruppar, T., Dobbels, F., Fargher, E., Morrison, V., Lewek, P., Matyjaszczyk, M., Mshelia, C., Clyne, W., Aronson, J.K. and Urquhart, J., 2012. *A new taxonomy for describing and defining adherence to medications*: British Journal of Clinical Pharmacology. 73 (5) pp.691-705.

Vyas, K.J., Limneos, J., Qin, H. and Mathews, W.C., 2014. Assessing baseline religious practices and beliefs to predict adherence to highly active antiretroviral therapy among HIV-infected persons. *AIDS Care; Psychological and Socio-Medical Aspects of AIDS/HIV*, 26 (8), pp.983-987.

Wasti, S.P., van Teijlingen, E., Simkhada, P., Randall, J., Baxter, S., Kirkpatrick, P. and G, V.S., 2012. Factors influencing adherence to antiretroviral treatment in Asian developing countries: A systematic review. *Tropical Medicine and International Health*, 17 (1), pp.71-81.

Walsh, D. and Downe, S., 2006. Appraising the quality of qualitative research. *Midwifery*, 22 (2), pp.108-119.

Wiens, M., MacLeod, S., Musiime, V., Ssenyonga, M., Kizza, R., Bakeera-Kitaka, S., Odoi-Adome, R. and Ssali, F., 2012. Adherence to Antiretroviral Therapy in HIV- Positive Adolescents in Uganda Assessed by Multiple Methods. *Pediatric Drugs*, 14 (5), pp.331-335.

Williams, I., Churchill, D., Anderson, J., Boffito, M., Bower, M., Cairns, G., Cwynarski, K., Edwards, S., Fidler, S., Fisher, M., Freedman, A., Geretti, A.M., Gilleece, Y., Horne, R., Johnson, M., Khoo, S., Leen, C., Marshall, N., Nelson, M., Orkin, C., Paton, N., Phillips, A., Post, F., Pozniak, A., Sabin, C., Trevelion, R., Ustianowski, A., Walsh, J., Waters, L., Wilkins, E., Winston, A. and Youle, M., 2014. British HIV Association guidelines for the treatment of HIV - 1- positive adults with antiretroviral therapy 2012. *HIV Medicine*, 13, pp.1-6.

Wiley, E.J., Irwin, J.D. and Morrow, D., 2012. Health Care Practitioners' Perceptions of Motivational Interviewing Training for Facilitating Behaviour Change among Patients. *Journal of Allied Health*, 41 (3), pp.131-139.

Wilson, E. and Sereti, I., 2013. Immune restoration after antiretroviral therapy: the pitfalls of hasty or incomplete repairs. *Immunological Reviews*. 254 (1) pp.343-354.

World Data Lab, 2018. *World Poverty Clock*. [online] Available at: <<http://worldpoverty.io/>> [Accessed: 10 April 2018].

World Health Organization, 2016. *CONSOLIDATED GUIDELINES ON THE USE OF ANTIRETROVIRAL DRUGS FOR TREATING AND PREVENTING HIV INFECTION 2016 RECOMMENDATIONS FOR A PUBLIC HEALTH APPROACH*. [pdf] Geneva: WHO. Available at<http://apps.who.int/iris/bitstream/10665/208825/1/9789241549684_eng.pdf?ua=1> [Accessed 01 September 2017].

World Health Organization, 2012. *WHO HIV DRUG RESISTANCE REPORT 2012*. [pdf] Geneva: WHO. Available at: <http://apps.who.int/iris/bitstream/10665/75183/1/9789241503938_eng.pdf> [Accessed 03 November 2015].

World Health Organization, 2007. *Laboratory Guidelines for enumerating CD4 T Lymphocytes in the context of HIV/AIDS*. [pdf] New Delhi: WHO. Available at: <<http://www.who.int/hiv/amds/LaboratoryGuideEnumeratingCD4TLymphocytes.pdf>> [Accessed 13 June 2018].

World Health Organization, 2003. *ADHERENCE TO LONG-TERM THERAPIES Evidence for action*. [pdf] Geneva: World Health Organization. Available at <http://www.who.int/chp/knowledge/publications/adherence_full_report.pdf> [Accessed 29 September 2015].

World Health Organization, 2002. *Innovative Care for Chronic Conditions*. [pdf] Geneva: World Health Organization. Available at: <<http://www.who.int/chp/knowledge/publications/icccglobalreport.pdf>> [Accessed 29 September 2015].

Yeagley, E.K., Kulbok, P.A., O'laughlen, M.C., Ingersoll, K.S., Rovnyak, V.G. and Rana, S., 2012. The Feasibility and Acceptability of a Motivational Interviewing Intervention for HIV- Infected Youth in an Urban Outpatient Clinic: A Pilot Study. *Journal of the Association of Nurses in AIDS Care*, 23 (4), pp.366-370.

Yin, H.S., Dreyer, B.P., Vivar, K.L., Macfarland, S., van Schaick, L. and Mendelsohn, A.L., 2012. Perceived Barriers to Care and Attitudes Towards Shared Decision- making Among Low Socioeconomic Status Parents: Role of Health Literacy. *Academic Pediatrics*, 12 (2), pp.117-124.

Yunusa, M.A., Njoku, C.H. and Obembe, A., 2014. Self-reported adherence to treatment: a study of socioeconomic factors and psychiatric morbidity among male and female patients with HIV infection in Sokoto, Nigeria. *Nigerian Journal of Medicine*, 23 (1), pp.33-39.

Zullig, L.L., Peterson, E.D. and Bosworth, H.B., 2013. Ingredients of successful interventions to improve medication adherence. *JAMA*, 310 (24), pp.2611-2612.

LIST OF APPENDICES

Appendix 1: Summary and Justification for the Exclusion of Studies in Chapter Two

S/N	Authors Name	Reason for Exclusion
1	Ndembi, 2015	The article was an editorial and not a study article
2	Maduka and Tobin-West, 2015	The article was a letter to an editor about the qualitative findings of a study, not a full report of the study
3	Aransiola et al., 2014	The study was focused on stigma and survival challenges and not about adherence to ART
4	Olowokere, Fatiregun and Adewole, 2012	The study was focused on knowledge and attitude and not on adherence to ART
5	Olowokere, Fatiregun and Osagbemi, 2009	The study was focused on awareness and attitudes of health, not on ART adherence
6	Ejekam et al., 2014	Neither abstract nor article was available
7	Ashraf et al., 2017	The article was retracted (Al-Mahmood, 2017)
8	Odili, Obieche and Amibor, 2016	Adherence threshold was not clear
9	Meloni et al., 2015	The article was focused on the predictors of loss to follow-up and pattern of adherence among patients who were not lost to follow-up.
10	Ebonyi et al., 2015	The study was focused on interruption on ART and not on adherence to ART
11	Uzochukwu et al., 2009	Adherence threshold was not clear
12	Torpey et al., 2012	Only abstract was available
13	Asekomeh, Ebong and Onwucheka, 2010	Only abstract was available
14	Goar et al., 2015	Discrepancy between the total number of participants recruited (160) in the study and number of participants who use substance compared to those who do not (165).
15	Yunusa, Njoku and Obembe, 2014	Adherence threshold was not clear
16	Adewuya et al., 2010	Adherence threshold was not clear
17	Cornelius et al., 2018	The focus groups were conducted with PMTCT clients, male partners, young women and other community members. It is not clear how much of the evidence from the study was supplied by PMTCT clients and the partners.
18	Ekwunife, Oreh and Ubaka, 2012	Adherence threshold was not clear

Appendix 2: Summary and Justification for the Exclusion of Studies in Chapter Four

Number	Author (s) of Study	Reasons for Exclusion of Studies
1	van Loggerenberg et al., 2015a	The study did not actually use MI, but techniques based on the approach were used.
2	Cook et al., 2009	The intervention used telephone counselling.
3	Cooperman et al., 2012	The study was carried out in USA.
4	Navarro et al., 2014	The study was carried out in Spain.
5	Adamian et al., 2004	The study was carried out in USA.
6	Allicock et al., 2017	The study was carried out in USA.
7	Dilorio et al., 2008	The study was carried out in USA.
8	Goggin et al., 2013	The study was carried out in USA.
9	Golin et al., 2006	The study was carried out in USA.
10	Gwardz et al., 2015	The study was carried out in USA.
11	Ingersoll et al., 2011	The study was carried out in USA.
12	Konkle-Parker et al., 2010	The study was carried out in USA.
13	Krummenacher et al., 2011	The study was carried out in Switzerland.
14	Thrasher et al., 2006	The study was carried out in USA.
15	Yeagley et al., 2012	The study was carried out in USA.
16	Uuskula et al., 2017	The study was carried out in Estonia.
17	Pradier et al., 2003	The study was carried out in France.
18	Holstad et al., 2011	The study was carried out in USA.
19	Parsons et al., 2007	The study was carried out in USA.
20	Outlaw et al., 2014	The intervention in the study did not involve a clinician-patient interaction, but a computer-based session that can be completed by the patient online.
21	van Loggerenberg et al., 2015b	Because the study's objective was focused on understanding what motivated patients to adhere to ART and not on application of MI.
22	Laisaar et al., 2013	The study was carried out in Estonia.

Number	Author (s) of Study	Reasons for Exclusion of Studies
23	Koken et al., 2012	Because the article was a process report of how Motivational Interviewing Treatment Integrity (a MI fidelity assessment system) was adapted for use in Thai language and communication culture.
24	Cooperman et al., 2007	This study was also excluded because it was the feasibility and the developmental phase of an intervention that has been further tested in a Randomized Controlled Trial [RCT] (Cooperman et al., 2012)
25	Dilorio et al., 2003	This study was also excluded because it was the pilot study of an intervention that has been later tested in a RCT (Dilorio et al., 2008)
26	Parsons, Rosof and Punzalan 2005	This study was excluded because it was also a pilot study of an intervention that has been tested in another RCT (Parsons et al., 2007)
27	Fox et al., 2016	MI was not used in the study.
28	Sutton et al., 2017	MI was not used in the study.
29	Letourneau et al., 2013	The study carried out in USA.

Appendix 3: FREP Approval



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Faculty of Medical Science

Ref:
Enquiries:
Direct Line:
Date: 20th September 2016

Olakunle Kayode

Dear Olakunle

Re: Application for Ethical Approval

Principal Investigator: Olakunle Kayode

FREP number:

Project Title: Motivational Interviewing for antiretroviral therapy adherence in Nigeria: A feasibility study.

Thank you for your application for ethical approval which has now been considered by the Faculty (of Medical Science) Research Ethics Panel (FREP).

I am pleased to inform you that your application has been approved by the Chair of the Faculty Research Ethics Panel under the terms of Anglia Ruskin University's Research Ethics Policy (Dated 23/6/14, Version 1).

Ethical approval is given for a period of 3 years from Tuesday 20th September 2016.

It is your responsibility to ensure that you comply with the Research Ethics Policy and Code of Practice for Applying for Ethical Approval at Anglia Ruskin University and specifically:

- Obtaining NHS REC and NHS R&D approval (if applicable) before commencement of the study. Please ensure you send the FREP copies of this documentation prior to commencing your study.
- The procedure for submitting substantial amendments to the committee, should there be any changes to your research. You cannot implement these changes until you have received approval from FREP for them.
- The procedure for reporting adverse events and incidents.
- The Data Protection Act (1998) and any other legislation relevant to your research. You must also ensure that you are aware of any emerging legislation relating to your research and make any changes to your study (which you will need to obtain ethical approval for) to comply with this.

-
- Obtaining any further ethical approval required from the organisation or country (if not carrying out research in the UK) where you will be carrying the research out. Please ensure that you send the FREP copies of this documentation if required, prior to starting your research.
 - Any laws of the country where you are carrying the research and obtaining any other approvals or permissions that are required.

- Any professional codes of conduct relating to research or research or requirements from your funding body (please note that for externally funded research, a Project Risk Assessment must have been carried out prior to starting the research).
- Completing a Risk Assessment (Health and Safety) if required and updating this annually or if any aspects of your study change which affect this.
- Notifying the FREP Secretary when your study has ended.

Information about the above can be obtained on our website at:

<http://web.anglia.ac.uk/anet/rdcs/ethics/index.phtml>

Please also note that your research may be subject to random monitoring by the Panel.

Should you have any queries, please do not hesitate to contact my office. May I wish you the best of luck with your research.

Yours sincerely,



Prof Selim Cellek
Director of Research
For the Faculty (of Medical Science) Research Ethics Panel

Appendix 4: FCTHREC Approval



FEDERAL CAPITAL TERRITORY

Health Research Ethics Committee

Research Unit, Room 10, Block A Annex, HHSS, FCTA Secretariat,
No. 1 Kapital Street Area 11, Garki, Abuja - Nigeria

Name of Principal Investigator: Olakunle Kayode

Address of Principal Investigator: Faculty of Medical Sciences, Anglia Ruskin University Bishop
Hall Lane Chelmsford, CM1 1SQ

Date of receipt of valid application: 06/10/2016

Notice of Research Approval

Approval Number:

Study Title: \ Motivational Interviewing for Antiretroviral Therapy in Nigeria: A Feasibility Study

This is to certify that the FCT Health Research Ethics Committee (FCT HREC) has approved the research described in the above stated protocol.

Effective Date: - 26/10/2016

Expiration Date: - 25/10/2017

Note that no activity related to this research may be conducted outside of these dates. Only the FCT HREC approved informed consent forms may be used when written informed consent is required. They must carry FCT HREC assigned protocol approval number and duration of approval of the study.

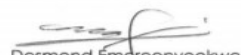
The National Code of Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations, and with the tenets of the code. The FCT HREC reserves the right to conduct compliance visit to your research site without prior notification.

Modifications: Subsequent changes are not permitted in this research without prior approval by the FCT HREC.

Problems: All adverse events or unexpected side effects arising from this project must be reported promptly to FCT HREC.

Renewal: This approval is valid until the expiration date. If you are continuing your project beyond the expiration date, endeavor to submit your annual report to FCT HREC early, and request for renewal of your approval to avoid disruption of your project.

Closure of Study: At the end of the project, a copy of the final report of the research should be forwarded to FCT HREC for record purposes, and to enable us close the project.


Desmond Emeraonyeokwe
For: Secretary, FCT HREC
October 26, 2016

Appendix 5: Languages Spoken by Study Participants

S/N	Study Code	First Language Spoken	Other Languages Spoken	Languages Used for Counselling
1	Y001	Tiv	English and Pidgin	N/A
2	Y002	Tiv	English and Pidgin	N/A
3	Y003	Surubu	Hausa and Pidgin	N/A
4	Y004	Efik	English and Pidgin	N/A
5	Y005	Bette	English, Yoruba and Pidgin	N/A
6	Y006	Eggom	English and Pidgin	N/A
7	Y007	Tiv	English and Pidgin	N/A
8	Y008	Idoma	English and Pidgin	N/A
9	Y009	Birom	Pidgin	N/A
10	Y010	Igbo	Pidgin	N/A
11	Y011	Igbo	English	N/A
12	Y012	Yala	English, Igbo and Pidgin	N/A
13	Y013	Icheve	English	N/A
14	Y014	Tiv	Pidgin	N/A
15	Y015	Yoruba	English and Pidgin	N/A
16	Y016	Hausa	Pidgin	N/A
17	Y017	Tiv	English, Hausa, Ibo, Yoruba, Pidgin and Idoma	N/A
18	Y018	Igala	English	N/A
19	Y019	Igbo	English and Pidgin	N/A
20	Y020	Yoruba	Pidgin and Birom	N/A
21	Y021	Igbo	English and Pidgin	N/A
22	X001	Yoruba	English and Pidgin	English, Yoruba and Pidgin
23	X002	Igbo	English and Pidgin	English and Pidgin
24	X003	Igbo	English, Hausa and Pidgin	English, Igbo and Pidgin
25	X004	Estako	English, Hausa and Pidgin	English, Hausa and Pidgin
26	X005	Yoruba	English and Pidgin	English and Pidgin
27	X006	Igbo	English and Pidgin	English and Pidgin
28	X007	Kuterb	English, Hausa and Pidgin	English, Hausa and Pidgin
29	X008	Yoruba	English and Pidgin	English and Pidgin
30	X009	Igbo	English and Pidgin	English, Igbo and Pidgin

N.B: Study codes for patients start with “Y” and for the counsellors “X”. **N/A** refers to Not Applicable.

Appendix 6: OnePass Scores for the Practice Sessions

	OnePass Item/Sessi -on Codes	X001 a	X001 b	X003 a	X003 b	X004 a	X004 b	X004 c	X004 d	X005 a	X005 b	X005 c	X006 a	X006 b	X006 c	X006 d	X008 a	X008 b	X000 9a	X009 b
1	Agenda Setting	5	0	3	0	1	5	6	7	1	1	5	4	0	4	0	1	0	0	0
2	Open Questions	2	2	3	2	3	5	6	6	2	2	3	5	6	5	4	6	2	2	2
3	Affirm Client	0	0	7	7	2	0	7	5	1	4	7	4	0	5	7	7	7	7	0
4	Reflective Listening	2	0	6	1	1	2	5	6	1	1	5	5	1	6	4	6	6	0	1
5	Evoke Change Talk	0	5	0	0	0	0	3	5	0	0	7	0	0	5	0	5	7	0	0
6	Elicit Importance	0	7	0	0	0	0	3	2	0	1	0	4	7	2	7	7	7	0	0
7	Elicit Confidence	0	0	7	0	0	0	7	7	0	4	7	2	0	7	0	0	0	0	0
8	Address Values	0	5	2	0	0	0	3	0	0	2	4	4	2	3	2	4	3	0	0
9	Respond to Affect	2	0	2	0	0	0	4	0	0	3	5	3	7	4	0	2	7	0	0
1 0	Roll with Resistance	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
1 1	Avoid Advice	0	0	0	0	0	0	2	4	0	0	0	0	0	4	0	5	7	0	0
1 2	Provide Menu	0	0	0	0	0	0	0	3	0	0	4	4	0	0	0	0	0	0	0
1 3	Support Autonomy	0	0	0	0	0	0	0	4	0	4	2	2	0	5	0	3	7	0	0
1 4	Explore, Guide and Choose	3	3	3	4	1	0	3	4	2	4	3	4	3	4	3	4	3	0	0
1 5	Summarize	0	0	7	0	0	0	7	7	0	1	2	2	0	4	0	0	7	2	0
1 6	Arrange Follow-Up	7	7	7	0	0	0	7	0	7	7	0	0	0	0	0	0	0	0	7
1 7	Demonstra te MI	1	2	5	0	0	1	4	4	1	2	4	2	2	5	4	5	6	0	0

	OnePass Item/Sessi on Codes	X001 a	X001 b	X003 a	X003 b	X004 a	X004 b	X004 c	X004 d	X005 a	X005 b	X005 c	X006 a	X006 b	X006 c	X006 d	X008 a	X008 b	X000 9a	X009 b
1 8	Overall Conduct	2	2	5	1	1	2	5	6	1	2	4	3	2	5	4	5	6	1	1
1 9	Talk Time	2	1	3	1	2	2	3	5	2	3	2	2	1	5	5	4	6	1	1
2 0	Reflection Ratio	1	0	1	1	1	2	1	3	1	1	1	4	1	4	3	3	4	0	0
2 1	Open- Closed Ratio	1	2	3	1	3	4	3	3	2	2	3	6	4	5	3	3	2	2	3
2 2	Complex- Simple Ratio	0	0	4	0	0	0	2	5	0	3	0	4	4	4	3	0	5	0	0

Appendix 7: Mixed Method Appraisal Tool Checklist

Types of mixed methods study components or primary studies	Methodological quality criteria (see tutorial for definitions and examples)	Responses		
		Yes	No	Can't tell
Screening questions (for all types)	<ul style="list-style-type: none"> Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)? 			
	<ul style="list-style-type: none"> Do the collected data allow address the research question (objective)? E.g., consider whether the follow-up period is long enough for the outcome to occur (for longitudinal studies or study components). 			
	Further appraisal may be not feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.			
1. Qualitative	1.1. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?			
	1.2. Is the process for analyzing qualitative data relevant to address the research question (objective)?			
	1.3. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?			
	1.4. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?			
2. Quantitative randomized controlled (trials)	2.1. Is there a clear description of the randomization (or an appropriate sequence generation)?			
	2.2. Is there a clear description of the allocation concealment (or blinding when applicable)?			
	2.3. Are there complete outcome data (80% or above)?			
	2.4. Is there low withdrawal/drop-out (below 20%)?			
3. Quantitative nonrandomized	3.1. Are participants (organizations) recruited in a way that minimizes selection bias?			
	3.2. Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes?			
	3.3. In the groups being compared (exposed vs. non-exposed; with intervention vs. without; cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups?			
	3.4. Are there complete outcome data (80% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?			

4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?			
	4.2. Is the sample representative of the population understudy?			
	4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?			
	4.4. Is there an acceptable response rate (60% or above)?			
5. Mixed methods	5.1. Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?			
	5.2. Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?			
	5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results*) in a triangulation design?			
	<i>Criteria for the qualitative component (1.1 to 1.4), and appropriate criteria for the quantitative component (2.1 to 2.4, or 3.1 to 3.4, or 4.1 to 4.4), must be also applied</i>			
*These two items are not considered as double-barreled items since in mixed methods research, (1) there may be research questions (quantitative research) or research objectives (qualitative research), and (2) data may be integrated, and/or qualitative findings and quantitative results can be integrated.				

Appendix 8: Information Sheet for HIV Patients

Title of study: Motivational Interviewing for HIV drug adherence in Nigeria: A feasibility study.

Who is conducting the study?

This study will be carried out by Olakunle Lekan, Kayode who is a PhD student of the Faculty of Medical Sciences of Anglia Ruskin University, United Kingdom. Kayode can be contacted for further information on phone: XXX or via email: XXX. This study will be supervised by Fiona McMaster (PhD) and Professor Sarah Redsell.

Purpose of the study

This study will look at how a counselling approach known as Motivational Interviewing (MI) can be applied to help HIV patients in Nigeria take their HIV drugs as recommended.

Why have I been approached?

You have been approached to help in this study because you are adult aged 18 years or older, who is receiving HIV drugs services. This study will take place at Wuse General Hospital in Abuja and it is expected that about 55 HIV patients like you will be recruited from the hospital to participate in the study.

What do I have to do?

Your involvement in this study will begin after you have agreed to participate by signing a consent form. If you are not able to sign the consent form, your verbal agreement will be audiotaped.

After you have agreed to participate in the study, some details about you will be collected by Kayode. At the next meeting with your HIV drugs counsellors, they will use MI approach to talk to you about how to take your HIV drugs. The counselling session will be audiotaped and will last less than an hour. Kayode may be present during the counselling session, but that is if you consent to this.

For the purpose of this study, you may be counselled in English, Yoruba or Nigerian Pidgin. However, the language in which you will be counselled will depend on an agreement between you and your HIV drugs counsellor.

After your counselling session you will be invited to participate in a telephone interview with Kayode to talk about your experiences with the MI counselling approach. This telephone interview will last less than an hour and Kayode will talk to you in English. However, if you cannot speak English, provision will be made to carry out the telephone interview in any of the other study languages (Pidgin or Yoruba) in which you can communicate. The interview will also be audiotaped.

When will the study take place and for how long?

This study is expected to be carried out within 6 months starting from 1st of March 2017 till 31st of August 2017.

Will there be an adverse event?

You are not expected to experience any side effect as a result of this study. However, if you feel emotional or experience any side effect as a result of this study, you should report it to your counsellor who will provide necessary care for you.

What are the benefits to me?

You may benefit directly from this study through improvement in the taking of your HIV drugs as recommended.

Is my participation voluntary and how can I withdraw from the study?

We recommend that you take your time to read this document carefully before signing the consent form. Efforts will be made by Kayode to ensure that you understand the information that has been provided for you about the study in this document before signing the consent form. To ensure this, Kayode will telephone you two weeks after you have collected this document to arrange to meet for further explanations regarding the study. This meeting will allow you to ask questions that may have arisen from this document. You will be expected to make a decision to participate in this study within one week after the meeting. Your participation in the study is voluntary and you may refuse to participate or withdraw from the study at any time without penalty or loss of benefits to which you are entitled.

If you wish to withdraw from the study, you can inform Kayode or Dr. McMaster verbally or in writing through a letter or email. You do not have to give a reason for withdrawing from the study. Any data that we have collected from you before you withdraw from the study will be discarded.

Will my identity be protected?

The main risk of being in this study for you is that your identity as an HIV patient may be known by other people. Based on this, all information that may identify you will be considered private and managed in line with the UK Data Protection Act, 1998 and Nigerian National Health Act, 2014. Hence, your identity will be concealed and if the findings from this study is published, your identity will be protected.

Will the personal information I supply be protected?

Apart from Kayode, Dr. McMaster and Professor Redsell, any information that you may supply as a result of this study will not be shared with any other persons. Such information may only be released if required by the Faculty Research Ethics Panel of Anglia Ruskin University (FREP), Federal Capital Territory Health Research Ethics Committee (FCTHREC) or by court order.

How will the data collected from the study be stored?

The audiotapes for this study and other study documents will be stored in a locked filing cabinet until the end of the study. All electronic information obtained during the process of this study will be stored on computers that are password protected.

Your agreement to participate in this study will be in effect until the study is completed. However, your information will not be reused for purposes other than the study described in this document without your written permission. All original data obtained during this study will be destroyed after the completion of the study.

Will I be informed about the study's findings?

Kayode will ensure that you are informed in a timely manner during the study if information becomes available that may be relevant to your willingness to continue participating in the study. Kayode will also contact you at the end of the study to inform you of the findings of the study.

How will I lodge my complaints if I have some concerns?

In case you have concerns about any aspect of the study, you can talk first with Kayode (XXX). If your concern is not satisfactorily dealt with by Kayode, you can talk with Dr. McMaster (XXX). However, after talking with Dr. McMaster if your concerns are still not satisfactorily dealt with, you can lodge your complaint with Anglia Ruskin University via email: XXX or via letter addressed to The Secretary and Clerk, Anglia Ruskin University, Chelmsford, Essex, CM1 1SQ.

YOU WILL BE GIVEN A COPY OF THIS DOCUMENT TO KEEP TOGETHER WITH A
COPY OF YOUR CONSENT FORM

Appendix 9: Information Sheet for Adherence Counsellors

Title of study: Motivational Interviewing for HIV drug adherence counselling in Nigeria.

Who is conducting the study?

This study will be carried out by Olakunle Lekan, Kayode who is a PhD student of the Faculty of Medical Sciences of Anglia Ruskin University, United Kingdom. Kayode can be contacted for further information on phone: XXX or via email: XXX. This study will be supervised by Fiona McMaster (PhD) and Professor Sarah Redsell.

Purpose of the study

This study will look at how a counselling approach known as Motivational Interviewing (MI) can be applied to help HIV patients in Nigeria take their HIV drugs as recommended.

Why have I been approached?

You have been approached to help in this study because you are a healthcare personnel who

counsels HIV patients to take their HIV drugs as recommended. This study will take place at Wuse General Hospital in Abuja. It is expected that approximately 10 health personnel like you who counsel patients to take their HIV drugs will be recruited to participate in the study. **What do I have to do?**

Your involvement in this study will start after you have agreed to participate by completing the consent form that is provided with this document.

After you have agreed to participate in this study, some details about you will be collected by Kayode. As part of the study, you will be asked to help recruit HIV patients. You will do this by informing HIV patients who are receiving HIV drugs services in the hospital where you work about the study during counselling sessions about their drugs. You will be asked to refer HIV patients who indicate interest to participate in the study to Kayode for further recruitment processes. As part of the study, you will also be required to attend a 3-day training course that will take place within the hospital where you work, to learn how to use the MI approach. After the MI training, you will use the MI approach to counsel HIV patients who are recruited into this study about their HIV drugs on their next visit to the HIV clinic for HIV drugs counselling. Each counselling session will last less than an hour and will be audiotaped. Kayode may be present during the counselling session, but that is if you consent to this. You may counsel the patients in English, Yoruba or Nigerian Pidgin. However, the language you will use to counsel the patients will depend on an agreement between you and the patients.

At the end of the study, you will be invited to participate in a telephone study interview with Kayode to talk about your experiences with the MI approach. This telephone interview will last less than an hour and Kayode will talk to you in English.

When will the study take place and for how long?

This study is expected to be carried out within 6 months starting from 1st of March 2017 till 31st August 2017.

Will there be an adverse event?

Participation in this study is not expected to cause any harm to you.

What are the benefits to me?

By participating in this study, you will have the opportunity to benefit from the free MI training that will be directly delivered by Dr Fiona McMaster who is an established member of the Motivational Interviewing Network of Trainers (MINT). She delivers MI training regularly in Nigeria, Senegal, China, Singapore and in the UK. It is expected that this training will contribute to your professional development and you will be issued a certificate for the training.

Is my participation voluntary and how can I withdraw from the study?

We recommend that you take your time to read this document carefully before signing the consent form. Effort will be made by Kayode to ensure that you understand the information that has been provided for you about the study in this document before signing the consent form. To ensure this, Kayode will telephone you two weeks after you have collected this document to arrange to meet for further explanations regarding the study. This meeting will allow you to ask questions that may have arisen from this document. You will be expected to make a decision to either participate in this study or not within one week after the meeting. Your participation in the study is voluntary and you may refuse to participate or withdraw from the study at any time without penalty or loss of benefits to which you are entitled.

If you wish to withdraw from the study, you can inform Kayode or Dr. McMaster verbally or in writing through a letter or email. You do not have to give a reason for withdrawing from the study. Any data that we have collected from you before you withdraw from the study will be discarded.

Will my identity be protected?

The main concern in this study for you as an HIV drug counsellor may be the fear of being judged by other health personnel on the basis of your ability to use a new clinical approach. Based on this, all information that may identify you will be considered private and managed in line with the UK Data Protection Act, 1998 and Nigerian National Health Act, 2014. Hence, your identity will be concealed and if the findings from this study is published, your identity will be protected.

Will the personal information I supply be protected?

Apart from Kayode, Dr. McMaster and Professor Redsell, any information that you may supply as a result of this study will not be shared with any other persons. Such information may only be released if required by the Faculty Research Ethics Panel of Anglia Ruskin University

(FREP), Federal Capital Territory Health Research Ethics Committee (FCTHREC) or by court order.

How will the data collected from the study be stored?

The audiotapes for this study and other study documents will be stored in a locked filing cabinet until the end of the study. All electronic information obtained during the process of this study will be stored on computers that are password protected.

Your agreement to participate in this study will be in effect until the study is completed. However, your information will not be reused for purposes other than the study described in this document without your written permission. All original data obtained during this study will be destroyed after the completion of the study.

Will I be informed about the study's findings?

Kayode will ensure that you are informed in a timely manner during the study if information becomes available that may be relevant to your willingness to continue participating in the study. Kayode will also contact you at the end of the study to inform you about the findings of the study.

How will I lodge my complaints if I have some concerns?

In case you have concerns about any aspect of the study, you can talk first with Kayode (XXX). If your concern is not satisfactorily dealt with by Kayode, you can talk with Dr. McMaster (XXX). However, after talking with Dr. McMaster if your concerns are still not satisfactorily dealt with, you can lodge your complaint with Anglia Ruskin University via email: XXX or via letter addressed to The Secretary and Clerk, Anglia Ruskin University, Chelmsford, Essex, CM1 1SQ.

YOU WILL BE GIVEN A COPY OF THIS DOCUMENT TO KEEP TOGETHER WITH A
COPY OF YOUR CONSENT FORM

Appendix 10: Informed Consent Form

Title of the study: Motivational Interviewing (MI) for antiretroviral therapy (ART) adherence in Nigeria: A feasibility study.

Principal Investigator: This study will be carried out by Olakunle Lekan, Kayode who is a PhD student of the Faculty of Medical Sciences of Anglia Ruskin University, United Kingdom. Kayode can be contacted for further information on phone: XXX or via email: XXX.

Study Supervisors: This study will be supervised by Fiona McMaster (PhD) and Professor Sarah Redsell.

1. I agree to take part in this study. I have read the description of the study or have had it translated to me in the language that I understand. I understand what I have to do in the study and all my questions have been answered to my satisfaction. ☐
2. I understand that I am free to withdraw from the study at any time, for any reason and without any penalty. ☐
3. I have been informed that the confidentiality of the information that I provide in this study will be safeguarded. ☐
4. I have been informed that I am free to ask any questions at any time before and during the study. ☐
5. I have been provided with a copy of this form and the participant information sheet. ☐

Data Protection: I agree to the University¹ processing of personal data which I have supplied. I agree to the processing of such data for any purposes connected with this study as outlined in the participant information sheet.

Name of participant

Signed..... Date.....

- I approve/disapprove that Olakunle can be present during the counselling session that I will attend for this study only for the purpose of audiotaping the session.

Signed..... Date.....

- I also approve that the counselling session that I will attend for this study and the post-study interview that I will participate in can be audiotaped only for the purpose of this study.

Signed..... Date.....

¹ "The University" includes Anglia Ruskin University and its partner colleges

Statement of the Principal Investigator obtaining informed consent:

I have fully explained details of this study to _____ and have given him/her sufficient information, including about risks and benefits of the study, to make an informed decision.

Date: _____

Signature: _____

Name: _____

YOU WILL BE GIVEN A COPY OF THIS FORM TO KEEP

If you wish to withdraw from the study, please complete the form below and return to Olakunle.

Title of the study:

I WISH TO WITHDRAW FROM THIS STUDY

Name: _____

Signature: _____

Date: _____

FREP approval Number: 15/06 087 and FCTHREC approval number.

FHREC/2016/01/77/26-10-16

Appendix 11: Demographic Data Form

STUDY TITLE: *Motivational Interviewing (MI) for HIV drugs adherence in Nigeria: a feasibility study*

Purpose of the study

This study will look at how a counselling approach known as Motivational Interviewing (MI) can be applied to help HIV patients in Nigeria take their HIV drugs as recommended.

We therefore would like to ask a few questions about you. You can answer each question by ticking the boxes next to the answer options provided. However, if your answer choice (s) involve (s) those where you are asked to specify, kindly write your appropriate response on the spaces provided.

SECTION A: Questions in this section are required to be completed by both HIV patients and antiretroviral therapy adherence counsellors.

1. How old are you?

a) Please specify.....

b) Prefer not to say ☐

2. Which of these gender categories describes you best?

a) Male ☐

b) Female ☐

c) Prefer not to say ☐

3. What is your ethnic background?

a) Hausa ☐

b) Ibo ☐

c) Yoruba ☐

d) Any other Nigerian tribe ☐ Please specify.....

e) Prefer not to say ☐

4. What is your first language (mother's tongue)?

- a) Hausa ☐
- b) Igbo ☐
- c) Yoruba ☐
- d) Any other Nigerian language ☐ Please specify.....
- e) Prefer not to say ☐

5. Which other language (s) do you speak apart from your first language (mother's tongue)?

- a) English ☐
- b) Hausa ☐
- c) Igbo ☐
- d) Yoruba ☐
- e) Pidgin ☐
- f) Any other language ☐ Please specify.....
- g) Prefer not to say ☐

6. Which of these is the highest level of education that you have completed?

- a) No schooling completed ☐
- b) Primary school education ☐
- c) Secondary school education ☐
- d) Technical/Vocational training ☐
- e) Ordinary National Diploma (OND) ☐
- f) Higher National Diploma (HND) ☐
- g) Bachelor's degree ☐
- h) Advanced degrees ☐
- i) Any other qualification ☐ Please specify.....
- j) Prefer not to say ☐

SECTION B: Questions in this section are required to be completed only by health personnel who counsel HIV patients about their HIV drugs adherence.

7. Which language(s) do you use when talking to HIV patients about their HIV drugs?

- a) English ☐
- b) Hausa ☐
- c) Igbo ☐
- d) Yoruba ☐
- e) Pidgin ☐
- f) Any other language ☐ Please specify.....
- g) Prefer not to say ☐

8. Which of these describe your occupational role (s)?

- a) A Nurse ☐
- b) A trained HIV counselling and Testing Counsellor ☐
- c) A Medical Doctor/Physician ☐
- d) Any other profession ☐ Please specify.....
- e) Prefer not to say ☐

9. How long have you been practising after your professional qualification?

- a) Less than 1 year ☐
- b) 1 year ☐
- c) More than 1 year ☐ Please specify.....
- d) Prefer not to say ☐

Thank you!