ACCESS TO, AND UTILISATION OF MALARIA PREVENTION INFORMATION AMONG RURAL DWELLERS IN OYO AND OSUN STATES, NIGERIA

BY

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ABSTRACT

Malaria is a major health challenge in Nigeria and many studies have focused on aspects of its prevention. However, scant attention has been given to the content of prevention information and how people at the grassroots access and utilise it. Therefore, access to, and utilisation of malaria prevention information among rural dwellers in Oyo and Osun States, Nigeria were examined with a view to establishing suitability of the information for the rural dwellers.

Social Marketing, Diffusion of Innovations and the Health Belief Model were adopted as framework. Content analysis, survey and interpretive designs were used. Oyo and Osun States were purposively selected based on differentials in malaria Advocacy, Communication and Social Mobilisation (ACSM) activities. Random sampling technique was used to select five rural Local Government Areas (LGAs), while two rural communities with primary health centres from the LGAs were selected purposively. A questionnaire was administered on 2,200 respondents (in households) and 16 focus group discussions were held (with men, women and expectant mothers) in primary health centres across the 20 rural communities. Eight key informant interviews were conducted with officials engaged in ACSM. Six radio jingles on malaria prevention, three generic posters and two charts were content analysed. The charts were Roll Back Malaria's (RBM) Interpersonal Communication (IPC) Chart (Osun State) and Interpersonal Communication Flip Chart for Malaria Control in the Community (IPCFCMC) by Malaria Action Programme for States (Oyo State). The generic posters were Disease Prevention, Take Good Care of Your Net and NetSafe (Oyo and Osun States). Quantitative data were analysed using descriptive statistics, while qualitative data were subjected to explanation building technique.

Respondents accessed information on malaria prevention through health officers (55.1%), television (47.0%), community volunteers (45.3%) and radio (44.3%). There were, however, high indicators of utilisation of malaria prevention information: regular sanitation of environment (76.2%), washing of nets (65.1%), sleeping under insecticidal treated nets (62.4%), and willingness to see a medical doctor at the onset of malaria (80.5%). Radio jingles (78.1%), IPC Guide (82.0 %), IPCFCMC (74.1%) and generic posters (64.0%) showed high level of suitability for the rural dwellers. Two messages; 'Malaria in Pregnancy' (40.5%) and 'What is the Way out?' (35.1%) in IPCFCMC and 'Disease Prevention' (35.1%), with culturally inappropriate models and ambiguous illustrations, were not suitable for use. Respondents (62.7%) understood Artemisinin-based Combination Therapy as the combination of drug recommended for the treatment of malaria. Discussants were not quite exposed to the contents of flip charts on malaria prevention communication, and could not recall messages unless prompted. There was a good understanding of the signs and symptoms of malaria. Expectant mothers were primed about the dangers of malaria-in-pregnancy. Insufficient funding, lack of coordination between the states and RBM partners, and a weak ACSM restricted access to malaria prevention information.

Despite average access to malaria prevention information through health personnel, mass media, and the unsuitability of some messages in malaria information charts, rural residents in Oyo and Osun States exhibited high rate of utilisation of prevention messages.

Keywords: Malaria information, Malaria prevention, Roll Back Malaria, Primary health care

Word count: 493

CERTIFICATION

I certify that this work was carried out by Mr. Abiodun Solomon Oyeleye in the Department of Communication and Language Arts, University of Ibadan.

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DEDICATION

This work is dedicated to:

The Almighty, for supporting me all through the challenges that came while compiling this work,

The sweet memories of my parents, who did all they could to give me education, despite their limited means, before their departure and,

All men and women of goodwill working on the development of effective communication strategies for the prevention, elimination and eradication of malaria, in Nigeria.

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TABLE OF CONTENTS

		Page
Title page		**i**
Abstract		**ii**
Certification		**iii**
Dedication		**iv**
Acknowledgments		**v**
Table of contents		**vi**
List of Figures		**vii**
List of tables		**x**
List of Acronyms		**xii**
CHAPTER ONE: INTRODUCTION		
1.0	Background to the study	1
1.1	Malaria Situation in Nigeria	2
1.2	Malaria Situation in Oyo and Osun States	4
1.3	Statement of the Problem	7
1.4	Research Questions	8
1.5	Objectives of the Study	9
1.6	Research Hypotheses	9
1.7	Significance of the Study	10
1.8	Scope of the Study	10
1.9	Limitations of the Study	12
1.10	Operational Definition of Terms	12
CHAPTER TWO: LITERATURE REVIEW		
2.0	Introduction	14
2.1	Malaria	14
2.2	Access to malaria prevention information in South-West Nigeria	20
2.3	Utilisation of malaria prevention information in Oyo and Osun States	27

2.4 Factors influencing access to, and utilisation of malaria prevention information 29
2.5 Malaria prevention information and the National Malaria Control Strategic Plan (NMCSP) 33
2.6 Culture, behaviour and perception about malaria 37
2.7 Review of empirical studies 39
2.8 Current efforts on malaria control communication 45
2.9 Theoretical framework 47
2.9.1 The Social Marketing Theory 47
2.9.1.1 Basic assumptions of Social Marketing Theory 47
2.9.2 Diffusion of Innovations 49
2.9.2.1 Assumptions of the Diffusion of Innovations Theory 50
2.9.3 The Health Belief Model 51
2.9.3.1 Core assumptions of Health Belief Model 52

CHAPTER THREE: METHODOLOGY

3.0 Introduction 56
3.1 Research Design 56
3.2 Study Objectives 56
3.3 Study Sites 57
3.4 Study Population 57
3.5 Sample Size 58
3.6 Sampling Procedure 58
3.7 Research Instruments 64
3.7.1 Questionnaire 64
3.7.2 Content Categories 64
3.7.3 Focus Group Discussion (FGD) Guide 68
3.7.4 Key Informants Interview Guide 68
3.8 Validity of Instruments 68
3.9 Reliability of Instruments 69
3.10 Ethical approval 70
3.11 Methods of data collection 70
3.12 Methods of data analysis 71

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION OF FINDINGS 73

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary 186

5.2 Implications of Study and Contributions to Knowledge 187

5.3. Major Findings 188

5.4. Conclusion 190

5.5 Recommendations 192

5.6 Suggestions for further studies 194

References **195**

Appendices **216**

LIST OF FIGURE

Figure	Title	Page
1	Diagrammatic illustration of the Health Belief Model	54

LIST OF TABLES

Tables	Sub-Title	Page
Table 3.1:	List of communities selected for survey in Oyo and Osun States	60
Table 3.2:	List of PHCs selected in each LGA for FGD	62
Table 4.1	Distribution of respondents by their marital status, religion and occupation	74
Table 4.2	Distribution of respondents by their education, age and gender	75
Table 4.3	Respondents' perception of causes and treatment of malaria	77
Table 4.4	Friedman Test of perception about causes and treatment of malaria by respondents	79
Table 4.5	Cross tabulation of religion of respondents and perception that 'witches can cast spell on malaria on people'	86
Table 4.6	Cross tabulation of religion of respondents and perception that 'malaria can be caused by exposure to evil air'	88
Table 4.7	Cross tabulation of religion of respondents and perception of prayer as cure for malaria	90
Table 4.8	Cross tabulation of religion of respondents and perception of herbs as cure for malaria based on	92
Table 4.9	Frequency of receiving malaria prevention information from sources of information by respondents	98
Table 4.10	Friedman test of frequency of receiving malaria prevention information from sources of information by respondents	100
Table 4.11	Perceived credibility of sources of malaria prevention information by Respondents	105
Table 4.12	Friedman Test of credibility of available sources of information on malaria prevention by respondent	107
Table 4.13	Perceived influence of information sources on knowledge of malaria prevention among respondents	110
Table 4.14	Friedman test on the perceived influence of sources of information on malaria prevention among respondents.	112
Table 4.15	Scores of radio jingles by content categories	119

Table 4.16	Scores for 'Inter-Personal Communication Flip Chart for Malaria Prevention in the Community' by content categories	130
Table 4.17	Scores for content analysis of RBM's 'Malaria IPC GUIDE	137'
Table 4.18	Scores for content analysis of three 'generic posters'	141
Tables 4.19	Identification of radio jingles on malaria prevention by respondents	146
Tables 4.20	Symptoms of malaria mentioned by respondents	154
Table 4.21	Level of understanding of malaria prevention and treatment among respondents	157
Table 4.22	Attitude of respondents to malaria prevention	166
Table 4.23	Utilisation of malaria prevention information by respondents	168
Tables 4.24	Differences in Utilisation of Malaria Prevention Information by respondents	171
Table 4.25	Correlation of Knowledge, Attitude and Practice of respondents on information about malaria prevention	174
Table 4.26	Test of $H_0$1: There is no significant relationship between access to malaria prevention information and adoption of malaria preventive measures among rural dwellers in Oyo and Osun States.	180
Table 4.27	Test of $H_0$2: There is no significant relationship between the perception of rural dwellers in Oyo and Osun States and their utilisation of malaria prevention information.	182

List of Acronyms

ACCOMIN	Association of Civil Society Organisations (CSOs) working on Malaria Prevention and Nutrition (ACCOMIN).
ACSM	Advocacy, Communication and Social Mobilisation
ACTs	Artemisinin-based Combination Therapy
BCC	Behaviour Change Communication
CPA	Communication Priority Action
CQ	Chloroquine
CVs	Community Volunteers
DDT	Dichloro-diphenyl-trichloroethane
IEC	Information, Education and Communication materials
IMPAC	ITN Massive Promotion and Awareness Campaign
IPTp	Intermittent Preventive Treatment for Pregnant Women
IRS	Indoor Residual Spraying
ITN	Insecticidal Treated Net
LLIN	Long Lasting Insecticidal Treated Nets
MAPS	Malaria Plan in States
MIS	Malaria Indicator Survey
MPO	Malaria Programme Officer
MRMs	Malaria Role Models
NBS	National Bureau of Statistics
NDHS	Nigeria Demographic and Health Survey
NMCSP	National Malaria Prevention Strategic Plan
NMEP	National Malaria Eradication Programme
NPC	National Population Commission
PHC	Primary Health Centre
PPD	Purified Protein Derivative
PR	Principal Recipient
RBM	Roll Back Malaria
SFH	Society for Family Health
SFMC	Strategic Framework for Malaria Communication
SP	Sulfadoxine/pyrimethamine

SR	Sub Recipient
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

APPENDICES

Appendix 1	Questionnaire (English version)	215
Appendix 2	Questionnaire (Yoruba version)	224
Appendix 3	Focus Group Discussion Guide	233
Appendix 4	Key-Informants Interview Guide	234
Appendix 5	Content coding sheet for malaria prevention information produced by Roll Back malaria and partners	235
Appendix 6	Content coding sheet for malaria prevention information produced by Roll Back Malaria and partners on radio	237
Appendix 7	Radio jingles produced by MAPS and Osun Malaria Programme	238

CHAPTER ONE
INTRODUCTION

1.0 Background to the study

Communication plays a significant role in the creation, gathering and sharing of information that can influence behaviour. One of such behaviours is how individuals and groups can live healthy lifestyles. This is why health promoters design behavioural strategies that will ensure the attainment of specific health promotion goals using the tool of communication. This is the focus of health communication. According to Elegbe (2010) and Harvard School of Public Health (2011) communication is central to living, and is necessary for effective decision-making as an everyday affair that cuts across boundaries of age, gender, works, et cetera. Communication is therefore conceptualised as the central social process in the provision of health care delivery and the promotion of public health, within the field of health communication (Kreps, 1988). The Harvard School of Public Health (2011) defines health communication as "the study of how health information is generated and disseminated and how that information affects individuals, community groups, institutions and public policy." Health communication is the combination of two concepts; 'health' and 'communication'.

The classical definition of health provided by the World Health Organisation (1948) is, "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Health is also defined as 'the general condition of the body or mind, especially in terms of the presence or absence of illnesses, injuries, or impairments', (Microsoft® Encarta®, 2009) while communication refers to the process of exchanging information between two parties. Therefore, health communication would refer to the process of exchanging information between two or more parties with the aim of enhancing the absence of illness, injuries or impairments of the body or mind of one of the parties in the exchange, particularly the receiver of the message. There are two broad categorisations of health and communication. The first is health-related information while the other is health-related behaviour. In their studies, Witte, Meyer, Bidol, Casey, Kopfman, Maduschke, Marshal, Morrison, Ribisl and Robbins (1996) consider the first category as referring to "any information via any channel that is pertinent to an individual's mental, physical, emotional, and spiritual well-being" while the latter is seen as " any actions or non-actions that influence an individual's mental, physical, emotional, and spiritual well-being.". Every health communication initiative must take cognisance of this categorisation because in essence, the

focus of every such initiative is to influence health behaviour through effective communication.

Five key concepts stand out in the definitions above that have bearing on the focus of this study: 'the creation or generation of health information', 'the dissemination, exchange or sharing of health information', 'the utilisation of health information' or 'how health information affects the target audience', 'the varying environments for the exchange or transmission of health information' and lastly 'health related behaviour' (Harvard School of Public Health, 2011, Witte et al, 1996). Whether at the level of the individual, community or institution, these factors combine to affect the success of every health promotion effort and ultimately reflect on the health of the individual and community as a whole. This study investigates access to, and utilisation of malaria prevention information among rural dwellers in Oyo and Osun states.

1.1 Malaria Situation in Nigeria

Malaria is Nigeria's most significant health problem accounting for 25% of under-5 mortality, 30 % childhood mortality and 11 % maternal mortality (Federal Ministry of Health and National Malaria Control Programme, n.d: 1). About 50 % of the population is projected to have at least one episode of malaria annually while children aged below 5 years (about 24 million) will have two to four attacks of malaria within the same period. Federal Ministry of Health and National Malaria prevention Programme, (2010: 1) posits that malaria is responsible for an estimated 300,000 deaths per year in Nigeria and nearly 110 million cases of the disease are reported in a year. According to Iroegbu (2018: para 1, https://www.thisdaylive.com/index.php/2018/05/03/adewole-malaria-remains-a-major-public-health-problem-in-nigeria/), quoting Nigeria's Minister of Health, Professor Isaac Adewole during the 2018 World Malaria Day, Nigeria spends about N480 billion on the prevention and treatment of malaria every year.

In terms of regional spread, National Malaria Elimination Programme (NMEP), National Population Commission (NPopC), National Bureau of Statistics (NBS), and ICF International et al. (2016) indicate that the South-West zone had the highest malaria prevalence at 50% followed by the North Central (49%), and North- West (48%), while the lowest prevalence zones were South- East (28%), North East (31%), and South- South (32%). Similarly, results of the 2015 Malaria Indicator Survey (National Malaria Elimination Programme (NMEP) et al., 2016) indicate that ownership of 'any mosquito net', a key source

of malaria prevention, was highest in the North- West (91.3%) and lowest in the South -West (56.8%) just as the ownership of an Insecticide Treated Net (ITN) was also highest in the North-West (90.8%) and lowest in the South-West (53.0%). In terms of ownership of Long Lasting Insecticide Treated Nets (LLIN), the South-West also came last at 53.0% among the six regions while the North-West recorded 90.6%.

The South –West also has the lowest record in terms of net ownership per household, for any of the three categories; 'any mosquito net' (1.0%), 'ITN' (1.0%), and 'LLIN' (1.0%) compared with the North-West that recorded 2.4%, 2.3% and 2.3% respectively for the categories. The 2015 Malaria Indicator Survey (MIS) also evaluated the ownership of one net for two persons in the household and still the South-West came last among the six regions with a record of 24.9% across the three categories. The South-West record was also lower than the 74.7% national figure of net ownership among rural dwellers in the country. In terms of net ownership per household, the national percentage for rural dwellers was 1.8% across the three categories; 'any mosquito net', 'ITN', and 'LLIN' compared with 1.0% in the South-West. For ownership of one net for two persons in the household under the survey, the national figure for rural dwellers was 39.6%, 38.1% and 38.0% respectively for the three categories compared with 24.9% for the South-West across the categories.

The Survey also exposed the poor state of the utilisation of mosquito nets as preventive measures against malaria in the South-West. For instance, the percentage of respondents from the region who 'slept inside any mosquito net' the night preceding the MIS was 22.7% compared with 55.1% in the North-East and 45.9% in the North-West while those 'who slept inside an ITN' was 21.1% in the South-West, 54.4% in North-East and 45.4% in North-West. For those 'who slept inside an LLIN' in the same period, the figure for South-West was 21.1% compared with 54.3% in the North-East and 45.4% in the North-West. The percentage of respondents from the South-West 'who slept inside an ITN last night or in a dwelling sprayed with Indoor Residual Spraying (IRS) in the past 12 months according to the survey was 21.7% compared with 54.7% in North-East and 47.2% in North-West. For the percentage of respondents 'who slept inside an ITN' the South-West record was 36.0%, the only instance it did not record the lowest among the regions as it led the South-East which has 31.3%.

1.2 Malaria situation in Oyo and Osun States

There are currently limited state-by state analyses of the malaria situation across the country. However, the 2013 NDHs and 2015 MIS give a breakdown of some of the variables in Oyo and Osun states. In terms of net ownership, the 2013 NDHS indicates that while only 42.9% of respondents in Oyo had 'any mosquito net' the figure was 24.8% in Osun state, and while 39.1% of respondents in Oyo state had 'an ITN', only 23.1% had such in Osun state. Also while 36.8 % of respondents in Oyo state claimed to have 'an LLIN', the figure was 17.6% in Osun state. In terms of average net per household, the figure was 0.7% in Oyo state and 0.4% in Osun state for 'any net', the same figure for 'ITN', while in terms of ownership of at least one net for two people in a household, 19.0% respondents in Oyo claimed to have 'any net' compared with 9.4% in Osun, 17.5% in Oyo claimed to have an ITN in their household, compared with 9.0% in Osun. It is worthy of note that in the 2013 NDHS report, Osun state had the least performance among the six states in the South-west zone in terms of ownership of mosquito nets while Oyo state was in the fourth position. The state with the most active was Ondo which has 64.9% in ownership of 'any net', 58.4% for ITN, 52.0% for LLIN, 1.2% for ownership of 'any net' in an household, 1.1% for ITN in an household, 1.1% for LLIN in an household, 36.6% for 'any net' in an household with one net for at least two people, 32.6% for ITN and 28.7% for LLIN.

In terms of indoor residual spraying (IRS) both states had negative reports for percentage of residents who used IRS in the last twelve months preceding the 2013 NDHS. However, Oyo had 39.1% of respondents claiming to have used an ITN along with IRS in the last twelve months preceding the report while 23.1% of Osun residents claimed to have used the same method under the same period. In terms of using ITN or IRS for every two persons in a household in the last twelve months preceding the report, the figure for Oyo was 17.5% as against 8.9% for Osun state. In terms of sleeping under a mosquito net, 17.3% of respondents from Oyo claimed to have slept under 'any net' in the report period, as against 4.7% from Osun state. Also 16.2% from Oyo indicated to have slept under an ITN, against 4.4%% from Osun, 15.2%% from Oyo claimed to have slept under an LLIN, compared with 3.6%% from Osun, and while 16.2% indicated to have slept under 'any net or IRS' in Oyo only 4.4%% of respondents from Osun made such claim. In terms of those who slept under an ITN the night before the survey, the figure was 36.2% for Oyo and 16.0% for Osun state. Again, just as it was with net ownership, Osun state also had the least performance among the

six states in the South-west region in terms of the use of mosquito nets in the 2013 NDHS while Ondo state had the highest rate of utilisation. Also in terms of the use of existing ITN, while Oyo had a record of 47.5%, Osun state had a low record of 19.8%.

The report also indicated figures for the use of mosquito net for children under -five years of age. While only 8.4% of children in the category had slept under 'any net' the night before the survey in Osun state, the figure was 22.7 % in Oyo state. Also 21.6 % of children in the category had slept under an ITN, compared with 7.8% in Osun state, 20.5% had slept under an LLIN, compared with 5.7% in Osun state and 21.6% in Oyo state had slept under an ITN or in an household exposed to IRS in Oyo state, compared with 7.8% in Osun state. Again, Osun state had the least performance in the category. A similar scenario was recorded for the percentage of pregnant women, who had slept under 'any net' in the same survey. While Osun recorded 2.0% against 26.3% in Oyo state in that category, the state recorded only 1.1% for pregnant women who had slept under an ITN, compared with 24.2% from Oyo state, 1.1% for pregnant women who had spelt under an LLIN, compared with 23.4% in Oyo state and the same 1.1% for pregnant women who had slept under an ITN or in an household exposed to IRS as against 24.2% in Oyo state.

The 2013 NDHS also reported access to the mass media in the two states. While 19.7% of men in Osun state claimed to read at least one newspaper per day, 60.2% indicated to watch television at least once a week, 93.2% indicated to listen to radio at least once a week and 17.5% indicated to access all three media at least once a week. For Oyo state, the figure was 10.2% for access to newspaper, 40.5% for television, 72.4% for radio and 7.6% for the three media. And while only 5.5% of respondents from Osun claimed not to have access to any of the media, the figure was much higher in Oyo state (22.0%). In terms of gender, 7.9% of women in Osun indicated to read at least a newspaper every week, 60.8 % indicated access to television at least once weekly, 67.8% to radio and 7.4% to all three media while the figure for Oyo state was 5.1% for newspaper, 52.7% for television, 68.3% for radio and 3.7% for the three media. While 22.8% of female respondents in Osun claimed not to have access to any of the mass media, the figure for Oyo state was 24.8%.

Results of the 2015 MIS however indicated a huge difference in the status of malaria prevention activities especially in Osun state, compared with the 2013 NDHS. For instance, the state recorded a significant improvement in terms of net ownership as follows: 66.1% for 'any net', 65.7% for ITN, 65.7% for LLIN, 1.0% for 'any net' in terms of average net per household, 1.3% for ITN and 1.3% for LLIN under the same category, 38.6% for percentage

of ‘any net’ among households with at least one net on the night before the survey, 38.1% for ITN and 38.1% for LLIN under the category. Oyo state on the other hand had only a slightly different result from the 2013 NDHS. The 2105 MIS for the state was as follows: 53.4% for ‘any net’, 51.3% for ITN, 51.3 % for LLIN, 1.1% for ‘any net’ in terms of average net per household, 1.0 % for ITN and 1.0% for LLIN under the same category, 21.2 % for percentage of ‘any net’ among households with at least one net on the night before the survey, 18.6 % for ITN and 18.6 % for LLIN under the category. In terms of utilisation of mosquito net, the 2015 MIS indicated that Osun state also recorded a significant improvement: 21.9 % slept under ‘any net’, up from 4.7% in 2013 NDHS, 21.4% slept under ITN, up from 4.4% in 2013, 21.4% slept under LLIN against 3.6% in 2013 and 21.4% slept under an ITN or slept in a household exposed to IRS as against 16.0% in the 2013 report. The 2015 MIS however did not include figures for access to the mass media by the two states or the use of mosquito nets by children and pregnant women.

The possible cause for the improvement in the figures for Osun state might be attributed to the fact that in the 2015 MIS, 88.9% of respondents from the state indicated to have accessed their mosquito nets from ‘campaigns’, compared with 67.9% from Oyo state where 13.6 % indicated they sourced their nets from ANCs, compared with 2.5% in Osun state. Other sources through which respondents accessed mosquito nets in the report are ‘immunisation’: Oyo (8.8%), Osun (2.0%), ‘government health facility: Oyo (0.5%), Osun (0.0%), ‘NGO’: Oyo (0.0%), Osun (0.0%), ‘religious institutions: Oyo (1.5%), Osun (0.4%), ‘pharmacy’: Oyo (1.9%), Osun (2.0%), ‘shop/supermarket/open market’: Oyo (5.1%), Osun (1.9%), ‘schools’: Oyo (0.8%), Osun (0.0%), ‘community development’: Oyo (0.0%), Osun (0.0%) and ‘others’: Oyo (0.0%), Osun (2.0%). In terms of prevalence among children, the 2015 MIS indicated that 54.6% of children in Osun state and 42.1% in Oyo state, tested to malaria according to RDT while 33.04% were confirmed to have malaria in Osun state and 19.2%% in Oyo state, according to microscopy.

What factors assisted in the huge leap for Osun state but only a modest improvement in Oyo state between the two reports? It is also worthy to note that there are no figures for possible differentials in ownership and utilisation of mosquito nets and access to prevention information between urban and rural dwellers in the two states in the two reports. The major objective of this study is therefore to investigate the missing link between the provision of information and its utilisation for effective malaria prevention among rural dwellers in the two states.

1.3 Statement of the Problem

Malaria is Nigeria's most significant health problem and there exists messages through mass media and interpersonal channels focused on its control and elimination (NPC and ICF Macro, 2009, NPC and ICF Macro, 2012, NPC, NMCP and ICF International, 2014, NPC, NMCP and ICF International, 2016). There also exists a large body of studies dealing with the knowledge, attitudes and practices of different populations relating to malaria prevention. These studies focused on several aspects of malaria prevention, among them perception and management of malaria in secondary schools (Morenikeji, 2009), perceptions and practices among mothers/care-givers of children under five years old (Nebe, Adeoye, Agomo, Mosanya, 2002), perception of cause and treatment (Okwa and Ibidapo, 2010), mothers' perception and treatment seeking behaviour about childhood malaria (Agu and Nwojiji, 2005), self medications and choices of drugs for malaria treatment (Jombo, Araoye & Damen, 2011) as well as inequalities in purchase of mosquito nets and willingness to pay for insecticide-treated nets (Onwujekwe, Hanson and Fox-Rushby, 2004). Also Ongore, Kamuni, Knight and Minawa (1989) studied knowledge, attitudes and practices (KAP) of a rural community on malaria and the mosquito vector while Mwenesi (2003) examined socio-cultural and behavioural issues in the treatment and prevention of malaria. Okeke and Okafor (2008) investigated perception and treatment seeking behaviour for malaria in rural Nigeria with intent to evaluating its implications for malaria prevention. Ojo (2005) studied perceptions and practices of malaria prevention among residents and health providers in an endemic area while Chukwuocha , Dozie, Onwuliri , Ukaga , Nwoke, Nwankwo, Nwoke , Nwaokoro, Nwoga, Udujih , Iwuala, Ohaji, Morakinyo and Adindu (2010) investigated the implications of perceptions on the use of Insecticide Treated Nets for malaria prevention in pregnancy.

However, these studies were mainly from non-communication scholars and did not pay attention to how specific populations access and utilise information on malaria prevention nor evaluated the content of such information to determine their suitability for the audience for whom they had been designed. Also, Roll Back Malaria (2012:30) has identified gaps in the area of operational research on malaria control communication, as it noted that what has gone into operational research to understand the cultural, social and behavioural factors that affect the use of interventions by at-risk population is marginal when compared with what is available in terms of resources to support research into the development of more effective

treatment, protective ITN, vaccines, and other biomedical interventions. Roll Back Malaria (2012:30) therefore suggested more focused researches into "what works" in terms of communication, and "under what conditions" which would contribute significantly to malaria prevention initiatives. There are thus gaps in available studies on malaria prevention, the significant ones being that there are scant studies on malaria prevention particularly from the perspective of communication scholars and that existing studies focus mainly on the knowledge, attitude and practices of populations without subjecting the communication materials, as well as how it is accessed, to investigation. Many studies (Oaks, Mitchell, Pearson and Carpenter,1991, Nebe, Adeoye , Agomo and Mosanya, 2000, Agu and Nwojiji 2005, Karunamoorthi and Kumera, 2005, Kigodi and Komaya, 2006, Aunger and Curtis ,2007, Morenikeji, 2009, Okwa and Ibidapo, 2010, Okeke and Okafor, 2011, Jombo, Araoye and Damen, 2011) have thus been looking at how populations respond to malaria prevention information without looking at the information; how it is packaged and presented, the timing of the presentation, the tone of the presentation and how such information is accessed by respondents etc, all of which affect the response of target audiences. The focus of this current study therefore is on how rural dwellers in Oyo and Osun states in the South-west of Nigeria access and utilise malaria prevention messages available in the zone. The study also analysed the contents of such information in order to determine their suitability for rural audience.

1.4 Research Questions

1. What is the perception of rural dwellers in Oyo and Osun states about malaria?
2. What sources of information on malaria prevention are available to rural dwellers in Oyo and Osun states?
3. Which of the available sources of information on malaria prevention do rural dwellers in Oyo and Osun states consider most credible?
4. What are the contents of malaria prevention information provided by Roll Back Malaria (RBM) and other Partners available to rural dwellers in Oyo and Osun states?
5. To what extent are the malaria prevention information contents provided by Roll Back Malaria and other Partners suitable for rural dwellers in Oyo and Osun states?
6. To what extent do rural dwellers in Oyo and Osun states understand malaria prevention information provided by Roll Back Malaria and other Partners?
7. What factors influence access to malaria prevention information among rural dwellers in Oyo and Osun states?

8. How do rural dwellers in Oyo and Osun states utilise malaria prevention information provided by Roll Back Malaria and other Partners?
9. What factors influence the utilisation of malaria prevention information among rural dwellers in Oyo and Osun states?

1.5 Objectives of the Study

The overall goal of this study is to establish an effective collaboration between the field of Communication and Language Arts and the discipline of Public Health in order to reduce the burden of malaria in Nigeria. The study has the following specific objectives:

1. Investigate the perception of rural dwellers in Oyo and Osun states about malaria.
2. Examine the sources of information on malaria prevention available to rural dwellers in Oyo and Osun states?
3. Determine which among the available sources of information on malaria prevention is considered the most credible among rural dwellers in Oyo and Osun states.
4. Explore the contents of malaria prevention information provided by Roll Back Malaria (RBM) and other Partners available to rural dwellers in Oyo and Osun states
5. Evaluate the extent to which the contents of the available malaria prevention information are suitable to rural dwellers in Oyo and Osun states.
6. Investigate the extent to which rural dwellers in Oyo and Osun states understand malaria prevention information provided by Roll Back Malaria and other Partners.
7. Identify factors that influence access to malaria prevention information among rural dwellers in Oyo and Osun states.
8. Investigate how rural dwellers in Oyo and Osun states utilise malaria prevention information provided by Roll Back Malaria and other Partners.
9. Identify factors which influence the utilisation of malaria prevention information among rural dwellers in Oyo and Osun states.

1.6 Research Hypotheses

$H_0$1: There is no significant relationship between access to malaria prevention information and adoption of malaria preventive measures among rural dwellers in Oyo and Osun states.

$H_0$2: There is no significant relationship between the perception of rural people in Oyo and Osun states about malaria and their utilisation of malaria prevention information.

1.7 Significance of the Study

This study will have practical significance for stakeholders in the malaria prevention initiative such as the WHO, UNICEF, Roll Back Malaria (RBM), governments and non-governmental organisations. This study should bring practitioners in Public Health and Communication and Language Arts together as it provides critical input to the understanding of the development and implementation of malaria prevention communications in Nigeria particularly among rural dwellers. Knowledge gained from studies such as this would help to increase understanding of complex behavioural determinants and channel effectiveness in specific contexts; provide a foundation for advancing the use of evidence- based in programme design; and help demonstrate that rigorous application of evidence in communication does contribute to improved prevention and treatment-seeking behaviours among intended audiences (Roll Back Malaria, 2012: 28- 30).

It is also hoped that this study will generate interest from academic researchers, both in Public Health and Communication Arts, but particularly in the field of communication studies, to undertake more critical investigations into the communication component of malaria prevention activities, to determine how such information is accessed and eventually utilised. This is germane given the fact that a Communication Priority Action Plan (CPA) was agreed upon by stakeholders at the Nigeria Roll Back Malaria Country Consultative Mission in 2003 as part of efforts at meeting the 2000 Abuja Declaration on Roll Back Malaria. It will be worthwhile therefore to subject the implementation of this plan to continuous rigorous academic investigations. The outcome of this study shall be disseminated in high quality academic and research outlets for global accessibility which will further improve on global efforts at eradicating malaria.

1.8 Scope of the Study

This study covers access to malaria prevention information and its utilisation among rural dwellers in Oyo and Osun states. It covers rural dwellers in the two states as well as malaria communication managers in the secretariat of Roll Back Malaria (RBM) and RBM Partners in Nigeria. This study adopted the definition of a rural area as an area having a

population of less than 20,000 inhabitants (National Population Commission (NPC) [Nigeria] and ORC Macro (2004).

The study covers 36 rural communities in Osun and Oyo states as follows: Ibokun, Imesi-Ile, Ogbaagba, Masifa Ile, Popo, Ola, Ilie, Owode, Bolorunduro, Odo Oje, Eyingbo, Okeafola, Anwo, Afolu, Okinni, Ofatedo, Ido-Osun and Olorunsogo (Osun state) and Ilora, Awe, Fiditi, Akinmorin, Igbonla, Ijawaya, Olodo, Kute, Olorunda, Alapete, Gambari, Igbon, Iresaadu, Abaiya Oje, Ilogbo, Arowomole, Jabata and Araromi (Oyo state). Osun is central to the South-west zone, geographically, and connects with four other states in the zone; Ogun, Ondo, Ekiti and Oyo, through its land borders. On its part, Oyo state, which has the largest landscape in the zone, has its state capital, Ibadan, serving as the political capital of the South-west zone. Osun state was carved out of the old Oyo state in 1991.Both Oyo and Osun share boundaries with northern Nigerian through Kwara state. Even though they share boundaries, the reported malaria cases in the two states are different, according to National Bureau of Statistics (2012). Also while Oyo state had a functional Advocacy, Communication and Social Mobilisation (ACSM) team, which is the policy bedrock for the execution and coordination of malaria prevention initiatives in each state, Osun state did not, as revealed by pre-field investigations in the two states .

The secretariat of RMB is run by the National Malaria Elimination Programme (NMEP) in Abuja while the RBM Partners which are divided into Principal Recipients (PR) and Sub Recipients (SR) have their secretariats in different parts of the states of Nigeria. The RBM Partners used for the study were based in Oyo and Osun states. This study also covers information, education and communication (IEC) materials on malaria prevention provided by RBM and RBM Partners available to rural dwellers in the two states. The materials include those in broadcast and print. It also includes information on malaria prevention provided through interpersonal channels by health workers, Community Volunteers (CVTs), Malaria Role Models (MRMs) and other agents used by RBM Partners in the fight against malaria. There are two landmark activities on malaria prevention communication relevant to this study. The first was the development of a Communication Priority Action Plan (CPA) in 2003 as part of efforts at meeting the 2000 Abuja Declaration on Roll Back Malaria, while the second was the adoption of a Strategic Framework for Malaria Communication (SFMC), in 2012. The two are used in this study as part of the benchmarks for evaluating the prevention messages used as part of malaria prevention communication strategies among the rural dwellers of Oyo and Osun states.

1.9 Limitations of the Study

Since the study is limited to Oyo and Osun States in the south-west geopolitical zone of Nigeria, its outcome might not be applicable to states in other geo-political zones in the country with different culture and practices. This is however an opportunity for further research in such states and zones. Another limitation of the study was that the Society for Family Health (SFH), one of the key actors in the production of jingles for malaria prevention communication in Oyo state; refused to allow access to its data for use by this researcher despite presenting formal letters of introduction as well as personal visits to the SFH office in Ibadan, Oyo state. As such, this study did not investigate Radio Drama and television jingles on malaria prevention which was being produced by SFH. Instead the study made use of jingles produced by another Principal Recipient; MAPS and Osun State Ministry of Health. This meant that some valuable data would have been left out in the current study but can still become the focus of future studies.

This study made use of data from two Nigeria Demographic and Health Surveys (NDHS); 2008 and 2013 and two Malaria Indicator Surveys (MIS); 2010 and 2015. However, some of the variables on malaria prevention communication investigated in the 2008 NDHS varied from the ones in the NDHS 2013 and the same pattern obtained in the MIS 2010 and 2015 thus making it impossible to clearly compare the trend over the time covered by the four surveys. Another limitation of this study is that while efforts have been made to design the study methodology sufficiently enough to capture the essential demographic and other features of the study population, some respondents may still not be sincere in their responses. However, the study made use of various sources of data gathering in order to reduce the level of such inconsistency from respondents while the questionnaire was also designed with provisions for anonymity of respondents to enhance confidentiality.

1.10 Operational Definition of Terms

Access: This refers to the act of seeing, reading and understanding printed malaria prevention messages in posters, handbills and billboards, or hearing and understanding broadcast malaria prevention messages such as radio jingles produced by Roll Back Malaria, MAPS, ACCOMIN, AFRICARE and Osun State Malaria Programme among rural dwellers in Oyo and Osun states.

Malaria: This is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected mosquitoes.

Malaria Prevention Messages: These are Information, Education and Communication messages produced by Roll Back Malaria, MAPS, ACCOMIN, AFRICARE and Osun State Malaria Programme in the forms of jingles on radio, leaflets and posters, as well as through interpersonal channels that teach behavioural safeguards against malaria among rural dwellers in Oyo and Osun states. In this study, the term is used interchangeably with 'Malaria Prevention Information'.

Rural dwellers: Refers to people in Oyo and Osun states in a community with a population below 20,000 inhabitants as defined by the National Population Commission (NPC, 2004). A list of such communities is available with MAPS, ACCOMIN, AFRICARE and Osun State Malaria Programme and was used for this study.

Attitude: The degree to which an individual in rural part of Oyo and Osun states is favourably or unfavourably disposed to the behaviour change recommended in the malaria prevention message(s) available in the zone.

Utilisation: Refers to the decision by an individual in rural part of Oyo and Osun states to adopt the behaviour change recommended in malaria prevention message(s) available in the zone which such individual has accessed.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This section includes a background on the evolution of malaria, studies in the area of Knowledge, Attitude and Practice (KAP) of various populations to malaria prevention as well as the concept of communication and health as it relates to the malaria prevention initiative in Nigeria. The section will equally present a conceptual framework for the current study.

2.1 Malaria

The term 'malaria' originated from the Romans; although that was not the name they called it in ancient Rome. It used to be called 'ague', 'intermittent fever', 'swamp fever', 'Roman fever', and 'death fever' (Heggenhougen, Hacketha and Vivek, 2003:22) and according to the authors, "Malaria or "bad" or evil (mal) air (aire) was a name derived from the miasma theory of causation. Most African communities similarly have different terms to describe the disease. Among the people of South-west and south-east Nigeria, malaria is called locally *ibà.* In south-eastern and south -western Nigeria there is what is termed "ordinary" and "yellow", "cold", "colored", "wet", "dry" and "shaking" malaria (Brieger, 1994, 1996, Okeke and Okafor, 2008: 219). In the south- west, there is what is called *ibà apọ́nju;* yellow fever, the type that colours the eyeballs yellow, *akọ ibà*; severe malaria, *ibà apọ́ntọ̀*; the one that colours the urine deep yellow, *ibà ré̩funré̩fun*; typhoid fever and *iba rékúrékú;* relapsing fever. There is also the ordinary *ibà* associated with headache, shivering, cold etc.

World Health Organisation (2010) describes malaria as a life-threatening disease caused by parasites that are transmitted to people through the bites of infected mosquitoes. The infected Anopheles mosquitoes, called "malaria vectors", bite mainly between dusk and dawn. There are four types of human malaria: Plasmodium falciparum, Plasmodium vivax, Plasmodium malariae, and Plasmodium ovale. While Plasmodium falciparum and Plasmodium vivax are the most common, Plasmodium falciparum is the most deadly. However, some cases of human malaria have also been identified with Plasmodium knowlesi – a monkey malaria that occurs in certain forested areas of South-East Asia (WHO, 2010). The official body responsible for coordinating Nigeria's response to the malaria challenge is the Nigerian national secretariat of Roll Back Malaria (RBM) Partnership which is known as the National Malaria Elimination Programme (NMEP) office. The RBM Partnership is a joint

initiative of the World Health Organisation, the United Nations Children's Fund (UNICEF), the World Bank and the United Nations Development Program (UNDP). It was launched in 1998. The RBM also has Partner organisations and bodies that undertake specific tasks, such as initiating Advocacy, Communication and Social Mobilisation (ACSM) activities on malaria prevention in targeted communities.

The World Health Organisation (2006:16) identified four distinct phases in the global fight against disease, based on acceptable definitions and characterisation by the International Task Force for Diseases Eradication. The first phase is *disease control* which refers to the 'reduction of disease incidence prevalence, morbidity or mortality to a locally acceptable level as a result of deliberate efforts'. The second stage is sub-divided into two; (a) *elimination of disease* and (b) *elimination of infection*. Elimination of disease refers to the 'reduction to zero of the incidence of a specified disease in a defined geographical area as a result of deliberate efforts while elimination of infection refers to 'reduction to zero of the incidence of infection caused by a specified agent in a defined geographical area as a result of deliberate efforts'. The next phase is *eradication*, which refers to the 'permanent reduction to zero of the worldwide incidence of infection caused by a specific agent as a result of deliberate efforts. This phase is followed by *extinction*, i.e. 'the specific infectious agent no longer exists in nature or in the laboratory.

Within the context of the fight against malaria, three phases have been identified: malaria control, malaria elimination and malaria eradication (WHO, 2006:4, Mendis, Rietveld, Warsame, Bosman, Greenwood and Wernsdorfer, 2009, Lines, Whitty and Hanson, 2007). Malaria control is 'reducing the disease burden to a level at which it is no longer a public health problem'; malaria elimination is 'interrupting local mosquito-borne malaria transmission in a defined geographical area, i.e. 0 incidence of locally contracted cases' while malaria eradication is 'the permanent reduction to 0 of the worldwide incidence of malaria infection caused by a specific agent; i.e. applies to a particular malaria parasite species.' In the elimination phase, there would still be continued intervention measures to prevent the re-establishment of transmission unlike in the eradication phase when such interventions would no longer be needed. According to the World Health Organisation (2006: 16):

> Malaria elimination refers to the cessation of transmission of disease in a single country, without necessarily elimination of the vectors capable of transmitting the parasite. After elimination, some previous foci within a

> country might remain particularly 'receptive' to resumption of transmission, owing to local abundance of the vector and favourable climatic and other environmental conditions; these can be monitored and sometimes be influenced. Other areas might become receptive owing to man-made environmental changes. When such areas are also 'vulnerable' because of frequent importation of malaria parasites from abroad, transmission might be (re)established.

Nigeria is officially in the second phase of the programme, malaria elimination, hence the change in the nomenclature of the supervising agency for the country's malaria programmes from National Malaria Control Programme (NMCP) to National Malaria Elimination Programme (NMEP) in 2013. This implies that Nigeria has exited the 'control' stage and has successfully reduced 'the disease burden to a level at which it is no longer a public health problem' going by the definition above. This is however contestable, given the poor health infrastructure, low budget allocation to health, poor health record system as well as a tradition of self-medication in the treatment of malaria that is prevalent in the country.

The 2017 World Malaria Report indicates that more countries are moving towards malaria elimination. According to the report, in 2016, 44 countries reported fewer than 10 000 malaria cases, up from 37 countries in 2010 and in the same year 2016, the World Health Organisation identified 21 countries 'with the potential to eliminate malaria by the year 2020' World Health Organisation (2017). The feasibility of elimination in a given country depends on a careful analysis of previous experience in malaria eradication in the country (if any) and a detailed analysis of the environmental, epidemiological and socioeconomic factors related to malaria (Mendis et al, 2009: 15) . The duration of elimination, according to the authors would also depend on 'the number of people at risk, the size and type of geographical areas affected, the infrastructural, social and economic situation of the affected areas, including conflict or criminal activities that might hamper access, the situation in neighbouring countries and the possibilities for border collaboration'.

The classification of Nigeria as being in the 'elimination state' is also debatable because, as argued above, it is doubtful if the country has satisfied the conditions for the commencement of the elimination phase. Some of the conditions mentioned by Mendis et al

(2009) are that (a) malaria cases have been considerably reduced further to 100 or less cases per district of 100 000 people annually, (b) local transmission is limited to clearly defined foci and (c) the activities of the first programme reorientation has been achieved (d) the completion of training and reorientation of personnel, (e) setting up the organisation and physical facilities for the programme, (f) implementation of a country's drug policy to include primaquine treatment for P. vivax (radical treatment) and artemisinin-based combination therapy plus 1 day gametocyte treatment for P. Falciparum (g) having microscopic confirmation of all malaria cases which are also treated according to national policy, including cases diagnosed and treated in the private sector. (h) having a fully operational microscopy quality-assurance system (i) ensuring that all malaria cases are notified, epidemiologically investigated and centrally registered, (j) that malarious areas are clearly delimited and an inventory of foci has been made and (k) having an elimination database, including geographic information systems-based data on foci, cases, vectors, parasite isolates and interventions. Aribodor, Ugwuanyi and Aribodor (2016) have identified drug resistance, treatment failure, insecticide resistance, global warming and change in climate, conflicts, insurgency, and internally displaced persons, migration, lack of political will, inadequate malaria leadership, funding, and adequate local research as challenges to malaria elimination in Nigeria. Again, Lines et al (2007:7) have explained why malaria elimination might be unlikely in most of African countries. According to the authors:

> For malaria in Asia and southern America local elimination may be realistic. In much of Africa it is highly unlikely to be so, because the potential force of transmission is so great- over 100x than in Asia in many places. This is mainly due to the anopheles mosquito species which are different in Africa and other continents. The main malaria mosquito vectors in Africa are highly efficient at transmitting malaria, long-lived and hardy, take almost all of their blood meals from humans and have a wide range of sites to breed. It is the combination of these factors, and in particular these species' long lifespan, that leads to this massively higher transmission.

Another issue is the explanation by Alonso and Galappaththy (2017) that the new streamlined process for the WHO certification of malaria elimination occurs 'after a country has had three years without a locally transmitted case of malaria' (http://www.who.int/malaria/media/elimination-framework-qa/en/). The transformation of the agency's focus from 'malaria control' to 'malaria elimination' took place in 2013, yet as at the time of this study four years later, there was no proof that malaria cases have been reduced to 100 or less cases per district of 100, 000 people annually in any part of the country. From the explanation on 'malaria prevention' offered by Lines et al (2007) as it relates to the African context, Nigeria appears to be at the level of 'transmission control', where the focus is on infection, and the aim is to prevent people from becoming infected with malaria parasites by minimising transmission, mainly by means of vector control. As earlier noted, and supported by the explanation from Lines et al (2007), vector control which is the current policy with malaria involves 'using a combination of anti-vector methods (e.g. insecticide-treated bed nets (ITN) and indoor residual spraying with DDT and other insecticides (IRS), and early treatment with effective drugs such as artemisinin combination therapy (ACT)'.

However, since prevention is at the heart of achieving and sustaining each of the phases aforementioned, the accepted term when discussing the communication component of the disease is 'malaria prevention messages', according to Behaviour Change Communication specialists at the Malaria Programme for States (MAPS). For instance, sleeping inside an ITN, or clearing the environment of dirt and stagnant water or having a pregnant woman receive Intermittent Preventive Treatment (IPT) are all geared towards preventing the disease in order to control, eliminate or eradicate it, depending on the phase a geographical entity has reached. Thus, this study will use the term 'malaria prevention messages' interchangeably with 'malaria prevention information'.

A major achievement of the RBM Partnership relevant to this study is the adoption of the Global Strategic Plan on Roll Back Malaria, 2005-2015. This strategic plan includes the creation of awareness, demand and appropriate use of malaria prevention products and the development of country-level advocacy and communication. The communication component of the Strategic Plan according to Roll Back Malaria Partnership (2005: 26) is expected to ensure that:

> Information about malaria prevention interventions reaches the appropriate groups, and that families are empowered to make informed decisions concerning appropriate care practices related to preventing and managing malaria.

To accomplish this, the recommended communication strategy is such that is designed to build the capacity of community members on malaria prevention through the creation of effective communication for social change which responds to the needs of the community and also create an environment within which individuals can improve their knowledge and the ability to assimilate and act on that knowledge, leading to appropriate behavioural change, (Roll Back Malaria Partnership, 2005). The Strategic Plan acknowledges that effective communication can be complemented by culturally appropriate information distributed via mass media and print using mass media channels and commercial advertising concepts to create demand for malaria prevention facilities such as ITNs, while at the same time supporting service delivery and appropriate use of these products (Roll Back Malaria Partnership, 2005: 26). The early diagnosis and treatment of malaria reduces disease and prevents deaths and also contributes to reducing malaria transmission. Artemisinin-based Combination Therapy (ACT) is the current best treatment available for malaria particularly for P. falciparum malaria according to the World Health Organisation (WHO). The prevention of malaria is through vector control at the community level while at the individual level personal protection against mosquito bites represents the first line of defence for malaria prevention. Vector control has the capacity to reduce malaria transmission from very high levels to close to zero and in high transmission areas; it can reduce child mortality rates and the prevalence of severe anaemia (WHO, 2010).

There are two forms of vector control considered as effective in a wide range of circumstances. These, according to WHO (2010) are:

(1) Insecticide-treated mosquito nets (ITNs): Long lasting insecticide impregnated nets (LLINs) are the preferred form of insecticide treated nets for public health distribution programmes. WHO recommends universal vector control coverage, and in most places, the most cost effective way to achieve this is through provision of LLINs, so that everyone in high transmission areas sleeps under a LLIN every night;

(2) Indoor spraying with residual insecticides: Indoor residual spraying (IRS) with insecticides is the most powerful way to rapidly reduce malaria transmission. Its full potential is realised when at least 80% of houses in targeted areas are sprayed. Indoor spraying is effective for 3–6 months, depending on the insecticide used and the type of surface on which it is sprayed. DDT can be effective for 9–12 months in some cases. Longer-lasting forms of IRS insecticides are under development.

The World Health Organisation estimates that global resource requirements to fund its Global Technical Strategy of 'reducing malaria case incidence by at least 90%, reducing malaria mortality rates by at least 90%, eliminating malaria in at least 35 countries; preventing a resurgence of malaria in all countries that are malaria-free' will need to triple from its current US$ 2.5 billion annually to US$ 8.7 billion annually by 2030 (WHO, 2015). This shows the level of commitment of the world body to the issue of malaria. A substantial part of this amount, no doubt, will be spent on the scientific method of control although there is evidence of a shift from complete dependence on this method to examination of the human behaviour and socio-cultural contexts of its spread (Heggenhougen et al, 2003, Brown, 1997a:120).

2.2 Access to malaria prevention information in South-West Nigeria.

Four broad investigations: the 2008 Nigeria Demographic and Health Survey (NPC and ICF Macro, 2009:37-38), the 2013 Nigeria Demographic and Health Survey (NPC and ICF Macro, 2014: 201-221), Malaria Indicator Survey 2010 (NPC, NMCP and ICF International, 2012:43-54) and the Malaria Indicator Survey 2015 (NPC, NMCP and ICF International, 2016: 10-21) are relevant to any discussion of access to malaria prevention messages in Nigeria as envisaged in this study. They were demographic and health surveys conducted by the National Population Commission (NPC) in conjunction with other partners and serve as benchmark for investigations on some demographic factors related to access to information as well as the malaria situation in Nigeria. The 2008 and 2013 NDHS investigated three major sources of access to mass media information viz, newspaper, television and radio among respondents. The justification for this was that:

> It provides an indication of the extent to which Nigerians are regularly exposed to mass media that are often used to convey messages on... health topics, (National Population Commission and ICF Macro, 2009:36)

National Population Commission and ICF International (2014:39) puts it even more succinctly, that:

> Exposure to information on television and radio and in the print media can increase people's knowledge and awareness of new ideas, social changes, and opportunities as well as affect their perceptions and behaviours, including those related to health.

However, as noted earlier, the 2008 NDHS did not provide a state-by-state analysis of the variables unlike the 2013 NDHS. Of the three variables investigated by the 2008 NDHS, radio constituted the highest source of mass media information for men in the South-west at 91.2% and 76.6% for women, followed by television at 73.3% for men and 68.3% for women while access to newspaper on a weekly basis was 46.3 % among men and 18.2% among the women. The percentage of women who indicated not to have had access to any of the three media was 13.9% and 4.4% among men. In the NDHS 2013, radio still retained its position as highest source of mass media information for respondents in South-west Nigeria both among men (79.8%) and women (63.5%) although comparatively lower than the 2008 figures. In Oyo state during the period, 72.4% of men and 68.3% of women indicated they listened to radio at least once a day, compared with 93.2% for men and 67.8% for women in Osun state. The percentage of respondents in the zone who accessed television at least once a week stood at 68.6% for men and 63.0% for women, again lower than the 2008 figures. In terms of state-by state analysis, 60.8% of women in Osun state claimed they watched television at least once a week, compared with 52.7% of their counterparts in Oyo state.

Access to newspaper also followed a declining trend at 32.1% for men and 11.3% for women while the percentage of women who indicated 'no access' to any of the three sources of mass media information increased from 13.9% in 2008 to 23.8% in 2013, the same for men which increased from 4.4% in 2008 to 12.5% in 2013. The 2013 NDHS indicated that only 10.2% of men and 5.1% of women had access to newspaper on a daily basis in Oyo state and 19.7 % of men and 7.9% of women in Osun state. In the two studies, both men and women in Oyo and Osun states had a high rate of access to radio and television compared with access to newspaper. For radio 68.3% of women in Oyo state and 67.8% in Osun state had access, while for television the figure was 52.7% for Oyo and 60.8% for Osun state. For men, the

figure was 72.4%% (radio) and 40.5% (television) in Oyo state while it stood at 93.2% (radio) and 60.2% (television) in Osun state.

While the 2010 MIS investigated exposure to eleven specific malaria prevention messages apart from the sources of the messages, the 2015 MIS limited its investigation to only the sources of the messages. This might have been due to the fact that most messages on malaria prevention are tied to specific funded programmes and locations and are no longer run once the funding window closes. The possibility exists therefore that as at the time of the 2015 MIS, most of the programmes that produced the specific malaria prevention messages examined by the 2010 MIS were no longer running. The effect of this is to limit the utilisation of the specific messages to context of times, people and locations. Therefore with the absence of reinforcement, carrying on the recommendations of such messages after the expiration of its exposure time becomes a challenge. The 2010 MIS investigated exposure to eleven malaria prevention messages with respondents from the South -West indicating their exposure levels to them as follows: Mosquito backing baby (8.2%), Man playing draft with mosquito (3.6%), Mosquito appears in family picture (2.9%) Woman wearing mosquito net to market (billboard) (0.5%), Friends playing drafts; small friend slaps big friend (14.2%), Mosquito takes child while family is sleeping (4.9%), Woman wearing mosquito net to market (TV) (1.1%), Woman tells husband (3.6%), King gets slapped (25.5%), Lonarts Vs Malaria (36.5%). Others (8.7%) and Don't Know (12.1%).

A comparison of the 2010 and 2015 MIS indicate that while radio decreased in importance between 2010 and 2015 as a source of malaria prevention messages from 74.1% to 67.0% among rural dwellers across Nigeria, it increased from 42.1% to 80.9% among respondents in the South-west. Television also decreased among rural dwellers within the same period from 20.7% to 15.9% but again increased in the South-west from 52.1% to 60.2%. This could probably be traced to the apparent implosion of private broadcasting operations in the South-west following the liberalisation of licensing by the federal government of Nigeria. Community Health Extension Workers increased only marginally among rural dwellers between 2010 and 2015 from 4.0% to 5.3% but increased significantly in the South –West from 3.4% to 21.2%. Mosques/Churches as source of malaria prevention messages increased from 0.3% to 3.5 % among rural dwellers across Nigeria between the two studies and also increased from 0.4% to 5.5% in the South-west zone and while the use of Town Announcer decreased from 7.0% to 5.3% among rural dwellers, it increased in importance among residents of the South West from 2.5% to 5.4%. As noted earlier, only the

2013 NDHS provided state-by-state analysis of the exposure to mass media by residents, as such it is not possible to evaluate possible differentials or analyse the statistical figures for Oyo and Osun states under the two reports. Also while the 2010 MIS treated 'Billboard', 'Posters' and 'T-Shirts' as separate variables, the 2015 MIS lumped them together. As such it is equally not possible to compare the degree of change inherent in the three variables within the study periods. However it is significant to point out that Billboard as a source of information increased in the South-west from 7.5% in 2010 to 21.4% in 2015. It is difficult to understand the source of the increase given the fact that billboards bearing specific malaria prevention messages are not readily available in the South-west. The most probable explanation for the MIS result would be that respondents were making references to billboards erected by drug manufacturing companies to promote malaria drugs. But such billboards however cannot be said to be promoting malaria prevention practices and actually do not carry such messages since the basic aim behind their erection is to promote specific drugs for the treatment of malaria. The two studies should have indentified this as a study category to evaluate the level of their relevance to the anti-malaria communication efforts.

The use of Leaflets, Fact Sheets and Brochures as sources of information on malaria prevention increased among rural dwellers from 3.7% in 2010 to 4.7% in 2015 and also increased from a mere 2.0% in 2010 to 14.8% in 2015 among South-west people. However, although the use of Relatives and Neighbours decreased significantly among rural dwellers nationally from 17.4% in 2010 to 6.8% in 2015, it gained little increase in the South-west, from 9.4% in 2010 to 10.6% in 2015. The 2010 MIS did not consider 'Attendance at Ante Natal Care', 'Government Hospitals' and 'Social Media' as sources of information on malaria prevention but the 2015 investigation did. From the 2015 MIS, 3.5% of residents in the South-west sourced information on malaria prevention from 'Attendance at Ante Natal Care' and 4.2% from 'Government Hospitals'. However, the 4.2% from the South-west is lower than the 8.7% of respondents from the South-South who sought information on malaria prevention from 'Government Hospitals' although the 3.5% who sourced information from 'Attendance at Ante Natal Care' in the South-west is higher than the 0.9% from the South-South. These differentials may speak of the attitude and trainings of health workers in the South-west on malaria prevention while relating with their patients.

From the 2015 study, only 0.4% of rural dwellers sourced information from the social media nationally, while only 3.2% of residents of South-west Nigeria used the medium, incidentally the highest among the zones. The present study did not consider the social media

since the study subjects are rural dwellers. Comparatively, from the 2015 MIS, the South-west still has a better record than the other zones in terms of exposure to the category 'malaria messages', a term used to also infer malaria prevention messages. For instance, 44.4 % of respondents from the zone indicated to have seen or heard a malaria message in the six months preceding the survey, compared with 34.9% from the North-West and 31.4% from the North-East. Also 80.9% respondents from the South-west indicated to have come across a malaria message on the radio, 60.2% on television, 5.5% through a church/mosque, 21.4% on billboards or posters, 14.8% on leaflets and fact-sheets, 10.6% through relatives/neighbours and 3.2% through social media. The categories where the region did not have the highest record were 'community worker', 'town announcement /community event', 'visit to antenatal clinics' and 'Government Hospitals'.

From the above statistics, it can be safely said that residents of South-west Nigeria, among them residents of Oyo and Osun states, have access to malaria prevention messages although the significance of the sources vary. Radio is the most significant, followed by Television, Billboards and Posters, Community Worker, Leaflets/Fact Sheets and Brochures and Relatives and Friends respectively. However, these studies did not investigate whether the sources were credible enough to influence the desired change in behaviour or whether there are other factors responsible for the low level of adoption of preventive measures such that the zone still has the lowest rate of net ownership across board among the six zones as earlier pointed out. This scenario presents a contrast that should be of interest to those in the field of health communication because while exposure to malaria prevention messages is highest in the South-west, utilisation of preventive measures, which would indicate the acceptance and adoption of the core values of the messages, is lowest in the zone. This is a major focus of the current study, although limited in scope to only two states in the zone. While scholars such as Ojebode (2005: 173–180) have argued that simply crafting a successful message without the required infrastructure to back up the implementation of such messages may lead to the failure of communication activities for behaviour change, it is argued here on the contrary that in the case of malaria prevention, there are individual behaviour/ measures that can be taken to prevent the disease in spite of infrastructure deficit.

There was no provision for newspaper as source of information in the MIS 2010. Instead what the survey investigated were variables such as community health workers, role models/care givers/community workers, mosques and churches, posters, community event, T-shirt, leaflets/brochures and town announcer which were also carried over to the 2015 survey.

The 2015 MIS however added other variables such as Social Media, Antenatal Care Visits and Government Hospitals as sources of malaria prevention messages. The obvious neglect of newspaper as a source of information in favour of interpersonal sources in the MIS 2010 might have been due to the need to account for the population of respondents that indicated they had no access to any of the three mass media sources in the 2008 and 2013 NDHS. The inclusion of the other variables mentioned above might have therefore taken care of the gap and reflected in the new data it generated for the research. In their own study of mothers in Ebonyi State, South East Nigeria, Agu and Nwojiji (2005) however identified relatives/community members (51.7%) as the highest source of information on malaria among the respondents followed by health facilities (27.1%) and health education campaigns (5.1%). This study also had no provision for the consideration of the mass media as source of information on malaria prevention whereas the NDHS 2008 indicated that 53.8% of respondents from the south-east had access to radio, 44.5% had access to television and 17.9% had access to newspaper while a total of 12.8% of the population had regular access to the three mass media sources in a week. Again, the study presents a completely different picture from the MIS 2010 which indicated that radio was the highest source of information on malaria among residents of the south-east at 72.3% followed by television (49.3%), billboard (11%), T-Shirt (9.9%) and posters (4.9%). Relatives/Friends/neighbours /schools came a distant 9th at only 0.6%.

AudienceScapes (2010) in their study of access to malaria information among Zambian adults note that rural residents are somewhat less exposed to information compared to their urban counterparts with a difference of more than 7%. The study also indicates differences in monthly access to malaria information by respondents' financial status, level of English comprehension as well as level of education. It established a link between the general health status of respondents and their access to malaria information. Thus those who claimed higher access have relatively better health than the other respondents. The study did not however indicate whether the respondents with better health were in such condition because of their access to malaria prevention information or whether their being in good health was what predisposed them to seeking malaria prevention information. Nevertheless, such people can become influential sources of marketing malaria prevention information; they can be used as Change Agents because they have a state of health that can be desired by others. This supports a key component of the Diffusion of Innovations Theory. They can make others understand that they too can successfully take a recommended action (s) that can promote

their health; they can raise the expectations of the others that by taking specific steps they too can avoid some negative health conditions such as malaria.

The study by AudienceScapes (2010) identified the top three most-used sources for obtaining malaria-related information by men and women as radio, friends/family and medical doctors. For men however, the most used source of information is radio while for women the most used source is friends/family. A similar study in South West Uganda showed a high level of usage of radio and health workers as sources of information on malaria (Ndyomugyenyi, Magnussen & Clark 2007). But a two-year study conducted by Malaria Research Lead Programme (MRLP) (2008) among residents of KwaZulu-Nata, Limpopo and Mpumalaga areas of South Africa indicated that health facility was the highest source of information on malaria although it decreased in importance by about 2% between the study period, 2004 and 2006. On the other hand, family and friends increased in importance by almost 4% at 15.2% in 2004 and 18.7% in 2006. Radio had one of the highest rates of increase in importance, from 12.9% in 2004 to 21.1% in 2006 while pamphlets and posters decreased from 4.9% in 2004 to 2.7% in 2006. The highest rate of importance was in the use of community health workers, rising from a 0% level in 2004 to 36% in 2006. The high rate in the use of community health workers was due to the fact that up till 2004, they were not being used for malaria education (Malaria Research Lead Programme, 2008: 5). Nyamongo (1998) in his study of lay people in Abagusii of Southwestern Kenya indicates that they rely on friends and family members to access information about availability of drugs in government health facilities and drugs that can be used for treating malaria. Nyamongo (1998:234) quotes one informant in the study as saying that friends normally give them advice on what medicines they should try next if their first choice fails. According to Nyamongo (1998:235) informants reported using information exchange to advise one another about drugs that work and those that do not work.

It is evident from these various studies that access to malaria prevention information varies among countries and even geo political zones in Nigeria. Therefore it is more germane to examine the level of utilisation of insecticide treated nets and other malaria prevention initiatives due to access to malaria prevention information in a Nigerian context. Understanding the degree of correlation between access to malaria prevention messages and the utilisation of such information in the form of acquiring ITNs and taking other preventive measures will assist in the development of more effective strategies to reach rural dwellers with malaria prevention initiatives. When there is access to effective information it is most

likely to enhance utilisation of preventive measures. Edewor (2010) noted this in the study of Access to Health information by People Living with HIV/AIDS in Nigeria where respondents identified the absence of HIV/AIDS data information exchange network, ineffective communication strategies and the use of inexplicit information materials as constraints to their accessing and utilising such information. It is therefore worthwhile to consider some of the factors that affect access to malaria prevention information and its utilisation because the utilisation of health services is influenced by the access to credible information about such services.

2.3 Utilisation of malaria prevention information in Oyo and Osun States

One of the basic means of evaluating utilisation of malaria prevention messages is the ownership and usage of treated mosquito net because it is considered as the most cost-effective method of preventing malaria in highly endemic areas and in Nigeria, it is " the main method of malaria prevention employed..." according to NPC and ICF Macro (2009:187). In terms of net ownership, the 2013 NDHS indicates that only 42.9% of respondents in Oyo and 24.8% in Osun State had 'any mosquito net' and that only 39.1% of respondents in Oyo State and 23.1% in Osun State had 'an ITN'. Also while 36.8 % of respondents in Oyo State had 'an LLIN', the figure was 17.6% in Osun state. In terms of average net per household, the figure was 0.7% in Oyo State and 0.4% in Osun State for 'any net', the same figure for 'ITN', while in terms of ownership of at least one net for two people in a household, 19.0% respondents in Oyo claimed to have 'any net' compared with 9.4% in Osun, 17.5% in Oyo claimed to have an ITN in their household, compared with 9.0% in Osun. It is worthy of note that in the 2013 NDHS report, Osun State had the least performance among the six states in the South-west zone in terms of ownership of mosquito nets while Oyo state was in the fourth position. The state with the most active was Ondo State, which had 64.9% in ownership of 'any net', 58.4% for ITN, 52.0% for LLIN, 1.2% for ownership of 'any net' in an household, 1.1% for ITN in an household, 1.1% for LLIN in an household, 36.6% for 'any net' in an household with one net for at least two people, 32.6% for ITN and 28.7% for LLIN.

The report also indicated figures for the use of mosquito net for children under -five years of age. While only 8.4% of children in the category had slept under 'any net' the night before the survey in Osun state, the figure was 22.7 % in Oyo state. Also 21.6 % of children in the category had slept under an ITN, compared with 7.8% in Osun state, 20.5% had slept

under an LLIN, compared with 5.7% in Osun state and 21.6% in Oyo state had slept under an ITN or in an household exposed to IRS in Oyo state, compared with 7.8% in Osun state. Again, Osun state had the least performance in the category. A similar scenario was recorded for the percentage of pregnant women, who had slept under 'any net' in the same survey. While Osun recorded 2.0% against 26.3% in Oyo state in that category, the state recorded only 1.1% for pregnant women who had slept under an ITN, compared with 24.2% from Oyo state, 1.1% for pregnant women who had spelt under an LLIN, compared with 23.4% in Oyo state and the same 1.1% for pregnant women who had slept under an ITN or in an household exposed to IRS as against 24.2% in Oyo state.

In terms of indoor residual spraying (IRS) both states had negative reports ((0.0%) for percentage of residents who used IRS in the last twelve months preceding the 2013 NDHS. However, Oyo had 39.1% of respondents claiming to have used an ITN along with IRS in the last twelve months preceding the report while 23.1% of Osun residents claimed to have used the same method under the same period. In terms of using ITN or IRS for every two persons in a household in the last twelve months preceding the report, the figure for Oyo was 17.5% as against 8.9% for Osun state. In terms of sleeping under a mosquito net, 17.3% of respondents from Oyo claimed to have slept under 'any net' in the report period, as against 4.7% from Osun state. Also 16.2% from Oyo indicated to have slept under an ITN, against 4.4% from Osun, 15.2% from Oyo claimed to have slept under an LLIN, compared with 3.6% from Osun, and while 16.2% indicated to have slept under 'any net or IRS' in Oyo only 4.4% of respondents from Osun made such claim. In terms of those who slept under an ITN the night before the survey, the figure was 36.2% for Oyo and 16.0% for Osun state. Again, just as it was with net ownership, Osun state also had the least performance among the six states in the South-west region in terms of the use of mosquito nets in the 2013 NDHS while Ondo state had the highest rate of utilisation. Also in terms of the use of existing ITN, while Oyo had a record of 47.5%, Osun state had a low record of 19.8%.

As noted earlier, a major challenge to using the 2008 NDHS was that it did not make provision for state-by- state analysis, just like the 2010 and 2015 MIS. Beyond this, it also needs pointing out that these studies did not examine the same categories of variables. The differential is clearly stated by National Population Commission (NPoC) [Nigeria] and ICF International (2014: 163) that:

> Care must be taken in comparing the results from the 2008 and 2013 NDHS surveys (regarding the practice of seeking advice and treatment for fever because the 2008 NDHS included chemist/PMS in the health facility/provider category while the 2013 survey excluded pharmacy, chemist/PMS, shop, and traditional practitioner).

But it was not only in the area of seeking advice for treatment of fever that the two surveys used different categories. In the 2008 NDHS, there was no provision for such categories as 'LLIN' and 'IRS' which were incorporated into the 2013 survey. Secondly, the studies focused only on women and children under five years of age because they are considered most vulnerable groups. This would not give a complete picture of the true state of acceptance and utilisation of malaria prevention messages because it neglected men who no doubt have significant roles to play in health decisions at home. To underscore the possible role of men in reducing the spread of malaria, Chukwuocha, Dozie, Onwuliri et al (2010:13) point to the fact that husband's 'lack of interest in malaria prevention' was a major factor that affected the utilisation of ITN among the study population they investigated. Thus the sources of access to information for men on a disease like malaria should be of concern to investigators in order to enlist their support for decision making at home. This becomes more imperative given the findings by Serban (2004:3) that the three media (television, radio and newspaper) do seem to have different influences on respondents based not only on the type of exposure they have but also due to the factor of their gender and country. This current study includes men and women as respondents to take care of the observed shortcoming in the NDHS.

2.4 Factors influencing access to, and utilisation of malaria prevention information

Information plays significant role in reducing uncertainty. As such, access to quality health information is critical to many facets of health care design and delivery (Okilagwe, 2000, Edewor, 2010) and as noted by Edewor (2010) health-care seekers need to be adequately empowered with information to make right decisions pertaining to their health. The importance of health information also includes the relief of pain and discomfort, extension and improvement of the quality of life, non-interruption of treatment and the

avoidance of self-medication (Edewor, 2010, Peterson & Obileye, 2002, Colebunder, et al., 1997). Although they are many and may vary from individuals, communities and groups, some factors are considered as germane in the way they affect access to, and utilisation of health information by the target audience. The first of these is the generation or development of the information itself. Successful health information will take into consideration several factors including the culture and religious beliefs of its target audience because these influence perceptions about diseases as well as treatment- seeking decisions.

Culture helps to define beliefs about the causation of disease and health, and about how to effectively treat illnesses (Burgoon & Hall, 1994; Witte, 1991; Witte & Morrison, 1995). In their 2003 work, Heggenhougen et al. identified the failure to often relate malaria to social and cultural contexts as one of the issues at stake in malaria prevention efforts. This trend has tended to affect the approach to treatment and eradication programmes across the continents with emphasis being mostly on the scientific method of control. In the 2003 work, Heggenhougen et al. noted 'established concerns' that operatives within the public health circle seemed reluctant to acknowledge "the interrelationship between infectious disease and socio-cultural characteristics" even when there are enough evidence to prove this (Sotiroff-Junker, 1978; Heggenhougen et al., 2003:2). Yoder (1997: 135) observed that "most theories used to inform campaign strategies do not include culture as a central concept. When they do culture is treated as a "set of beliefs, values, and individual goals that pattern behaviour" whereas, it should actually become a pivotal domain; a central organising concept in developing programmes and assessing their outcomes (Airhihenbuwa and Obregon, 2000:13).

There is a large body of studies dealing with the knowledge, attitudes and practices of different populations relating to malaria. Many of them indicate that misconceptions concerning malaria still exist and practices for the control of malaria have been unsatisfactory and that even where the socio-cultural factors have attracted attention in some efforts at controlling malaria, it has not yielded the desired result (Kyawt-Kyawt-Swe & Pearson, 2004, Ongore, Kanumi, Knight & Minawa, 1989; Ejov et al, 1996; Vundule & Mharakurwa, 1996; Hla-Shein et al, 1998; Miguel, Tallo, Manderson & Lansang, 1999, Mwenesi, 2003). The creation of a Communication Working Group by the RBM Partnership eight years after that observation is considered a step in the direction of attending to the concerns raised by these scholars. It is therefore necessary to consider the 'cultural factors' in the development of communication interventions. As such, this study evaluated the available malaria prevention information in Oyo and Osun states based on the culture of the people. This study sought to

know the existing perception about malaria among the people based on their culture and whether the rural dwellers could understand, believe and accept the available malaria prevention information in their communities based on the same factor.

The second factor is the socio- economic background of the target audience. This includes demographic factors such as educational background, income level, age, gender, status in the family of the target audience etc. These demographic factors will likely determine the comprehension of the message as well as decision- making on the intent of the messages. And given the patriarchal order in the average family in Oyo and Osun states, the position of the target audience in the family set- up may even influence decision making more than the knowledge about the disease. It is also important to note the observation that malaria 'remains inextricably linked with poverty' with countries that have the highest rates of extreme poverty recording the highest rates of mortality from the disease, according to World Health Organisation (2012:1). The current study makes provision for the investigation of the socio-economic background of respondents in order to have insight into possible correlation between such factors as educational background, status in the family, occupation, gender, marital status and access to malaria prevention messages.

There is also the factor of positioning, legibility and location of the information with particular reference to the use of printed materials such as posters and billboards while for handbills and broadcast materials the factor of timing of the delivery is also important. The language and design of the materials could equally affect the acceptance of the message by the target audience. In the use of posters, billboards and broadcast materials, attention must be paid to the choice of personality/model to be used in conveying the message. If the model is perceived in negative light by the target audience due to religious or cultural factors or due to well known scandals surrounding him or her, it will not yield the desired result. Chen (2006: 26) identified two factors that influence the outcome of behaviour change communication as the 'approach' of the message and the 'language, tone and appeal' of the message with a concluding note that messages targeted at changing peoples' behaviour should take into account the use of "local languages, cultural sensitivities, gender and the stages of behaviour change the intended audience is in."

Furthermore, the competence of the source of information is also a critical factor in determining access to, and utilisation of health information. For instance, this will affect the quality of information at the disposal of a health care provider, the skill of sharing the information and his/her relationship with the health care consumer. The importance of this

factor is described in the study by Malaria Research Lead Programme (MRLP) (2008) which recorded a 36% increase in the importance of community health workers as source of information on malaria within two years following specific training programmes for them. Gramiccia (1981:386-387) has also identified the inability of health educators to adapt their materials to local situations as one of the factors for the failure of health education to control malaria spread. In this regard, D'Adamo, Fabic and Ohkubo (2012: 24), citing Godlee & Pakenham-Walsh, (2004); Pakenham-Walsh &Bukachi, (2009) highlighted some of the challenges facing health workers to include lack of routine systems for seeking and sharing information, lack of high-quality and current information on relevant health issues, and lack of locally relevant materials and tools and concluded that:

> Without such basic information, the provision of quality services by health workers, the effective management of programs, and the use of evidence to formulate health policy all suffer. This information deficit contributes to poor health outcomes, including increased morbidity and mortality.

Added to the above factors are the postulations by authors as noted earlier on the communication environment. And as pointed out by Ojebode (2005) the focus of developing messages for behaviour change must not be on just crafting the right messages but also on addressing societal constraints that hinder utilisation of such information. Some of the suggested areas of focus for health communication researches include identification of information needs of consumers and suggesting strategies for encouraging consumers to take control of their health and health care (Kreps et al, 1998). Such works are expected to focus on the effectiveness of disseminated health information as a means of enhancing public health. The present study therefore investigates the extent to which these factors and others affect access to, and utilisation of malaria prevention information particularly among rural dwellers in South-west Nigeria. The communication component of the National Malaria Prevention Strategic Plan (NMCSP) which is the tool for achieving effective communication in the area of malaria prevention in Nigeria shall be a useful guide in this respect.

2.5 Malaria prevention information and the National Malaria Prevention Strategic Plan (NMCSP)

The National Malaria Prevention Strategic Plan (NMCSP) is a framework for addressing national health and development priorities of Nigeria including the Roll Back Malaria (RBM) Goals. The communication component of the NMCSP is embedded within the concept of ITN Massive Promotion and Awareness Campaign (IMPAC) which involves the production of Information, Education and Communication (IEC) materials on malaria prevention as well as social mobilisation of target audiences. This function is the responsibility of a unit (IEC/Social mobilization Unit) within the National Malaria and Vector Control Division, itself a sub-unit of the Department of Public Health, Federal Ministry of Health. Advocacy and Communication is therefore a strong objective of the NMCSP.

A set of Communication Priority Actions (CPA) was agreed upon by participants at the Nigeria Roll Back Malaria Country Consultative Mission in 2003 to support the attainment of the Abuja Targets which essentially are the NMCSP. The CPA as identified by Abebe, Mosanya, Amajoh, Otsemobor, Ezedinachi, Afolabi, Fatumbi, Gemade, Oduwole, Akinpelumi, Sillah, Banda, Smith, Ibe, Yeboah-Antwi and Offei (2004:30) are as follows:

> Essential Action: Identify and build Health Communication Partners at country level (and or sub regional level) to:
>
> • develop comprehensive communication strategy to support Essential Actions for Roll Back Malaria (RBM) Nigeria to achieve Abuja Targets;
>
> • identify a range of implementing partners i.e. health communication, local and national broadcasters and;
>
> • develop local capacity to manage/oversee and coordinate implementation of Communication strategy.

• communication Strategy to be endorsed by all partners and guide coordination of communication activities.

• communication Strategy would need priority activities for ITN, Intermittent Protective Treatment (IPT), Case Management/Access to Treatment using best practices, and include:

• increasing Community Awareness using variety of approaches including social mobilization around environmental sanitation activities, mass media (Radio +TV, Print), RBM Ambassadors/ popular figures, road shows etc.

• essential Behaviour Change Communications activities among target groups i.e. Communities, health workers.

• intensive Advocacy activities directed at all levels: policy makers; politicians: management Boards of appropriate institutions, health personnel and health trainers; community leaders, churches etc.

• targeted Information and Education materials directed at health workers, carers, and community members.

• mass media campaign packages to address behaviour change encourage people to sleep under ITNs, buy and use correctly Purified Protein Derivative (PPDs), and benefit from IPT.

The CPA became necessary following observations about the 'lack of a broad communication strategy' which 'handicapped awareness creation and demand for ITN' with the conclusion that 'the level of advocacy provided (was) too low to attain desired results' (Abebe et al, 2004: 24-25). Nafo-Traoré and Ziemer (2012: vi) have noted that although the communication component of malaria prevention initiatives has now shown some level of success in different parts of the world, it still needed to be well positioned " as a core component of global and national malaria prevention policy and is allocated the resources necessary to contribute to health impact." Indeed, the adoption of a communication framework for malaria prevention did not take place until 2011 when a group of communication-oriented partners, national malaria prevention managers, and members of the RBM Partnership Secretariat met to examine the current state of the art in health communication and articulate a Strategic Framework for Malaria Communication at the Country Level (Roll Back Malaria Partnership, 2012). The group had sought to provide a platform for the mobilisation of political, social, and financial resources for the positioning of "communication as a core component of malaria prevention and foster the development of more effective communication programming at the country level", according to Roll Back Malaria Partnership (2012: vii).

Roll Back Malaria Partnership (2012: vii), reports that the Strategic Framework, drafted through a consensus process, focuses on the need to address five challenges to malaria prevention as stated in the RBM Global Malaria Action Plan. These challenges are to:

> •improve the acceptance and use of long- lasting insecticide treated bed nets (LLINs), particularly for children under five and pregnant women.
>
> •accelerate access to and demand for intermittent preventive treatment for pregnant women (IPTp).
>
> •improve early treatment seeking and compliance with drug therapy (Artemisinin-based Combination Therapy — ACTs).

> •increase acceptance of indoor residual spraying (IRS) as a tool in vector control.
>
> •strengthen a culture of malaria prevention and treatment-seeking behaviour.
> •Mobilize political commitment and resources for malaria and for country level communication efforts.

It is evident from the above, that the communication component of malaria prevention initiatives in Nigeria is now being given attention. It would thus be a useful step to evaluate the success of such efforts, particularly among rural dwellers in Oyo Osun states who from the reports of the NDHS (2008 and 2013) and MIS (2010 and 2015) are still not utilising preventive measures such as the use of ITN even though they have a high rate of ownership. One of the four reasons identified by Heggenhougen et al. (2003: 9) for the failure of health education in tackling the scourge of malaria has relevance to the focus of this study. This relates to the attitude of people in developing economies to see malaria as just one of a myriad of socio-economic challenges facing the population. They therefore find it difficult understanding why it must be singled out for attention. Twelve years earlier, Fungladda (1991: 89) had noted the same challenge when he wrote that:

> People in malarious areas have long regarded malaria as part of their everyday lives; they have been conditioned to live with it and with other scourges such as poverty, hunger, and other diseases… villagers cannot understand why malaria should be selected for elimination rather than their poor living conditions or any other disease.

Obviously such line of thinking has implications for the development of communication messages to control the disease. It is for this reason that Heggenhougen et al. (2003:11) argue that people's perception and some of their cultural associations must not only be well understood in tackling the incidence of malaria, the whole context of lives that give shape to these perceptions and behaviours must be clearly identified and accepted for a

successful change to take place. There is therefore a need to examine the linkages between perception about malaria within the context of culture and the behaviour it eventually creates.

2.6 Culture, behaviour and perception about malaria

Like many other health conditions, social-cultural factors affect the perception about the causes of malaria and subsequently attitude to its control (Oaks, Mitchell, Pearson &Carpenter, 1991: 266). It is therefore imperative that people's perception and some of their cultural associations must not only be well understood in tackling the incidence of malaria, the whole context of lives that give shape to these perceptions and behaviours must be clearly identified and accepted for a successful (behaviour) change to take place (Heggenhougen et al. 2003; Kywat-Kywat-Swe & Pearson, 2004; Minja, Schellenberg, Mukasa, Nathan, et al., 2008). In south eastern and south-western Nigeria, excessive heat, over–work, sunlight, excessive sex , too much sun, mosquitoes, fried food, cold weather, dirty environment , weakness, alcohol, noise as well as witchcraft are perceived as possible causes of malaria (Morenikeji, 2009: 508; Brieger, Nwankwo, Ezike, Sexton, Breman, Parkes, 1997; Nebe, Adeoye , Agomo, Mosanya, 2000; Okeke &Okafor, 2008). Okeke and Okafor (2008: 217) quote some respondents in their study of Perception and Treatment Seeking Behaviour for Malaria in rural area of south-east Nigeria as saying thus:

> The sun can cause malaria by either shinning directly on the child or on the breast of a lactating mother, if she stays too long under the sun, especially while at work in the farm, the breast milk will heat up and when that child eventually sucks, it will cause malaria.
>
> If you drink bad water, the person will get malaria. Mosquitoes cause malaria by perching on dirty things which can be transmitted into a person's blood after a bite and cause *iba*.

While the researchers found a correlation between education and correct knowledge of mosquitoes as cause of malaria, they also report other respondents as claiming that the disease

can be transmitted through breast milk, bodily contact, drinking dirty water, inhalation and sharing the same cup. Some of the respondents felt it is inborn. Majority of respondents in the study above mentioned high fever as a symptom suggestive of a severe illness and while convulsion was recognised as a symptom of severe illness that kills children easily, most of the respondents did not connect it with malaria. To them, it is not malaria that causes convulsion but the high fever associated with malaria. Some of the mothers attributed the cause of convulsion to cold weather saying that "If rainy season or cold weather comes, it causes fever which results in convulsion" (Okeke & Okafor, 2008: 218).

And in a study of the perception of causes and treatment of malaria in a Nigerian university, 7.3 % of the study population who were Christians expressed confidence that prayer is the best cure for malaria while others predominantly Muslims from Awori tribe believed that local remedies were the best cure (Okwa &Ibidapo, 2010). This confirms how belief is a factor of access and utilisation of malaria prevention information. Such beliefs which contradict scientific explanation for the cause and treatment of malaria may lead to inaction, delay in seeking appropriate treatment or ineffective action, and may even inhibit community participation in intervention programmes (Heggenhougen, 2003: 38). Thus, it is evident that people in different societies hold a variety of beliefs about the cause and transmission of malaria that vary according to cultural, educational, and economic factors, and have direct consequences for both preventive and treatment-seeking behaviour as well as for activities to control malaria (Aunger & Curtis, 2007:38). This is why there is need to understand "people's perceptions of malaria, and the factors which influence these perceptions" as a critical element in mounting successful interventions (communication) programmes (Ahorlu et al, 1997; Bradley, 1991; Lipowsky, Kroeger & Vazquez, 1992).

Outside Nigeria, Kengeya- Kayondo, Seeley, Kajura-Bajenja et al. (1994) report a study from Uganda which found that "poor diet and environmental conditions (as well as the bites of mosquitoes) were perceived to cause the disease" while a study in the Philippines, according to Espino, Manderson, Acuin et al. (1997) indicate "a general disbelief in the mosquito as a vector of malaria, and [therefore] doubts about the efficacy of bednets". Much was discovered in Tanzania where Gessler, Msuya, Nkunya, Schar et al. (1995) report the perception that "there is no close association made between mosquitoes per se and malaria". Yeneneh, Gyorkos, Joseph, Pickering and Tedla (1993) report a research in Ethiopia which found that 77% of respondents "thought that malaria could not be prevented". Considerations of supernatural sources for malaria incidence are also rampant. For instance, Aikins,

Pickering, and Greenwood (1994); Mwenesi, Harpham, and Snow (1995) both report experiences in The Gambia and Kenya where malaria in children is often considered as the outcome of the child being possessed by an evil spirit or the devil. Also, Mwenesi et al. (1995) report the study from coastal Kenya which indicates that mothers often neither make the connection between mosquitoes and malaria in children nor recognize convulsion, one of the symptoms of severe malaria, as related to the disease. Instead, they may consider a convulsing child as having come under spiritual attack, a development that would ultimately determine where they seek help. In fact, in Tanzania and Kenya, there is common belief that if a child suffers convulsion and is given injection, such a child would die. Such children are thus taken to traditional healers and not health facilities (Tarimo, Urassa, &Msamanga, 1998; Winch et al., 1996). In The Gambia, Aikins et al. (1994) report the common belief that "close association with cattle, and, by extension, with nomadic pastoralists such as the Fula people, will cause malaria". In Sri Lanka local peasants are unable to connect malaria to the bite from the mosquito although their local folks recognize bite from a mosquito as more dangerous than the menacing and life-threatening bite from some animals (Silva, 1991).

From the literature, culture and behaviour, which go beyond wealth status of individuals and affects perception, acceptance and utilisation of malaria prevention information, have been presented as a challenge not just to the control of malaria incidence among various populations but significantly to the development of behaviour change communication. Culture and beliefs affect perception and attitude thus every communication aimed at changing attitude and knowledge that predisposes the population to malaria must be done with considerations for the cultural beliefs and socio-economic circumstances of the targeted population along with other factors of access and utilisation earlier mentioned in this study. It is worthwhile, therefore, to examine what has been done so far in investigating the nexus among the variables of culture, behaviour and malaria perception.

2.7 Review of empirical studies

There are scant studies on malaria prevention, particularly from the perspective of communication scholars. A volume of studies reviewed by this researcher indicates a preponderance of studies on malaria, including those that focus on knowledge, attitude and practices of malaria prevention, by researchers from the medical profession. However, since it is now clear that human behaviour and socio-economic status play an important role in the spread of malaria, and therefore, the control/elimination of the disease, it has become

imperative for scholars in the other disciplines, particularly communication studies, to also get involved with studies on malaria. This researcher consulted the Journalism and Mass Communication Abstracts (JMC Abstracts), run by the Association for Education in Journalism and Mass Communication, looking for "Doctoral Dissertations from 2000-2009". There were a total of 148 of such dissertations from universities across the globe but none on the subject of 'malaria' or 'malaria prevention information'. A search through OAlster on 'Doctoral Dissertations on Health Communication' gave a total of 93 studies on the subject but none of them was on malaria or malaria prevention information. A search through the same portal on 'Doctoral Dissertations on Malaria Prevention Messages' yielded negative result, the same with 'Doctoral Dissertations on Malaria Prevention' while Doctoral Dissertations on Malaria' yielded only one result. A search on 'Malaria Prevention' on the same portal yielded only two results while a search for 'Malaria' yielded five results. A search on Google Scholar for 'Doctoral Dissertations on Health Communication' produced 106,000 related results but mostly from the medical field. A search through the same portal on 'Doctoral Dissertations on Malaria Prevention Messages' produced 16,300 results but again they were not from the communication perspective while a search on the same portal for 'Doctoral Dissertations on Malaria Prevention' yielded 11,100 results with one focused on behaviour change communication in the prevention of malaria. A search for 'malaria prevention+information' on May 25, 2018 yielded 515 results from worldwide theses (http://oaister.worldcat.org/search?qt=wc_org_oaister&q=malaria+prevention%2Binformation&scope=0&oldscope=&wcsbtn2w=Search&dblist=239) but none was actually on malaria prevention information. The Journalism and Mass Communication Quarterly had only five results for 'Malaria' two for 'Malaria Prevention' while the Journal of Health Communication had only four results for 'Malaria Prevention' out of over 200 articles. All the portals were first accessed in 2014 and reviewed in 2016 with extension of the dateline to 2018.

Similarly, a search through the National ETD Portal (South African Theses and Dissertations) yielded a total of 28,033 results made up of Doctoral Dissertations and Master Degree Theses from universities across South Africa as at June 27, 2016. Of this figure, there were more than 70 results for malaria but none of them was from the communications discipline. The Dissertation search page hosted by the Association of African Universities (AAU) had no results as at May 15, 2014 when this researcher consulted it. The situation was still the same as at 2016. The available studies from 'non-communication' disciplines did not examine the information content of the control efforts as they only focused on the perception

and practices of respondents to specific aspects of malaria control being investigated. As far back as 2003, Mwenesi had noted this issue too and pointed attention to the fact that even though communication (for behaviour) is critical for all areas of intervention, it has not received enough attention in the areas of malaria prevention. In 2004, Williams and Jones reviewed 'published, unpublished and technical reports' on the home management of illness episodes of malaria in sub-Saharan Africa from 1996 to the end of 2000. The focus was to investigate the use of social science in malaria research and control. Their conclusion was that there was lack of evidence 'of social scientist involvement' in much of the studies.

Onekutu and Ojebode (2007) have also noted this challenge to the local field of health communication. In their studies on the trend in health communication research and after finding what they described as 'scant' research in the field in Nigeria, the two scholars concluded that the development might be related to the fact that most researchers submit their works on health related matters to journals in other fields. But this might not even be so, particularly in the area of malaria prevention. Indeed, findings from the studies from the 'non-communication' disciplines point to the need for an investigation of the communication context of malaria prevention initiatives. For example, while Agu and Nwojiji (2005) claimed there was no correlation between educational status of respondents and their knowledge of malaria or malaria prevention, other researchers claimed a correlation (Kigodi& Komaya, 2006, Okeke & Okafor, 2011, Jombo, Araoye & Damen, 2011, Karunamoorthi & Kumera, 2005). If there is a correlation between education and knowledge it can be assumed that rural dwellers may likely have less accurate knowledge about malaria because of their often limited access to education. They are also likely to adopt different preventive measures, based on wrong information about the disease and are not likely to be able to purchase or pay for ITN as evident in the studies by Ojo (2005) and Onwujekwe, Hanson and Fox-Rushby (2004). The evident correlation between education and knowledge of malaria should therefore influence the style of communication employed in informing them about malaria prevention (Mazigo, Obasy, Mauka, Manyiri, Zinga, Kweka, Mnyone and Heukelbach, 2010).

Other findings in the studies also indicate the need for investigating the communication context of malaria prevention initiatives. These include the need for availability of information through preferred community channels and professional health routes, need for dissemination of relevant information to community members, need to ensure that malaria prevention efforts are based on cultural and traditional beliefs of the people and the need for a comprehensive behaviour change communication (Hlongwana, et al., 2009;

Mazigo, et al. 2010; Kywa-Kywat-Swe &Pearson, 2004; Legesse, Tegegn, Belachew and Tushune, 2007). The finding by Okwa and Ibidapo (2010) that 41.7 % of university undergraduates have a wrong perception about the cause of malaria is equally instructive of the need to embark on proactive communication strategies that will ensure that local concepts of illness are considered when designing malaria prevention programmes to enhance education, knowledge and behaviour on malaria prevention as suggested by Biersmann, Sanou, Wadarsch, De Allegri, Kouyaté and Müller (2007). Such local knowledge (and practice), according to Minja, Schellenberg, Mukasa, Nathan, Abdulla,Mponda, Tanner, Lengeler and Obrist (2007), are relevant for the development of social marketing strategies, which is a core platform in the development of communication for behaviour change.

These are issues within the purview of communication studies and become all the more important given the fact that as at the time of undertaking this study, malaria prevention communication as well as social mobilisation of target audiences was the responsibility of the Information, Education and Communication (IEC) /Social mobilization Unit within the National Malaria and Vector Control Division, itself a sub-unit of the Department of Public Health, Federal Ministry of Health. Yet there is a Federal Ministry of Information and Communication expected to have on its staff a number of communication specialists who can handle such assignments. What obtains in the two states used for this study is that a member of staff of the Ministry of Information is made a member of the Advocacy Communication and Social Mobilisation (ACSM) Committee which is headed by the State Health Educator, a professional Nurse. The Committee is responsible for the design and implementation of ACSM activities in relation to malaria prevention in each state. This degree of collaboration between the two ministries in the development and deployment of malaria prevention information has been deplored by Roll Back Malaria (2012:16). Salmon (2006: 4-10) has noted and warned about the ‘dangers’ inherent in allowing other disciplines to ‘take over’ what are essentially ‘functions’ of the communications discipline simply because of the ‘fluid’ flow of the subject of communication among various disciplines. Salmon (2006: 4-10), who wrote as part of a team of experts assembled to review the trends in communication education, noted that there was need ‘to position ourselves…: to redress … the “intellectual trade deficit” that has for so long plagued our field.’

This is the focus of the Partnership for Social Sciences in Malaria prevention (PSSMC) which seeks to integrate the social sciences into the mainstream of malaria prevention efforts. The basis for that integration is the growing understanding that human

behaviour plays significant role in the spread and control of malaria hence the concession that the social sciences have an integral role to play in defining strategies to combat the disease (Williams, Jones, Alilio, Zimicki, Azevedo, Nyamongo, Sommerfeld, Meek, Diop, Bloland and Greenwood (2002). Disciplines in the social sciences, among them communication studies, according to the authors "share an emphasis on understanding how human behaviour is shaped and modified in the global context by a vast array of influences" even though guided by their respective theoretical orientation, which influences the essential questions each asks and the methodologies it employs to answer them. Williams et al., (2002:251) pursue the argument further by noting that:

> An understanding of the differences among the various social science disciplines is essential to an appreciation of the relative contribution that each can make. For example, while anthropologists may be aware of culturally specific local knowledge that would be useful in identifying community needs, health communicators may produce effective messages to respond to them.

A study of the communication component of these interventions will definitely yield better result as it would enable intervention agents understand the two-dimensional aspects of control efforts; that is, the population itself with their behavioural variables and also the content of the communication designed to enhance behaviour change. Biersmann et al. (2007) have noted there is an extensive body of literature on health care seeking behaviour in sub-Saharan Africa (for children suffering from malaria) only that most of them are quantitative and "fails to explore how the local concepts of illness may affect people's choices" whereas understanding such dynamics and their influence on the health-seeking behaviour of the populace "can complement existing knowledge and lead to the development of more effective malaria prevention interventions." The PSSMC Publication Database had a total of 365 journal articles and other research materials when accessed by this researcher on June 15, 2011. Interestingly, the database had not been updated since 2005. Out of these, the

Journal of Social Science and Medicine accounted for only 26 publications. There was even nothing from the discipline of communication either among the 26 articles or in the entire entry. If Onekutu and Ojebode (2007) had identified this gap in 2007 and it was still there in 2016, it goes to suggest the need for more involvement by those in the field of communication to enhance on- going efforts at eradicating the scourge of malaria particularly when viewed from the position canvassed by Poole and Walther (2001: 20) to the effect that "health communication is an important area of human inquiry for addressing salient health care and health promotion issues".

The problem of scant materials on malaria prevention communication studies could also have been due to the lumping of Communications studies with the Humanities in many African institutions such that there may be studies that meet the requirements of listing on the PSSMC Database but are not included since they are not from the "social sciences". Nevertheless, the fact that searches on global networks did not yield many works on malaria from the field of communication is a great challenge to scholars in the discipline. Most of the studies under review employed cross sectional surveys to examine the perception and attitude of their study populations. Only a few of them combined this methodology of inquiry with Focus Group Discussion to obtain better result from their study populations. This however differs from the findings of Onekutu and Ojebode (2007) on trend in health communication research which found investigators employing Content Analysis for their studies. It also differs from the findings of Riffe and Freitag (1997) to the effect of an increasing disposition towards the use of Content Analysis in their study of articles in Journalism and Mass Communication Quarterly.

Furthermore, most of the studies used purposive/convenience sampling. Although this is acceptable in scholarly studies, it needs be pointed out that other methods of sampling techniques could still be used to get results that will spread across population features in different localities and make study outcome more generalisable. The use of purposive sampling however aligns with the findings of Onekutu and Ojebode (2007) whose study covered 16 journal articles, 13 abstracts covering 1990-1997 and 11 theses/dissertations produced between 2000 and 2004. While the studies under review did well in investigation of the KAP of their respective population of studies, there are no corresponding aspects of the studies on the manifest content of malaria prevention information. There are also no indications of the theoretical framework employed in the studies thus making it difficult to really assess the conceptual goal or platform upon which such studies were based. Yet, to

change peoples' behaviour through communication, there is need to establish theoretical foundations for every study, according to Aunger and Curtis (2007:6), who cited Michie and Abraham (2004), to the effect that theories are helpful in making behaviour change programmes more effective. There are thus several gaps in available studies on malaria prevention, the significant one among them being that such studies focus mainly on the knowledge, attitude and practices of populations without subjecting the communication materials to investigation. Many studies have been looking at how populations respond to information without looking at the information; how it is packaged and presented, the timing of the presentation, the tone of the presentation, all of which affect the response of target audiences. Such materials exist in print, broadcast and interpersonal formats and should be properly interrogated to determine their effectiveness. This is the underlining focus of this current study and aligns with the focus of stakeholders in the field of malaria prevention communication to review current efforts in the sub sector.

2.8 Current efforts on malaria prevention communication

As noted earlier, the first meeting of stakeholders to design an acceptable framework for communication related to malaria prevention took place between 2011-2012, following the understanding that sustained communication interventions were necessary to motivate households to prevent and treat malaria (Roll back Malaria, 2012). The situation painted by the 'insufficiencies' and 'lacks' in the area of malaria prevention communication highlighted by the stakeholders is succinctly described by Roll Back Malaria (2012: 16), as follows:

> Within countries there is currently high demand for technical assistance to carry out planning processes, write proposals for communication research, conduct training, develop appropriate communication materials, and design M&E systems. Communication activities in support of malaria prevention and treatment generally fall to Ministry of Health (MOH), Communication or Health Promotion units that are understaffed and overburdened with responsibilities for a wide range of public health priorities.

It is therefore now accepted that communication has a big role to play in every initiative against malaria. Some of these roles include the facilitation of the adoption of new policies, building awareness and changing perceptions and beliefs about malaria, increasing knowledge as well as the demand for malaria prevention services, and also improving acceptance and trust within the family and the community. Others include improving prescription practices and effectiveness of counselling, improving motivation of families, communities, and providers, reducing barriers, increasing the appropriate utilisation of services as well as the management of unforeseen events (Roll Back Malaria, 2012: 8). Thus, the stakeholders in the development of the strategic malaria communication framework agreed to some specific objectives at the end of the various meetings that held between 2011 and 2012. The objectives are that between 2012 and 2017, international and national partners will advocate for and provide the resources, training, and expertise to ensure NMCPs in 80% of high-burden countries have developed and implemented evidence-based, national communication strategies, 80% of high-burden countries are routinely allocating resources in their malaria prevention budgets to communication interventions, RBM communication partners will regularly generate and disseminate evidence of communication impact, including the impact of the priorities outlined in the communication research agenda. The conclusion of the stakeholders is that the "achievement of these goals will contribute to a reduction in the intolerable burden of malaria morbidity and mortality in these countries" (Roll Back Malaria, 2012:6). This study is therefore a contribution to how these objectives can be achieved in Nigeria, particularly in Oyo and Osun states. The theoretical background to the study is discussed below.

2.9 Theoretical framework

The core focus of theories of social and behaviour change is the examination of the determinants of behaviour or factors that serve to either facilitate or constraint expected change. Middlestadt, Pareja, Hernández, Maguire, Jimerson, and Randell (2003) have identified some of these as 'internal' and 'external' factors within the context of individual decision making process. While the 'external factors' according to the authors include distance to services, need for approval by a mother- in-law or husband, quality of care, trust in providers, or relevant policies, the 'internal factors' will include beliefs, attitudes, skills, or a sense that one is able to change—i.e., "self efficacy". This current study shall utilise three theories: Social marketing, Diffusion of Innovations, and the Health Belief Model. These are discussed below.

2.9.1 The Social Marketing Theory

Kotler and Zaltman (1971:5) defined social marketing as "the design, implementation, and control of programmes calculated to influence the acceptability of social ideas and involving consideration of product planning, pricing, communication, distribution, and marketing research". Another definition supplied by Andreasen (1994:110) says social marketing is "the adaptation of commercial marketing techniques to programmes designed to influence the voluntary behaviour of target audiences to improve their personal welfare and that of the society of which they are a part" while Donovan and Henley (2003) see social marketing as 'the application of the principles and tools of marketing to achieve socially desirable goals, that is, benefits for society as a whole rather than for profit or other organisational goals'.

2.9.1.1 Basic assumptions of Social Marketing Theory

The two basic assumptions of this theory are that,

(a) An individual will adopt new behaviours or ideas if he/she feels that something of value is exchanged between him/her and the 'social marketer'.

(b) Well-honed and demonstrably effective techniques from the commercial business sector can successfully and efficiently be applied to advance social causes.

There are five constructs from the commercial business sector that are used in social marketing. These are Product, Price, Place, Promotion and Positioning, (Gallopel-Morvan, 2008, Meischke n.d, para.2-8 http://www.scribd.com/doc/2600124/Social-Marketing-Theory). Product refers to the expected behaviour or the idea an intervention seeks to implant

in the respondents who are like customers in a commercial setting. The Product in the current study is the malaria prevention information being disseminated to the rural people in Oyo and Osun states either through interpersonal or mass media channels with the aim of making them change their behaviour. Both acceptance and utilisation are aspects of behaviour that can be marketed with good, effective communication just like selling a product in the market.

In social marketing practice, Price refers to the monetary or non-monetary cost of acquiring the Product and in this study will refer to the time a rural man or woman takes to listen to a malaria prevention programme on television or radio, the time such a respondent 'spends' with a health worker listening to information on malaria prevention or the time the respondent spends reading and internalising the content of a poster or billboard message on malaria prevention. It could also refer to the various social/psychological change processes a respondent will go through; some behaviour and attitude that the respondent would have to give up, in order to become what the marketer had in mind while planning the intervention. In the monetary aspect, Price will also refer to the financial cost incurred by a respondent to acquire a mosquito net as a practical step in utilising the malaria prevention information.

The Place refers to the 'distribution sites' i.e. locations where the products are displayed or can be found. According to Meischke (n.d, para. 2-8) 'the greater the number of distribution sites and the more convenient and appropriate the places where the product can be found the better chance that awareness and use of the product is facilitated.' In this study, Place will refer to locations where malaria prevention information is accessed by the respondent. It will also include the source of the information. These will include the locations of billboards and posters, hospitals and clinics and homes of Malaria Model/Agents, Community Volunteers, friends and neighbours etc where such have been established as significant sources of information on malaria prevention.

The next construct of the theory is Promotion which refers to the means through which a 'customer' is made aware of the Product. In this study, this will refer to the channels of communication employed by the Roll Back Malaria and other Partners to pass across their respective malaria prevention information to the respondents. These will include mass media and interpersonal channels.

"Positioning", the next construct, according to Meischke (n.d, para.2-8 http://www.scribd.com/doc/2600124/Social-Marketing-Theory), refers to the psychological "image" of the product; the benefits a respondent is expected to enjoy by buying the product. For instance, according to the author, a low diet can be positioned as a healthy way to become

slimmer or reduce the possibilities of getting certain diseases. In this study, it will refer to the 'expected benefits' inherent in the available malaria prevention information for the rural dwellers of Oyo and Osun states. Such benefits include living a healthy life, spending less on medication and treatment, reduction in absenteeism from school and workplace and possible avoidance of infant death due to severe malaria.

One of the significant features of social marketing is the use of audience analysis which dictates an understanding of the audience's beliefs, attitudes and behaviours as critical inputs to the design of any effective intervention. This is carried out through Survey or Focus Group Discussion. Since a basic component of Social Marketing, from the definitions above, is 'communication' of the expected 'social ideal' or behaviour, it can be argued that communication is at the centre of social marketing. This involves designing and composing 'social ideal' or behaviour as messages in such a way as to influence positive response from the 'buyer' in the 'market'. However, Ojebode (2005:175) has noted that the emphasis in social marketing should not just be on crafting the right messages but on addressing societal constraints so that behaviour change either becomes unnecessary, or, at least, easy to attempt. Two of the issues identified by Ojebode (2005: 179-180) in the failure of the 'consumers' of environmental jingles to 'buy' the expected behaviour change was the wrong assumption that once a message is understandable, credible and persuasive then it will succeed. The other was the failure to align the campaign with individual personal values and habits. This becomes very instructive because one of the criticisms of social marketing is its apparent emphasis 'on the individual rather than the individuals' larger environment' (Meischke, n.d, para.2-8 http://www.scribd.com/doc/2600124/Social-Marketing-Theory). But in the present study, such a weakness is reduced with the use of Focus Group Discussion which allowed for the involvement of the community voice in the investigation.

2.9.2 Diffusion of Innovations

This theory was popularised by Rogers (1962) who defined diffusion as "the process by which an ***innovation*** is communicated through certain ***channels*** over ***time*** among the members of a ***social system***." An innovation, he opined is "an idea, practice, or object that is perceived to be new by individual or other units of adoption". The theory has been used to study the adoption of a wide range of health behaviours and programmes, including condom use, smoking cessation, and use of new tests and technologies by health practitioners and has been described as a blueprint for communication activities in development (U.S Department

of Health and Human Services,2005; Waisbord, nd). The theory is basically an attempt to explain how new ideas and discoveries spread to members of a social system (Anaeto, Onabajo and Osifeso, 2008).

2.9.2.1 Assumptions of the Diffusion of Innovations Theory

(a) That there are conditions which increase or decrease the likelihood that a new idea, product or practice will be adopted by members of a given culture.

(b) That the media as well as interpersonal contacts provide information and influence opinion and judgment.

(c) That opinion leaders exert influence on audience behaviour through their personal contacts, but that additional intermediaries, also called Change Agents, are equally included in the process of diffusion.

(d) That information flows through networks; the nature of networks and the roles opinion leaders play in them determine the likelihood that an innovation will be adopted.

In 2004, Rogers identified three important additions to the theory since its acceptance in 1962. These are the Critical Mass; that is the point at which an innovation has secured enough adopters that a further diffusion becomes self-sustaining. There is also a focus on networks to investigate how new ideas spread through interpersonal channels and lastly, Re-Invention; the process through which an innovation is changed by adopters in the course of its diffusion. There are no hints that the theory will be less useful to scholars either now or in the future. Rogers himself in 2004 noted there had been about 5,000 studies on the theory in about six decades adding that "unlike most models of human behavior that begin to fade after some years of use, the diffusion model continues to attract strong interest from scholars". Most health intervention promotes new ideas that need to be adopted by individuals and groups. For instance, four of the five challenges indentified in the Strategic Framework for Malaria Prevention relate to 'innovations' that if adopted would lead to a successful malaria prevention in Oyo and Osun state. But such adoption would have to pass through the first four basic assumptions of the theory.

The challenges, according to Roll Back Malaria Partnership (2012: vii) are to:

> •improve the acceptance and use of long- lasting insecticide treated bed nets (LLINs), particularly for children under five and pregnant women.
>
> •accelerate access to and demand for intermittent preventive treatment for pregnant women (IPTp).
>
> •improve early treatment seeking and compliance with drug therapy (Artemisinin-based Combination Therapy — ACTs).
>
> •increase acceptance of indoor residual spraying (IRS) as a tool in vector control.
> •Strengthen a culture of malaria prevention and treatment-seeking behaviour.

Thus this theory is used in this study to investigate the communication environment/conditions that influence the perception of rural dwellers in Oyo and Osun states on malaria prevention communication. It is useful to investigate the degree of influence wielded by opinion leaders, as well as the media, on the adoption of appropriate malaria prevention behaviour by the respondents in the region.

2.9.3 The Health Belief Model

The Health Belief Model (HBM), which was developed by social psychologists Hochbaum, Rosenstock and Kegels along with others in the U.S. Public Health Services in the 1950s, is used to explain and predict health behaviours by focusing on the attitudes and beliefs of individuals. Although it was first developed in response to the failure of a free-tuberculosis (TB) health screening programme, it has since been adapted to explore a variety of long- and short-term health behaviours, including sexual risk behaviours and the transmission of HIV/AIDS.

2.9.3.1 Core assumptions of Health Belief Model

The HBM is based on the understanding that a person will take a health-related action if such a person:

(a) feels that a negative health condition can be avoided,

(b) has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition, and

(c) believes that he/she can successfully take a recommended health action.

Originally, four constructs representing the perceived threat and net benefits of a health action constituted the main pillars of the theory. These are Perceived Threat, Perceived Benefits, and Perceived Barriers, Cues to Action, all of which were proposed as determining the 'readiness to act' by an individual. However, other constructs were later added to these following further studies applying the model. The additional constructs are: Motivating Factors and Self Efficacy. The Health Belief Model has been adapted to several studies among them those that sought to explain and predict individual participation in programmes for influenza inoculations, Tay-Sachs carrier status screening, high blood pressure screening, smoking cessation, seatbelt usage, exercise, nutrition, and breast self-examination, sexual risk behaviours on HIV, dengue control education (Family Health International, 2002; Phuanukoonnon, Brough & Bryan, 2006). The Model assumes that an individual's action towards a preventive health measure will be based on his/her beliefs and attitudes while acknowledging that beliefs and attitudes are not spontaneous but the function of a progressive experience by the individual decision maker. It is for this reason that the model seeks to explain the demographic and socio-psychological variables which could influence the perception of an individual about his/her vulnerability to a health condition, the perceived severity of the health condition as well as the perceived benefits and barriers to the action.

Successful malaria prevention information should clearly spell out either the various threats inherent in an attack of malaria such as loss of life, income, etc or the possible benefits of malaria -free living. It should also indicate the possible actions an individual can take to avoid the threats or enjoy the prospective benefits. This can be achieved if the information was designed with an understanding of the various barriers to accessing the information and understanding same. Thus the HBM is useful to this study as it will be adapted to investigate how malaria prevention information is presented as this will influence what the respondent feels about the impact of malaria on his or her personal health, family life and income etc and ultimately determine his or her response to accept or reject the message. Phuanukoonnon et

al. (2006) have done an extensive study adapting the model to investigate the control of dengue fever among a local population in Northeast Thailand and their discoveries are worth considering in a study such as this. According to them, participants in the cross sectional study 'perceived' that 'dengue control campaigns were only effective over a short period of time', 'did not fully participate in larval control activities', ' undertook larval control but inconsistently, finding it difficult to keep up with suggested regimes of mosquito control', 'did not think they were at risk of dengue or had larvae at home', 'thought control was best left in the hands of the authorities' while many 'held an over-riding belief that control of Aedes mosquitoes was an unrealistic goal' (Phuanukoonnon et al. , 2006:12).

One of the criticisms of the HBM according to Family Health International (2002) is that it "does not incorporate the influence of social norms and peer influences on people's decisions regarding their health behaviors". This shortcoming is however compensated for in this study by the adoption of the Diffusion of Innovations Theory which incorporates such influences.

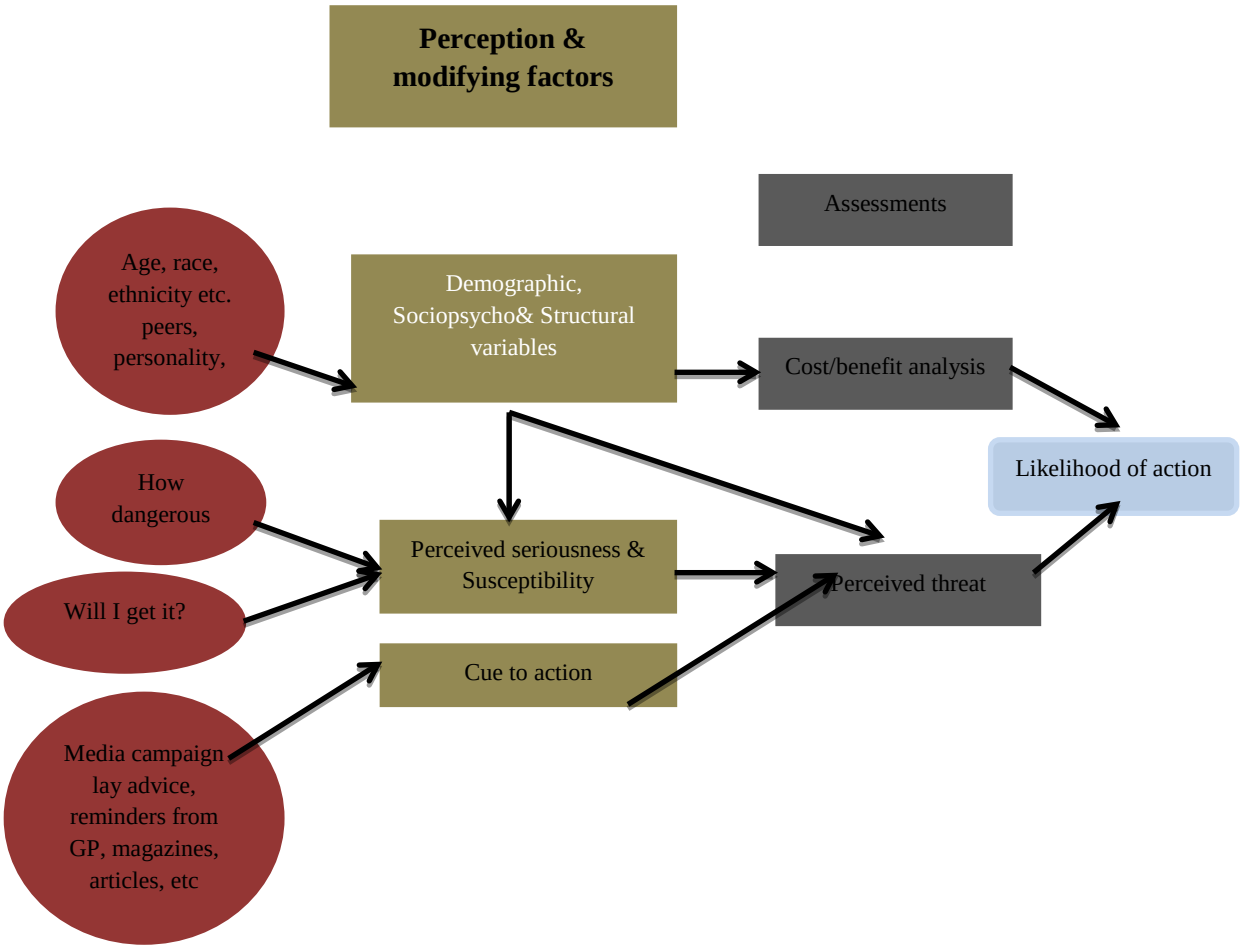

Figure 1: Diagrammatic illustration of the Health Belief Model. Adapted from Philip Banyard, *Psychology in Practice*; *Health*, published by Hodder & Stoughton (2002).

The Health Belief model assumes that demographic factors such as age, gender and educational background can mould perception, such as about malaria. Such perception can lead an individual to understand the possible 'threat' from malaria and create in such individual the likelihood of action. However, acting on the perception will be subject to an analysis of what it would 'cost' to take the action as well as what 'benefits' are derivable from taking such actions. Malaria Prevention messages serve to indicate 'cues to action'; that is, what an individual can do to escape the threat from malaria and when such is combined with a positive cost/benefit analysis, there will be a likelihood of action from the individual.

CHAPTER THREE
METHODOLOGY

3.0 Introduction

This chapter explains the study design, study site, study population, the target population, sample size and sampling procedure, the study instrument, the validity and reliability of the study instruments as well as methods of data analysis and management. The study seeks to investigate access to malaria prevention information and its utilisation among rural dwellers in South-west Nigeria.

3.1 Research Design

This is a cross sectional study and made use of both quantitative and qualitative data generated from the contents of malaria prevention information available among rural dwellers in Oyo and Osun states, Nigeria. The study also used data on malaria prevention information sourced from the rural dwellers in the two states. Specifically, the study employed the Survey, Content Analysis and interpretive design (Focus Group Discussion and Key Informant Interview).

3.2 Research Objectives

The study has the following specific objectives:

1. Investigate the perception of rural dwellers in Oyo and Osun states about malaria.
2. Examine the sources of information on malaria prevention available to rural dwellers in Oyo and Osun states?
3. Determine which among the available sources of information on malaria prevention is considered the most credible among rural dwellers in Oyo and Osun states.
4. Explore the contents of malaria prevention information provided by Roll Back Malaria (RBM) and other Partners available to rural dwellers in Oyo and Osun states
5. Evaluate the extent to which the contents of the available malaria prevention information are suitable to rural dwellers in Oyo and Osun states.
6. Investigate the extent to which rural dwellers in Oyo and Osun states understand malaria prevention information provided by Roll Back Malaria and other Partners.
7. Identify factors that influence access to malaria prevention information among rural dwellers in Oyo and Osun states.
8. Investigate howrural dwellers in Oyo and Osun states utilise malaria prevention information provided by Roll Back Malaria and other Partners.

9. Identify factors which influence the utilisation of malaria prevention information among rural dwellers in Oyo and Osun states.

3.3 Study Sites

The study was conducted among rural dwellers in Oyo and Osun States, Nigeria, malaria communication managers in the secretariat of Roll Back Malaria (RBM) in Nigeria as well as coordinators of Partner organisations on Malaria prevention working with the RBM in Oyo and Osun States. The two states are in the South-west zone of Nigeria. The capital of Oyo state is Ibadan while Osogbo is capital of Osun State. The secretariat of RMB is run by the National Malaria Eradication Programme (NMEP) with Headquarters in Abuja. The Partner Organisations have coordinators in each state and work with select NGOs at the rural communities in their respective states. In terms of land mass, Osun is made up of 3, 525.78sqm and Oyo 10,351.56sqm, (NBS, 2009). They share boundaries and are culturally homogenous. While Osun State has 30 local government areas Oyo has 33. Oyo has a population of 5,580,894 residents while Osun has 3,416,959 residents according to NBS (2009:16).

3.4 Study Population

The study population for the human component of this research comprised of rural dwellers in Osun and Oyo states particularly residents of the following local government areas: Obokun, Ejigbo, Irepodun, Boluwaduro and Orolu for Osun State and Afijio, Egbeda, Surulere, Orire and Atiba for Oyo state. The population also included the programme officers responsible for the development of malaria prevention information at NMEP office, State and Local Government Coordinators of Partner Organisations working on malaria prevention in Oyo and Osun states as well as all personnel employed either in health facilities or engaged as Community Volunteers/Malaria Models/ Interpersonal Communication Conductors for the purpose of disseminating malaria prevention messages through interpersonal channels in Oyo and Osun States. The non-human study population was made up of all jingles on malaria prevention broadcast in Oyo and Osun States, Interpersonal Communication Charts (IPC Charts)used in Oyo and Osun States on malaria prevention and generic posters on malaria prevention produced by NMEP, Osun State government and Oyo State government and other RBM partner Organisations.

3.5 Sample Size

The survey was made up of 2,200 household members drawn from 10 local government areas across of Oyo and Osun states. The Focus Group Discussion (FGD) was made of 96 participants in16 focus groups involving men, women and expectant mothers. Each discussion group comprised of six participants. The sample size for the content analysis was made up of five radio jingles on the use of LLIN in Oyo state, one radio jingle on malaria prevention in Osun state, one *RBM Malaria IPC Guide*, one *Interpersonal Communication Flip Chart for Malaria Control in the Community*, three generic posters on malaria prevention produced by NMEP, Osun state government, Oyo state government and other RBM partner Organisations. There were eight Key Informants Interviews drawn from among programme officers responsible for the development of malaria prevention information at NMEP office, State and Local Government Coordinators of Partner Organisations working on malaria prevention in Oyo and Osun States.

3.6 Sampling Procedure

The sample for the survey section of this study was drawn using the multi-stage sampling procedure. The first step was to purposively select two neighbouring states from the six in the South-west zone which have contrasting features in their Advocacy, Communication and Social Mobilisation (ACSM) activities. Pre-field investigation indicated that while Oyo state had a functional ACSM team, Osun state did not. The two states therefore met the criterion for selection.

The second stage was through balloting; ten local government areas were selected from a list of 30 'rural local government areas' supplied by the Malaria Programme office/MAPS (for Oyo state) and Malaria Programme Office /ACCOMIN/AFRICARE (for Osun state) based on the definition of rurality by the National Population Commission (NPC, 2004). The balloting was done by two young girls, aged 7 and 10 years to eliminate the possibilities of bias from an adult. There was no provision for replacement since all the local government areas on the list were prequalified as rural and were supposed to have been exposed to malaria prevention messages through the various RBM Partner organisations working there, particularly Malaria Programme office/MAPS (for Oyo state) and Malaria Programme Office /ACCOMIN/AFRICARE (for Osun state). The result produced the following local government areas: Obokun, Ejigbo, Irepodun, Boluwaduro and Orolu for Osun State and Afijio, Egbeda, Surulere, Orire and Atiba for Oyo state.

In the third stage, two communities hosting Primary Health Centres (PHC) were purposively selected from each local government. They were chosen on the basis of their being hosts to PHCs which was considered as a strong factor that would have exposed residents in the host communities more to malaria prevention information. From each community, the researcher employed the convenient sampling method to select available respondents for the survey questionnaire. A total of 2,200 respondents in households were thus selected across the ten local government areas. The selected communities are presented in Table 3.1 below.

Table 3.1 List of Communities selected for survey from Oyo and Osun States

State	LGA	Community	State	LGA	Community
OYO	Afijio	Ilora	OSUN	Irepodun	Okeafola
		Awe			Eyingbo
	Atiba	Igbonla		Orolu	Ilie
		Ijawaya			Owode
	Egbeda	Kute		Ejigbo	Masifa Ile
		Olodo			Ogbaagba
	Orire	Olorunda		Obokun	Imesi-Ile
		Alapete			Ibokun
	Surulere	Igbon		Boluwaduro	Igbajo
		Gambari			Iresi

For the Focus Group Discussion, the local government areas where the discussion took place were purposively selected on the recommendations of Malaria Programme Office/MAPS (for Oyo state) and Malaria Programme Office /ACCOMIN/AFRICARE (for Osun state) based on the perceived effectiveness of their malaria prevention activities. The result produced the following local government areas: Ogbomosho South, Oyo East, Afijio, Surulere in Oyo state and Irepodun, Orolu, Egbedore and Ejigbo in Osun state.From each local government, two PHCs were also selected purposively with the assistance of the Malaria Programme Officer (MPO) in each local government area based on the MPO's evaluation of the active malaria prevention activities of each PHC. The result is produced in Table 3.2 below.

Table 3.2: List of PHCs selected in each LGA for FGD

STATE	LGA	PHC	STATE	LGA	PHC
OYO	Ogbomosho South	Ilogbo	OSUN	Irepodun	Anwo
		Arowomole			Afolu
	Oyo East	Jabata		Orolu	Bolorunduro
		Araromi			Odo Oje
	Afijio	Fiditi		Ejigbo	Popo
		Akinmorin			Ola
	Surulere	Iresaadu		Egbedore	Ido Osun
		Abaya Oje			Olorunsogo

Next, the MPO assisted the researcher in selecting six participants from the community hosting the PHC, made up of men, women and expectant mothers, who were duly informed one week ahead of their participation in the respective FGD session. They were men and women well known in the community for their involvement in community activities. Hence the focus group participants were selected through purposive sampling technique. Each PHC hosted one focus group.

For the Key Informants Interview (KII), eight (8) interviewees were purposively selected based on their positions and official involvement in ACSM activities either at the National Malaria Elimination Programme (NMEP) office or state Malaria Programme offices or for working with organisations that were either Principal Recipients or Sub-Recipients of the Global Fund New Funding Model Round 8. The selected interviewees are:

(1) Mrs. Itouowo Akuagu Uko (KIIi) Assistant Director and, Head of Advocacy, Communication and Social Mobilisation (ACSM) National Malaria Elimination Programme,

(2) Dr. Akinola (KIIii), Malaria Programme Manager for Oyo state,

(3) Dr. Shola Oshinowo (KIIiii), Association for Reproductive and Family Health (ARFH), Ibadan and member, ACSM -Core Group, Oyo State,

(4) Mrs. N.M Adeyanju, (KIIiv) State Malaria Programme Coordinator, state of Osun,

(5) Mr. Seun Adebiyi, (KIIv) ACOMIN, Osun state,

(6) Mrs. Ore Ogundola, (KIIvi) AFRICARE, Osun state,

(7) Mrs. Oluwakemi Olawoyin, (KIIvii) Oyo state Health Educator and

(8) Mr. Toyin Abdulateef Ottan, (KIIviii) BCC and Community Mobilisation Officer for Malaria Programme in States (MAPS).

The sample for the Content Analysis was selected using convenient sampling method; based on the availability of the materials. The materials made available to the researcher by MAPs and State Malaria Programme, Osun State included five radio jingles on mosquito net distribution in Oyo state and one radio jingle on malaria prevention in Osun state, one *RBM Malaria IPC Guide*, one *Interpersonal Communication Flip Chart for Malaria Control in the Community* and three generic posters on malaria prevention produced by NMEP, Osun state government and Oyo state government and other RBM partner Organisations. The generic posters share common features and were commonly distributed in the two states with the only difference being the inscription of the host state's name on the poster circulating in their respective state. There were no television jingles available for investigation during this study

because both MAPS and Osun State Malaria Programme were not producing television jingles and the only RBM Partner that was producing it, Society for Family Health, refused to accredit the researcher to have access to the jingles.

3.7 Research Instruments

3.7.1 Questionnaire

This study used Questionnaire for the survey component to obtain demographic and other critical information from the respondents in order to explain their understanding of malaria, attitude to malaria prevention information available to them and the sources of such information as well as their utilisation of such information. The Questionnaire consisted of 87 items divided into 11 Sections. SectionA sought information on the demographic background of the respondents, Section B focused on their perception about malaria, Section C on the various sources of information on malaria prevention available to them, Section D focused on access to malaria prevention information by respondents and Section E on respondents' understanding about malaria prevention. Section F dealt with the influence of available sources of information on malaria prevention among the respondents, while Section G evaluated how respondents rated the credibility of malaria prevention information available to them from the various sources. Section H (1) and (2) focused on the attitude of respondents to the available malaria prevention messages, while Section I (1) and (2) focused on the utilisation of malaria prevention information available to respondents.

3.7.2 Content Coding Sheet

Two content coding sheets were provided to analyse the malaria prevention information within the context of the categories. Eight content categories were created for the *RBM Malaria IPC Guide, Interpersonal Communication Flip Chart for Malaria Control in the Community* and the generic posters, taking into consideration the language structure, cultural elements and modes of appeal in each of the materials for analysis while another eight categories were also created for the radio jingles to cater for the sound component of radio jingles. The two categories were adapted from the works of Jefkins (1982: 172-177) and Doghudje (1988: 21-22) as reproduced by Olatunji (2003: 124-126) as well as those of Chen (2006: 27). Copies of *RBM Malaria IPC Guide* and *Interpersonal Communication Flip Chart for Malaria Control in the Community* and generic posters under study were attached to the coding sheet. A "Yes" on the coding sheet indicated that the message had met the requirements of each coding unit in a positive way while a "No" indicated that the message

had failed the requirement of that particular coding unit and also the sub-category under analysis. Similarly, the Compact Discs (CDs) of the jingles were attached to the second coding sheets and scored in a similar fashion.

The Content Categories for the print materials are as follows:

Category A: Attracting Attention

To be able to attract attention of its readers, a poster, or IPC Guide/Flip Chart will use

(i) a bold and compelling headline

(ii) a catchy and memorable slogan

(iii) an attractive and legible typography

(iv) a distinct unique selling point

(v) a prominent position of the key message

(vi) a bright and attractive colour production

(vii) clear illustration of its concept

Category B: Generating Interest

To be able to generate interest, a poster, or IPC Guide/Flip Chart will use

(a) precise and concise words

(b) simple and easy to understand language

(c) illustrations that are easy to understand

(d) illustrations that are relevant to the environment

Category C: Benefits to Desire

Effective malaria prevention information will contain

(a) benefits that are meaningful to audience

(b) benefits that are relevant to audience

(c) The benefits are topical to the audience

(d) The benefits are important to the audience

Category D: Sensitivity

The message for effective malaria prevention must be

(a) sensitive to culture of audience

(b) sensitive to religion of audience

(c) sensitive to gender and

(d) must contain words that indicate consideration for the economic status of audience

Category E: Credibility

(a) The claims offered by the message must be seen as true and sincere

(b) The claims offered by the message must be believable

(c) The models used to illustrate the message must be acceptable

Category F: Action Cues

(a) The message must contain action-oriented words

(b) The message must contain specific steps to be taken by audience

(c) The message must indicate boldly where to obtain the specific service

Category G: Message Appeal

The appeal of each of the malaria prevention information was evaluated on the basis of whether

(a) The appeal in the message is positive

(b) The appeal in the message is negative

(c) The appeal in the message is threatening

(d) The appeal in the message is encouraging

(e) The appeal in the message is rational

(f) The appeal in the message is emotional

Category H: Message Approach

The message approach for the sampled malaria prevention information was evaluated to see if it used

(a) Encouraging words

(b) Educational words

(c) Informational words

(d) Persuasive words

(e) Action oriented words.

The content categories for the radio jingles are as follows:

Category A: Attracting Attention

(a) The slogan contained in the message is catchy

(b) The tempo of the jingle is quick

(c) The tune of the jingle is lively

(d) The background music used in the jingle is melodious

(e) The rhythm of the jingle is fast

Category B: Generating Interest

(a) The message is composed in active and clear words

(b) The message is simple and easy to understand

(c) The message engages the audience attention

(d) The illustrations are relevant to the environment

(e) The product name is mentioned at least thrice in the jingle

(f) The jingle is not too long to sustain interest

Category C: Benefits to Desire

(a) The message contains benefits that are meaningful to audience

(b) The message contains benefits that are relevant to audience

(c) The benefits are topical to the audience

(d) The benefits are important to the audience

Category D: Sensitivity

(a) The message is sensitive to culture of audience

(b) The message is sensitive to religion of audience

(c) The message is sensitive to gender

(d) The message contains words that indicate consideration for rural audience.

Category E: Credibility

(a) The claims offered by the message are true and sincere

(b) The claims offered by the message are believable

(c) The voice-over models used in the message are acceptable

Category F: Action Cues

(a) The message contains action-oriented words

(b) The message contains specific steps to be taken by audience

(c) The message indicates clearly where to obtain the specific service

Category G: Message Appeal

(a) The appeal in the message is positive

(b) The appeal in the message is negative

(c) The appeal in the message is threatening

(d) The appeal in the message is encouraging

(e) The appeal in the message is rational

(f) The appeal in the message is emotional

Category H: Message Approach

(a) The message contains encouraging words
(b) The message contains educational words
(c) The message contains informational words
(d) The message contains persuasive words
(e) The message contains action –oriented words

3.7.3 Focus Group Discussion (FGD) Guide

The FGD Guide contained eight questions which investigated participants' knowledge of malaria, that is their understanding of the term malaria, causes and treatment of malaria; their sources of information on malaria prevention and how the information was utilised. The FGD Guide also contained questions on the ownership and utilisation of mosquito nets by participants, their knowledge and use of ACT therapy as well as the process of malaria treatment for pregnant women.

3.7.4 Key Informants Interview Guide

An Interview Guide containing thirteen questions was also developed for the Key Informants. It investigated the goals of malaria prevention information (MPI) in South-west Nigeria as a whole, the target audience for available malaria prevention messages, those responsible for the development of such information and if the respective RBM Partner had considerations for rural dwellers in the development of their malaria prevention information. The Key Informants Interview Guide also sought to know the common theories used as guide for the development of MPI, the location of billboards in the selected states of the study, the effectiveness of MPI among rural dwellers of Oyo and Osun states, the channels commonly used for transmitting MPI, evaluation of the success of MPI among the rural dwellers as well as lessons learnt on access to, and utilisation of malaria prevention information among the rural populace.

3.8 Validity of Instruments

To ensure validity, the instruments for this study were subject to reviews by the researcher's academic supervisor, other senior academic staff in the Department of Communication and Language Arts, experts in the field of health communication as well as a

panel of academic staff from the Faculty of Arts and College of Medicine, University of Ibadan.

3.9 Reliability of Instruments

The research instruments for this study were subjected to a Pilot testing using the Test, Re-test procedure to eliminate unwanted elements from the questions. For the Survey, a total of 19 participants from Opolo, a rural community in Ilorin South local government area of Kwara state, were selected to complete the questionnaire. Each question was measured using a 5-point Likert item from "strongly disagree" to "strongly agree". In order to understand whether the questions were internally consistent, a Cronbach's alpha was run. The result of the Cronbach's alpha at .929 shows that the scale had a high level of internal consistency. The questionnaire was in two versions-English and Yoruba. The English version of the questionnaire was first translated into Yoruba by a graduate of Yoruba Language who also works as a journalist with a Yoruba newspaper and then re-translated by another Yoruba graduate teaching the subject at the secondary school level to ensure that the intended meanings were not lost in the process of translation. For the FGD, five respondents from Ilorin South local government in Kwara state were selected for the Pilot testing.

Two coders were engaged for the content analysis of the radio jingles, IPC Guide and Posters. One of the coders is a practising journalist and holds an MCA from the Department of Communication and Language Arts, University of Ibadan. He is familiar with content analysis procedures. The second coder was a Postgraduate student in the Department of Linguistics, University of Ibadan with specialisation in Yoruba Literature/Music. Each of them was given a copy of the Content Coding sheet and the researcher provided adequate information on the purpose of the exercise. Each of them first filled the coding sheet after which they met together with the researcher to identify areas of disagreements which were thereafter sorted out. Their answers were subjected to an inter-coder reliability test which indicated 85 % agreement indicating that the coders had good understanding of the process. Questions for the Key Informant Interviews were also previewed by the Malaria prevention officer in the Ministry of Health, Kwara state. The instruments for the study were previewed by the researcher’s supervisor and other experts in development communication before being administered.

3.10 Ethical approval

Ethical approvals for the research were obtained from the Ministries of Health in Oyo and Osun states respectively (See appendix).

3.11 Methods of data collection

The questionnaire was in English and Yoruba Languages to take care of respondents who might not be able to read or write in English. Seven trained Research Assistants administered the questionnaire. Respondents were allowed to fill the questionnaire in the language of their proficiency while those who could not read or write in English or Yoruba were allowed to provide their answers to the trained Research Assistants who thereafter filled such answers on the questionnaire form. Others were allowed to keep the questionnaire for some days to enable them provide proper answers while the trained Research Assistants would go back to collect such. The questionnaires were administered at the homes or shops of respondents. A total of 2,200 copies of the questionnaire were distributed to respondents but only 2,120 were retrieved, indicating a 96.3% return rate. The researcher followed up with the trained Research Assistants in six of the local government areas to ensure proper return of the questionnaire. Participants in the FGD and respondents to the survey questions were not made to disclose their names as part of measures at enhancing confidentiality and freedom in responding to questions.

Jingles used for the study were collected from the offices of MAPS in Oyo state and the Malaria Programme Office in Osun state. A copy of “Interpersonal Communication Flip Chart for Malaria prevention in the Community” was collected from MAPS in Oyo state while a copy of “RBM Malaria IPC Guide” was collected from ACOMIN in Osun state. Posters used for the study were collected from the Malaria Programme Offices in Oyo and Osun states.

Data for the Focus Group Discussion were collected using a digital tape recorder by the Researcher. The use of a digital tape meant the tape could run on its own while the researcher observed and took notes of the participation. Part of the process of collecting data through the FGD included a ‘mock election’ where participants were asked to close their eyes and vote on their perception of the influence of witches to cast a spell of malaria on people as well as ownership of mosquito nets. The mock election was done to ensure independence and anonymity of respondents and to avoid possible post-participation conflict among participants. The Focus Group Discussions took place at the Primary Health Centres in the

selected communities. The discussions were conducted in Yoruba language. The interviews with Key Informants were conducted in the offices of the respective respondents. The sessions of the Key Informant Interviews were also conducted by the researcher with the aid of a digital tape recorder.

3.12 Methods of data analysis

For the survey, the general distribution of trends in the data was analysed using descriptive statistics; simple percentages and the Friedman non-parametric test. The Friedman non-parametric test was used to rank the perception of respondents on a number of variables in the study. The t-test was used to compare mean scores of demographic variables of the sample while Pearson correlation was used to investigate the significance of associations and relationships between the study variables.

Data obtained through the Focus Group Discussion and Key Informants Interviews were analysed using the explanation building and thematic approaches to bring out their salient points relative to the objectives of the study. Each of the FGD participant was allocated a number (from 1-6), along with the name of their respective communities, for ease of reference during analysis. Similarly, each of the Key Informants was allocated a Roman figure (from i-viii) for the same purpose.

The contents of the available malaria prevention information were analysed using the summative approach which allows for the consideration of both the manifest and latent content of materials to be analysed and from which appropriate inferences could be drawn. Each of the jingles was labelled (from J1-J5), with the letter 'J' preceding the figures to denote their respective identities. Each page of *Maps Inter-Personal Communication Flip Chart for Malaria Control In the Community* was labelled as a 'Card' and numbered from 1-12. A 'card' denoted the "message page", where the written message is displayed and an additional "illustration page" on the Chart. Each page of *RBM Malaria IPC Guide* was labelled as 'R' and numbered from 1-13. A 'R' denoted the "message page", where the written message is displayed and an additional "illustration page" on the Guide. Each of the three generic posters was labelled after their names; "DP" for the poster with the title 'Disease Prevention', "TGC" for 'Take Good Care of Your Net' and "NES" for 'NetSafe'. In the analysis, generally a "Yes" answer was coded "1" for each item under a category to indicate that it has met the requirement of the specific category while a "No" was coded "0", to indicate such material had not met the requirement. However, there were items where the

reverse was the case because the questions in such items were in the negative form. Thus in such instance, a ‘No’ would be scored as “1” and a “Yes” as “0”. The scores for each material analysed across the eight content categories were also collated and weighed in simple percentages while their average scores were subsequently established. The maximum score for each category was determined by the number of items under it. Thus while the category ‘Attracting Attention’ for example has a maximum score of 3 points, ‘Message Approach’ has 5 points. The overall scores for each jingle under all the categories was also computed and weighed in percentages. Thereafter the average percentage score for all the jingles was computed to give a final figure of evaluation.

CHAPTER FOUR
DATA ANALYSIS AND DISCUSSION OF FINDINGS

This chapter provides answers to the research questions used for this study. Data generated from contents of malaria prevention information provided through radio jingles, posters and interpersonal communication charts (IPC Charts) were analysed both qualitatively and quantitatively while data gathered from Focus Group Discussion sessions with selected respondents and from interviews with Key Informants were analysed qualitatively. Data generated through survey of rural dwellers in Oyo and Osun states were analysed quantitatively. Findings from the study are presented under each research question.

Table 4.1 Marital status, religion and occupational background of respondents

Marital status		**%**	**No of children**		**%**	**Religion**	**No**	**%**	**Occupation**	**No**	**%**
Married	1150	54.2%	1	700	33.0%	Christians	1094	51.6%	Civil servants	650	30.8%
Single parents	233	11.0%	2	172	8.2%	Muslims	783	36.9%	Artisans	235	11.1%
Divorced / Separated	209	9.9%	3	328	15.5%	Tradition alists	214	10.1%	Farmers	258	12. 2%
Not married	528	24.9%	4	361	17.0%	Others	29	1.4%	Traders	529	25.0%
Total	2120	100.0%	5	315	14.9%	Total	2120	100.0%	Others	441	20.8%
			6	244	11.5%				Total	2120	100.0%
Total				2120	100.0 %						

Table 4.2 Education, age and gender of respondents

Educational level	No	%		Age (Year)	No	%		Gender	No	%
No education	165	7.8%		20- 30	815	38.4%		Male	826	39.0%
Primary School	234	11.0%		31-40	680	32.1%		Female	1294	61.0%
Secondary School	480	22.6		41-50	352	16.6%		Total	2120	100.0%
NCE/OND	698	33.0%		51-60	167	7.9%				
HND/BSC/B.A	449	21.2%		60- above	106	5.0%				
Others	94	4.4%		Total	2120	100.0%				
Total	2120	100.0%								

PRESENTATION AND DISCUSSION OF RESEARCH QUESTIONS

Research Question One: What is the perception of rural dwellers in Oyo and Osun states about malaria?

Respondents were asked to indicate their level of agreement or disagreement with 12 statements that covered perceived causes and treatments of malaria. Their responses are presented in frequencies and simple percentages in Table 4.3, and ranked using the Friedman nonparametric test in Table 4.4 to establish the degree of respondents' understanding of the causes and possible treatment of malaria as an insight into their perception about the disease. In the tables that follow throughout this study, the following KEY will be used: SD (Strongly Disagree), D (Disagree) N (Neutral), A (Agree) SA (Strongly Agree).

Table 4.3 Respondents' perception of causes and treatment of malaria

	Statement	SD	D	N	A	SA	Total
1	Malaria is caused by too much exposure to sun	418 (19.7)	504 (23.7%)	317 (15.0%)	542 (25.6%)	339 (16.0%)	2120 (100.0%)
2	Malaria is caused by drinking un-boiled or bad water	483 (22.7%)	616 (29.1%)	334 (15.8%)	468 (22.1%)	219 (10.3%)	2120 (100.0%)
3	Malaria is caused by exposure to cold or wet conditions	371 (17.5%)	573 (27.0%)	494 (23.3%)	523 (24.7%)	159 (7.5%)	2120 (100.0%)
4	Malaria is caused by eating too much palm oil in the soup	647 (30.5%)	678 (32.0%)	335 (15.8%)	316 (14.9)	144 (6.8%)	2120 (100.0%)
5	Malaria is caused by bites from mosquitoes	48 (2.2%)	84 (3.9%)	215 (10.1%)	760 (35.8%)	1013 (48.0%)	2120 (100.0%)
6	There is close association between mosquitoes and malaria	129 (6.1%)	212 (10.0%)	227 (10.7%)	814 (38.4%)	738 (34.8%)	2120 (100.0%)
7	Malaria is caused by not eating enough palm oil in the soup	828 (39.1%)	684 (32.3%)	391 (18.4%)	163 (7.7%)	54 (2.5%)	2120 (100.0%)
8	Malaria is caused by exposure to evil air	704 (33.2%)	562 (26.5%)	477 (22.5%)	309 (14.6%)	68 (3.2%)	2120 (100.0%)
9	Malaria is caused by overwork	521 (24.6%)	518 (24.4%)	425 (20.0%)	509 (24.0%)	147 (7.0%)	2120 (100.0%)
10	Witches can cast a spell of malaria on people	660 (31.1%)	541 (25.5%)	503 (23.8%)	299 (14.1%)	117 (5.5%)	2120 (100.0%)
11	Malaria can be easily treated with herbs	402 (19.0%)	387 (18.2%)	386 (18.2%)	716 (33.8%)	229 (10.8%)	2120 (100.0%)
12	Prayers can cure malaria	340 (16.0%)	334 (15.8%)	541 (25.5%)	605 (28.5%)	300 (14.2%)	2120 (100.0%)

Source: Field Data

Key: SD (Strongly Disagree), D (Disagree), N (Neutral), A (Agree), SA (Strongly Agree)

Findings presented in Table 4.3 indicated that a larger number of the respondents (83.8%) were convinced that malaria is caused by bites from mosquitoes while 73.2% also identified that there is a close association between mosquito and malaria. However, there was an almost polarity of opinion on one of the variables; the role of the sun as a cause of malaria, among the respondents. While 41.6% agreed that exposure to sun is a cause of malaria, only 43.4 % disagreed with the statement, representing less than two percentage point difference. Also of interest was the number of respondents that agreed that malaria can be easily treated with local herbs (44.6%) and those who agreed that it could be cured with prayers (42.7%). This means that although a greater number of respondents believed that malaria is caused by mosquito bites and that there is therefore a close association between malaria and mosquito, almost half of the same population nevertheless believed that non-orthodox means are effective in treating the disease. The result of the Friedman nonparametric test of the responses to the 12 statements on respondents' perception about the causes and possible treatment of malaria showed that perception that malaria is caused by mosquito bites was highest among respondents (mean rank= 10.64), followed by the perception that there is close association between mosquitoes and malaria (9.70), and that prayers can cure malaria (7.80), that malaria can be easily treated with herbs (7.58) and that malaria is caused by too much exposure to sun (7.53). The perception that malaria is caused by not eating enough palm oil in the soup was lowest (mean rank =4.74) among the causative variables tested in the study. This results implies that respondents clearly identified the link between mosquito bites and malaria although they believed that prayers can sure malaria. Responses from the FGD conducted as part of this study also indicated that while many rural dwellers understood the close link between mosquito bites and malaria, the majority nevertheless still attributed the disease to other non-orthodox factors particularly "staying under the sun for long", just like the 41.6% of the survey respondents. The result is shown in Table 4.4.

Table 4.4 Friedman Test of perception about causes and treatment of malaria by respondents

	Perception	N	Mean	Std. Deviation	Rank
1	Malaria is caused by bites from mosquitoes	1888	4.28	.902	10.64
2	There is close association between mosquitoes and malaria	1888	3.92	1.115	9.70
3	Prayers can cure malaria	1888	3.12	1.267	7.80
4	Malaria can be easily treated with herbs	1888	3.02	1.294	7.58
5	Malaria is caused by too much exposure to sun	1888	2.96	1.386	7.53
6	Malaria is caused by exposure to cold or wet conditions	1888	2.76	1.209	6.91
7	Malaria is caused by drinking un-boiled or bad water	1888	2.70	1.310	6.78
8	Malaria is caused by overwork	1888	2.66	1.271	6.58
9	Witches can cast a spell of malaria on people	1888	2.36	1.204	5.83
10	Malaria is caused by eating too much palm oil in the soup	1888	2.36	1.229	5.68
11	Malaria is caused by exposure to evil air	1888	2.30	1.164	5.62
12	Malaria is caused by not eating enough palm oil in the soup	1888	2.01	1.040	4.74

Other ‘causes’ identified by the FGD participants were, “insufficient palm oil intake”, “attack by witches”, “dirty environment”, “exposure to evil air”, “working too long in the farm” and “bed bugs”. For instance, according to an FGD participant (Akinmorin 1) in Afijio Local government area of Oyo state, someone can have malaria by inhaling a lot of dust during the dry season or while travelling on rural roads that are mostly untarred. Akinmorin 1, a commercial motorcyclist said,

> If you look at the present season we have a lot of dust and it causes malaria. When women are sweeping and dust enters their noses or when you travel on an untarred road and you inhale dust, it causes malaria.

Such line of thinking was supported by other participants such as a female trader (Iresaadu 5) from Surulere local government area of Oyo state and two farmers, (IdoOsun3), from Egbedore local government area of Osun state and (Araromi1) from Oyo East local government area of Oyo state. Iresaadu 5 said:

> One can also have malaria if you are cooking and children defecate and you don’t clean them up well and flies perch on it and come and land on your food.

On his part, Ido Osun 3 said:

> What I believe is that when someone stays for long under the sun he may get home in the evening and complain about headache; that is what I know

In the same vein, (Araromi1) said:

> If you have someone who works mostly under the sun and he does not take good care of himself, it can also cause malaria

Arowomole 4, a retired teacher also from Oyo East local government area of Oyo state, added another dimension to the misconception when he said:

> Although mosquito is the prime cause of malaria, I still believe that malaria is also present in the air; may God no allow us to collide with evil.

However, there were participants, such as Arowomole 1; a retired school teacher, who countered some of the misconceptions thus:

> I don't believe that (exposure to sun causes malaria) because if it is true, then all the Okada riders should be having malaria because they work under the sun. I believe it is only when mosquito bites you that you have malaria.

These results therefore indicate that a significant percentage of rural dwellers in Oyo and Osun States still have a wrong perception about the cause of malaria which would naturally affect the adoption of preventive measures. This is buttressed by the fact that 44.6% of respondents agreed that malaria can be treated with local herbs while 42.7% agreed that it could be cured with prayers. Dr. Oshinowo (KIIiii) a senior official of the Association For Reproductive and Family Health, Ibadan and Member, Advocacy, Communication And Social Mobilization (ACSM) Team on Malaria prevention, Oyo State, confirmed this when she reported that 'too much hard work' and 'too much exposure under the sun' were major 'causes of malaria' mentioned by community people during an ACSM Team visit to the field. This misconception was also the focus of a radio campaign sponsored by the Society for Family Health (SFH) in 2016, well after the field work for this study had been concluded. The erroneous perception from a significant percentage of the population aligns with findings

by several previous researchers. For instance, Okeke and Okafor (2008:217) in a study on 'Perception and Treatment Seeking Behaviour for Malaria in rural Nigeria' report some respondents as saying that:

> The sun can cause malaria by either shinning directly on the child or on the breast of a lactating mother, if she stays too long under the sun, especially while at work in the farm, the breast milk will heat up and when that child eventually sucks, it will cause malaria.

Okwa and Ibidapo, (2010:213, 219) in their study of 600 students of the Lagos State University (LASU) also in South-west Nigeria, report that 41.7% of the population, almost the same figure with the present study, still had erroneous perception about the cause of malaria. Interestingly, sunlight was mentioned as a cause of malaria in 25% of the responses in the study. Furthermore, 7.3 % of the respondents who were Christians were reported to have expressed confidence that prayer is the best cure for malaria while others predominantly Muslims from Awori tribe believed that local remedies were the best cure (Okwa and Ibidapo, 2010). Also in their study on the "treatment seeking behaviour and perceptions of cause of malaria amongst caregivers of children under-five living in Ugwuogo- Nike, a rural community in South-East Nigeria", Okeke and Okafor (2008: 215-222) report that, "heat from the sun was the most popularly reported cause of malaria (49.3%)." Klein, Weller, Zeissig et al, (1995) report that respondents in some parts of Guatemala, perceived malaria to occur from "exposure to cold or wet conditions; weakness or poor general health; problems related to hygiene; and poor eating habits or eating too much of the wrong foods" even when they were "quite knowledgeable" about the role of mosquitoes in transmitting the disease.

Since there is no biomedical link between exposure to sun and the onset of malaria, when respondents in this study linked malaria with exposure to sun therefore they were probably referring to stress- induced malaria. In other words, they probably had in mind someone who had already been bitten by the malaria-carrying mosquito before being exposed to stressful activities that now triggered the onset of the disease. This is typically more common among male, than female, according to Esan, Omisakin, Titilayo and Fasakin (2014) who, in their study on "Gender Difference on Stress Induced by Malaria Parasite Infection

and Effect of Anti-malaria Drug on Stress Index", found that stress induced by malaria parasite was higher in male compared to female. They attributed the differences to 'gender norms and values that influence the division of labour, leisure patterns, and sleeping arrangements' which they argued 'can influence different patterns of exposure to mosquitoes for men and women'. However, the current study did not investigate gender differences and perception about malaria. According to Chifiero (2014) one bout of stress alters the biochemical balance of the body fluids and the harmonious working of the organs and its effect could linger for fourteen days. During this period, according to him,

> A person under this condition becomes vulnerable to diseases. Either, a latent condition is brought into an active, acute and sometimes life-threatening stage; or the person easily contracts infectious diseases that may be prevalent where he or she is.

It can be concluded therefore, that a significant percentage of rural dwellers in Oyo and Osun states, Nigeria still had wrong perception about the cause of malaria, particularly by attributing the disease to exposure to sun. The results therefore indicate a need for more effective communication that will address this misconception if the battle against malaria would be won in the mind of rural dwellers. This is because the wrong perception about the disease also influences the attitude to appropriate prevention and control measures and therefore the continued spread of the disease which is reflected in the percentage of respondents who believed that local herbs can easily treat malaria (44.6%) or that prayer can cure the disease (42.7%).

The misconception about the cause of malaria was included in the *Inter-Personal Communication Flip Chart for Malaria Control in the Community* used by Community Volunteers engaged by MAPS, and in *RBM IPC GUIDE* used by volunteers of ACCOMIN and AFRICARE in the conduct of Advocacy, Communication and Social Mobilization (ACSM) activities. Specifically, the *RBM IPC GUIDE* used by ACCOMIN and AFRICARE in Osun state has a page on "Myths and Misconceptions" and lists the following misconceptions that were meant to be corrected during the ACSM activities: that malaria is caused by witchcraft, working under the sun/rain, eating too much oil, drinking palm

wine/alcohol and stress. The *Inter-Personal Communication Flip Chart for Malaria Control in the Community* used by MAPS in Oyo state also has a page dedicated to addressing misconceptions about malaria. The following misconceptions are highlighted in the document: working under the sun, excessive work, witchcraft, eating too much oil, bad weather and bad air and sleeping in the afternoon (PMI&fhi360, nd: Card 2). It is significant to note that none of the radio jingles accessed for the current study dealt with any of the misconceptions above, thus creating the impression that the producers worked from the background of an assumption that the respondents had the right understanding about malaria and only needed to understand and accept the use of Long Lasting Insecticidal nets (LLINs) for protection against mosquito. While they might have succeeded on this given the percentage of respondents who linked malaria with bites from mosquitoes (83.8%) and those who identified a positive link between mosquito and malaria (73.2%), the existence of a significant percentage that still linked the disease with exposure to sun and those who still considered non-orthodox method of treatment as valid should be of concern to developers of prevention messages.

Given the influence of religion in shaping opinions and perception and the finding that many respondents still believed that prayer, a religious exercise, is a major way of preventing malaria, four possible but medically wrong perceptions; “witches can cast spell of malaria on people”, “malaria can be caused by exposure to evil air”, “prayer can cure malaria” and “malaria can be easily treated with herbs” were statistically tested against the religious background of respondents. This became all the more important given the preponderance of FGD participants who also indicated that they believed witches could cast spell of malaria on people and that prayers is a major weapon for treating malaria. During the FGD sessions, the researcher asked participants to close their eyes and raise their hands (as if in a voting process) whenever the question about witches and prayers were asked. This was done to safeguard their identity and ensure freedom of expression. During the sessions, 45 (47.0%) participants indicated with a raise of hands that they believed witches could cast a spell of malaria on people. Also 74 (77.1%) of the participants indicated they believe that prayers can cure malaria.

However, the result of the test on the perception that “witches can cast spell of malaria on people” and religion of respondents did not indicate a significant association (Chi-Square=5.163a, df=8, p=.076). The result also shows some differences among the religions of respondents in their perception that“witches can cast spell of malaria on people” with 23.7 %

of Christian respondents and 25.0% of Muslim respondents respectively agreeing with the statement. The highest percentage of respondents within religion to agree with the wrong perception came from the 'Other Regions' category. The category, 'Other Religions' could refer to atheists, traditional worshippers, or adherents of other religious movements. The result is presented in Table 4.5.

Table 4.5 Cross tabulation of religion of respondents and perception that 'witches can cast spell on malaria on people'

Religion	Disagree	Agree	Total
Christians	621 (76.3%)	193 (23.7%)	814 (100.0%)
Islam	440 (75.0%)	147 (25.0%)	587(100.0%)
Others	122 (68.2%)	57 (31.8%)	179 (100.0%)
Total	1183(74.9%)	397 (25.1%)	1580 (100.0%)
Chi-Square= 5.163a, df=8,p=.076			

The study also tested the association between the religious background of respondents and the wrong perception that, ‘malaria can be caused by exposure to evil air’. The result indicated that there was no statistically significant association between the religious beliefs and the wrong perception (Chi-Square=2.483, df=2,p=.289). The result is presented in Table 4.6.

Table 4.6 Cross tabulation of religion of respondents and perception that 'malaria can be caused by exposure to evil air'

Religion	Disagree	Agree	Total
Christians	660 (77.0%)	197 (23.0%)	857 (100.0%)
Islam	472 (78.4%)	130 (21.6%)	602 (100.0%)
Others	134 (72.8%)	50 (27.2%)	184 (100.0%)
Total	1266 (77.1%)	377 (22.9%)	1643 (100.0%)
Chi-Square=2.483, df=2,p=.289			

The study also tested possible association between the religious background of respondents and the perception of prayer as cure for malaria. The result indicated a statistically significant association between the religious beliefs and the perception that prayer is a cure for malaria with Chi-square=8.399, df=2, p=.015. From the result, adherents of the two major religions in the states used for the study appeared nearly equal in their perception with 50.1% of Christians aligning themselves with the perception, as against 49.9% who disagreed. The same scenario emerged for the Muslims: while 50.3% disagreed, 49.7% affirmed the perception as true. The result is presented in Table 4.7.

Table 4.7 Cross tabulation of religion of respondents and perception on the use of prayer as cure for malaria

Religion	Disagree	Agree	Total
Christians	338(49.9%)	339 (50.1%)	677(100.0%)
Islam	241 (50.3)	238 (49.7%)	479 (100.0%)
Others	55 (37.4%)	92 (62.6%)	147 (100.0%)
Total	634 (48.7%)	669 (51.3%)	1303 (100.0%)
Chi-square=8.399, df=2, p=.015			

The study also tested the statistical association between the religious background of respondents and the use of herbs as cure for malaria. The result indicated that there was no significant association between the religious beliefs and the perception (Chi-square =.276, df=2, p=.871). The result is presented in Table 4.8

Table 4.8 Cross tabulation of religion of respondents and perception on the use of herbs as cure for malaria

Religion	Disagree	Agree	Total
Christians	401 (44.9%)	493 (55.1%)	894 (100.0%)
Islam	291 (46.2%)	339 (53.8%)	630 (100.0%)
Others	87 (45.8%)	103 (54.2%)	190 (100.0%)
Total	779 (45.4)	935 (54.6%)	1714 (100.0%)
Chi-square =.276, df=2, p=.871			

The major inference from these results is the existence of the perception that malaria can be cast upon people by 'witches' and the significant association between the religion of respondents and the perception that prayers is a cure for malaria. The continued existence of these perceptions, despite the availability of information on malaria that denies any link between the diseases and witches, the availability of medical proof that malaria is not a 'spiritual disease and the understanding among respondents that links malaria with mosquito bites as earlier mentioned, is an indication of the strength of the belief in witches among the Yoruba people of South-west Nigeria despite their education, civilisation and exposure to technology. It is also a manifestation of the influence of religion on the people of the states under study. The two issues have been of concern to scholars such as Prince (1961), Awolalu (1979), Ogungbemi (1992) and Jayeola-Omoyeni, Oyetade and Omoyeni (2015) among others. Prince (1961) noted that witchcraft, which he defined as 'the extra-natural interference in the welfare of the community by women', has remained an active and vital universal image in the consciousness of the Yoruba people of South-west Nigeria irrespective of their social level, religion or education while Awolalu (1979) was of the view that there is no belief 'more profoundly ingrained' in the mental and social attitudes of the Yoruba than that of the existence of witches. Sickness, misfortunes and even death are often attributed to witches in Yoruba culture. According to Awolalu (1979):

> All strange diseases, accidents, untimely death, inability to gain promotions in office, failure in examinations and barrenness in women, impotence in men, failure of crops and a thousand other evils are attributed to witchcraft.

Ogungbemi (1992:1), taking a metaphysical view of the argument, asked questions on why the belief continues to be active in most African societies despite the advancement in society through western education, industrialisation and modernisation:

> Is the belief in witchcraft part of their cultural heritage which has refused to die? Or is it the case that Africans have not been able to eradicate the belief simply because they do not have the means to do so? Or does the belief have some intrinsic and extrinsic values which have encouraged Africans to cope with it?

Unfortunately, both Christianity and Islam, the two prominent religions in the two states used for this study, have inadvertently promoted witchcraft by their respective acknowledgement of its existence and the offering of prayers as a potent weapon against the activities of witches. Today several churches, especially of the Pentecostal brand, attribute some sicknesses to the activities of 'demonic powers', among them witches, and offer various deliverance prayers as a way out for their 'victims'. This was perhaps why Ogungbemi (1992) argued that most of the charismatic churches are increasing in the south-west zone of Nigeria 'because their converts want an abode of refuge from the fear and power of witchcraft.' This position is similar to what Bohannan (1964) had earlier posited, that witchcraft has remained relevant in modern religion because 'it answers many of the same questions about misfortune that religious dogma sets out to answer.' The International Humanist and Ethical Union (2009) in its review of a book, 'Unveiling the Mysteries of Witchcraft' written by a popular Nigerian Evangelist, Helen Ukpabio, has this to say about the widespread perception of witchcraft in the Nigerian religion and socio-cultural system:

> It (the book) reflects the pervasive belief in metaphysical entities in human mentality. Specifically, it portrays the belief in witchcraft and the pride of place accorded it in the African and, not in the least, the Nigerian trado-cultural and religious thought systems. To the average Nigerian who is mentally and intellectually bereaved of life realities, witchcraft is not just real; in fact, the fear of the witch signifies the exquisite possession of existential wisdom.

Glanfield (2014) in the ***Daily Mail*** of UK, quoted campaigners against Ukpabio as challenging some of her claims which include the belief that 'if a child under the age of two screams in the night, cries and is always feverish with deteriorating health, he or she is a servant of Satan'. If Ukpabio's postulation is accepted, then malaria, which has fever as one of its symptoms, would be easily traced to witchcraft activities. As such, appeal to religion would not be a solution to the dilemma created by this perception, as rightly pointed out by Jayeola-Omoyeni, et al (2015) that,

> Islam and Christianity never had any positive influence on witchcraft. These religions promoted the existence of witchcraft as their leaders created tensions and fears about it in the peoples` minds. Muslim and Christian religious leaders seemed to have the same spiritual ideology on witchcraft-detection of witches, mounting crusades against witches, performing miracles, invoking and rebuking the unseen powers.

Awolalu (1979) argued that fear, poverty, ignorance and the "unscientific" and "unphilosophical" nature of African traditional life' are the factors behind the perception because in his view 'no witch exists in reality' and lamented that despite the exposure to modern technology the elites, 'who should have influenced a change of attitude towards misfortunes' continued to explain their challenges in life to activities of witches. This wrong perception shall continue to exist side-by-side with continuous education on the reality of the causes and treatment of malaria which is expected to eventually whittle it down to a point where it becomes an insignificant force on the perception about malaria.

Currently, religious leaders appear to play insignificant roles in the communication of malaria prevention initiatives in Oyo and Osun States from the results of this study. As reflected in the findings of this study presented in subsequent sections (Table 4.13), only 9.5 % of respondents indicated to 'always' receive information on malaria prevention from Religious leaders while they were among sources with low credibility ratings. From these findings, it appears that those who designed the available malaria information for rural dwellers in Oyo and Osun States have not understood the religious views that shape the perception of the people about the disease or incorporated such adequately into the

development of prevention information. Religion is part of the culture of a community and must be taken into consideration while preparing communication activities/messages that are meant to change their world view about a behavioural disease like malaria. There is therefore great need to incorporate religion into perceptions that would be addressed in malaria prevention communication and also involve religious leaders more in the fight against the disease. Religious leaders must be properly educated about their own inadvertent role in promoting the false belief that witches cast malaria on people. From discussions (with KIIi) there have been some efforts at establishing a Nigerian Interfaith Association (NIFA) where religious leaders, especially Christians and Muslims are trained on malaria and armed with relevant messages which they were supposed to transfer to their followers. The problem with this approach is that it is limited to only the popular religions and even at that has not been effectively implemented, going by the results of this study.

Similarly, Ottan (KIIviii) made reference to a period during which MAPS made use of religious leaders for its advocacy activities on malaria prevention but could not elaborate on the outcome of the programme. According to him, they were used as "Malaria Champions/ Ambassadors" and their role was such that during Jumat services on Friday and during services in the church on Sunday, 'they kind of diffuse malaria prevention and treatment services during sermons by mainstreaming malaria messages into their programmes." Again, this approach was limited to only two religions and had a narrow time frame which would have affected its effectiveness.

The results of the various statistical tests have indicated that two major issues still need much greater attention in the fight against malaria. These are the wrong perceptions that the disease can be caused by exposure to sun as well as activities of witches. This need becomes more germane when it is noted that both the *RBM Guide* on Malaria Control and the *Inter-Personal Communication Flip Chart for Malaria Control in the Community* paid attention to addressing these issues in their respective publications. The result is an indication that firstly, there is need for more education to tackle the perceived relationship between exposure to sun and malaria and secondly, religious leaders have not been properly educated and empowered to educate their own followers, in turn, on the causative factors for malaria by which the wrong perception which arose from an over spiritualising of issues as highlighted earlier would be dealt with appropriately.

Research Question Two: What sources of information on malaria prevention are available to rural dwellers in Oyo and Osun states?

In answering this research question, survey respondents were asked to indicate the frequency of their receiving information from 14 selected sources of information on malaria prevention in their communities. It is assumed that exposure to such sources of information will infer availability of the source(s) of information. Their responses are presented in simple percentages in Table 4.9 and ranked using the Friedman nonparametric test in Table 4.10. From the result in Table 4.9, respondents claimed to have the highest frequency of receiving information on malaria prevention from Health Officers at the Clinic/Hospital (54.8%), followed by television (46.9%), Community Volunteers/Malaria Role Models (45.2%) and radio (44.3%). The information source with the least frequency of exposure by respondents was traditional healers (18.6%).

Table 4.9 Frequency of receiving malaria prevention information from sources of information by respondents

S/N	Sources of information	Never	Rarely	Sometimes	Often	Always	Total
1	Radio	118 (5.5%)	339 (16.0%)	726 (34.2%)	306 (14.3%)	631 (30.0%)	2120 (100.0%)
2	Television	91 (4.3%)	334 (15.8%)	700 (33.0%)	355 (16.7%)	640 (30.2%)	2120 (100.0%)
3	Posters	189 (9.0%)	548 (25.8%)	761 (35.9%)	376 (17.7%)	246 (11.6%)	2120 (100.0%)
4	Leaflets/Handbills/ brochures	260 (12.3%)	575 (27.1%)	813 (38.3%)	263 (12.4%)	209 (9.9%)	2120 (100.0%)
5	Bill boards	268 (12.6%)	506 (23.9%)	621 (29.3%)	351 (16.6%)	374 (17.6%)	2120 (100.0%)
6	Health Officers at the Clinic/Hospital	107 (5.0%)	238 (11.2%)	614 (29.0%)	436 (20.6%)	725 (34.2%)	2120 (100.0%)
7	Older women/men in the community	375 (17.7%)	576 (27.2%)	726 (34.2%)	255 (12.0%)	188 (8.9%)	2120 (100.0%)
8	Friends/neighbours	289 (13.6%)	601 (28.3%)	797 (37.6%)	262 (12.4%)	171 (8.1%)	2120 (100.0%)
9	Traditional healers	441 (20.8%)	584 (27.6%)	701 (33.0%)	208 (9.8%)	186 (8.8%)	2120 (100.0%)
10	Teachers in the community school	250 (11.8%)	420 (19.8%)	920 (43.4%)	244 (11.5%)	286 (13.5%)	2120 (100.0%)
11	Religious leaders in the community	283 (13.3%)	478 (22.5%)	817 (38.6%)	341 (16.1%)	201 (9.5%)	2120 (100.0%)
12	Town crier/announcer	587 (27.7%)	492 (23.2%)	561 (26.5%)	254 (12.0%)	226 (10.6%)	2120 (100.0%)
13	Family members/relatives	258 (12.1%)	418 (19.7%)	822 (38.8%)	296 (14.0%)	326 (15.4%)	2120 (100.0%)
14	Community Volunteers/Malaria Role Models	164 (7.7%)	280 (13.2%)	718 (33.9%)	422 (19.9%)	536 (25.3%)	2120 (100.0%)

The Friedman nonparametric test indicated significant differences in the frequency of receiving information on malaria prevention from the information sources identified by respondents (Chi-square=2801.1, df=13, p=0.000). Result of the Friedman test however indicated that in terms of ranking, Health Officers at the Clinic/Hospital, had the highest rank (9.90), and followed by television (9.08), radio (8.99) and Community Volunteers/Malaria Role Models (8.97). The source of information with the least rank was Town Crier/Announcer (5.88). The result is presented in Table 4.10.

Table 4.10 Friedman test of frequency of receiving malaria prevention information from sources of information by respondents

S/N	Sources of information	N	Mean	Std. Deviation	Mean Rank
1	Health Officers at the Clinic/Hospital	1850	3.72	1.173	9.90
2	Television	1850	3.51	1.186	9.08
3	Radio	1850	3.46	1.202	8.99
4	Community Volunteers/Malaria Role Models	1850	3.44	1.211	8.97
5	Bill boards	1850	3.04	1.275	7.56
6	Family members/relatives	1850	3.02	1.181	7.50
7	Teachers in the community school	1850	2.95	1.138	7.38
8	Posters	1850	2.99	1.119	7.28
9	Religious leaders in the community	1850	2.86	1.128	7.01
10	Leaflets/Handbills/ brochures	1850	2.80	1.109	6.64
11	Friends/neighbours	1850	2.74	1.077	6.53
12	Older women/men in the community	1850	2.68	1.140	6.33
13	Traditional healers	1850	2.58	1.166	5.96
14	Town crier/announcer	1850	2.54	1.285	5.88

Source: Field Data

From the results of both the frequency counts and the Friedman non parametric test, Health Officers at the Clinic/Hospital had the highest score (54.8%) and rank (9.90), followed by television with frequency count of 46.9% and mean rank of 9.08. However, although the frequency count indicated a higher frequency of exposure to Community Volunteers/Malaria Role Models (45.2%) than radio (44.0%), the Friedman test ranked radio (8.99) slightly higher than Community Volunteers/Malaria Role Models (8.97). This result confirms the emergence of Health Officers and Community Volunteers/Malaria Role Models as important elements in the communication of malaria prevention messages.

The possibilities inherent in enhancing malaria prevention behaviour using health officers had been highlighted in the study by Malaria Research Lead Programme (MRLP, 2008) which established a 36% increase in the importance of community health workers as sources of information on malaria within two years following specific training programmes for them. This relevance was also highlighted in various interviews conducted with Key Informants as part of this study. For instance, Ottan (KIIviii) explained that MAPS trained 33 Local Government Health Educators in Oyo state because they were responsible for communication and social mobilisation at the ward and local government level. MAPS had 236 Community Volunteers who were expected to visit a minimum of 30 households per day within 132 out of the 351 wards supported by the organisation in Oyo state. Each Volunteer, according to Ottan (KIIviii) was expected to visit targeted households and speak to them about malaria and mosquitoes in Yoruba language. Another Key Informant, Mrs. Ore Ogundola (KIIvi) of AFRICARE explained that the organisation, which was a Sub Recipient of the RBM Grant for the implementation of social mobilisation project in 15 local government areas of Osun state, worked with a pair of Interpersonal Communication Conductors (IPCCs) who carried out interpersonal Communication (IPC) sessions throughout the local government areas. She said:

> Most of the IPC Conductors have been involved in Social mobilisation activities on different programmes so they are well grounded in communication. Acceptance of LLINs and use is now on the increase as a result of the information that is being disseminated during social mobilisation activities.

This was the same approach identified by Mrs. Ituowo Uko (KIIi) especially during the distribution of mosquito nets. According to her, apart from training and using health workers, the NMEP used women who had been trained on malaria prevention messages and how best to communicate such to householders. Such volunteers were going from one household to the other while there were also role model care givers who were mainly retired health workers who had also been appropriately trained and were respected in their respective communities.

The responses of FGD participants in this study also corroborated the importance of the interpersonal channels of health workers and community volunteers in the dissemination of malaria prevention information. While the preponderance of FGD participants identified radio and television as key channels of information on malaria prevention in their localities, some of them equally established the usefulness of the interpersonal sources such as Health Workers, Malaria Role Models (MRMs), and Community Volunteers (CVs). The Community Volunteers act like the Malaria Role Models except that they are not necessarily retired health care workers like most of the MRMs. A seamstress (Olorunsogo4) in Egbedore local government area of Osun state said, "some people were appointed to be going round the town and it was from them that we first heard", while her colleagues on the panel nodded in affirmation. The same scenario repeated itself in most of the FGD sessions. For instance at Araromi PHC, Oyo East local government area when an old farmer (Araromi6) acknowledged that until the coming of the Community Volunteers, many residents used to follow the pattern of treating malaria established by their forefathers, most of the participants also nodded in apparent agreement with the statement. At Aba-Iya Oje PHC, a participant (AbaiyaOje4) said:

> You know that before, we used to take herbal concoction but through the education we received they taught us to stop doing that because it has no measurement that we should go to hospital. The health workers taught us that, and they are really working; the community volunteers also taught us too anytime they come to our house.

Another participant, a nursing mother at Olorunsogo PHC, Ofatedo in Egbedore local government area of Osun state recalled that:

> They (health workers) have been giving people Information at the health centre. They tell you that once you have this type of experience, head straight to the hospital, so it is the health workers that have been teaching us about malaria here.

The significant role of television and radio in the result is also in line with findings by Elegbe (2009:148) whose study on 'Effect of Sources of Information about HIV and AIDS on the Knowledge, Attitude and Sexual Practices of Public Senior Secondary School Students in Oyo State, Nigeria', reported that public secondary school students ranked radio and television as most significant sources of information available to them on HIV and AIDS. The result in the current study also aligns with findings by Amsale, Getenet, Shabbir and Yemane (2005:66) whose assessment of the perceived sufficiency and usefulness of HIV/AIDS information, education and communication (IEC) messages and materials as well as preferences for IEC sources and methods among Ethiopian students, indicated that "even though no single information source was highly preferred, radio and television ranked top" among the respondents.

Thus, Roll Back Malaria and Other Partners in Oyo and Osun states used interpersonal sources such as Health Workers, Malaria Role Models (MRM) and Community Volunteers (CVs) as well as mass media sources of television and radio jingles for the dissemination of information on malaria prevention among rural dwellers in the two states. This finding confirms the postulation of the Diffusion of Innovations Theory. Three of the basic assumptions of the theory are that, "the media as well as interpersonal contacts provide information and influence opinion and judgment", "that opinion leaders exert influence on audience behaviour through their personal contacts", but that " additional intermediaries, also called Change Agents, are equally included in the process of diffusion"; and that "while information flows through networks, the nature of networks and the roles opinion leaders play in them determine the likelihood that an innovation will be adopted**.**"

This study has therefore identified several sources of information on malaria prevention that are available to rural dwellers in Oyo and Osun states. Four of them, which can be considered as most frequent sources of receiving information on malaria prevention based on the results of the study are Health Officers at the Clinics/Hospitals, Television, Community Volunteers/Malaria Role Models and Radio with Health Officers being the source with the highest rate of frequency. Apart from identifying the sources of information on malaria prevention available to rural dwellers in the two states, this study also investigated the perceived credibility of the various sources of information among the respondents. The result is presented in the next research question.

Research Question Three: **Which of the available sources of information on malaria prevention do rural dwellers in Oyo and Osun states consider most credible?**

Respondents were asked to rate the level of their perceived credibility of the 14 listed sources of information on malaria prevention. Their responses are presented in simple percentages in Table 4.11 and ranked using the Friedman nonparametric test in Table 4.12 From the result of Table 4.11 television was considered by respondents as the most credible source of information (81.2%%), followed by radio (77.5%), Health Officers at Clinic/Hospital (69.9%) and Community Volunteers/Malaria Role Models (64.7%). The four sources of information with the least credibility, according to the result are traditional healers (34.0%), Friends and Neighbours (36.4%), Town Crier/Announcer (36.5%) and Older Women/Men in the Community (37.3%).

Table 4.11 Perceived credibility of sources of malaria prevention information by respondents

	Sources of information	SD	D	N	A	SA	Total
1	Radio	70 (3.3%)	66 (3.1%)	342 (16.1%)	1035 (49.0%)	607 (28.5%)	2120 (100.0%)
2	Television	43 (2.0%	56 (2.6 %)	300 (14.2%)	1050 (49.5%)	671(31.7 %)	2120 (100.0%)
3	Posters	67 (3.2%)	169 (8.0%)	520 (24.5%)	996 (46.9%)	368 (17.4%)	2120 (100.0%)
4	Leaflets/Handbills/ brochures	81(3.8%)	245 (11.6%)	675 (31.8%)	845 (39.9%)	274 (12.9%)	2120 (100.0%)
5	Bill boards	108 (5.1%)	243(11.5%)	512 (24.1%)	928 (43.8%)	329 (15.5%)	2120 (100%)
6	Health Officers at the clinic	74 (3.5%)	116 (5.5%)	447 (21.1%)	731(34.5%)	752 (35.4%)	2120 (100.0%)
7	Older women/men in the community	195 (9.3%)	357 (16.8%)	776 (36.6%)	586 (27.6%)	206 (9.7%)	2120 (100.0%)
8	Friends/neighbours	195 (9.3%)	338 (15.9%)	815 (38.4%)	586 (27.6%)	186 (8.8%)	2120 (100.0%)
9	Traditional healers	287 (13.5%)	443 (20.9%)	670 (31.6%)	580 (27.3%)	142 (6.7%)	2120 (100.0%)
10	Teachers in the community school	141 (6.6%)	237 (11.1%)	741 (34.9%)	729 (34.4%)	272 (13.0%)	2120 (100.0%)
11	Religious leaders in the community	180 (8.5%)	347 (16.4%)	727 (34.2%)	667 (31.5%)	199 (9.4%)	2120 (100.0%)
12	Town crier/announcer	323 (15.2%)	457 (21.6%)	567 (26.7%)	584 (27.6%)	189 (8.9%)	2120 (100.0%)
13	Family members/relatives	139 (6.6%)	292 (13.8%)	724 (34.1%)	677 (31.9%	288 (13.6%)	2120 (100.0%)
14	Community Volunteers/Malaria Role Models	108 (5.1%)	129 (6.1%)	510 (24.1%)	811 (38.2%)	562 (26.5%)	2120 (100.0%)

Source: Field Data

The result in Table 4.11 suggests that mass media channels (television and radio) were considered as more credible by the respondents than the interpersonal channels (Health Officers, Community Volunteers). A Friedman test to further evaluate the perceived credibility of the information indicated that television had the highest mean rank (9.72) followed however by Health Officers at Clinic/Hospital (9.48), radio (9.38) and Community Volunteers/Malaria Role Models (8.64) while Traditional Healers had the least rank (5.55). The result is presented in Table 4.12

Table 4.12 Friedman Test of credibility of available sources of information on malaria **prevention by respondents**

S/N	Information source	N	Mean	Std. Deviation	Mean Rank
1	Television	1894	4.09	.829	9.72
2	Health Officers at the clinic	1894	3.99	1.011	9.48
3	Radio	1894	4.00	.902	9.38
4	Community Volunteers/Malaria Role Models	1894	3.77	1.057	8.64
5	Posters	1894	3.70	.920	8.30
6	Bill boards	1894	3.55	1.021	7.80
7	Leaflets/Handbills/ brochures	1894	3.48	.953	7.38
8	Teachers in the community school	1894	3.37	1.029	7.19
9	Family members/relatives	1894	3.35	1.053	6.98
10	Religious leaders in the community	1894	3.21	1.057	6.52
11	Friends/neighbours	1894	3.14	1.065	6.23
12	Older women/men in the community	1894	3.15	1.064	6.21
13	Town crier/announcer	1894	2.95	1.192	5.61
14	Traditional healers	1894	2.93	1.124	5.55

Source: Field Data

Findings from this study indicated that information on malaria prevention received from television, health workers, radio and Community Volunteers/ Malaria Role Models, were considered most credible by respondents in rural areas of Oyo and Osun states. The apparent higher credibility rating for television ahead of Health Officers at the Clinic/Hospital which had the highest frequency of exposure could be due to the peculiarities of interpersonal communication where the audience can always observe a health officer's attitude and mannerism whether it is welcoming, assuring or arrogant and hostile and therefore conclude on the trustworthiness of information from such officer. This is unlike information on television, such as jingles on malaria prevention, which are produced with special appeals to attract the attention and acceptance of the audience. The result points to the need to pay closer attention to the training of health officers in interpersonal communication skills to achieve greater credibility among rural dwellers with whom they have constant interaction on malaria prevention. This becomes all the more necessary because it was noted in this study that the Community Volunteers/Malaria Role Models were the two major interpersonal sources used by MAPS and Osun State Malaria Programme/ACCOMIN/AFRICARE to engage rural residents on education about malaria prevention and control in their areas of operation. Health Educators in Oyo state were responsible for the training of the Community Volunteers, according to Ottan (KIIviii).

The comparatively low credibility ranking recorded for Religious Leaders among the interpersonal sources for communicating malaria prevention messages indicates that the workings of the Nigerian Interfaith Association (NIFA) which Mrs. Itouowo Uko (KIIi), Head of Advocacy, Communication and Social Mobilisation (ACSM) unit of the National Malaria Elimination Programme (NMEP) lauded as one of the achievements of the agency, was yet to be felt significantly at the rural level. Members of the NIFA are meant to be trained by NMEP officials at the federal level and expected to go back and train others at the state and local government levels.

The NIFA is put together according to Uko (KIIi) based on the thought that:

> Every imam or pastor, their members believe what they say and so we believe that if a pastor should preach from the pulpit that every pregnant woman should go to ANC

and register early and should also endeavour to register in the health facility and not with the TBAs or one local woman they will comply and obey.

Both the results of frequency counts and Friedman nonparametric tests above rated television as the most credible source of information on malaria prevention among rural dwellers in Oyo and Osun States. However, this study also tested how influential were the sources of information on the knowledge of malaria prevention among the respondents. The result is first presented in simple percentages in Table 4.13. According to the result, radio was the source of information with the greatest rate of influence (76.4%) among respondents, followed by television (74.2%), Health Officers at the Clinic/Hospital (66.7%), Posters (65.5%) and Community Volunteers/Malaria Role Models (56.2%). The source of information with the least influence among respondents was Traditional healers (31.7%).

Table 4.13 Perceived influence of information sources on knowledge of malaria prevention among respondents

S/N	Sources of Information	SD	D	N	A	SA	Total
1	Radio	66 (3.1%)	89 (4.2%)	345 (16.3%)	958 (45.2%)	662 (31.2%)	2120 (100.0%)
2	Television	67 (3.2%)	123 (5.8%)	357 (16.8%)	978 (46.1%)	595 (28.1%)	2120 (100.0%)
3	Posters	70 (3.3%)	126 (5.9%)	535 (25.2%)	928 (43.8%)	461 (21.7%)	2120 (100.0%)
4	Leaflets/Handbills/ brochures	242 (11.4%	220 (10.4%)	841 (39.7%)	588 (27.7%)	229 (10.8%)	2120 (100.0%)
5	Bill boards	188(8.8%)	224 (10.6%)	594 (28.0%)	835 (39.4%)	279 (13.2%)	2120 (100.0%)
6	Health Officers at the clinic	98 (4.61%)	145 (6.8%)	475 (22.4%)	829 (39.1%)	573 (27.1%)	2120 (100.0%)
7	Older women/men in the community	250(11.8%)	323 (15.2%)	755 (35.6%)	621 (29.3%)	171 (8.1%)	2120 (100.0%)
8	Friends/neighbours	217 (10.2%)	373 (17.6%)	836 (39.4%)	576 (27.2%)	118 (5.6%)	2120 (100.0%)
9	Traditional healers	243 (11.5%)	421 (19.9%)	783 (36.9%)	524 (24.7%)	149 (7.0%)	2120 (100.0%)
10	Teachers in the community school	159 (7.5%)	211 (10.0%)	804 (37.9%)	639 (30.1%)	307 (14.5%)	2120 (100.0%)
11	Religious leaders in the community	216 (10.2%)	300 (14.2%)	738 (34.8%)	586 (27.6%)	280 (13.2%)	2120 (100.0%)
12	Town crier/announcer	284 (13.4%)	414 (19.5%)	637 (30.0%)	581 (27.5%)	204 (9.6%)	212-0 (100.0%)
13	Family members/relatives	154 (7.3%)	334 (15.8%)	764 (36.0%)	639 (30.1%)	229 (10.8%)	2120 (100.0%)
14	Community Volunteers/Malaria Role Models	121 (5.8%)	164 (7.7%)	642 (30.3%)	734 (34.6%)	459 (21.6%)	2120 (100.0%)

A Friedman test was conducted to evaluate the influence of the sources of information on the knowledge of malaria prevention among the respondents. The result indicated that radio retained its position with the highest rank (9.58), followed by television (9.36), Health Officers at the Clinic/hospital (9.0), Posters (8.80) and Community Volunteers/Malaria Role Models (8.34). The three sources of information with least ranking among respondents were Town crier/Announcer (6.17), Friends/Neighbours (6.15) and Traditional healers (6.01). The result is presented in Table 4.14. Studies have shown that television generally has credibility as a source of information and can be a potent strategy for behaviour change communication with its combination of messages with entertainment to promote specific programmes (Elegbe, 2009, Population Reports, 1989). However, these attributes could not be investigated in this study because the researcher was declined access to the necessary data. The higher influence of radio in this study could be linked to the ease and low cost needed to access its information unlike that of television; almost everyone listens to radio, it has an attention-gettting immediacy that makes it convincing and its programmes are flexible, often entertaining and intriguing and inability to read is not a barrier to accessing it (Elegbe, 2009).

Table 4.14 Friedman test on the perceived influence of sources of information on malaria prevention among respondents

S/N	Information source	N	Mean	Std. Deviation	Mean Rank
1	Radio jingles	1892	3.98	.930	9.58
2	Television jingles	1892	3.92	.955	9.36
3	Health Officers at the clinic	1892	3.82	1.016	9.01
4	Posters	1892	3.79	1.030	8.80
5	Community Volunteers/Malaria Role Models	1892	3.62	1.047	8.34
6	Teachers in the community school	1892	3.37	1.061	7.51
7	Bill boards	1892	3.39	1.095	7.41
8	Religious leaders in the community	1892	3.21	1.130	6.85
9	Family members/relatives	1892	3.22	1.051	6.83
10	Leaflets/Handbills/ brochures	1892	3.18	1.112	6.58
11	Older women/men in the community	1892	3.09	1.101	6.41
12	Town crier/announcer	1892	3.01	1.175	6.17
13	Friends/neighbours	1892	3.03	1.018	6.15
14	Traditional healers	1892	2.98	1.188	6.01

Although Billboards/Handbills/Brochures had low credibility ranking among respondents, from the result in Table 4.14, Poster, a print medium, had a higher ranking (8.80) among the respondents than Community Volunteers/Malaria Role Models (8.34) in terms of its perceived influence as sources of information on malaria prevention. This result contradicts the position of the Presidential Malaria Initiatives (PMI) and MAPS, as explained by Ottan (KIIviii) on the usage of print materials in malaria prevention communication. Ottan had noted that, "as a matter of policy", the two bodies no longer use print materials in malaria prevention. Similarly, Dr. Akinola, Malaria Programme Manager, Oyo state (KIIii) pointed out that the less reliance on using these print formats, for instance was because "in putting up billboards, poster and things, at times people walk by them without even reading what is there". The result of this study therefore indicates a need to revisit the position on print materials particularly in rural areas which are not yet suffused with social media and other modern information technology platforms.

The following facts have thus emerged from the results of this study: that respondents had most of their exposure to malaria prevention information through health officers but that they trusted information received from television as more credible than the ones received from health officers. However, their decisions to implement malaria prevention behaviour were mostly influenced by radio. The perceived influence of radio in this study, above television and health officers was probably due to the fact that there had been several radio jingles targeted at the respondents during the campaign on the distribution of ITN in Oyo state or on malaria prevention measures in Osun state. References to 'television' and 'radio' in the discussions in this study mostly refer to such jingles and there were more radio jingles than television jingles on malaria prevention in the study sites. Indeed, as earlier pointed out, this study could not access any television jingle for investigation but had access to twelve radio jingles out of which six were selected for analysis.

Research Question Four: What are the contents of malaria prevention information provided by Roll Back Malaria and other Partners available to rural dwellers in Oyo and Osun states?

This study analysed six radio jingles on malaria prevention, one *RBM Malaria IPC Guide* and one *Interpersonal Communication Flip Chart for Malaria Control in the Community* and three generic posters, "**Net Safe",** "**Take Good Care of Your Long Lasting**

Nets", and "**Disease Prevention**". In the subsequent paragraphs, "J" refers to the radio jingles analysed in this study.

1. **Content of selected radio jingles**

Five of the radio jingles were produced by MAPS/Oyo State Government/RBM, while the sixth was produced by Osun State/RBM. In terms of thematic focus, the six jingles (J1, J2, J3, J4, J5 and J6) focused on the use of LLN and general malaria prevention. Four of the jingles (J1, J2, J4 and J6) were in Yoruba while the remaining two (J3 and J5) were in Pidgin. J1 was focused on general awareness on the use of LLIN in Oyo state, J2 on general awareness on the use of LLIN in Oyo North Senatorial Zone while J3 was the Pidgin version of J2. J4 was focused on general awareness on the use of LLIN after free distribution in Oyo North Senatorial Zone while J5 was the Pidgin version of J4 with the same focus. J6 was on general awareness about malaria prevention in Osun state.

2. Content of *RBM Malaria IPC Guide*.

The *RBM Malaria IPC Guide* was produced by Roll Back Malaria, Federal Government of Nigeria and Society for Family Health. Their logos are on the outer back cover of the IPC Guide. It is a 26-page document printed in full digital colours. There is a "message page", where the written message is displayed and an additional "illustration page" with a pictorial representation of the message. Each message page has the headline of the message in bold, black letters while additional points are written in smaller letters. The illustrations are hand drawn pictures. Page 1 is on "What is Malaria", page 2 "Myths and Misconceptions" page 3 "Special groups at risk", page 4 "Symptoms of malaria", page 5 "Effects of Malaria", page6 "Malaria in Pregnancy", page 7 "IPT" page 8 "Integrated Vector Management", page 9 "Long Lasting Insecticide Treated Nets", page 10 "Effective malaria treatment", page 11 "Is it malaria?", page 12 "Malaria prevention" page 13 "ACTs most effective compared to older medicines like SP and CQ ". There is an additional page on "Management of severe malaria" but while the message page has no page number, the illustration page has the page number "1" as different from the original Page "1" that focuses on "What is Malaria". A copy of the *RBM Malaria IPC Guide* has been attached to this study as annexure.

3. Content of *Interpersonal Communication Flip Chart for Malaria Control in the Community*.

Interpersonal Communication Flip Chart for Malaria Control in the Community was produced by Centre for Disease Control (CDC), United States Agency for International Development (USAID), President's Malaria Initiative, Federal Government of Nigeria and fhi360 (THE SCIENCE OF IMPROVING LIVES) and was used by MAPS in Oyo state.. It is a 24-page document printed in full digital colours. There is a "message page", where the written message is displayed and an additional "illustration page" with a pictorial representation of the message. The illustrations are hand drawn pictures. Each page is called CARD. Each CARD has the words IPC Conductor's Guide written boldly on top in bright blue colour. Each CARD contains a written message and a smaller version of the drawing used on the opposite page for illustration. The CARDs have no specific message headlines unlike the RBM IPC Guide. A copy of the *Interpersonal Communication Flip Chart for Malaria Control in the Community* has been attached to this study as annexure.

4. Content of Generic posters

4.1 ***Net Safe*** was produced by the United States Agency for International Development (USAID) and NetMark and distributed by Womankind FEI, Malaria Parasites: Africa Fights Back and DELIBIMB MALARIA FOUNDATION. It is printed in full digital colours. The Poster contains the message: "Insecticide Treated Net protects against Malaria, use it always. Be...Net Safe. While "Insecticide Treated Net protects against Malaria, use it always. Be" is composed in black lower case letters, the slogan "Net Safe" is in light green. The logo of USAID is on the top left hand corner of the poster while the green coloured NetMark logo is on the right hand side. The NetMark logo as well as that of DELIBIMB MALARIA FOUNDATION contains a drawing of a mosquito with a green bold mark stretched across the mosquito. The Poster contains a picture /illustration of a mother sleeping inside a LLIN with her baby. The two appear to be fast asleep. Below the illustration are the logos of the three distributors of the LLIN mentioned earlier. A copy of the poster is attached to this study as annexure.

4.2 ***Take Good Care of Your Long Lasting Nets*.** This Poster was produced by RBM for the states. It is printed in full digital colours. The title is "Take Good Care of Your Long Lasting Nets" written in bold white letters reversed on black with the tag line, "They will

protect you from Malaria" written in black below the picture used to illustrate the headline. The title is on the left hand side. A picture of a mosquito over which a 'stop-sign' in red was drawn, is on the right hand side of the poster. Beneath the headline and mosquito are the pictures of a woman holding a blue coloured net on her right hand and a white coloured net on the right hand. The poster also contains a small picture of a woman and her baby. The picture of the second woman is however faint while her baby is in bright white underwear. The first woman holding the net is dressed in what looks like Igbo apparel. It is however not clear if they are sleeping under a mosquito net. Across the tag line is a miniature drawing of two people sleeping inside a net while the words "Take Cover from Mosquitoes that spread malaria Sleep inside the NET" are written in a circle around the miniature drawing. The miniature illustration is marked positive in green colour. The Roll Back Malaria logo is printed at the bottom of the poster while the logo of Osun state and the Nigerian coat of arms are on the right hand side. There is also information on where readers can get more information on the subject matter of the poster. A copy of the poster is attached to this study as annexure.

4.3 ***Disease Prevention***. This Poster was produced by the Ministry of Health, Osun state through Osun State Health Systems Development Project 11. The logo of Osun state is on the left hand side while the Nigerian Coat of Arms is on the right. The poster is printed in full digital colours. The Poster is an instructional material for health personnel providing information on malaria prevention to their audience. The headline is "Disease Prevention" written in bold red colours with the tag line "Child sleep under Insecticide Treated Net (ITN)" written in black colours. Under the headline is a hand drawing showing a figure sleeping inside what looks like a net. A smaller size of the same drawing is repeated at the lower right hand corner of the poster and illustrated with the words "The picture shows a person asleep on a mattress around which ITN has been well tucked in." The poster contains four "Important Questions to Ask Caregivers" as follows: (1) What do you see in the picture? (Let the caregiver/group discuss) (2) What are the gains of sleeping under an insecticide treated net? (3) Do adults and children in the community sleep under ITN? (Probe the reasons why or why not) (4) Are there places one can buy and retreat ITNs in this community? (Discuss where to get ITNs and how to take care of them).

The Poster also contains a two –paragraph "Introduction" on malaria and how to prevent it as well as three "Notes for CORPs on the "Benefits of Using ITN" "For Maximum

protection" and "Ensure you identify and retreat your net every 6 months at the nearest treatment centre". Five "Benefits of Using ITN" are provided in bullet points. They are, "Reduces man-mosquito contact thereby helping people sleep well/stopping transmission", "Effective against other insects including bedbugs, cockroaches and lies", "Promotes growth and development of children", "ITN costs less than treating malaria" and "Use of ITN reduces sickness and death in children by reducing occurrence and severity of malaria". This last benefit is printed in bold black colour, Under "For Maximum Protection", the poster contains the following points: "Have your mosquito nets re-dipped in insecticide every six months", "Buy mosquito nets from reputable dealers" and "Ensure that all children under five years in your household sleep under ITN". A copy of the poster has been attached to this study as annexure.

This section has been able to provide an overview of selected malaria prevention information in South-west Nigeria in the forms of radio jingles, IPC Guide and Flip Chart used for interpersonal communication as well as generic posters on use of mosquito nets. The focus on the contents of the selected materials is to underscore the importance of the message in driving behaviour change. As noted by Elegbe (2009: 80) a well crafted message has influence on source credibility, perceived message quality as well as influence of such message. He stated:

> When confronted with a message....one would reasonably make inferences about the source's credibility based on the perceived quality of the message. If the message is well presented, plausible, with convincing specifics, examples or data, that message could possibly have more impact....

Similarly, McCormack, Sheridan, Lewis, Boudewyns, Melvin, Kistler, Lux, Cullen and Lohr (2013: ES1) have also underlined the significance of a clear message in achieving communication objectives in health when they said,

> Clear communication and active dissemination of evidence to all relevant audiences in easy- to-understand formats are

critical to increasing awareness, consideration, adoption, and use of evidence

The authors noted that messages could be prepared for prospective audiences based on four possible constructs; tailoring the message where a message is designed for an individual based on information supplied by such individual, targeting message to audience segments where group membership or characteristics become the basis for message development, using narrative where stories/testimonials or entertaining platforms are used for the message and finally framing the message where the message focuses on what is gained or lost by taking or not taking a specified action. The next research question shall therefore discuss the suitability of these materials for the rural dwellers in the two states.

Research Question Five: To what extent are the contents of malaria prevention information provided by Roll Back Malaria and other Partners suitable for rural dwellers in Oyo and Osun states?

This section shall focus on the six radio jingles on malaria prevention earlier mentioned (J1, J2, J3, J4, J5 and J6). It shall also discuss the suitability of the following materials: RBM's *IPC Guide*, MAPs *Inter-Personal Communication Flip Chart for Malaria Control in the Communit*y and the three generic Posters; "Net Safe", "Disease Prevention" and "Take Good Care of Your Long Lasting Nets" produced by RBM and Partners. The results for the jingles are presented in Tables 4.19 and the outcome of the coding is discussed in the subsequent paragraphs. In doing this, the selected jingles were reviewed by looking at their manifest and latent contents from the point of view of the results in Table 4.15.

Table4.15 Scores of radio jingles by content categories

Category	J1	J2	J3	J4	J5	J6
Attracting Attention	3	2	1	3	2	2
Generating Interest	5	5	5	5	5	5
Benefits to Desire	4	4	4	4	4	4
Sensitivity	3	4	1	4	2	4
Credibility	3	3	3	3	3	3
Action Cue	3	3	3	2	2	3
Message Appeal	3	3	3	3	3	4
Message Approach	5	5	5	5	5	5
Total	29 (81.0%)	29 (81.0%)	25 (69.4%)	29 (81.0%)	26 (72.2%)	30 (83.3%)

Source: Field Data

Attracting Attention

To attract attention, a jingle must be catchy, either through its usage of sound elements, imagery or words. It could also attract attention by the use of dramatic elements and jokes, etc. The result of the content analysis of the selected jingles in this study indicated that all the jingles were considered as 'slow' except J2 while three of them; J2, J3 and J6 were not seen as being humorous to the audience. The inclusion of an element of humour in a jingle is one major way of attracting attention to its content.

J2 was a Yoruba jingle produced to promote the use of LLIN after free distribution in Oyo north senatorial district of Oyo state. It was 72 seconds in length and opened with the sound of a local town crier's gong, to indicate an announcement was to be made. Then a female voice read the announcement without any improvisation. With the use of the traditional gong as attention grabber in the opening seconds, the jingle should have ended with the same traditional motif where the announcer sought a consent or approval of understanding from his audience. There was no memorable statement from the jingle that could influence the audience to action. The tone of the announcer was flat throughout the announcement. There were no signposts of danger, warning, or commendation relative to the non-use or use of LLIN by the listener. On its part, J3 was the Pidgin version of J2. It was 74 seconds in length and also opened with the traditional town crier's gong to indicate an announcement was to be made. Then a male voice began to read the announcement, again without any improvisation that could make it memorable or attractive to the listener.

However, J1, J4 and J5 were seen as possessing the qualities of attracting attention of listeners while their background music was judged as melodious, with the exception of J5. J1 was a 2mins 56 seconds-long jingle produced in Yoruba language. It opened with a danceable beat that lasted six seconds before a male lead singer introduced the song and theme of the jingle, "apo apefon" (mosquito net) that is safe for use. He explained through the song the many advantages of using LLIN and taught the listener how to prepare it for use after collection and how to take care of the net if it tore or needed to be washed. The jingle ended with a voice -over comment that assured listeners that the LLIN could last for three years.

J4 was a short drama, 74 seconds long, in Yoruba with the focus of addressing nonchalant attitude of community members who had collected the LLIN but refused to use it. It opened with the voice of a young female hawker faintly from the background. A man was then heard snoring; then a female voice called to wake him up. It was later discovered to be a

market place. The female voice was later identified as that of Iya Kike and the snoring male, as Baba Kemi. While Baba Kemi had refused to use the LLIN his wife collected because he thought it was not useful, Iya Kike had the experience of its usefulness and could use that to counter the negative disposition of Baba Kemi who lamented that he spent the previous night in a 'battle' with mosquitoes, hence his coming to the market place to sleep instead of trade. The drama motif made the jingle attractive and memorable for the listener.

J5 was a short drama and lasted for 91 seconds. It used the same characters in J4 to communicate the message on the need to utilise the LLIN after its collection. However, unlike in J4 in J5, Baba Kemi was the seller in the market while Iya Kike was a client who had come to make purchases and at the end of the dialogue won an extra gift for providing the education on the use of LLIN. Again, the use of drama made the jingle attractive.

J6 was also produced in Yoruba and lasted 63 seconds. Its focus was environmental sanitation against malaria. It opened with a traditional beat of Apala, common to the Ijesha/Osogbo axis of Osun state. Then a female lead singer sang about the need to chase malaria away from the land, particularly because of the negative attributes of the disease. Malaria was described in the jingle as 'asekupani' (killer), adaniloro (harbinger of sorrow) and 'aninilara' (task master). The weird descriptions of malaria made the jingle attractive because the negative titles of the disease are common daily usage among the people of the area.

Generating Interest

Under this category, a jingle was considered as being able to generate interest through the use of clear and unambiguous language and imagery. There should be no need for the audience to seek help for clarification of certain words or imagery used in the jingle before they can relate with it or understand it. If a jingle met these criteria, then it was considered as strong enough to generate interest of the audience. In this study, all the jingles were adjudged as satisfactory for the category 'Generating Interest'. They were considered to have been composed in active and clear words which were easy to understand and the messages easily engaged the audience's attention. They were also considered as having used illustrations that were relevant to the environment. The product name 'LLIN' was also mentioned at least thrice in each of the jingles to enhance retention and identification by audience. The jingles were also considered long enough to sustain the interest of the audience.

Benefits to Desire

Under this category, a jingle was expected to indicate the possible advantages to be derived from the adoption of the behaviour being canvassed. If the advantages/benefits were well spelt out or very discernible, then it was adjudged as having met the standard. All the jingles in the study were considered to contain 'benefits to desire' by the audience. Such benefits were considered as meaningful, relevant, topical and important to the audience. For instance, J1 indicated that sleeping under a LLIN would protect the family against malaria and assured the user of regular sound sleep with a rest of mind that comes from the protection offered by the net. Other benefits highlighted in the jingle included that with its acquisition, there was no need for regular treatment as it is truly long-lasting. J2 also spoke of the same benefits with an addition that assured the user of the LLIN that he/she was made to save money that would have otherwise gone into procuring malaria drugs. J3 repeated the same benefits as J2 while J4 indicated that a user of LLIN would have rest from the 'wahala' and 'battle' that the dramatic personae said he went through all the night. J5 repeated the same benefits as J4 in Pidgin English. J6 explained the huge gains of having a malaria-free environment as including being free from the deadly malaria; the killer, harbinger of sorrow and task master.

Sensitivity

This category measured the ability of each jingle to care for the feelings of the audience in terms of their culture, religion and gender. It also included a consideration for their being rural dwellers. When there were no words or sound in a jingle that offended the sensibility of the audience in terms of religion, culture and gender or when a jingle did not use languages that were considered as too sophisticated for a rural audience to understand, it was then adjudged as having met the consideration of sensitivity. In this study, while J1, J2, J4 and J6 were considered as sensitive to the culture of the audience, J3 and J5 were not adjudged as such because they were produced in Pidgin English for a predominantly Yoruba audience. It might have been considered as cultural imposition as Pidgin is more common to people from the South-South of the country than inhabitants of the South-west. It is however possible that the pidgin versions had been produced to cater for the non-indigenes living in the rural areas. On the other hand, J1, J2, J4 and J6 were produced in Yoruba language. The jingles had no reference to religion, religious names or terms that could polarise the audience in a plural society, hence they were considered as sensitive to the religion of the audience.

However, two of the jingles, J1 and J3 were not considered as sensitive to gender of the audience. J1 for instance, had no female voice, either to lead the song or back it up or make the final announcement on the use of LLIN. Similarly, J3 had no female voice in all of its 74 seconds. In all, it could be deduced that majority of the jingles met the considerations of sensitivity to the audience.

Credibility

Under this content category, the study sought to know whether the claims in the jingles were seen as truthful enough to be believed, whether the claims offered in the jingles were considered as true and sincere and whether the voice-over models used for communicating the messages were acceptable to the audience. All the jingles used in the study were considered to have passed the test of credibility. Some of the claims offered by the jingles included the following:

(a) J1...

Apo apefon a lalope
Yoo gba'wo atebi re lowo aisan iba
Sun sinu apo efon
K'o gbadun orun re falala
Je k'apo apefon le efon jina si o
Apo apefon yi le lo to odun meta gbako

Translation:

The LLIN will save you and your family from malaria. Sleep inside a LLIN and enjoy your sleep. Let the LLIN drive mosquito far from you...the LLIN can last for three years.

The claims in J1 included that using LLIN would save the listener and family from malaria and also help them to have a good night sleep as it would drive mosquitoes far from them and also that LLIN could last for three years. These were credible claims. A female trader (Araromi 2) who took part in the FGD at Araromi PHC in Oyo East local government area testified to this claim thus:

I am grateful to God. My child used to be troubled by malaria around 2006 but since I

was told to be using LLIN for him things have changed positively.

(b) J2

Sisun sinu apo apefon alalope yi yoo maa daa bo bo iwo ati molebi re lowo aisan iba, owo wa yoo si ma gb'owo wa nigbati a o ba ni aisan iba lati toju.

Translation:

Sleeping inside a LLIN will protect you and your family from malaria, and save you the cost of having to treat malaria since you will not have malaria.

The claims in J2 were, like that of J1 that using LLIN would protect the listener from malaria and also save the cost that could have been incurred on treating the disease if he/she were to have it. These claims are also credible and believable because use of LLIN has been described as one of the two veritable forms of vector control against malaria with the capacity to reduce malaria transmission from very high levels to close to zero and which in high transmission areas can reduce child mortality rates and the prevalence of severe anaemia (WHO: 2010).

(c) J4.

***Baba Kemi**: Iya Kike, aisun ni mo se moju. Ogun esu ni awon efon ile wa. Awon ni mo fi gbogbo oru dode*

***Iya Kike**: hahaha, Baba Kemi, se pe eyin si n dode efon? Iyen ti doro itan lodo tiwa!*

...

***Iya Kike**: Hahaha. Apo efon alalope yen yoo daa bo bo yin lowo efon to n fa arun iba*

Note: Although J5 and J4 are the same in terms of wording J5 was produced in Pidgin and its characterisation is slightly different from that of J4.

Translation:

Baba Kemi: Iya Kike, I kept vigil last night. The (issue of) mosquitoes in our home have become a battle. I spent the entire night hunting for them.

Iya Kike: Hahaha, baba Kemi, so you are still hunting for mosquitoes? That has become a thing of the past in our own home...

Iya Kike: Hahaha. The LLIN will protect you and your household against mosquitoes that cause malaria.

In J4 and J5 the character, Baba Kemi saw the inconvenience of dealing with mosquito attacks during the night as 'a battle' while the second character, Iya Kike said such 'battles' had become a thing of the past in her own household with the use of LLIN. Again, these are credible and believable claims which a majority of FGD participants in this study also attested to. For instance, a tailor (Afolu4) who participated in the FGD session at Afolu PHC in Irepodun local government area of Osun state, said:

We have been educated on the use of LLIN and we have seen the advantages. Anyone who is not using it is just wasting his time. I have seen a lot of difference since I started using it; it has reduced malaria in our home.

Another participant at the same venue (Afolu1) said:

> I use it (LLIN) regularly. As a matter of fact it makes your bed beautiful. It is fine and drives away mosquitoes and cockroaches.

(d) J6.

Aisan iba yi buru jojo...

asekupani...

adaniloro...

aninilara

Translation:

Malaria is a deadly disease...

(It is a) killer...

harbinger of sorrow...

task master

Again, these are credible, believable and verifiable claims made in J6. As noted earlier, malaria is Nigeria's most significant health problem accounting for 25% of under-5 mortality, 30% childhood mortality and 11% maternal mortality (Federal Ministry of Health and National Malaria prevention Programme, nd: 1). About 50% of the population is projected to have at least one episode of malaria annually while children aged below 5 years (about 24 million) will have two to four attacks of malaria within the same period. Federal Ministry of Health and National Malaria Eradication Programme, (nd: 1) posits that malaria is responsible for an estimated 300,000 deaths per year in Nigeria and nearly 110 million cases of the disease are reported in a year. It is therefore credible to label malaria in the imageries employed by the producers of J6.

Action Cue

This category sought to know whether a jingle contained action-oriented words that the audience could remember and follow-up as a result of exposure to the jingle. Such words would include directives on what to do either to prevent malaria or treat the disease and also where to get the recommended service. All the jingles in the study were adjudged to have met this condition and were therefore considered as appropriate and suitable for the audience. The

most common action cues in the jingles were ‘sleep inside’, ‘wash your net with soft soap if it gets dirty’, ‘sew when torn’, ‘spread it for airing for 24 hours before use’, ‘hang it on your bed’, fold it at break of day’. The jingles also contained information that linked the messages to the respective state governments and RBM Partners responsible for the distribution of the LLIN.

Message Appeal

This content category looked at the presentation of the appeal in the jingles; whether the appeals were such that sought to threaten the audience into action or encourage them into taking action on the focus of the jingles or whether the messages played on the negative emotion of the audience. While the appeals in the jingles were adjudged as positive, encouraging, rational and not exploiting the negative emotion of the audience, the appeal in J6 was considered as threatening. This might not be unconnected with the strong words used in describing malaria in J6: killer, harbinger of sorrow and task master. However, such threatening (fear) appeal can work to drive the audience into action, according to one of the constructs of the Health Belief Model; Perceived Threat, that a person will take a health-related action if such a person has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition. As noted earlier, successful malaria prevention information should clearly spell out either the various threats inherent in an attack of malaria such as loss of life, income, etc or the possible benefits of malaria -free living. It should also indicate the possible actions an individual can take to avoid the threats or enjoy the prospective benefits. Thus, despite the seeming threats in the wordings of J6, the jingle still meets the demand of the category ‘Message Appeal’.

Message Approach

This category looked at the approach to the presentation of the messages in the jingles by looking at the kind of words used; whether they were such that encouraged, educated and persuaded the audience or otherwise and whether they were words that provided information to the audience or specified actions to be taken or not. All the jingles in the study were considered to have met the criteria of this category. For instance, in J4 and J5, Iya Kike used encouraging words in her conversation with Baba Kemi on the need to use the LLIN his wife collected but which they had not used because the man was sceptical about its usefulness. She said:

...te ba ti yaa de'le, e yaa ri wipe e naa s'ategun niboji fun wakati merinlelogun, eyi ti n se ojo kan gbako. Leyin eyii, e ta sori ibusun yin ki e si maa sun sinu re lalaale.

Translation:

Once you get home, ensure that you spread it for airing for 24 hours. After that hang it on your bed and sleep inside it every night.

(e) In J2, the announcer said,

O ti ye ki iwo ati molebi re ma sun sabe apo apefon alalope bayii....Gba aladugbo re niyanju lati ma sun sabe apo apefon lalaale. Ojuse wa ni lati gbogun ti aisan iba. Darapo mo awon alawokose nipa sisun sinu apo apefon ati nipa gbigba awon mii niyanju lati maa sun sinu apo apefon lalaale.

Translation:

By now you and your family should be sleeping inside your LLIN. Encourage your neighbour to be sleeping inside the net. It is our responsibility to fight malaria. Become a good example to others by sleeping inside your LLIN and encouraging your neighbour to sleep inside LLIN

From the discussions of the result of Table 4.19, among the six jingles used for this study, J2, J3and J6 did not use humorous elements that could attract attention of the audience. Also J1 and J3 which had no female representations were considered as not sensitive to the gender of audience while J3 and J5 which were produced in Pidgin English were adjudged as not sensitive to the culture of audience. From the result the average percentage score for all

the jingles is 80.1%, (J1 (81.0%), J2 (81.0%), J3 (69.4%), J4 (81.0%), J5 (72.2%) and J6 (83.3%). This means that all the selected radio jingles met the requirements of suitability although J3 had the lowest rating among them (69.4%).

The results for the test of suitability of MAPs *Inter-Personal Communication Flip Chart For Malaria prevention In The Community* available to rural dwellers in Oyo and Osun States are presented in Table 4.16. The outcome of the coding is discussed in the subsequent paragraphs. In doing this, the contents of *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* were discussed by looking at their manifest and latent contents from the point of view of the results presented in the respective tables under them.

Tables 4.16 Scores for 'Inter-Personal Communication Flip Chart for Malaria Prevention in the Community' by content categories

Category	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
Attracting Attention	6	6	6	6	6	6	5	6	6	6	6	6
Generating Interest	4	4	4	4	4	2	1	3	4	3	2	3
Benefits to Desire	4	4	4	4	4	2	1	4	4	4	4	4
Sensitivity	3	3	3	3	3	1	2	3	3	3	3	3
Credibility	3	3	3	3	2	1	1	3	3	2	2	3
Action Cue	2	2	2	2	3	1	1	3	3	3	2	2
Message Appeal	4	5	5	4	4	1	1	4	3	3	3	3
Message Approach	5	4	5	4	5	1	1	5	5	5	5	5
Total	31 (84.1%)	31 (84.1%)	32 (86.5%)	30 (81.1%)	31 (84.1%)	15 (40.5%)	13 (35.1%)	31 (84.1%)	31 (84.1%)	28 (76.1%)	27 (73.1%)	28 (76.1%)

Attracting Attention

The determination of attraction in this category was that a message on a Card (a page of the Flip Chart) should be in bold headline, be conveyed in catchy slogan written in legible typography. Such message and its accompanying illustration should also be put in prominent position on each page where they could be read and seen easily. The message should be in bright colours and the illustration should be such that the reader can easily decipher and relate with the message without initial confusion. For each of Cards 1-12, the headlines were written in blue on white background at the top of each page. This made each headline easily readable and attractive. Also each page was divided into four parts; one part contained messages written in black over white, another contained messages written in black reversed over yellow on white background while another contained messages written in black reversed over blue on white background. The last segment contained a miniature version of the pictorial illustration that is used on the opposite for the message segment. The combination of blue, yellow and black over white background made each page colourful and attractive to the eyes.

However, Cards 10 and 12 were seen as having used illustrations that were difficult to understand. The reservation about the illustrations used in Cards 10 and 12 was also raised by FGD participants in Oyo state where the material was used. The illustration for Card 10 was supposed to be of a young lady sweeping the frontage of her house, to indicate parts of steps to taking care of the environment in order to prevent the breeding of mosquitoes. However, two things were considered wrong with the hand-drawn illustration. First was that what the lady was holding did not actually look like a broom, until after reading the main message accompanying the picture. The second issue raised by FGD participants was about the difficulty in easily establishing the cultural identity of the lady, given her dressing. Indeed, only 20 (21.3%) of FGD participants in Oyo state agreed that the lady looked like a Yoruba person; 21(22.3 %) participants said she looked like a Hausa lady while seven (7.4%) others said she looked like an Igbo lady.

The same issues were raised by the FGD participants with Card 12 which was illustrated with the picture of a nursing mother who at first look, appeared to be breastfeeding her baby under a big tree while two other children were seen performing household chores. However, on closer look, the woman was actually giving her baby medication. This confusion was apparent among participants in all the FGD sessions. Most of the participants at the initial

exposure to the material would chorus, “she is breastfeeding” but when asked to take a closer look would change to “she is feeding her baby”. None of them came to see that the woman in the picture was actually giving medication to her baby because the pack of drugs was at a corner to her left hand. There was a big pot on a fire on the foreground while a hen was also seen as part of the general compound outlook. Again, participants were divided over her cultural identity. While 22 (23.4%) participants agreed she looked like a Yoruba woman, 25 (26.6%) said she looked like an Igbo woman while five (5.3%) claimed she was Hausa. These observations are important because they tallied with the result of the coding on the category, “attracting attention”. Therefore it could be concluded that while contents of MAPs *Inter-Personal Communication Flip Chart for Malaria Control in the Community* were considered as attractive enough, the illustrations used for Cards 10 and 12 were difficult to understand and therefore not suitable for the audience.

Under the category, ‘Generating Interest’, Cards 10, 11 and 12 were also adjudged as having illustrations that were difficult to understand while the illustrations used in Cards 7, 8 and 11 were adjudged as not relevant to the environment of the audience. The issue about Cards 10 and 12 have been highlighted above. For Card 11, the illustration was meant to be a session at a medical laboratory where a patient was being tested for malaria using the Rapid Diagnostic Test (RDT). However, we could not see the face of either the medical personnel or the patient being tested as only their hands were shown and until after a closer look, the impression could be that the picture was about a nail-painting session in a salon. Many FGD participants argued that the illustration in Card 11 was not relevant to them as most of them were not used to RDTs. For Card 8, many considered the picture as too elitist for rural dwellers. It was that of a woman and her baby on what was seen as a ‘very fine bed’ with mosquito net. Again, the major complaint against Cards 8, 10, 11 and 12 under this category had to do with the choice of illustration for the message being communicated. They were considered difficult to understand and irrelevant to the environment.

The next category investigated was “Benefits to Desire”. Under this category, the message was expected to spell out benefits that the audience stands to gain on the adoption of the behaviour change being canvassed. When the audience sees such benefits as meaningful, relevant and topical, the adoption becomes easier. From the results presented in Table 4.16, all the messages in *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* except those in Cards 6 and 7 were considered to have satisfied the requirement of this category. Since the messages in Cards 1-12 were all about malaria, and

given the knowledge level of the respondents, it could be adduced that the messages were topical and important. FGD participants agreed during the various sessions that the messages were topical for them. However, Cards 6 and 7 could not be said to contain any indication of benefit to desire by the audience. It is therefore concluded that except for Cards 6 and 7, the other Cards in 'MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community' contained benefits to desire by the audience.

The next categories analysed were 'Sensitivity', 'Credibility' and "Action Cue". 'Sensitivity' examined the extent to which each message in *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* indicated concern and respect for the culture, religion and gender of the audience to be exposed to the message. From the result none of the messages was considered as offensive to any of the sub categories as they were rated as acceptable to gender, religion and culture of the audience.

Under 'Credibility', each message was analysed based on the extent to which its claims were seen as true and sincere, believable and acceptable. For instance, claims such as 'using LLIN every night is very important in preventing malaria', 'LLINs...reduces malaria episodes and saves lives of children and pregnant women' (Card 8) are true and sincere, even according to FGD participants who highlighted during various sessions some of the benefits they have derived from using LLIN. All the messages in *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* were therefore considered as containing true and sincere claims, and they were also believable, according to the result in Tables 4.20. However, the models used to illustrate the messages in Cards 5, 6, 7, 10 and 11 were seen as not acceptable to the rural dwellers in Oyo and Osun States. Again, the disagreement had to do with the difficulty in easily recognising the cultural identity of the models in the illustrations. This became very clear during the FGD sessions. Apart from the observations on Cards 10 and 11 reported earlier, only two of the participants saw the models in Card 5 as representing a Yoruba family; the remaining 46 (48.9%) participants said they represented an Igbo family. For Card 6, all the participants said the female model was that of a pregnant Hausa lady while for Card7, 40 (42.6%) participants chose that the model was a Hausa man. Thus, it is established that the choice of models used in illustrating Cards 5, 6, 7, 10 and 11 had made them unsuitable for use among the rural dwellers in Oyo and Osun States who participated in this study.

The next category for analysis was "Action Cue" where each message was evaluated based on the extent to which it contained words that could spur the audience to action and

gave specific direction on steps to take to achieve the aim of the behaviour change message. Each message was also judged based on whether it indicated clearly where the audience could get the specific service being communicated. From the result presented in Table 4.16, Cards 6 and 7 did not contain specific steps to be taken by the audience reading the material, although Cards 1-12 contained action-oriented words. Card 6, which focused on 'Malaria in Pregnancy only highlighted the risks a pregnant woman faces if she has malaria and explained that her risks are higher because she has a weak immunity. The steps to be taken were actually discussed in Card 9, under the topic 'Prevention of Malaria in Pregnancy'. Card 7, which should have been a most suitable sequel to Card 6 given its focus on 'What is the Way Out?' however did not relate with Card 6 in its message. Rather, it dealt with a broad statement on the fact that there is 'today', solution to the threat of malaria unlike in the past when there were no solutions. Like Card 6, Card 7 too did not indicate what steps could be taken to benefit from the 'solutions' it highlighted. It can therefore be concluded that Cards 6 and 7of MAPS Inter-Personal Communication Flip Chart for Malaria prevention in the Community, was not suitable for use in the rural community.

Furthermore, apart from Cards 5, 8, 9 and 10, the other Cards (1, 2, 3, 4, 6,7,11 and 12) did not indicate where to obtain the services being communicated in the message; with none of them giving directives on where to obtain treatment for malaria. The omission was more visible with Cards 11 and 12. While Card 11 with the topic 'Malaria Diagnosis' talked about the availability of RDTs, it did not indicate where such could be accessed. Similarly, Card 12 with the topic 'Prompt and Effective Treatment of Malaria' only talked about a mother giving anti-malaria medicine (ACT) to the child without indicating where best to access the medicine. It can therefore be concluded that most of the messages in MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community, particularly Cards 6,7,11 and 12 did not indicate the appropriate locations to obtain the services being discussed. The implication of this was that respondents were left with no adequate information they could act upon to implement the behaviour change being communicated.

The next categories examined in the study were 'Message Appeal' and 'Message Approach'. 'Message Appeal' focused on how each message encouraged the audience into acting on the focus of the specific malaria prevention information it presented. From the result of the coding the appeals in Cards 2 and 3 were considered threatening. For Card 2, this might have to do with the big, bold, red picture used for the mosquito to illustrate the danger it poses while for Card 3, the picture of a young boy vomiting and another one lying sick on

the bed while their parents wait around could also be seen as presenting the threat of malaria to the audience. However, as earlier noted, such threatening (fear) appeal can work to drive the audience into action, according to one of the constructs of the Health Belief Model; Perceived Threat. Therefore, these two illustrations should rather be seen as positive, rather than negative threats. Cards 9, 10, 11 and 12 were seen as not being emotional in the way they were presented. This could however be based on the fact that they dealt more with technical issues related with malaria. For instance, Card 9 was on 'Malaria Prevention in Pregnancy', Card 10 on 'Environmental Management', Card 11 on 'Malaria Diagnosis' and Card 12 on 'Prompt and Effective Treatment of Malaria'. Thus, overall, the contents of MAPs *Inter-Personal Communication Flip Chart for Malaria Control in the Community* used in this study could be said to be positive, non-threatening, encouraging, rational and emotional.

The last content category examined for *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* in this study was 'Message Approach'. Here the study analysed the kind of words used in the message; whether they are such that encourage, educate and persuade the audience or otherwise and whether they are words that provide information to the audience or specify actions to be taken or not. From the result of Table 4.20 Card 6 did not meet the specifications of containing encouraging and educational words as well as action-oriented words. Card 6, as earlier noted was on 'Malaria in Pregnancy' with the picture of a pregnant woman as illustration. It only contained information on the risks a pregnant woman with malaria faces as well as why such risks exist. There was no information on what to do, no encouragement on how to go about such steps or where to access such steps. Looking at the entire *MAPS Inter-Personal Communication Flip Chart for Malaria Control In the Community* and the results presented in Table 4.16 as well as the observations of FGD participants in this study, it was seen that the audience generally had more difficulties in understanding and accepting the illustrations of Cards 5,6,7,10,11 and 12 but particularly, Cards 6 and 7. It is therefore implied that while Cards 5, 10, 11 and 12 could still be accepted as usable among the rural dwellers of Oyo and Osun States, Cards 6 and 7 were unsuitable for them.

We now consider the result of the suitability test of *RBM Malaria IPC GUIDE* used by ACCOMIN/Osun State Malaria Programme. The results are presented in Table 4.17 below. The findings are discussed in the subsequent paragraphs.

The contents of the *RBM IPC GUIDE* were reviewed by looking at their manifest and latent contents. The first categories analysed were ‘Attracting Attention’, ‘Generating Interest’ and ‘Benefits to Desire’.

Table 4.17 Scores for content analysis of RBM's 'Malaria IPC GUIDE'

Category	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
Attracting Attention	6	6	7	6	6	7	6	7	6	6	7	7	5
Generating Interest	4	3	4	3	4	4	2	4	4	4	3	3	2
Benefits to Desire	4	3	3	4	3	3	4	4	4	3	4	4	3
Sensitivity	3	3	3	3	3	3	3	3	3	3	3	3	3
Credibility	3	3	3	3	3	3	3	3	3	3	3	3	3
Action Cue	1	1	1	3	1	2	3	3	3	3	3	3	3
Message Appeal	4	4	4	4	4	4	4	4	4	4	4	4	4
Message Approach	5	5	4	5	5	5	5	4	5	4	5	5	3
Total	30 (81.1 %)	28 (76.1 %)	29 (78.4 %)	31 (84.1 %)	29 (78.4 %)	31 (84.1 %)	30 (81.1 %)	32 (86. 5%)	32 (86.5 %)	30 (81.1 %)	32 (86.5 %)	32 (86.5%)	26 (70.3 %)

The results presented in Table 4.17 indicate that the 13 pages of *RBM IPC GUIDE* on Malaria prevention were attractive and good enough to generate interests/attention of the audience. For each of R1-13, the headlines were written in white, lower case letters on green background which made them attractive to the eye. The illustrations that accompanied the headlines were also in captivating colours, mostly red, green and yellow on a general white background. Each page came with an illustration while another page was used to explain the message of the headline and for ease of clarity; the messages were composed in black over white background. The sub headlines were also in bold letters. The message pages were also accompanied with a miniature reproduction of the main illustration.

RBM IPC GUIDE on Malaria prevention used clear concepts to illustrate its messages. For instance, four different pictures were used on R2 to illustrate the message on 'Myths and Misconceptions'. On the page we found the picture of a man working on the farm under the sun to address the misconception that exposure to sun could lead to malaria. There was also another picture of a woman eating what looked like boiled yam with a bottle of palm oil beside her apart from the one in a bowl, to address the issue of those who believe that not eating sufficient palm oil could cause malaria. There was also the picture of a man drinking palm wine from a bottle to address the myth that doing so would expose the drinker to malaria and lastly there was the picture of a woman walking under the rain to also explain that walking inside the rain cannot be the cause for malaria. Another evidence of clear illustrations of concepts in the *RBM IPC GUIDE* on Malaria prevention was found on R10 under the topic 'Effective Malaria treatment'. Unlike the case with *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* this page contained three different pictures that showed different ways of managing malaria. In the first picture, a mother was seen feeling the temperature of a child while the father watched. This is the first step a caregiver needs to take in assessing fever, by feeling the body with the back of the hand. The next step was explained with the picture of another mother who had removed the baby's clothes and was applying tepid sponge to reduce the fever. Next, was the picture of two hands in gloves collecting blood from another hand with an instrument. There is a small picture of a microscope to indicate that it was a laboratory setting. FGD participants had no problem understanding the various illustrations in R1-13 during the various sessions with them.

Under the category, Generating Interest, R1-13 were also scored positive. The messages were seen as simple and easy to understand and the accompanying illustrations too were also considered as relevant to the environment. For instance in R12 the producers focused on 'Malaria Control' and illustrated with the picture of a family of father, mother and two children. The parents were sleeping on a local bed made from rafters while the children slept on a mat. There was a lantern on a small table near the bed. The mother, who was pregnant, was seen holding a broom, obviously to drive away mosquitoes. These are all typically symbols which the average rural person could easily identify with. FGD participants in Osun state where the document was used said they could see themselves in the illustration and could easily comprehend the message that not using mosquito nets would expose their families to malaria. The next category investigated was 'Benefits to Desire' where the benefits presented on the adoption of the recommended behaviours were reviewed to see if they were meaningful, relevant and topical among the audience. All the pages of R1-13 were adjudged to have met the requirements of this category. A typical example of a meaningful, important and topical message was in the treatment of 'Myths and Misconceptions' on R2 which has been earlier discussed. Also the presentation of 'Special groups at risk' on R3 was also meaningful, important and topical. The message was illustrated with the pictures of a pregnant woman and two children since these two categories of people are the ones mostly at risk of malaria. Three other categories, 'Sensitivity', 'Credibility' and 'Action Cue' were also analysed.

Under the category 'Sensitivity', all the messages in R1-13 were also considered to have given consideration to the culture, religion and gender of the audience in their development. None of the messages or illustrations used in R1-13 was considered as offensive even by the FGD participants in Osun state even though most of them claimed they were seeing *RBM IPC GUIDE* on Malaria Control for the first time during the sessions. *RBM IPC Guide* was meant to be used by Community Volunteers to train community people on malaria prevention behaviour; hence it included pictures and presentation guides for the Community Volunteers. Two of the four models in R2 were females. While one was dressed as a Muslim, the other was dressed in an attire that can be associated with Christianity, thus creating a balance of religious representation. The same goes for the category 'Credibility' where all the messages were adjudged as believable and sincere and where the models used to illustrate the messages were seen as acceptable to the rural dwellers of Oyo and Osun States. Unlike the case with *MAPS Inter-Personal Communication Flip Chart for Malaria Control in*

the Community, there were no arguments among FGD participants on the possible cultural identities of the models in the illustrations.

However, R1, R2, R3, R5 and R6, did not indicate specific steps to be taken by the audience nor did they clearly indicate where to obtain the specific service for malaria treatment. These were examined under the category 'Action Cue'. The reason for these omissions might be because the messages in the aforementioned pages did not focus on treatment of malaria but laying the foundation for the discussion of the disease. What this suggests, as it was the case with *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community*, is the need for those developing similar malaria prevention messages to create a tag line on each page to direct the audience to medical facilities or personnel as is often done with drug advertisements.

The next set of categories analysed was 'Message Appeal' and 'Message Approach'. From the result, RBM *IPC GUIDE* was also adjudged to have satisfied the criteria of 'Message Appeal' and 'Message Approach', which were the last two categories for consideration. None of the messages in R1-13 was seen as negative in tone or presentation. They were also not seen as threatening but rather encouraging the audience to take appropriate steps on malaria prevention. There were enough informational words that provided the audience with guides on what constitutes the onset of malaria, its symptoms, steps to take and treatment etc. Overall, *RBM IPC GUIDE* was adjudged as suitable for use among rural dwellers of Oyo and Osun States.

We now discuss the content of the three generic posters used in this study. These are 'Disease Prevention' (DP), 'Take Good Care of Your Long Lasting Net' (TGC) and 'NetSafe' (NES). The results are presented in Table 4.18.

Table 4.18 Scores for content analysis of three 'generic posters'

Category	**Disease Prevention**	**Take Good Care**	**NetSafe**
Attracting Attention	3	7	6
Generating Interest	3	3	4
Benefits to Desire	1	3	3
Sensitivity	1	3	3
Credibility	0	3	3
Action Cue	1	3	3
Message Appeal	1	3	3
Message Approach	3	5	5
Total	13 (35.1%)	28 (76.1%)	30 (81.1%)

The contents of the three generic posters were reviewed by looking at their manifest and latent contents. From the results presented in Table 4.18, the major problem with the generic posters had to do with their illustrations. For instance, the illustrations used for 'Disease Prevention' and 'Netsafe' were not clear enough to the audience. The illustrations were also not seen as easily comprehensible and indeed, the model used in 'Disease Prevention' was considered as unacceptable to the audience. The illustration was a hand-drawn picture of a female figure sleeping on what looked like a mat. The figure was supposed to be sleeping inside a net but the net was drawn like a cone and had very large holes. The combination of yellow and red colours for the illustration made it unrealistic as a bedroom setting. Moreover there were no other features around the picture to make it look like a bedroom. Similarly, the concept used to illustrate the message in 'Net Safe' was not clear. It was a photo-shoot of a nursing mother and her baby who, going by the focus of the message, were supposed to be sleeping inside a net. However, the picture of the net was not very clear as to be easily identified by the audience. Also, the message in "Disease Prevention" was not composed in precise and concise words. The poster has a lengthy 'Introduction' and several other sections composed in long sentences which would have been difficult for reading and ease of understanding by the audience.

FGD participants in Oyo state had no problem accepting the model in 'Take Good Care of Your Long Lasting Nets'. Although 27 (56.2%) of the FGD participants claimed that the female model used to illustrate the message in the poster was Igbo and 21 (43.8%) claimed she was Yoruba, all the participants still agreed that she was acceptable as a model to represent the female gender in spreading the message of net use to prevent malaria. According to one participant at Akinmorin PHC, the model was 'dressed like an omoluabi should dress', meaning that the appearance of the model was as expected of a self-respecting woman in the community. Overall, the generic poster that was found least suitable for the rural dwellers of South-west Nigeria among the three investigated in this study was 'Disease Prevention' produced by the Ministry of Health, Osun state.

This research question sought to know the extent to which the malaria prevention information contents provided by Roll Back Malaria and other Partners for rural dwellers in South-west Nigeria were suitable to the population. From the findings of the content analysis of the available malaria prevention messages in the form of radio jingles, interpersonal communication materials as well as findings from FGD participants, it has been established

that two of the message cards (Cards 6 and 7) in MAPs' *Inter-Personal Communication Flip Chart for Malaria Control in the Community* as well as the generic poster titled 'Disease Prevention' were also not suitable for use among the rural dwellers of South-west Nigeria. There is thus need for stakeholders in the development of malaria prevention messages to look more critically at how the messages are composed and illustrated in order to enhance acceptability and comprehension of the audience.

Some of the Key Informants also discussed the process they use for generating and disseminating malaria prevention information in order to ensure its suitability to the audience. At the national level the process starts from the Advocacy, Communication and Social Mobilisation (ACSM) Unit at the NMEP which works in conjunction with RBM Partners, according to Mrs Uko (KIIi). She said the Unit produces 'generic materials' that are expected 'to be adapted to state specifics bearing in mind the cultural beliefs, educational qualifications of the people and setting of the area.' According to Uko, each message is expected to be translated into the local dialect for easy understanding. The messages are segmented and might even be rendered in a less formal language to assist the local people understand them. In Oyo state, message generation is in the care of MAPS, as confirmed by Ottan (KIIviii) the BCC and Community Mobilisation Officer for the organisation and other members of the ACSM Core Group during interviews. However in Osun state, ACCOMIN and AFRICARE as well as the Malaria Programme Office, state of Osun, confirmed to be using messages developed by the NMEP. In terms of theoretical background for developing the messages, Uko (KIIi) said the NMEP uses the theory of Reasoned Action among several other theories. She said:

> It takes into consideration the cognition, the rational decision and perceived control which helps us to actually fashion the messages based on what we want to get from the people...you are sending out messages with the mind of getting a positive behavioural change from the people whom the messages are targeted.

Ottan (KIIviii) identified three theories as prominent in the development of malaria prevention messages at MAPS. These are the Social Learning Theory, Diffusion of Innovations and Social Ecological Theory. According to him:

> In case of Social Leaning, you know that human beings we learn from what we see, we imitate things in our environment. So let's take the use of LLIN for example. During community dialogue and compound meetings, we ask those who are using LLIN to come out and tell us their experiences. By telling us that 'ah, you don't feel heat when you sleep inside', 'when you sleep inside mosquitoes don't bite you' 'any mosquito that lands on the LLIN will die' it will definitely convince others to value the net. I can as well tell you that the Social Ecological Theory is also being used in the sense that we ensure that for instance we supply commodities. If you are promoting something and the commodities are not there it is not good enough.

As it were, none of the core message developers made use of the Social Marketing Theory; whereas as earlier noted, one of the significant features of social marketing is the use of audience analysis which dictates an understanding of the audience's beliefs, attitudes and behaviours as critical inputs to the design of any effective intervention. The two most important instruments for educating the rural dwellers about malaria prevention; MAPs' *Inter-Personal Communication Flip Chart for Malaria Control in the Community* and *RBM IPC GUIDE,* are designed in English Language. While the Community Volunteers/Malaria Role Models might have been trained to pass across the message in the local Yoruba Language for ease of understanding, Ottan (KIIviii) agreed it was not good enough but attributed the deficiency to funding challenge.

Research Question Six: To what extent do rural dwellers in Oyo and Osun states know about malaria prevention information provided by Roll Back Malaria and other Partners?

It has been established earlier that respondents had a high frequency of exposure to information on malaria prevention from Health Officers at the Clinic/Hospital (54.8%), television (46.9%), Community Volunteers/Malaria Role Models (45.2%) and radio (44.0%). However, this research question will be answered using the exposure of respondents to the six radio jingles on malaria prevention in Oyo and Osun states, *RBM IPC GUIDE*, MAPs' *Inter-Personal Communication Flip Chart for Malaria Control in the Community* as well as the three generic posters on malaria prevention available in the zone; *NetSafe, Take Good Care*, and *Disease Prevention*.

Since the researcher could not access television jingles for analysis, this study went ahead to investigate if respondents could easily recall selected radio jingles and their messages, hence they were asked to recall some of the malaria prevention messages they had been exposed to over a period of twelve months prior to the study. Respondents could not identify the specific jingles but could recollect the thematic focus of available jingles in their state. This was accepted for the study particularly where the thematic focus aligned with two key Roll Back Malaria messages, that is, use of ITNs/LLINs and living in a clean environment. Using this yardstick, it was realised that the 'jingles' with the highest frequency of recall by respondents were the ones that taught the audience about the use of ITNs/LLINs. Five of the radio jingles collected from MAPS (Oyo state) and Osun State Malaria Programme Office analysed in this study (J1, J2, J3, J4 and J5) focused on the use of LLIN. Also the jingle from Osun state focused on living in a clean environment, the use of LLIN as preventive measures against the deadly malaria and visit to the clinic for those already down with the disease. The recalled messages by the respondents were extrapolated and presented in Table 4.19.

Table 4.19 Identification of radio jingles on malaria prevention by respondents

	LGA	Use of Mosquito nets	Spraying the house	Clearing environment	Total
1	Atiba	43	05	12	60
2	Afijio	17	-	09	26
3	Surulere	04	09	11	24
4	Egbeda	59	08	15	82
5	Orire	32	05	17	54
6	Irepodun	55	09	43	107
7	Boluwaduro	51	18	15	84
8	Orolu	10	-	60	70
9	Ejigbo	25	17	10	52
10	Obokun	95	-	24	119
	Total	391	71	216	678

Source: Field Data

The result of Table 4.19 indicated that respondents had a low recall of the messages. For instance, overall only 678 (32%) of the respondents could recall any jingle at all, leaving 1,442 (68%) not being able to recall any of the jingles. Among the 678 who could recall any of the jingles, only 391 (18.4%) could recall jingles that had to do with the use of mosquito nets, 71 (3.3%) recalled jingles focused on spraying the house/environment and only 216 (10%) recalled jingles that had to do with clearing the environment to prevent malaria. In similar vein, it was observed that most FGD participants in Osun state could not recall the jingle (J6) produced by the state's Ministry of Health and Malaria Programme Office. Although the jingle was played to participants in each FGD session to aid their recollection, but majority indicated they had not heard it until that session. However, for FGD participants in Oyo state, three of the jingles, 'Apo Apefon' (J1) and 'Baba Kemi' (J4) and 'Make Una Listen' (J3) were played for their recollection and it was observed that in majority of the sessions participants indicated they had heard JI and J4. In fact, in most sessions, participants could be seen nodding their heads in approval or singing along with the song in J1. From observations during the sessions, J4 had the highest rate of recall among the FGD participants.

What was observable during this study was that the jingles had faded from the memories of most respondents, hence their inability to recall them. This could be due to the fact that the jingles had stopped running on the various radio stations in their localities for a long time due to financial constraints faced by the sponsors, as explained by Ottan (KIIviii) and Adeyanju (KIIiv). The fact that the jingles had faded could be established from the observation that FGD participants, who had the opportunity to hear the jingles again, had the highest rate of recall than survey respondents who did not have the opportunity of hearing them during the data collection period. Thus, although radio was a major source of information to most respondents the jingles on malaria prevention that were supposed to spur them into taking preventive measures against malaria were no longer running on radio stations and therefore they could not recall most of them during the study.

Respondents were also asked if they had access to malaria prevention information on billboards in their localities. A total of 1,188 respondents (56.0%) claimed to have access, 418 (20.0%) said they did not have such access while 514 respondents (24.0%) said they could not recall having seen a billboard in their locality. Among those who claimed to have seen a billboard with malaria prevention information in their locality, 955 (45.0%) said such were seen at the health centre, 331 (15.6%) said it was around their Community Town Hall,

474 (22.4%) said it was along the street in their areas while 360 (17.0%) said they could not recollect the location where they came across the billboard. However, this claim by the respondents was intriguing. Although NPC, NMCP and ICF International (2012) indicated that Billboard as a source of information increased in the South-west from 7.5% in 2010 to 21.4% in 2015, it was nonetheless difficult to understand the source of the increase given the fact that billboards bearing specific malaria prevention messages were not readily available in the zone. The most probable explanation for the MIS result and by extension the results of this study would be that respondents were making references to billboards erected by drug manufacturing companies to promote malaria drugs. Such billboards however cannot be said to be promoting malaria prevention practices and actually do not carry such messages since the basic aim behind their erection is to promote specific drugs for the treatment of malaria. A good example of this is the advertisement produced by Emzor, a pharmaceutical company based in Lagos, one of the South-west states, on April 25, 2016 to mark the 2016 World Malaria Day (see annexure). Part of the advertisement read, "World Malaria Lokmal Day". But the word 'malaria' was crossed from the headline such that the message read as "World Lokmal Day". Lokmal is the name of an anti-malaria drug produced by the company and part of the body copy of the advertisement read: "At Emzor, we believe it is possible to have a malaria free world. That is why we developed Lokmal, a highly effective anti-malaria drug...so let's celebrate World Malaria Day with Lokmal..."

Thus, rural dwellers, seeing such advertisements on billboards or any other channels, are most likely to equate them with a message on malaria prevention which should ordinarily be based on preventive steps or information for the audience. Again, there were no billboards with malaria prevention messages in any of the Primary Health Centres visited by this researcher in the course of this study. One of the proposed data collection methods for this study was for the researcher to personally take pictures of billboards with malaria prevention messages erected by the RBM and Other Partners but it was abandoned when Key Informants who should know the locations of such billboards claimed the billboards were not available. While Uko (KIIi) explained that the NMEP approved two billboards per state of the federation, the Malaria Programme Officer for Osun state (KIIiv) said her office could not locate such in the state. According to her,

> They (NMEP) sent information to us on the billboards, I think it was given to a contractor that we should go and locate where they

> were sited. There was one supposed to be along Iwo-Osogbo but I traced it and couldn't find any in the three locations they mentioned.

Similarly, the Malaria Programme Officer for Oyo state (KIIii) said:

> The Federal Ministry of Health actually contracted that (billboard) out to a Partner. That I am aware of and we did not know when this contract was made, we do not know what this contract entails so we do not know where the billboards were meant to be placed. It was just last year that we were called to help verify whether those billboards were there. That was the first time I even heard that somebody was meant to have put some billboard across.

Thus the claims by the respondents to have been exposed to malaria prevention information on billboards in the two states could not be relied upon. They were probably exposed to billboard advertisements on malaria treatment erected by pharmaceutical companies. Respondents were also asked if they had access to malaria prevention information through posters produced by RBM and other partners in their respective locality. A total of 1, 263 (59.0%) answered yes, while 353 (17.0%) answered in the negative and 504 (24.0%) said they couldn't recall if they had such access. Asked to recall the location(s) where they came across such information on posters, 911 (43.0%) of the respondents mentioned the health centre, followed by 468 (22.0%) who mentioned 'along the street' and 363 (17.0%) who said they came across the posters in their Community Town Halls. However, a total of 378 (18.0%) of the respondents said they could not recollect the location of such exposure to posters.

The exposure of FGD participants to RBM *IPC GUIDE*, *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* as well as the three generic posters on malaria prevention (NetSafe, Take Good Care, and Disease Prevention) was also

investigated in this study. *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* was used for respondents in Oyo state while *RBM IPC GUIDE* was used for respondents in Osun state. Forty-four (92.0%) of the FGD participants in Osun state reported not to have seen the *RBM IPC GUIDE* when it was shown to them. Similarly, 40 (83.0%) of FGD participants in Oyo state reported not to have seen the *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* when it was shown to them during the sessions. For the generic posters, 82 (85.4%) of the 96 FGD participants in the two states, reported not to have seen the poster titled "NetSafe", 56 (58.3%) reported not to have seen the one titled "Take Good Care of Your Long Lasting Net" and 69 (72.0%) claimed not to have seen the poster titled "Disease Prevention". This result on exposure to the *RBM IPC GUIDE, MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* contradicts the submissions of Ottan (KIIviii) of MAPS and Adebiyi (KIIv) of ACCOMIN on the use of the two documents.

Ottan (KIIviii) had said:

> ... we have 236 Community Volunteers that are visiting households to talk to them about malaria using the MAPS Flip Chart... with this Flip chart, the community Volunteers will visit a minimum of 30 Households in a day within the 132 wards (out of 351 wards) we are supporting in Oyo state... They will go to households, having been trained to talk to them in their own language, Yoruba, about mosquitoes.

On his part, Mr. Adebiyi (KIIv) explained thus:

> ...the method employed in this project ... is through the choosing of CBOs known as Implementing Agents (IAs) who in turn choose volunteers known as Interpersonal Communication Conductors (ICC) who are orientated to carry out Social Mobilisation through House- to- House method of

> information dissemination and using pictorial flipcharts to explain issues bordering on malaria after which they make use of daily tools to record the number of persons in the household present in the sessions.

Although, Adebiyi (KIIv) did not provide details about the number of households visited by the ICC, from Ottan's explanation, the MAPS Community Volunteers on their part were expected to visit a minimum of 7,080 households spread across 132 wards in a day. This was in addition to CBOs, about four of them, who were also engaged for between three and eight months to do the same job according to Ottan (KIIviii). One probable cause for the low level of exposure to the documents was that the Community Volunteers were not making use of the *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* as expected. This was observed by this researcher during a pre-field trip to some communities in Ibadan South East Local Government. During the trip, which covered 20 households in Boluwaji, Agbongbon, Aperin/Oniyere areas, two Community Volunteers working with the MAPS were assigned to visit households in the area along with this researcher. They had been told by their coordinator that the Researcher was on assignment to evaluate their performance on the field.

Since the volunteers were trained and contracted by MAPS to discuss malaria with residents of their coverage area, they provided better opportunities for the researcher to investigate their communication pattern than an average hospital setting where other health issues apart from malaria would have been part of the regular weekly interactions at outpatient clinics. One major observation was that instead of using the *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community*, they were rather using a summary sheet, also provided by MAPS, to record their visits and action steps on their clients, after they had taken time to explain some key issues around malaria such as mode of transmission and prevention methods to their audience. They were to submit these summary sheets to MAPS after their visits. The same situation was observed for the *RBM IPC GUIDE* on Malaria prevention. None of the Interpersonal Communication Conductors (ICC) members even had the document as at the time of the pre- field interactions with the researcher in some selected local government areas, yet they were to submit reports on their visitations to the appropriate authorities. The implication of this situation was that most of the rural dwellers in

South-west Nigeria who were targets of these documents did not actually see or read malaria prevention information provided in the respective Inter-Personal Communication Flip Charts for Malaria prevention. Nevertheless, the mobilisers disseminated information on malaria prevention.

The challenge was that probably because the documents were designed in the English Language, the volunteers did not make them directly available to the rural audience; they merely read the documents written in English and then disseminated the information in the documents among rural dwellers in the local language, as hinted earlier by Ottan (KIIviii). However, since the majority of the respondents claimed to be aware of the malaria prevention campaign and they had knowledge of the signs and symptoms of malaria, this suggests that to some extent, they had knowledge of the contents of the documents as presented to them by the volunteers trained by RBM and other partners. When respondents were asked about their general awareness of the Roll Back Malaria campaigns in their respective states, a total of 1,544 (73.3%) of the respondents claimed to have general awareness of these communication campaigns mounted by RBM and Other Partners while only 576 (27.1%) claimed not to be aware.

The following facts have emerged from the foregoing: that although respondents in this study generally had regular exposure to television and radio information; they could not effectively recall the specific malaria information they had heard on their various radio stations in the form of jingles because such had been stopped over a period of time. It was also discovered that though the mobilisers that is, the Community Volunteers and Interpersonal Communication Conductors (ICC) engaged the people, respondents did not have direct access to the contents of the available malaria prevention information particularly *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* and *RBM IPC GUIDE* as well as the three generic posters used in this study. In other words, the rural dwellers were not duly exposed to the documents as expected. Therefore it is inferred that the exposure to the contents of available malaria prevention information by RBM and Other Partners for the rural dwellers in Oyo and Osun states was low.

This study went further to establish the level of understanding of respondents about the symptoms of malaria. "Understanding" is used here interchangeably with "knowledge". An accurate understanding or knowledge of signs and symptoms of malaria would enable respondents to take the right steps towards proper treatment of the disease. Part of the contents of the malaria prevention information provided by RBM and Other Partners in the

zone focused on understanding the signs and symptoms of malaria. For instance, page 1 of *RBM IPC GUIDE* was on "What is Malaria", page 2 "Myths and Misconceptions" and page 4 on "Symptoms of malaria", while page 10 focused on "Effective malaria treatment" and page 11 sought to answer the question, "Is it malaria?" Similarly, MAPS *Inter-Personal Communication Flip Chart for Malaria Control in the Community* also devoted some sections to the discussions of the signs and symptoms of malaria. Respondents as well as FGD participants in this study were therefore asked to mention five symptoms of malaria known to them. The frequency of the responses to each symptom was calculated and ranked based on the frequency of mention. The result is presented in Table 4.20

Tables 4.20 Symptoms of malaria mentioned by respondents

S/N	Symptom	Total mentioned	Rank
1	Headache	1043	1st
2	Fever	1039	2nd
3	Cold	789	3rd
4	Vomiting	643	4th
5	Body pain	524	5th
6	Weakness	475	6th
7	Catarrh	256	7th
8	Loss of appetite	236	8th
9	Cough	230	9th
10	Abdominal pain	132	10th
11	Dizziness	59	11th
12	Insomnia	05	12th

Source: Field data

Table 4.20 reveals that respondents identified 12 symptoms of malaria. From the result, headache was the most common symptom identified by respondents, followed by fever, cold, vomiting, and body pain. During the FGD sessions participants also identified most of the symptoms of malaria. 'Fever' headache' and body pain' were the most frequently mentioned by FGD participants. These and the other symptoms mentioned in the survey, with the exception of insomnia, were also highlighted in *MAPS Inter-Personal Communication Flip Chart for Malaria in the Community* and *RBM IPC GUIDE*. Thus it can be deduced that survey respondents and FGD participants in this study had a good understanding of the signs and symptoms of malaria, (part of the contents of malaria prevention information provided by RBM and Partners) , despite the fact that the process employed by MAPS and ACCOMIN in communicating their malaria prevention information had made it difficult for the rural dwellers in the two states to actually see and read the malaria prevention information provided in the respective Inter-Personal Communication Flip Charts for Malaria prevention used by the organisations. The result of this study further indicates that although respondents had a good understanding of the symptoms of malaria, a significant percentage still had a wrong perception about its cause (Table 4.3). This result confirms the outcome of similar previous studies on perception and knowledge about malaria among different populations. For instance, Ojo (2005:564-571) reported that in an investigation of perceptions of residents of Ogun state, South-west Nigeria, about malaria the common symptoms mentioned by respondents were fever, headache, pain and vomiting.

Agu and Nwojiji (2005: 45-50) in their study of perception and treatment- seeking behaviour of mothers on childhood malaria in a community in Ebonyi state, South- East Nigeria also report that 72% of mothers mentioned "fever" and 60.2% mentioned " chills" as the most common symptoms associated with malaria in children. Okeke and Okafor (2008: 215-222) in their study of the treatment seeking behaviour and perceptions of cause of malaria amongst caregivers of children under-five living in Ugwuogo- Nike, a rural community in South-East Nigeria also noted that "most of the interviewed caregivers were familiar with signs and symptoms of malaria."

If respondents had a wrong perception about the cause of malaria, they were most likely to have a wrong perception about its treatment. *RBM IPC GUIDE* devoted page 10 to the topic 'Effective Malaria Treatment', page 11 to, 'Is It Malaria?' with a focus on the use of ACTs after confirmation of the disease from laboratory test. Page 13 was also on the topic

‘ACTs most effective compared to older medicines like SP and CQ’ while an extra page was devoted to the discussion of ‘Management of severe malaria’. On its part, *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* focused its CARD11 on ‘Malaria Diagnosis’ and CARD 12 on ‘Effective Treatment of Malaria’. CARD 12 recommended that respondents should ‘always treat malaria with ACT within 24 hours of fever’ and to ‘give ACT based on age’.

Page 10 of *RBM IPC GUIDE* recommended immediate steps for taking care of a child whose body is hot. The steps are, ‘remove the baby’s clothes, fan him/her, tepid sponge and give Paracetamol’. Page 13 stated that buying ACT malaria medicine was one of the things a caregiver was expected to do on recognition of fever in children under- five years. Caregivers are asked to ‘buy ACT malaria medicine from a nearby chemist/drug store’, ‘only purchase ACTs that are Artemether+Lumefantrine (AL) or Artesunate Amodiaquine (AA) combinations’, crush first dose and sweeten with banana, honey or sugar...’, ‘ensure the 3days dosage of ACT is completed’ and ‘Administer paracetamol for fever reduction.’

To measure their level of understanding of the prevention and treatment of malaria as provided in the available information by RBM and Partners, respondents in this study were asked to indicate their level of agreement or disagreement with 10 statements while FGD participants were asked if they knew about ACT Therapy, if they understood what it meant and for those who said they understood, if they had been using it to treat malaria. The FGD participants were also asked if they understood the process of malaria treatment for pregnant women. The statement which indicated that ‘anyone who has malaria should go and see a medical doctor immediately’ had the highest combined frequency of response (92.5%) among respondents, followed by ‘living in a clean environment is a major way of preventing malaria’ (91.6%), ‘the recommended drug for treating malaria is a combination of drugs called ACTs’ (90.0%) and ‘using Insecticide Treated Nets (ITNs) is a major way of preventing malaria’ (88.5%). The option with the least frequency was ‘Traditional healers/native doctors know the best cure for malaria’ with 37.7%. The result is presented in Table 4.21

Table 4.21 Level of understanding of malaria prevention and treatment among respondents

Statement	Disagree	Agree	Total
Anyone who has malaria should go and see a medical doctor immediately	139 (7.5%)	1713 (92.5%)	1852 (100.0%)
Malaria can be safely treated at home without seeing a medical doctor	721 (47.1%)	810 (52.9%)	1531 (100.0%)
The recommended drug for treating malaria is a combination of drugs called ACTs	147 (10.0%)	1319 (90.0%)	1466 (100.0%)
Local herbs for malaria can easily clear the disease from the blood	651 (43.7%)	839 (56.3%)	1490 (100.0%)
Using Insecticide Treated Nets (ITNs) is a major way of preventing malaria	198 (11.5%)	1518 (88.5%)	1716 (100.0%)
Using mosquito coils is a major way of preventing malaria	609 (38.4%)	975 (61.6%)	1584 (100.0%)
Spraying insecticides at night in the house is a major way of preventing malaria	443 (28.9%)	1091(71.1%)	1534 (100.0%)
Traditional healers/native doctors know the best cure for malaria	957 (62.3%)	580 (37.7%)	1537 (100.0%)
Prayer is a major way of preventing malaria	646 (48.8%)	679 (51.2%)	1325 (100.0%)
Living in a clean environment is a major way of preventing malaria	145 (8.4%)	1591 (91.6%)	1736 (100.0%)

Source: Field Data

The result on the level of understanding of malaria prevention and treatment earlier discussed indicated that 90.0% of the respondents understood that ***ACT***s is the combination of drug recommended for the treatment of malaria. However, one major observation from the FGD sessions on the level of understanding of malaria prevention was that in most cases, participants were not familiar with the term ***ACT*** and thus would deny ever knowing or having heard about the 'drug' but soon after explanation of the term by the facilitator, most of them would chorus they had been using it. Thus it could be deduced that respondents and FGD participants all of whom were rural dwellers in Oyo and Osun states, Nigeria, knew about the use of ***ACTs*** as the recommended medicine for treating malaria but that their literacy level did not make them to understand the term ***ACT*** at first mention. However, 56.3% of survey respondents still believed that local herbs could easily clear malaria from the human blood, more than the 43.7 % who disagreed. This wrong perception about the treatment of malaria was also prominent among FGD participants in the study. This is the point at which culture and religion conflict with biomedical explanations for the cause and treatment of malaria; and in the development of malaria prevention information such could be properly addressed with the adoption of the Social Marketing Theory presented earlier. While some participants agreed that visiting the clinic is a good step, several others expressed belief in the use of traditional means, particularly local herbs to treat malaria. For instance, a nursing mother at Akinmorin (AKIN4) said with all boldness during the session:

> Once you notice you are feeling like having malaria, just as our forefathers have taught us, you enter into the bush, gather some herbs boil and drink and you will sweat it out.

Another participant at AbayaOje (ABA3) said:

> There are two ways to treat malaria in my own understanding because those of us in the village, the old men will ask us to first try herbs and when we have done that for some

days without result that is when we come here (clinic) and they will treat us.

These findings indicate that while respondents knew about the use of ITN to prevent malaria and the use of ***ACT*** for the treatment of the disease, a significant number still believed however that local herbs could be effective in treating the disease. This type of misconception could hinder the adoption of safe treatment behaviour among such respondents. Ojo (2005:546-571) as well as Okeke and Okafor (2008: 215-222) have reported similar findings among residents of Ogun state, South-west Nigeria and some rural residents of a South-East state of Nigeria respectively, that a large percentage of residents still used local herbs as alternative treatment for fever. In terms of their knowledge of the treatment of malaria- in- pregnancy, most FGD participants agreed that the first safe step was for the pregnant woman to visit a medical facility. In nearly all the sessions, participants expressed satisfaction with the understanding that it is not safe for a pregnant woman to attempt self- medication and they traced the sources of their knowledge mostly to 'health workers at the clinic'.

In summary, this section had sought to establish the extent to which rural dwellers in Oyo and Osun states understand malaria prevention information provided by RBM and Partners. Findings from the study indicated that the failure of the RBM and Other Partners to keep malaria prevention information running on radio stations had impacted negatively on the ability of respondents to recall most of the jingles on malaria prevention in their zone. The necessary television jingles could not be accessed during the study due to the refusal of the producers to allow such access. Another finding from this study was that although respondents claimed to have had high access to malaria prevention information provided by RBM and Partners in forms of billboards, such claims were questionable because of the fact that none of the study sites had such billboards for verification. Also while respondents and FGD participants claimed to have had high access to malaria prevention information in the form of posters, their direct access to the *RBM IPC GUIDE* and *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* which were the two major instruments for disseminating malaria prevention information by RBM and Other Partners, was low due to the process employed by IPC Conductors. Finally, although general awareness about the RBM malaria campaign was very high among the respondents and they had good understanding of the signs and symptoms of malaria as provided by RBM and Other

Partners, there was still significant evidence of wrong perception among them about the safe treatment of malaria.

Research Question Seven: What factors influence access to malaria prevention information among rural dwellers in Oyo and Osun states?

Through observations and inferences from survey results and comments of Key Informants and FGD participants, this study has identified a number of factors that influence access to malaria prevention information among rural dwellers in Oyo and Osun states. These factors are discussed in the subsequent paragraphs.

Firstly, from the outcome of interviews conducted with Key Informants for this study, it was evident that funding was a major hindrance to the continuous dissemination of malaria prevention information in the two states. Uko (KIIi) explained that it was funding constraints that limited the number of billboards approved to be erected in each state to a mere two, a number she agreed was grossly inadequate to create the kind of awareness desired among the states. Ottan (KIIviii) on his part explained that funding limited the number of copies of "MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community" that were produced and more importantly, did not allow for their translation into Yoruba language which incidentally is commonly spoken in the South-west zone. He said:

> I think the inability to translate the Flip Chart into Yoruba is due to funding because you know it (Flip Chart) is really colourful and if you look at the materials it cost a lot and we gave to all the 264 Volunteers that go to households with bags, pen and recording tools.

Yet, if the contents of *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* had been translated into Yoruba, some of the drawbacks noticeable in the document, particularly about its unsuitable illustrations within a Yoruba setting, as highlighted in the discussion of the content analysis of the document, would have been avoided. Furthermore, the challenge of funding was also evident in the fact that as reported earlier, the radio jingles that were used for this study were no longer running due to the absence of funding. This, as this study has discovered, has impacted negatively on the ability

of respondents to recall the malaria prevention information disseminated through the jingles. Funding also affected the use of some Community Volunteers who were meant to visit households and discuss with them in Yoruba, according to Ottan (KIIviii) who said that:

> In recent past we have had CBOs, about four of them we engaged for between three and eight months, we have now disengaged them for lack of funds. They will go to households, having been trained to talk to them in their own language, Yoruba, about mosquitoes.

The inadequacy of funding created gaps which affected continuity of programmes, according to Adeyanju (KIIiv) who noted that:

> Information has to be very constant and continuous. But if there is a gap, if the communication stops if you go there again they will hardly remember. So there is need to sustain the information over time.

Lack of transparency, on the part of state officials, could also be inferred as another factor that affected the access of rural dwellers in the two states to malaria prevention information provided by RBM and Other Partners in the zone. This was evident on the issue of allocation of billboards to states. As earlier reported some of the Key Informants claimed that the billboards that were meant to have been erected in their states were nowhere to be found. This had denied some residents the opportunity of exposure to the content of the malaria prevention information on such billboards and given the reported importance of billboards as a source of information in this study and elsewhere, such omission could really have great negative impacts on the people. Again, the use of unsuitable illustrations in the design of posters as well as wrong choice of language in the production of radio jingles, also contributed to deny the rural dwellers, access to malaria prevention information provided by RBM and other Partners in the zone.

Another major factor that could be inferred as having negatively influenced the access of rural dwellers in this study to malaria prevention information was lack of coordination between the state and RBM and Partners as it affects activities of the ACSM particularly the development of malaria prevention information. This has affected the reinforcement of malaria prevention information to the public and hence, their access to such information. This was well established by KIIvii, Oyo State Health Educator and Chairman, ACSM in the state as at the time of this study. According to her, most of the processes of developing malaria prevention communication would have been completed by the RBM and Partners before such are brought to the state for implementation. She said:

> I think they should involve the state more right from the implementation stage to monitoring etc...it is only when they are at the final stage that we get to know what is going on and at that time maybe there will be little or nothing that we can change. The ideal is that as State Health Educator I should know everything about health information processes in the state. They have their own guidelines because that is one of the things I took up … when I became the chairman that being the funding agency should not make them to be at the driver's seat; the state should always be at the driver's seat. That is why I recommended that they should let us be involved right from the planning stage, not just bringing us in when the matter had been settled.

The scenario painted by KIIvii might also have been responsible for the failure of state governments to substantively support regular airing of radio jingles, for instance in Oyo state, where KIIviii complained that there was greater need for the reinforcement of malaria prevention information by government. According to him:

> Another thing I can tell you is that if we get sufficient support from the state, like the state owns the BCOS, if they can give us three jingles every day, it will help a lot. The government is supporting us but we need more of that to ensure that first we have radical behaviour change as well as sustain it. We can only sustain by reinforcing our messages. As of now the reinforcement is not sufficient on the part of government.

Finally, observations in the course of this study indicated that while the ACSM was strong at the national level, it was not well positioned in the states used for this study. For instance, Adeyanju, (KIIiv) confirmed during interview that Osun state was yet to have a functional ACSM sub-committee as at the time of this study. And in Oyo state where there was a functional ACSM Core Group, they were not implementing the recommended activities that could enhance access to malaria prevention information in the state. For instance, there were no 'Malaria Media Networks' in the state. Yet this was one of the activities recommended for each state ACSM in the Advocacy, Communication, and Social Mobilisation Strategic Framework and Implementation Plan (ACSMFIP) (Federal Ministry of Health, National Malaria prevention Programme (2010: 31) and 'Scope of Work for ACSM Core Group (Oyo state)'. The ACSMFIP was produced by the Federal Ministry of Health and NMEP and details some specific activities to support the result-oriented communication of the malaria message nationwide and its adoption by Oyo state led to the creation of the ACSM Core Group in the state. The Core Group was supposed to be responsible for the overall success of malaria prevention communication in the state.

Based on the recommendations of the Advocacy, Communication, and Social Mobilisation Strategic Framework and Implementation Plan (Federal Ministry of Health, National Malaria prevention Programme, 2010: 31), each ACSM was expected to;

(a) Conduct periodic press trips to selected facilities and communities ...to highlight best practices in malaria prevention, success stories and problematic interventions,

(b) set up malaria media network,

(c) Support health reporters' creative initiatives in reporting malaria issues in the region, including establishment of weekly malaria columns and news magazines,

(d) Conduct media advocacy as and when necessary to ensure that bottlenecks that develop in the malaria prevention process are discussed,

(e) Co-opt media executives and renowned health beat reporters/correspondents as permanent members of the ACSM.

Other duties expected of the ACSM Core group included having Malaria Listeners' Clubs in the rural areas of Oyo state and ensure that ACSM/SBCC activities in the rural areas are culturally appropriate. This study has thus highlighted four major factors that affected access to malaria prevention information provided by RBM and Other Partners among rural dwellers in Oyo and Osun states. These factors were identified as poor funding which has affected continuity of disseminating malaria prevention information, lack of transparency on the part of state officials in providing billboards where they were designated to be and the use of unsuitable illustrations in the design of posters as well as wrong choice of language in the production of radio jingles. Other factors identified include lack of coordination between the state and RBM and Partners as it affects activities of the ACSM Core Groups particularly in the development of malaria prevention information, failure of state governments to substantively support regular airing of radio jingles and the fact that while the ACSM was strong at the national level, it was not well positioned in the states used for this study.

Research Question Eight: How do rural dwellers in Oyo and Osun states utilise malaria prevention information provided by Roll Back Malaria and other Partners?

In answering this research question, respondents were first asked to indicate the level of their agreement or otherwise with four statements designed to measure their attitude to malaria prevention because it is assumed that attitude would influence utilisation. This is in line with the thinking of scholars such as Allport (1935) as quoted by Maio and Haddock (2009:48) that, our attitude 'determines for each individual will what he will see and hear, what he will think and what he will do...they are our methods for finding our ways about in an ambiguous universe'. The idea about attitude influencing 'the information we see and hear' is one of the oldest assumptions in the study of attitudes, according to Maio and Haddock (2014). In addition, the utilisation of malaria prevention information such as the use of LLIN by FGD participants as well as their other personal malaria prevention measures as evidence

of utilisation of available information provided by RBM and Other Partners, were also evaluated and discussed. The statements to measure attitude of respondents were; that 'anyone who has malaria should go and see a medical doctor immediately', 'malaria can be safely treated at home without seeing a medical doctor', 'prayer is a major way of preventing malaria' and 'there are more important needs at home for me than spending money to purchase mosquito nets.' The responses indicated the individual opinions, feelings, and mindset of respondents on the malaria prevention based on the available information in their environment. From the results in Table 4.22, a greater number of respondents (N1, 712=80.5%) said they would see a medical doctor immediately they had malaria compared with a total of 6.6% who said they would not. However, apart from this attitude, respondents had almost similar responses to the second and third attitude tested in the study. While 38.2% of respondents saw malaria as a disease that could be easily treated at home, almost the same percentage of respondents (34.0%) disagreed and while 32.0% would resort to prayer as a major way of preventing malaria, only 30.5% said they would not assume such disposition. But only 23.4% of respondents considered that they had more important needs at home than spending money to purchase mosquito nets while 57.3% disagreed.

Table 4.22 Attitude of respondents to malaria prevention

	Statement	SD	D	N	A	SA	Total
1	Anyone who has malaria should go and see a medical doctor immediately	63 (3.0%)	78 (3.6%)	267 (12.6%)	837 (39.5%)	875 (41.3%)	2120 (100.0%)
2	Malaria can be safely treated at home without seeing a medical doctor	282 (13.3%)	439 (20.7%)	589 (27.8%)	584 (27.5%)	226 (10.7%)	2120 (100.0%)
3	Prayer is a major way of preventing malaria	241 (11.4%)	405 (19.1%)	796 (37.5%)	475 (22.4%)	203 (9.6%)	2120 (100.0%)
4	There are more important needs at home for me than spending money to purchase mosquito nets	449 (21.2%)	765 (36.1%)	410 (19.3%)	322 (15.2%)	174 (8.2%)	2120 (100.0%)

Source: Field Data

The following inferences could be made about the attitude of respondents to malaria prevention based on the results above: respondents had a positive attitude to the information that anyone who has malaria should go and see a medical doctor, (N1, 712=80.5) an attitude that will enhance the use of rapid diagnostic testing, appropriate drug recommendation and follow-up. It could therefore be deduced that respondents did not consider treating malaria at home as a good option. However, there is a wrong attitude that sees prayer as a major way of preventing malaria; an attitude that could be linked with the wrong perception about witches casting malaria on their victims and which could hinder the acceptance of key malaria preventive measures such as cleaning/fumigating the environment and sleeping under ITN. The attitude that, there are more important needs at home, than spending money to purchase mosquito nets was also not prominent among respondents as only 23.4% supported the statement in contrast to 57.3% who disagreed.

In all, it could be deduced that respondents had a mixed attitude to malaria prevention; some positive and others not and that the attitude that sees prayer as a major way of preventing malaria should be more aggressively tackled because of its implications on the acceptance of preventive measures. Next the study examined the utilisation of prevention information by respondents, using six items to measure the level of the behaviour change expected from their exposure to malaria prevention information provided by RBM and Other Partners in their localities. The result is presented in Table 4.23

Table 4.23 Utilisation of malaria prevention information by respondents

	Statement	Never	Rarely	Sometimes	Often	Always	Total
1	I sleep under an Insecticide Treated Net (ITN) at home	156 (7.3%)	169 (8.0%)	474 (22.3%)	232 (11.0%)	1089 (51.4%)	2120 (100.0%)
2	I clean my environment of stagnant water and bush because of mosquito	58 (2.7%)	109 (5.1%)	340 (16.0%)	353 (16.7%)	1261 (59.5%)	2120 (100.0%)
3	I wash and retreat my Insecticide treated net (ITN) as recommended	131(6.2 %)	154 (7.2%)	456 (21.5%)	401 (19.0%)	978 (46.1%)	2120 (100.0%)
4	I see a medical doctor for treatment whenever I have malaria	41 (1.9)	147 (6.9%)	610 (28.9%)	427 (20.1%)	895 (42.2%)	2120 (100.0%)
5	I wear clothes that cover the body, including my hands and legs, when staying outside in the evening	285 (13.4%)	377 (17.8%)	638 (30.1%)	280 (13.2%)	540 (25.5%)	2120 (100.0%)
6	I fumigate the surroundings of my house to prevent mosquito from breeding there	224 (10.5%)	292 (13.8%)	457 (21.6%)	304 (14.3%)	843 (39.8%)	2120 (100.0%)

As noted earlier, respondents were exposed to radio jingles that had to do with the use of mosquito nets, jingles that focused on spraying the house/environment and jingles that had to do with clearing the environment to prevent malaria and 73.0% of the respondents claimed to have general awareness of the communication campaigns mounted by RBM and Other Partners. FGD participants were also asked to mention the malaria prevention information they had heard and the frequently mentioned ones were 'Using mosquito nets' 'Living in clean environment' 'Using insecticides', 'Using nets regularly', 'Not allowing stagnant water around', 'Clearing surrounding bushes at weekends', 'Spraying surrounding with insecticide' and 'how to hang our nets'. Most of them traced the source of their information to Health workers, Community Volunteers, television jingles and radio jingles. Therefore it could be established that survey respondents and FGD participants knew some malaria prevention measures, particularly the use of ITN/LLIN, clearing of the environment and spraying with insecticide.

But how did they use this information? From the result of Table 4.23 a majority of the respondents made use of the various malaria prevention information they had accessed in their localities. For instance, 76.2% reported to always clear their environment of dirt to prevent malaria, 65.1% claimed to regularly wash and retreat their insecticidal nets, 62.4% claimed to always sleep under an ITN while 62.3% reported seeing a medical doctor immediately they had malaria. The least positive utilisation was that of wearing clothing that cover the body, including the hands and legs, when staying outside in the evening (38.7%). Similarly, some of the personal malaria prevention measures which FGD participants claimed they undertake were 'Close house windows before dusk', 'Window net being maintained', 'Mosquito nets being maintained too', 'Children wear clothes at night', 'Using nets to sleep at night' 'Cleaning environment regularly' and '...We make sure we cover our water containers'.

This result confirms the outcome of the 2008 and 2013 National Demographic and Health Surveys (NDHS) on ownership of ITN. In the 2008 NDHS rural dwellers had a higher rate of net ownership (18.5%) than urban dwellers (14.1%), a trend that was also repeated in the 2013 NDHS where the figure of net ownership among rural dwellers across Nigeria had increased to 60.7% among rural dwellers while their urban counterparts too also rose to 48.2%. In the South-west, the pattern of increase was also visible as ownership of 'any net' rose from 10.8% in 2008 to 47.2% in 2013. Ownership of at least one Insecticide Treated Net ((ITN) in the zone rose from 6.0% in the 2008 NDHS to 42.3% while average net ownership

per household also increased from 0.1% in 2008 to 0.7% in 2013. In the Malaria Indicator Survey (2010), ownership of 'any mosquito net' was 23.7% in the South-west but increased significantly to 56.8% in 2015 although it was still the least among the six geo-political zones. Similarly, net ownership per household rose from 0.4% in the 2010 MIS to 1.0% in the 2015 survey. Thus, as noted in the literature section of this study, the people of South-west Nigeria, among them residents of Oyo and Osun states, utilise one of the basic messages of malaria prevention; ownership of mosquito nets, although at a rate lower than those of other zones in the country.

This outcome contradicts the findings of Akaba, Otubu and Onafowokan (2013) among pregnant women attending a tertiary hospital in the Federal Capital Territory which indicated that although participants had adequate knowledge about malaria and its preventive measures in pregnancy they nevertheless had poor attitude to the utilisation of the knowledge in the form of ITN ownership and use. It also contradicts the findings of Chukwuocha, et al (2010: 117-128) on "Perceptions on the Use of Insecticide Treated Nets in Parts of the Imo River Basin, Nigeria: Implications for Preventing Malaria in Pregnancy" which had indicated that though participants and key informants were well informed about the usefulness of mosquito nets but that availability and use of nets was low. According to the study, "over three quarters of participants in all the FGDs and KIIs reported that very few people in the area use mosquito nets." The present study has however indicated that ownership of ITN may not be a product of exposure to information and personal decision to utilise such information because ITN had been distributed as political patronage or during awareness creation activities.

A one-way analysis of variance to determine the difference between the scores in the utilisation of malaria prevention information by respondents indicated a significant difference at Chi-square=1284.310, DF=5, p=0.000. From the result, cleaning the environment of stagnant water and bush because of mosquito had the highest mean rank (4.17), as against sleeping under an ITN (3.68), seeing a medical doctor at any attack of malaria (3.65) and washing and retreating the ITN as recommended (3.63) or fumigating the environment (3.24). The result is presented in Table 4.24

Table 4.24 Differences in Utilisation of Malaria Prevention Information by respondents

	Statement	N	Mean	Std. Deviation	Mean Rank
1	I clean my environment of stagnant water and bush because of mosquito	2073	4.29	1.019	4.17
2	I sleep under an Insecticide Treated Net (ITN) at home	2073	3.94	1.283	3.68
3	I see a medical doctor for treatment whenever I have malaria	2073	3.95	1.065	3.65
4	I wash and retreat my Insecticide treated net (ITN) as recommended	2073	3.92	1.249	3.63
4	I fumigate the surroundings of my house to prevent mosquito from breeding there	2073	3.60	1.394	3.24
5	I wear clothes that cover the body, including my hands and legs, when staying outside in the evening	2073	3.21	1.352	2.62
	Chi-square=1284.310, df=5, p=0.000				

This result indicated that respondents were more likely to adopt malaria prevention measures that were less expensive such as cleaning the environment of stagnant water and bush, as against measures such as seeing a medical doctor, using an ITN or fumigating the environment which would involve elements of cost. This study did not carry out physical verification of ownership and use of ITN or the regularity of use of the ITNs as claimed by respondents, unlike studies by the NDHS and MIS. This may be why the reported use of ITN/LLIN in this study (62.4%) is higher than the 2015 MIS, which indicated that the use of mosquito nets as preventive measures against malaria in the South –West was very poor as only 22.7% of respondents indicated to have 'slept inside any mosquito net' the night preceding the study. For those 'who slept inside an ITN' the MIS 2015 result was 21.1% in the South-west, and 21.1% for those 'who slept inside an LLIN' in the same period. There was thus a gap between ownership and utilisation of ITN among respondents in the NDHS and MIS reports unlike what obtained in this study.

Four variables; perception, knowledge, attitude and practice were subjected to Pearson correlation test, using the raw knowledge and perception scores of respondents in the study. Correlation significance was set at 0.01 level (2-tailed). The result indicated a weak positive link between the perception of respondents about malaria and their knowledge on malaria derivable from available preventive information (Pearson r=0.212). This means there is no direct relationship between the perception of respondents about malaria and their knowledge of the disease derivable from access to available malaria prevention information. The correlation between perception and the attitude of respondents to information on malaria prevention was about 0.064 which indicates that there is a positive but moderate relationship between the variables. The Pearson correlation between perception and practice, that is, the extent to which respondents practised malaria prevention based on available information, was -0.022, indicating a weak negative relationship. This means that there is no direct link between the perception of respondents and the manifest practice of malaria prevention reported among them in the study.

The correlation between knowledge and the attitude of respondents to information on malaria prevention was about 0.143 while the correlation between knowledge and practice of malaria prevention based on available information was -0.002. These results indicate that the

association between knowledge and attitude of respondents is positive but weak while that between knowledge and practice is a weak negative. The results meant that while it is possible to establish an association between the knowledge and attitude of respondents such link however is not very strong. The test also indicated a strong negative association (Pearson r--.090) between attitude (utilisation of available malaria prevention information) and the extent to which reported practice of malaria prevention among respondents is based on the prevention information available to them, and a weak negative correlation (Pearson r=-0.002) between utilisation, specifically the use of ITN), and the knowledge of respondents derivable from available malaria prevention information. In terms of significance, the tests indicated there were no statistically significant relationships between perception and knowledge of respondents (p=.006), perception and attitude (p=.006) and perception and extent of practice (p=.350). The result is presented in Table 4.25.

Table 4.25 Correlation of Knowledge, Attitude and Practice of respondents on information about malaria prevention

Correlations					
		Perception about Malaria	Knowledge of people of Oyo and Osun states on information on Malaria prevention	Attitude of people of Oyo and Osun States on information on malaria prevention	Extent to which people of Oyo and Osun states practice the information on malaria prevention
Perception	Pearson Correlation	1	.212**	.064**	-.022
	Sig.(2-tailed)		.000	.006	.350
	N	1888	1811	1853	1785
Knowledge	Pearson Correlation	.212**	1	.143**	-.002
	Sig, (2-tailed)	.000		.000	.917
	N	1811	2021	1987	1912
Utilisation (attitude)	Pearson Correlation	.064**	.143**	1	-.090**
	Sig, (2-tailed)	.006	.000		.000
	N	1853	1987	2073	1964
Utilisation/collection of ITN	Pearson Correlation	-.022	-.002	-.090**	1
	Sig, (2-tailed)	.350	.917	.000	
	N	1785	1912	1964	1991
**. Correlation is significant at the 0.01 level (2-tailed).					

In concluding this section, it has been established that the attitude of rural dwellers in Oyo and Osun states, Nigeria, to malaria is at best mixed; while some are positive others are not; a development that may affect their utilisation of malaria prevention information. It has however been established that respondents made use of available malaria prevention information as evident in their reported use of ITN, cleaning of their environment and readiness to see a medical doctor for cases of malaria. The results also indicate that there was strong correlation between perception, knowledge and utilisation of malaria prevention information by respondents. We shall now examine some of the factors that influenced the utilisation of malaria prevention among the respondents.

Research Question Nine: What factors influence the utilisation of malaria prevention information among rural dwellers in Oyo and Osun states?

In this study, utilisation of malaria prevention information refers to the ability of rural dwellers in Oyo and Osun states to be able to understand and make use of such information provided by RBM and Other Partners by taking the specific step(s) recommended in the information to prevent the spread of malaria in their respective states. This section therefore reports on factors that were discovered to have influenced the respondents into utilising the available malaria prevention information or otherwise. The focus of the available malaria prevention information provided by RBM and Partners in the two states can be classified into three broad categories; understanding malaria (causes, signs and symptoms, who is at risk etc), how to prevent malaria, and treatment of malaria. It must have been envisaged that if respondents had a clear understanding of malaria, it should enhance their adoption of the right preventive measures and if they understood the right treatment for the disease, it should enhance their adoption of such treatment procedures. Therefore it could be inferred that the general perception of respondents about malaria was a major focus of the available malaria prevention information in the two states because it would be a strong factor of influence in determining their adoption of the recommended behaviour change.

However, perception was not a major influence on the practice of malaria prevention among respondents in this study. The Pearson Correlation test indicated that there was no correlation between perception and practice of respondents to malaria prevention (Sig. 2-tailed=350) although there was positive correlation between perception and knowledge about malaria (sig.2-tailed=.000) as well as between perception and attitude (sig.2-tailed=.006)

among them. Findings from this study indicated that there was a near-polarity of opinion on the perception that exposure to sun could cause malaria. This contradicts the findings by previous studies (Brieger, Nwankwo, Ezike, Sexton, Breman, Parkes, 1997, Nebe, Adeoye, Agomo, Mosanya, 2000, Okeke &Okafor, 2008, Morenikeji, 2009).

Rumour mongering was a major factor identified in this study as influential against the utilisation of malaria prevention information among rural dwellers in the two states. For instance, when FGD participants who said they were not using LLIN at home were asked to justify their decision, some of them traced it to what they 'had heard' that 'happened to someone' 'somewhere' who used the nets. FID 2, a participant at Fiditi in Afijio Local government area of Oyo state said, "some of us in this community do not use nets at home because of rumour that it killed a baby in a neighbouring town the day the mother collected it", while another participant, ARAI in Oyo East local government area of Oyo state said he was not using LLIN 'because people said it can kill'. For JAB2, a participant at Jabata, Oyo East Local government area of Oyo state, the reason for not using LLIN was 'because by the time they brought the nets they said the gas was too much and that if we inhaled it, it would kill us'. Several participants usually indicated they were conversant with the rumours although some of them such as IDO 5 in Ido Osun, Egbedore local government area of Osun state said he only started using LLIN 'after some people had come and spoken to us about its safety because we first heard that it was affecting people's skins.'

The apparent failure of those who participated in the earlier distribution of mosquito nets to properly educate the people about its use was another factor that also influenced the utilisation of malaria prevention information among the respondents in this study, although negatively. This could also have been because the distributions were done as political events with little time and attention given to educating the receivers about the product. It was probably for this reason that some FGD participants claimed they were denied the nets and therefore solicited the assistance of the researcher in engaging political office holders to assist them in obtaining their own nets. Oshinowo (KIIiii) explained that:

> When we investigated we realised that most of them claimed they were not told the uses of the nets; that they just realised people were distributing nets. Some would even

> have up to five or ten nets and probably didn't know what it was meant for.

To further highlight how ignorance affected the utilisation of malaria prevention information, Oshinowo (KIIiii) described the experience of her team thus:

> When we started from one community to the other we realised that nets were actually distributed but people were ignorant of the use of the nets and so therefore there were many people using the nets for various kinds of things. Some were using it for commercial purposes, some believed it was a political propaganda to eradicate them, some were using it to catch fish and some were using it as window blinds, some were using it for processing cassava flakes. Some would even have up to five or ten nets and probably didn't know what it was meant for.... Some of them also told us that there were rumours that the net was also political propaganda to wipe them out.

Another major factor that also affected the utilisation of malaria prevention information in the zone was the political environment that surrounded the distribution of mosquito nets. As earlier noted, the major source of nets ownership among residents of South-west Nigeria was during 'campaigns'. This would refer to both social mobilisation events as well as political events during which government functionaries would include the free distribution of mosquito nets as an activity to extend the 'dividends of democracy' to their constituents. Unfortunately, among many residents as it has been established in this study, this gave the wrong impression that the nets were political gifts or that it was the responsibility of government to continually supply the nets as dividend of democracy to the constituencies. Both arguments constituted a barrier against the effective utilisation of the

nets. The most pragmatic attitude of respondents was revealed in the fact that respondents were more likely to adopt malaria prevention measures that would cost them less expenses, such as cleaning the environment of stagnant water and bush, as against measures such as seeing a medical doctor, using an ITN or fumigating the environment which would involve elements of cost (Table 4.22).

The faulty production and design of some of the malaria prevention information available to respondents was also another factor that affected the utilisation of such information. For instance, the failure by Centre for Disease Control (CDC), United States Agency for International Development (USAID) , President's Malaria Initiative, Federal Government of Nigeria and fhi360 (THE SCIENCE OF IMPROVING LIVES) to translate the contents of MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community into Yoruba language was a factor against access to the information by respondents. The same could also be said of the RBM IPC GUIDE produced by Roll Back Malaria, Federal Government of Nigeria and Society for Family Health. From the analysis of the contents of malaria prevention information produced by RBM and Other Partners, it has been established in this study that the language, illustrations and models used in the production of some of the radio jingles, MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community as well as the generic posters were unsuitable for the rural dwellers. What this meant was that the respondents would have found the materials difficult to understand and therefore unable to utilise what the materials recommended.

Yet another factor of influence that could be inferred from this study was the failure of the Osun state government to establish a functional ACSM Core Group and the failure of the ACSM Core Group in Oyo state to implement the recommendations in the Advocacy, Communication, and Social Mobilisation Strategic Framework and Implementation Plan (Federal Ministry of Health, National Malaria prevention Programme, (2010: 31) and 'Scope of Work for ACSM Core Group (Oyo state)'. If these recommendations had been implemented, respondents would have had more opportunities of exposure to malaria prevention information in their domains and it could be argued that such exposure would have increased their level of utilisation of the information. The recommendations were earlier stated in Chapter Two of this study. In conclusion, this study has identified six factors that influenced the utilisation of malaria prevention information among rural dwellers in Oyo and Osun states. These are wrong perception about cause and treatment of malaria, rumours about the negative effects of using ITN, failure of government and other agencies to properly

educate beneficiaries on how to use ITN, the political environment that surrounded the distribution of ITN, faulty production and design of some of the malaria prevention messages as well as the failure to have viable Advocacy, Communication, and Social Mobilisation (ACSM) teams in the study sites.

Statistical Test of Hypotheses

This study tested two hypotheses against the reported perception of radio as the most influential source of malaria prevention information among respondents.

$H_0$1: There is no significant relationship between access to malaria prevention information and adoption of malaria preventive measures among rural dwellers in Oyo and Osun states, Nigeria.

Table 4.26 Test of $H_0$1: There is no significant relationship between access to malaria prevention information and adoption of malaria preventive measures among rural dwellers in Oyo and Osun states, Nigeria.

I sleep under ITN at home							
Radio jingles as info source		Never	Rarely	Sometimes	Often	Always	Total
	Never	13 (11.5%)	15 (13.3%)	28 (24.8%)	17 (15/0%)	40 (35.4%)	113 (100.0%)
	Rarely	17 (5.1%)	38 (11.3%)	88 (26.3%)	44 (13.1%)	148 (44.2%)	335 (100.0%)
	Sometimes	51 (7.2%)	52 (7.3%)	187 (26.4%)	70 (9.9%)	349 (49.2%)	709 (100.0%)
	Often	16 (5.4%)	27 (9.1%)	55 (18.5%)	48 (16.1%)	152 (51.0%)	298 (100.0%)
	Always	36 (5.8%)	36 (5.8%)	111 (17.8%)	52 (8.3%)	388 (62.3%)	623 (100.0%)
	Total	133 (6.4%)	168 (8.1%)	469 (22.6%)	231 (11.1%)	1077 (51.8%)	2078 (100.0%)

Pearson Chi-Square (p.value =74.009, DF=16, Asymp Sig (2-sided) =.000

Decision Rule: Reject H_{01} if p-value is less than α- value (.05), otherwise do not reject H_{01}.

Conclusion: Since p-value of .000 in the result is less than α-level of (.05), we therefore reject H_{01} and conclude that there is significant relationship between access to malaria prevention information and adoption of malaria preventive measures among rural dwellers in Oyo and Osun states, Nigeria.

This result indicates the need for continuous education of the rural people, using radio, being the information source with a greater level of influence on their decisions about adopting malaria preventive measures. It also justifies the theory of Diffusion of Innovations by Rogers on the influence of the mass media on the adoption of innovations. In his discussion of the innovation-decision process Rogers (1983) had explained that an individual or organisation undergoes a series of actions and choices over time to evaluate a new idea and then decide whether to accept and utilise it or not. The author identified five major stages in the process, four of which are relevant to this section, viz: Knowledge stage (where the individual receives factual information), Persuasion stage (where the individual accesses further information and forms positive or negative attitude towards the idea or innovation), Decision stage (where the individual actually adopts the idea or innovation) and Implementation stage (where the individual incorporates the innovation into use (utilisation). It is therefore necessary that people are exposed regularly to credible and culturally acceptable information through the entire innovation-decision process to help in the adoption of preventive behaviour.

$H_0$2: There is no significant relationship between the perception of rural dwellers in Oyo and Osun states, Nigeria, about malaria and their utilisation of malaria prevention information.

Table 4.27 Test of $H_0$2: There is no significant relationship between the perception of rural dwellers in Oyo and Osun states, Nigeria, about malaria and their utilisation of malaria prevention information.

Using ITN is best form of prevention							
Radio jingles as info source		SD	D	N	A	SA	Total
	Never	2 (1.8%)	11 (9.7%)	20 (17.7%)	47 (41.6%)	33 (29.2%)	113 (100.0%)
	Rarely	10 (3.0%)	23 (6.9%)	82 (24.5%)	120 (35.8%)	100 (29.9%)	335 (100.0%)
	Sometimes	18 (2.5%)	35 (4.9%)	145 (20.4%)	286 (40.3%)	226 (31.8%)	710 (100.0%)
	Often	8 (2.7%)	12 (4.0%)	38 (12.8%)	114 (38.3%)	126 (42.3%)	298 (100.0%)
	Always	25 (4.0%)	37 (5.9%)	103 (16.4%)	226 (36.0%)	236 (37.6%)	627 (100.0%)
	Total	63 3.0%)	118 (5.7%)	388 (18.6%)	793 (38.1%)	721 (34.6%)	2083 (100.0%)

Pearson Chi-Square (p.value=37.947, DF=16, Asymp.Sig. (2-sided)=.002

Decision Rule: Reject $H_0$2 if p-value is less than α- value (.05), otherwise do not reject $H_0$2.

Conclusion: Since p-value of .002 in the result is less than α-level of (.05), we therefore reject $H_0$2 and conclude that there is significant relationship between the perception of rural dwellers in Oyo and Osun states, Nigeria and their utilisation of malaria prevention information.

Perception is a key element in achieving successful malaria preventive measures and according to Onyeneho, Amazigo, Njepuome, Nwaorgu and Okeibunor (2016) it has been established as an important determinant of the utilisation of health services, Therefore, in the design of malaria prevention information attention must be given to the perception of the people about malaria, particularly its causes and treatment with specific reference to the wrong perception that exposure to sun can cause the disease and that witches can cast it on their victims. There is also need to pay attention to the development of models used to illustrate communication materials as earlier pointed out in the study. Onyeneho et al (2016) in their study of 'Perception and utilization of public health services in Southeast Nigeria: Implication for health care in communities with different degrees of urbanization', noted that people's level of satisfaction with health services and their assessment of the attitude of health workers often influence their perception and decision to utilise such services. The authors therefore warned that,

> To achieve universal health for the people, it is imperative that all stakeholders understand the people's perception of health service, to ensure successful interventions. This is critical to developing appropriate promotional messages and campaigns, aimed at creating demand for particular health interventions

Findings and theoretical framework of the Study

Diffusion of Innovations

Findings from this study support the basic assumptions of the Diffusion of Innovations theory. These are,

(1) That there are conditions which increase or decrease the likelihood that a new idea, product or practice will be adopted by members of a given culture.

(2) That the media as well as interpersonal contacts provide information and influence opinion and judgment.

(3) That, opinion leaders exert influence on audience behaviour through their personal contacts, but that, additional intermediaries, also called Change Agents, are equally included in the process of diffusion.

(4) That information flows through networks; the nature of networks and the roles opinion leaders play in them determine the likelihood that an innovation will be adopted.

From the findings of this study, one of the conditions that affect the likelihood of the adoption of malaria prevention behaviour is the perception of the population. Where the perception is poor, the adoption of the new idea or product, for example, the use of LLIN, would also be poor. Also the credibility of the information source could affect the acceptance of such information. This was demonstrated in the fact that although religious leaders were picked as significant source of information on malaria prevention, the credibility of their information was however rated low. Again, from this study the influence of the media (television and radio), opinion leaders and interpersonal sources of information (health workers) along with the involvement of Change Agents (Malaria Role Models/ Community Volunteers) on the opinion and judgment of the respondents has been established.

Health Belief Model

The Health Belief Model is based on the understanding that a person will take a health-related action if such a person:

(1) feels that a negative health condition can be avoided,

(2) has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition, and

(3) believes that he/she can successfully take a recommended health action.

The model assumes that an individual's action towards a preventive health measure will be based on his/her beliefs and attitudes and in this study therefore seeks to explain the role of attitudes in the acceptance and utilisation of malaria prevention information. In this study it has been established that producers of the *MAPS Inter-Personal Communication Flip Chart for Malaria in the Community*, and J6, the radio jingle produced by Osun State Ministry of Health, made use of fear appeal in their productions as a way of highlighting the possible negative effects of malaria. Also, this study has established the influence of belief on the attitude of respondents to available malaria prevention information in their localities.

Social Marketing Theory

The two basic assumptions of this theory are that,

(1) An individual will adopt new behaviours or ideas if he/she feels that something of value is exchanged between him/her and the 'social marketer'.

(2) Well-honed and demonstrably effective techniques from the commercial business sector can successfully and efficiently be applied to advance social causes.

This study has also confirmed the two assumptions of the Social Marketing Theory. In this study, RBM and Other Partners were the 'marketers' 'selling' malaria prevention behaviour. They did this through television and radio jingles, Community Volunteers, Malaria Role Models, Interpersonal Communicator Conductors and Health Workers. The success of the 'marketing' was reflected in the percentage of respondents and FGD participants who expressed confidence in the credibility of information provided by the 'marketers' and traced the new malaria prevention behaviour they had adopted such as using LLIN and living in clean environment to their exposure to information provided by the 'marketers'. Thus, this study has therefore established that well-honed and demonstrably effective techniques from the commercial business sector can successfully and efficiently be applied to malaria prevention efforts among rural dwellers. The outcome of the test of Hypothesis $H_0$1 also supports the assumptions of the theory.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Scholars have agreed on a nexus between health and behaviour and the significant role communication plays in the process of influencing preventive behaviour against diseases (Elegbe, 2010, Harvard School of Public Health, 2011, Moore, 2008). However, despite the adoption of a set of Communication Priority Actions as part of the overall National Malaria prevention Strategic Plan (NMCSP) to promote a more positive knowledge, attitude and practice against malaria in Nigeria, the South-west zone, consisting of Oyo, Osun and four other states, still has the lowest record of the adoption of preventive practices such as the use of mosquito nets, as evidenced from the results of the 2010 and 2015 Malaria Indicator Survey (National Population Commission (NPC), 2012 and National Malaria Elimination Programme (NMEP), 2016) even though the zone has the highest percentage of exposure to malaria prevention messages among the six geo-political zones in Nigeria (National Population Commission (NPC) and ICF International (2014:206). This study therefore investigated the relationship between access to available malaria prevention information and their utilisation among rural dwellers in two states in the South-west, Oyo and Osun. It examined the influence of perception about malaria on the attitude of rural dwellers in the two states to available malaria prevention information and the practice of malaria prevention among them. The study examined nine research questions and tested two hypotheses.

The study gathered quantitative and qualitative data on the perception of rural dwellers in Oyo and Osun states about malaria, their understanding of malaria and their attitude to available malaria prevention information and the utilisation of such information through Survey, Focus Group Discussion and Key Informant Interview methodology. The study also generated quantitative and qualitative data from the contents of malaria prevention information provided by RBM and other Partners available in the two states which were analysed using the summative approach to evaluate their suitability for the rural dwellers in the two states. The contents of malaria prevention information analysed included six radio jingles, one *MAPS Interpersonal Flip Chart for Malaria Control in the Community,* one *RBM*

IPC Guide and three generic posters on malaria prevention. The study was conducted among rural dwellers in Oyo and Osun states, malaria communication managers in the secretariat of Roll Back Malaria (RBM) in Nigeria, the Malaria Programme Offices in the Ministry of Health in Oyo and Osun states as well as coordinators of Partner organisations on Malaria prevention working with the RBM in the two states.

The survey covered 2,120 rural residents selected through multi-stage sampling procedure across ten local government areas of Oyo and Osun states. The study conducted interviews with eight Key Informants whose roles and duties revolved around the development and deployment of advocacy, communication and social mobilisation activities on malaria prevention in the two states. The results of the survey were subjected to Friedman nonparametric test and Pearson Correlation while the Content Analysis of the available malaria prevention information was done using the summative approach. The two hypotheses formulated at the inception of the study were rejected. This means that access to malaria prevention information will significantly influence the adoption of malaria prevention measures among rural dwellers in Oyo and Osun states and that the perception of rural dwellers in the two states about malaria will significantly influence their utilisation of malaria prevention information in the zone.

5.2 Implications of Study and Contributions to Knowledge

This study has clearly identified a critical missing link in the communication of malaria prevention to a rural audience, thus giving insight into the shortfalls in current efforts in malaria prevention initiatives. The study is also the first of its type in the Department of Communication and Language Arts, both in terms of its focus and design. As earlier noted, malaria appeared not to have been a subject of interest to communication scholars, thus leaving the interrogation to majorly public health specialists. However, this study has shown how critical the communication component is to an effective mammalian initiative and how much could be done in terms of scholarly studies by communication specialists. In terms of design, the study adopted the triangulation approach which is also not very common in studies similar to this (Ojebode, Ojebuyi, Oladapo and Oyedele, 2018). A major contribution of this study to knowledge is the development of a set of content categories to interrogate the content of malaria prevention information thus creating a useable guideline for determining their suitability or otherwise. Hitherto, content categories have mostly been developed to analyse advertisement messages. This study, by its focus and execution has also created a

platform for effective collaboration between the field of Communication and Language Arts and the discipline of Public Health in order to reduce the burden of malaria in Nigeria.

5.3 Major findings

The results of the Survey, Focus Group Discussion and Key Informant Interviews among respondents as well as those of the Content Analysis of available malaria prevention information among the rural dwellers in Oyo and Osun states, Nigeria, indicate the following major findings:

1. Although a greater number of respondents could link malaria with mosquito and its bite, almost half of the same population still believed that exposure to sun causes malaria and that non-orthodox means, such as using herbs, are effective in treating the disease.
2. There exists a wrong perception among respondents that promotes malaria as a disease that could be cast upon people by 'witches'. Statistical test also indicated a strong association between religion of respondents and the perception that prayer is a cure for malaria.
3. Health Officers at the Clinic, Television, Community Volunteers/Malaria Role Models and Radio were the major sources of information on malaria prevention among respondents, with Health Officers being the source with the highest rate of frequency of exposure to respondents.
4. Information on malaria prevention received from television (mean rank=9.72), were considered most credible by respondents, followed by health workers (9.48), radio (9.38) and Community Volunteers/ Malaria Role Models (8.64).
5. Radio was the most influential source of decision-making on malaria prevention among respondents (mean rank=9.58), followed by television (9.36), Health Officers at the Clinic/hospital (9.0), Posters (8.80) and Community Volunteers/Malaria Role Models (8.34).
6. The available malaria prevention materials in Oyo and Osun states included six radio jingles on malaria prevention, a 26-page *RBM Malaria IPC Guide*, a 24-page MAPS ***Interpersonal Communication Flip Chart for Malaria Control in the Community*** and three generic posters; ***Net Safe, Take Good Care of Your Long Lasting Nets*** **and** ***Disease Prevention***. The contents of malaria prevention information provided by RBM and other Partners in the two states included printed information in the form of

Flip Charts on causes, signs and symptoms of malaria, risk groups, as well as myths and misconceptions about the disease and also gave directions on effective malaria treatment.

7. The radio jingles as well as flip charts on malaria prevention available to respondents in this study were suitable except for J3, two of the message cards (Cards 6 and 7) in *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* and the generic poster titled 'Disease Prevention'.

8. Due to poor funding, the two most important instruments for educating the rural dwellers about malaria prevention, *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* and *RBM IPC GUIDE*, were designed in English Language with no production of a Yoruba version. Poor funding was also a major hindrance to the continuous dissemination of malaria prevention information in Oyo and Osun states, thereby affecting access to prevention information by respondents. Other factors included lack of transparency on the part of state officials and absence of effective coordination between the state and RBM and Partners as it affects activities of the ACSM.
9. While the ACSM was strong at the national level, it was not well positioned in the states used for this study which were also not implementing the recommendations in the Advocacy, Communication, and Social Mobilisation Strategic Framework and Implementation Plan (ACSMFIP).
10. Although respondents had regular exposure to television and radio information, they could not effectively recall the specific jingles on malaria prevention they had heard on various radio stations and did not have direct access to the contents of the available malaria prevention information particularly *MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community* and *RBM IPC GUIDE* as well as the three generic posters available in the zone.
11. Respondents had mistaken billboards erected by drug manufacturing companies to promote malaria drugs for billboards promoting malaria prevention information; thus about 60% claimed wrongly to have had access to malaria prevention information through billboards.

12. Respondents had good understanding of the signs and symptoms of malaria, part of the contents of malaria prevention information provided by RBM and Partners, with 'fever' 'headache' and 'body pain' being the most frequently mentioned.
13. Respondents made use of available malaria prevention information in the two states, particularly radio jingles, as evident in their reported use of ITN, cleaning of their environment and readiness to see a medical doctor for cases of malaria.
14. There is strong correlation between perception, knowledge and utilisation of malaria prevention information by respondents.
15. Wrong perception, rumours, failure of government and other agencies, the political environment, faulty production and design as well as failure to have a viable ACSM affected utilisation of malaria prevention information by respondents.

5.4 Conclusion

This study was undertaken to investigate the access to, and utilisation of malaria prevention information among rural dwellers in Oyo and Osun states, Nigeria. From the analysis of the results of the Survey, Focus Group Discussion, Interviews with Key Informants and Content Analysis of the available malaria prevention information provided by RBM and other Partners in the two states, it was discovered that although a greater number of respondents believed that malaria is caused by mosquito bites and that there is therefore a close association between malaria and mosquito, almost half of the population still nevertheless believed that non-orthodox means are effective in treating the disease. There were mass media and interpersonal sources of information on malaria available to the rural dwellers in the two states. The most common source of information on malaria prevention was Health Officers at the Clinic/Hospital but television jingles was considered the most credible source of information on malaria prevention among the respondents while radio was considered as the most influential.

The contents of malaria prevention information provided by RBM and other Partners available to rural dwellers in the two states included printed information in the form of Flip Charts on causes, signs and symptoms of malaria, risk groups, as well as myths and misconceptions about the disease and also gave directions on effective malaria treatment. The malaria prevention contents also included radio jingles that educated respondents on the use of LLIN. However, one of the radio jingles (J3), two of the message cards (Cards 6 and 7) in

MAPS Inter-Personal Communication Flip Chart for Malaria Control in the Community as well as the generic poster titled 'Disease Prevention' were found not suitable for use among the rural dwellers.

Exposure to the contents of malaria prevention information provided by RBM and other Partners among rural dwellers in Oyo and Osun states was low and therefore affected their ability to recall specific malaria prevention information provided by RBM and other Partners. However, this did not affect their utilisation of preventive measures. Thus, although the rural dwellers in the two states had a good understanding of the signs and symptoms of malaria such understanding might not have been necessarily due to direct exposure to the contents of malaria prevention information provided by RBM and Partners but to other sources that were not included in this study.

Rural dwellers in Oyo and Osun states still have poor attitude to the sustenance of the war against malaria with the wrong perception that it is the duty of government to make LLINs available to residents and therefore the perception that the distribution of LLINs during awareness campaigns were political patronages. Some of the ways rural dwellers in the two states utilised the malaria prevention information provided by RBM and other Partners in their states included sleeping inside mosquito nets, living in clean environment, not allowing stagnant water around their premises, spraying surrounding with insecticide and hanging their LLIN effectively.

Poor funding, lack of transparency on the part of state officials, the use of unsuitable illustrations in the design of posters and wrong choice of language in the production of radio jingles affected the access of rural dwellers in Oyo and Osun states to the available malaria prevention information provided by RBM and other Partners in the zone. Another factor was the lack of coordination between the states and RBM and Partners in relation to the activities of the ACSM particularly on the issue of the development of malaria prevention information. Perception of respondents about malaria, rumour mongering, and the apparent failure of those who participated in the earlier distribution of mosquito nets to properly educate the people about its use, influenced the rural dwellers in the two states against adopting the behaviour change on malaria prevention recommended by RBM and other Partners. Other factors included the political environment that surrounded the distribution of mosquito nets in the region, the faulty production and design of some of the malaria prevention information, failure of the Osun state government to establish a functional ACSM Core Group and the failure of the ACSM Core Group in Oyo state to implement the recommendations in the

Advocacy, Communication, and Social Mobilisation Strategic Framework and Implementation Plan. On the whole, access to malaria prevention information will significantly influence the adoption of malaria prevention measures among rural dwellers in Oyo and Osun states. Also, perception of rural dwellers in Oyo and Osun states about malaria will significantly influence their utilisation of malaria prevention information.

5.5 Recommendations

1. Stakeholders in the fight against malaria should devote more resources to communication activities on the disease. The use of television and radio jingles on malaria prevention which have proved acceptable and have high level of perceived credibility among the rural dwellers should not be tied to availability of funds from donor agencies. State governments should direct their broadcast stations to air malaria prevention jingles regularly as a part of social service. Corporate organisations should also be encouraged to sponsor such jingles as part of their corporate social responsibility to their communities of operation.
2. It is recommended that federal government introduces a Malaria Prevention Tax to tackle the funding challenge that has limited the dissemination of malaria prevention information as attested to by the NMEP and other stakeholders at the state level. Corporate entities which employ more than fifty people should be made by law to allocate at least 0.5% of their annual profit before tax to a special fund that will be managed by a select team of Government, RBM and Partner organisations, and Advocacy, Communication and Social Mobilisation (ACSM) groups and will be devoted to the development and dissemination of malaria prevention information across the country.
3. ACSM groups should be made more effective at the state level. There should be close linkage between RBM and other Partners and the ACSM teams of state governments where they operate. Both should be actively involved in the planning and implementation of communication and social mobilisation activities on malaria.
4. ACSM groups should implement the recommendations on media relations contained in the Advocacy, Communication, and Social Mobilisation Strategic Framework and Implementation Plan (Federal Ministry of Health, National Malaria prevention Programme, and 2010: 31).
5. The distribution of Long Lasting Insecticide Treated Nets (LLIN) or any other type of mosquito nets should not be presented as a political activity or patronage to remove the

perception that it has become the duty of governments to make such nets available as a part of dividend of democracy in Nigeria.

6. There is need for more research works on the communication component of the fight against malaria. Evaluation of existing communication activities on malaria should be encouraged to enhance better understanding of what works on the field. RBM and Partner organisations who are working on the field should be more proactive to research inquiries. It took more than six months for this researcher to get approval for Key Informant Interview at the NMEP while Society for Family Health (SFH), a major partner organisation in Ibadan which produces radio and television jingles and operates in the two states used for this study actually refused to respond to letters of introduction from the researcher's department while personal visits to their office were not honoured.

7. Religious leaders should be involved more by the RBM, NMEP and Partners with the right information on malaria in order to reach out to their adherents.

8. Teachers in the communities should be used more as they are possible sources of diffusing malaria prevention messages particularly among young people. Although this study did not consider the possible influence of teachers as sources of information on malaria prevention among students but from the responses to questionnaire items it is clear that teachers and religious leaders can still be used in this regard. They should be picked and trained as Malaria Models unless where they indicate objections to their choice in the community.

9. ACSM groups in the states should be created and be made proactive in their relationship with the mass media. Osun state had a very weak ACSM Working Group which as at the time of this study had only one member. Although Oyo state has a functional ACSM Working Group, it did not have a Malaria Media Network and was working with little input from the Principal Recipient responsible for malaria communication and advocacy in the state.

10. Government should leverage on the availability and influence of traditional rulers, community leaders and Ward Development Committee (WDC) members to reinforce malaria prevention communication. They could be trained and given incentives to go out during monthly town meetings to pass information on malaria prevention.

11. Stakeholders in the production and dissemination of malaria prevention information should focus more on correcting the misconception about the disease that is common among the rural populace more aggressively and systematically than was seen to have been done in this study.

12. Stakeholders of malaria prevention communication should prioritise interventions, materials and messages to respond appropriately to local needs given the evident inadequacy of funds to run many programmes. They should equally be conscious about the attitude of rural audience to the language, models and illustrations used in the production of jingles meant for use among rural dwellers.

13. RBM and other Partners should discourage the production of their respective interpersonal communication flip charts and other materials on malaria prevention in a language not suitable for use among target audience.

5.6 Suggestions for further studies

1. Given the outcome of the Pearson correlation test on the knowledge, attitude and practice of malaria prevention among rural dwellers in Oyo and Osun states, more work should be done by researchers to find out how best to enhance positive attitude towards malaria prevention information and utilisation of the information by the populace.

2. A study similar to the current one could be conducted to compare the access to, and utilisation of malaria prevention information between men and women in the South-west zone.

3. A study could be conducted on the role of television jingles in aiding access to, and utilisation of malaria prevention information among given populations such as youths, or undergraduate students.

4. A study could be conducted comparing the credibility of malaria prevention information received from religious leaders and traditional healers.

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APPENDIX 1

DEPARTMENT OF COMMUNICATION AND LANGUAGE ARTS,

UNIVERSITY OF IBADAN, IBADAN, NIGERIA

Dear Respondent,

I am a Researcher in the Department of Communication and Language Arts, University of Ibadan, Ibadan. This research is focused on ACCESS TO, AND UTILISATION OF MALARIA PREVENTION INFORMATION AMONG RURAL DWELLERS IN OYO AND OSUN STATES, NIGERIA. The Questionnaire has been designed to gather the required data for the study and I will appreciate your kind response. Your response shall be treated with utmost confidentiality. **Please do not indicate your name on the questionnaire.** Answer the questionnaire by ticking the appropriate response to each question.

Thanks for your cooperation.

SECTION A: BACKGROUND INFORMATION

1. Gender (Male) (Female)
2. Age (20- 30) (31-40) (41-50) (51-60) (60-above)
3. Educational Level (no education) (Primary) (Secondary) (NCE/OND) (HND/BSC) (others)
4. Marital status (Married) (Single Parent) (Divorced) (Separated) (Not Married)
5. Number of children (None) (1) (2) (3) (4) (5) (6 and above)
6. Religion (Christianity) (Islam) (Traditionalist) (Any other, please state.....)
7. Occupation (Civil Servant) (Artisan) (Farmer) (Trader) (Others, specify.....)
8. What is your position in this household? (Husband) (Wife) (Son) (Daughter) (Relative) (Tenant)
9. Can you read in the English Language? (Very well) (Barely well) (Not at all)
10. Can you write in the English Language? (Very well) (Barely well) (Not at all)
11. How often do you listen to radio? (Everyday) (Twice a week) (Thrice a week) (Four/more times a week)
12. How often do you watch television? (Everyday) (Twice a week) (Thrice a week) (Four/more times a week)

SECTION B: Perception about Malaria

Please rate each of the following statements in terms of your agreement or not with them.

SD=Strongly Disagree, D=Disagree, N = Neutral, A= Agree SA=Strongly Agree.

	Statement	SD	D	N	A	SA	TOTAL
1	Malaria is caused by too much exposure to sun						
2	Malaria is caused by drinking un-boiled or bad water						
3	Malaria is caused by exposure to cold or wet conditions						
4	Malaria is caused by eating too much palm oil in the soup						
5	Malaria is caused by bites from mosquitoes						
6	There is close association between mosquitoes and malaria						
7	Malaria is caused by not eating enough palm oil in the soup						
8	Malaria is caused by exposure to evil air						
9	Malaria is caused by overwork						
10	Witches can cast a spell of malaria on people						
11	Malaria can be easily treated with herbs						
12	Prayers can cure malaria						

13. List five symptoms of malaria that you know

(1)……...(2)……..…….

(3)…….....4)…….....

(5)…….....

SECTION C: Available sources of information on malaria prevention

How often do you get information on malaria prevention from the following sources?

Item		Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
1	Radio jingles					
2	Television jingles					
3	Posters					
4	Leaflets/Handbills/ brochures					
5	Bill boards					
6	Health Officers at the Clinic/Hospital					
7	Older women/men in the community					
8	Friends/neighbours					
9	Traditional healers					
10	Teachers in the community school					
11	Religious leaders in the community					
12	Town crier/announcer					
13	Family members/relatives					
14	Community Volunteers/Malaria Role Models					

SECTION D: Access to information on malaria prevention

1. Mention two malaria prevention jingles you have heard recently on radio ....

2. On which radio station(s) did you hear the malaria prevention information?..... ....

3 Generally, for how long have you been hearing the malaria prevention information on the radio station? (1-3months) (4-7months) (8-12 months) (12 months and above)

4. Mention two malaria prevention jingles you have seen and heard recently on television..... ....

5. On which television station(s) did you see and hear the malaria prevention information?..... ....

6. Generally, for how long have you been seeing and hearing the malaria prevention information on the television station? (1-3months) (4-7months) (8-12 months) (12 months and above)

7. Can you recall seeing billboards with malaria prevention information in your locality? (Yes) (No) (Can't recollect)

8. If your answer to the above was "Yes", in which part of your locality did you see the billboard? (Health centre), (Town Hall), (Along the Street) (Can't recollect)

9. Can you recall malaria prevention information on posters you have seen in your locality recently? (Yes) (No) (Can't recollect)

10. If your answer to the above was "Yes", in which part of your locality did you see the posters? (Health centre), (Town Hall), (Street building) (Can't recollect)

11. Are you aware of the Roll Back Malaria campaign in your state? (Yes) (No)

12. Generally do you understand the messages on malaria prevention passed across on radio, TV, posters and billboards in your locality? (Very well) (Not very well) (Not at all)

SECTION E: KNOWLEDGE OF MALARIA PREVENTION

Please rate each of the following statements in terms of your agreement or not with them.

SD=Strongly Disagree, D=Disagree, N = Neutral, A= Agree SA=Strongly Agree.

	Statement	SD	D	N	A	SA
1	Anyone who has malaria should go and see a medical doctor immediately					
2	Malaria can be safely treated at home without seeing a medical doctor					
3	The recommended drug for treating malaria is a combination of drugs called ACTs					
4	Local herbs for malaria can easily clear the disease from the blood					
5	Using Insecticide Treated Nets (ITNs) is a major way of preventing malaria					
6	Using mosquito coils is a major way of preventing malaria					
7	Spraying insecticides at night in the house is a major way of preventing malaria					
8	Traditional healers/native doctors know the best cure for malaria					
9	Prayer is a major way of preventing malaria					
10	Living in a clean environment is a major way of preventing malaria					

SECTION F: INFLUENCE OF INFORMATION SOURCES ON KNOWLEDGE OF MALARIA PREVENTION

Please rate the degree to which the selected sources of information have influenced your knowledge of malaria prevention.

SD=Strongly Disagree, D=Disagree, N = Neutral, A= Agree SA=Strongly Agree.

My exposure to the following sources of information has greatly influenced my knowledge of malaria prevention:

	Statement	SD	D	N	A	SA
1	Radio jingles					
2	Television jingles					
3	Posters					
4	Leaflets/Handbills/ brochures					
5	Bill boards					
6	Health Officers at the clinic					
7	Older women/men in the community					
8	Friends/neighbours					
9	Traditional healers					
10	Teachers in the community school					
11	Religious leaders in the community					
12	Town crier/announcer					
13	Family members/relatives					
14	Community Volunteers/Malaria Role Models					

SECTION G:

CREDIBILITY OF MALARIA PREVENTION INFORMATION FROM VARIOUS SOURCES

Please rate the following sources of information on the credibility of the information you receive from them on malaria prevention.

SD=Strongly Disagree, D=Disagree, N = Neutral, A= Agree SA=Strongly Agree.

Any information on malaria prevention that I receive from the following sources is always credible

	Statement	SD	D	N	A	SA
1	Radio jingles					
2	Television jingles					
3	Posters					
4	Leaflets/Handbills/ brochures					
5	Bill boards					
6	Health Officers at the clinic					
7	Older women/men in the community					
8	Friends/neighbours					
9	Traditional healers					
10	Teachers in the community school					
11	Religious leaders in the community					
12	Town crier/announcer					
13	Family members/relatives					
14	Community Volunteers/Malaria Role Models					

SECTION H 1: ATTITUDE TO MALARIA PREVENTION INFORMATION

	Statement	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
1	I sleep under an Insecticide Treated Net (ITN) at home as recommended					
2	I clean my environment of stagnant water and bush as recommended because of mosquito					

3	I wash and retreat my ITN as recommended					
4	I see a medical doctor for treatment whenever I have malaria					
5	I see a Malaria Role Model or Community Volunteer in my area whenever I have malaria					
6	I wear clothes that cover the body, including my hands and legs, when staying outside in the evening					
7	I will buy new mosquito nets if the ones government gave me expires					

SECTION H 2: ATTITUDE TO MALARIA PREVENTION INFORMATION

		SD	D	N	A	SA
8	Government should spend more money on road construction than on malaria campaign					
9	The malaria prevention messages are really not for rural dwellers					
10	There are more important needs at home for me than spending money to purchase mosquito nets					
11	It is the duty of government to provide mosquito nets for us to prevent malaria					
12	The distribution of mosquito nets was for political purposes.					

SECTION I A: UTILISATION OF MALARIA PREVENTION INFORMATION

	Statement	Never	Rarely	Sometimes	Often	Always
1	I sleep under an Insecticide Treated					

	Net (ITN) at home					
2	I clean my environment of stagnant water and bush because of mosquito					
3	I wash and retreat my Insecticide treated net (ITN) as recommended					
4	I see a medical doctor for treatment whenever I have malaria					
5	I wear clothes that cover the body, including my hands and legs, when staying outside in the evening					
6	I fumigate the surroundings of my house to prevent mosquito from breeding there					

SECTION I B: UTILISATION OF MALARIA PREVENTION INFORMATION

7. I collected my Insecticide treated net (ITN) during the distribution by government in my area. (Yes) (No)

8. I collected my Net Card during the campaign for distribution of nets in my area. (Yes) (No)

APPENDIX 2

YORUBA VERSION.

IWE IBEERE FUN IFOJUSUNNUKUN WO EKA TI IBARA-ENI-SORO ATI EDE FAFITI TI IBADAN, IBADAN, NAIJIRIA

Iwo Olupese Idahun mi owon,

Mo je akeko/oluwadi imo ijinle ni eka Ibanisoro ati Ede ti yunifasiti Ibadan. Iwadi ijinle yii da lori afojusun WIWA LAROWOTO ATI IMULO ITANILOLOBO NIPA KIKAPA AARUN IBA LAARIN AWON OLUGBE IGBERIKO NI IPINLE OYO ATI OSUN, ORILEEDE NAIJIRIA. A se iwe ibeere yii lati gba idahun si iwadii yii, n o si dupe fun idahun re. Idahun re yoo je ohun ipamo ti ko ni je ohun agbe-saye. E seun fun ifowosowopo yin.

IPIN A: IWADI NIPA IBI TI A TI JADE

1. Ako-n-babo? (Okunrin) (Obinrin)

2. Ojo Ori (Ogun Odun si Ogbon Odun) (Odun mokanlelogbon si Ogoji Odun) (Odun mokanlelogoji si Aadota odun) (Odun mokanleladota si Ogota odun) (Ogota Odun tabi ju be lo)

3 Ipele eko ti o ka (n o ka nkankan) (eko alakoobere) (eko ile iwe girama) (eko ile eko olukoni) (eko ile eko giga fafiti)

4. Eto idile (mo ti gbeyawo tabi loko) (obi to n dagbe) (a ti kora sile) (n o ti gbeyawo tabi loko)

5. Iye omo ti o bi (ko ti si Kankan) (okan) (meji) (meta) (merin) (marun)(mefa tabi ju bee lo)

6 Esin (Onigbagbo) (Musulumi) (Esin abalaye) (ko lesin)

7. Iru ise sise (onise Oba) (Onisona) (agbe) (Onisowo) Orisii ise miiran..ko .....

8 Ki ni ipo re ninu ile yii (Oko) (iyawo) (Omokunrin) (Omobinrin) (ibatan) (Ayalegbe)

9. Nje o lee ka ede Geesi? (Daradara) (Diedie) (rara)

10. Nje o lee ko ede Geesi? (Daradara) (Diedie) (rara)

11. Nje ero asoromagbesi (redio) wa ni ikaawo re lati ma gbo? (Lojojumo) (eemeji lose) (eemeta lose) (eemerin lose tabi ju bee lo)

12 Nje ero amohunmaworan (telefisan) wa ni ikawo re lati ma wo ati lati gbo? (Lojojumo) (eemeji lose) (eemeta lose) (eemerin lose tabi ju bee lo)

IPIN B: OYE NIPA ARUN IBA'

Je ki a mo ero okan re nipa awon akori oro ti a ko si abe ipin yi. Lo ami 'X' lati toka ero re nipa awon oro naa.

Atoka: Mi o fi ara mo rara=MFMR,

Mi o fi ara mo =MFM,

Mi o fi ara mo beni mi o gba=MFMG,

Mo fi ara mo=MFAM,

Mo fi ara mo daradara =MFADA

No	Akori oro	MFMR	MFM	MFMG	MFAM	MFADA
1	Wiwa ninu oorun ju maa n fa arun iba					
2	Mimu omi ti a ko gbe kana tabi omi ti ko dara n fa arun iba					
3	Wiwa ninu otutu tabi ibi tutu ma n fa arun iba					
4	Ki a ma je obe ti o ni epo pupa pupoju a ma fa arun iba					
5	Efon lo ma n fa arun iba to ba ti je eniyan					
6	Ibasepo to po wa laarin efon ati arun iba					
7	Ki a ma je obe ti ko ni epo pupa to le fa arun iba					
8	Ategun buburu le fa arun iba ti o ba fe lu eniyan					
9	Ise aseju ma n fa arun iba					
10	Awon aje lee pea run iba si eniyan lara					
11	A lee fi agbo kawo arun iba daadaa					
12	Adura lee kawo arun iba patapata					

13. Daruko awon apeere ami iba marun ti o mo. (1)…….…….....
(2)……..……..... (3)…….....
(4)……..... (5)…….....

IPIN D: ORISUN ITANIJI TO WA NILE LORI AKOSO ARUN IBA

Igba meloo ni e maa n gba itaniji nipa arun iba lati awon orisun wonyi?

Akori		Ko si rara	O sowon	Ekookan (3)	Lati igba de igba	Ni igba gbogbo
1	Ero redio					
2	Ero amohunmaworan(telifisan)					
3	Iwe alemogiri					
4	Iwe pelebe/iwe ilewo					
5	Ipolongo lori patako ikede					
6	Osise ilera ni ile iwosan					
7	Awon agba obinrin tabi okunrin ni awujo					
8	Ore tabi alabagbepo					
9	Oniwosan ibile					
10	Oluko ni ile eko adugbo wa					
11	Awon asiwaju esin l'adugbo/l'awujo					
12	Akede Oba/Akede Ilu					
13	Awon ebi mi/ara ile mi					
14	Awon asoju ajo ti n gbogun ti arun iba lagbaye ti o n ti ojule-de-ojule					

IPIN E: ORISUN ITANIJI TO WA LORI AKOSO ARUN IBA

1.Daruko awon itaniji meji lori akoso arun iba ti o ti gbo lati ori ero asoromagbesi (redio) laipe yii

(1)---------- (2)----------

2.Lorii ikanni ero redio wo lo ti gbo awon itaniji bee?----------3.Lati igba wo ni o ti se akiyeesi pe o n gbo itaniji lori akoso arun iba lori ikanni ero redio yii? (Laarin osu kan si osu meta) (Laarin osu merin si osu meje) (laarin osu mejo si osu mejila) (o ti ju osu mejila lo)

4.Daruko awon itaniji meji lori akoso arun iba ti o ti gbo lati orii ero telefisan laipe yii?

(1)---------- (2)----------

5. Lorii ikanni ero telifisan wo lo ti gbo awon itaniji bee?----------

6. Lati igba wo ni o ti se akiyeesi pe o n gbo itaniji lori akoso arun iba lori ikanni ero telifisan yii? (Laarin osu kan si osu meta) (Laarin osu merin si osu meje) (laarin osu mejo si osu mejila) (o ti ju osu mejila lo)

7. Daruko awon itaniji meji lori akoso arun iba ti o ti gbo lati enu awon asoju ajo ti n gbogun ti arun iba lagbaye ti o n ti ojule de ojule (1).....

(2).....

7. N je o le se iranti pe o ri itaniji lori akoso arun iba ti a se si ori patako ikede ? (beeni) (rara o) (mi o lee ranti)

8.Ti idahun re si ibeere to wa loke yii ba je beeni, ni agbegbe wo ni o ti ri patako ikede naa? (Ni agbegbe ile Eto Ilera) (Ni agbegbe Gbongan Ilu wa) (Ni popo ona kan ni ilu wa) (mi o le ranti).

9. N je o lee se iranti pe o ri itaniji lori akoso arun iba ti a se si ori iwe alemogiri ni agbegbe re laipe yii? (beeni) (rara o) (mi o le ranti)

10. Ti idahun re si ibeere to wa loke yii ba je beeni, ni agbegbe wo ni o ti ri itaniji lori akoso arun iba ti a se si ori iwe alemogiri naa? (Ni agbegbe ile Eto Ilera) (Ni agbegbe Gbongan Ilu wa) (Ni popo ona kan ni ilu wa) (mi o le ranti).

11. N je o le se iranti pe a fun o ni Iwe pelebe/iwe ilewo fun itaniji lori akoso arun iba ni agbegbe re laipe yii? (beeni) (rara o) (mi o le ranti)

12. Ti idahun re si ibeere to wa loke yii ba je beeni, ni agbegbe wo ni a ti fun o ni iwe pelebe/iwe ilewo itaniji lori akoso arun iba naa? (Ni agbegbe ile Eto Ilera) (Ni agbegbe Gbongan Ilu wa) (Ni popo ona kan ni ilu wa) (mi o le ranti).

13.Nje o mo nipa ipolongo lati kapaa arun iba ni ipinle re? (beeni) (rara o)

14. Nje o le so wi pe awon itaniji lori akoso arun iba ti a gbekale lori ero redio, telifisan tabi ti patako ikede, tabi iwe alemogiri ati iwe ilewo wonyii ye o bi?

(o ye mi daradara) (ko ye mi daradara) (ko ye mi rara)

IPIN E: IMO NIPA AKOSO ARUN IBA

Atoka: Mi of fi ara mo rara=MFMR, Mi o fi ara mo =MFM, Mi o fi ara mo beni mi o gba=MFMG, Mo fi ara mo=MFAM, Mo fi ara mo daradara =MFADA

	Akori oro	MFMR	MFM	MFMG	MFAM	MFADA
1	Enikeni ti o ba ni arun iba gbodo lo ri dokita onisegun Oyinbo logan					
2	A le se itoju arun iba ninu ile wa lai ri dokita onisegun oyinbo					
3	Awon akapo oogun oyinbo ti o ni ami ewe lara ni won so wipe o le kapaa arun iba					
4	A le fi agbo ibile fo arun iba kuro ninu eje pelu irorun					
5	Lilo apo efon lati sun je ona pataki lati dena arun iba					
6	Lilo oogun efon ti o ma n se eefin si inu afefe je ona pataki lati dena arun iba					
7	Lilo oogun efon ti a ma n fin si inu afefe je ona pataki lati dena arun iba					
8	Awon onisegun ibile tabi babalawo mo ona ti o dara ju lati kapaa arun iba					
9	Gbigba adura je ona kan pataki lati denaa arun iba					
10	Gbigbe ni ayika ti o mo toto je ona pataki lati denaa arun iba					

IPIN F: IPA TI AWON ORISUN ITANIJII N KO NIPA IMO LORI AKOSO ARUN IBA

Imo mi nipa isakoso arun iba ni se pelu isafihan awon orisun itanilolobo wonyii:

Akori		MFMR	MFM	MFMG	MFAM	MFADA
1	Ero redio					
2	Ero amohunmaworan(telifisan)					
3	Iwe alemogiri					
4	Iwe pelebe/iwe ilewo					
5	Ipolongo lori patako ikede					
6	Osise ilera ni ile iwosan					
7	Awon agba obinrin tabi okunrin ni awujo					
8	Ore tabi alabagbepo					
9	Oniwosan ibile					
10	Oluko ni ile eko adugbo wa					
11	Awon asiwaju esin l'adugbo/l'awujo					
12	Akede Oba/Akede Ilu					
13	Awon ebi mi/ara ile mi					
14	Awon asoju ajo ti n gbogun ti arun iba lagbaye ti o n ti ojule-de-ojule					

IPIN G:IHA TI A KO SI ITANIJI NIPA AKOSO ARUN IBA LATI AWON ORISUN ITANIJI GBOGBO

Mo ka awon itaniji nipa isakoso arun iba ti mo ri gba lati awon orisun wonyi gege bi eyi ti o ye ki a gbagbo.

Akori		MFMR	MFM	MFMG	MFAM	MFADA
1	Ero redio					
2	Ero amohunmaworan(telifisan)					
3	Iwe alemogiri					
4	Iwe pelebe/iwe ilewo					
5	Ipolongo lori patako ikede					
6	Osise ilera ni ile iwosan					
7	Awon agba obinrin tabi okunrin ni awujo					
8	Ore tabi alabagbepo					
9	Oniwosan ibile					
10	Oluko ni ile eko adugbo wa					
11	Awon asiwaju esin l'adugbo/l'awujo					
12	Akede Oba/Akede Ilu					
13	Awon ebi mi/ara ile mi					
14	Awon asoju ajo ti n gbogun ti arun iba lagbaye ti o n ti ojule-de-ojule					

IPIN GB (a): IHA TI O KO SI ITANIJI NIPA AKOSO ARUN IBA

	Akori oro	Ko si rara	O sowon	Ekookan	Lati igba de igba	Ni igba gbogbo
1	Mo maa n lo apo apefon lati sun gege bi a ti se ko wa					
2	Mo maa n gbon omi adagun kuro layika mi mo si ma n ge igbo ti o ba wa ni ayika mi nitoti awon efon					
3	Mo maa n fo apo efon mi gege bi a ti se ko wa					
4	Mo maa n lo ri onisegun oyinbo ti mo ba ti ni arun iba					
5	Mo ma n lo ri awon asoju ajo to n gbogun ti aisan iba ni adugbo mi to mo ba ti ni aisan naa					
6	Mo ma n wo aso ti o bo gbogbo ara mi ti mo ba ti wa ni ita lowo ale					
7	Mo setan lati ra apo apefon temi ti eyi ti ijoba pin fun mi ba ti baje					

IPIN GB (b): IHA TI O KO SI ITANIJI NIPA AKOSO ARUN IBA

		MFMR	MFM	MFMG	MFAM	MFADA
8	O ye ki ijoba na owo pupo sii lati ba wa se awon ona wa ju wipe ki won ma na owo lori ona lati gbogun ti aisan iba					
9	Awon isofunni gbogbo ti o wa lori isakoso arun iba kii se fun awon olugbe igberiko rara					
10	Inawo po fun mi nile ju lati maa lo ra apo efon					
11	Ojuse ijoba ni lati pese apo apefon fun awon ara ilu					
12	Oselu lo wa nidi pinpin apo apefon					

IPIN I (a): BI A SE N LO ITANIJI FUN IKAPA ARUN IBA

	Akori oro	Ko si rara	O sowon	Ekookan	Lati igba de igba	Ni igba gbogbo
1	Mo maa n lo apo efon lati sun ninu ile mi					
2	Mo maa n gbon omi adagun kuro layika mi mo si ma n ge igbo ti o ba wa ni ayika mi nitori awon efon					
3	Mo maa n fo apo apefon mi mo si maa n tun fin-in gege bi a ti se ko wa					
4	Mo maa n lo ri onisegun oyinbo ti mo ba ti ni arun iba					
5	Mo maa n wo awon aso ti o bo owo					

	ati ese mi daradara ni gbgogbo igba ti mo ba ti wa ni ita ile wa ni asale					
6	Mo maa n fin gbogbo ayika mi pelu oogun apakokoro lati ma fun efon laye lati gbale si					

IPIN I (b): BI A SE N LO ITANIJI FUN IKAPA ARUN IBA

7. Mo gba apo apefon temi ni akoko ti ijoba se ipolongo gbigba apo apefon naa ni adugbo wa (Beeni) (Beeko)

8. Mo gba kaadi pelebe ti o fun mi ni anfani lati gba apo apefon ni akoko ti ijoba se ipolongo ni adugbo mi (Beeni) (Beeko)

APPENDIX 3

FOCUS GROUP DISCUSSION GUIDE

1. What do you understand by the term malaria?

2 (a) What causes malaria? (b) How did you get to know about these causes?

3. (a) How do you treat malaria? (b) How did you get to know how to treat malaria?

4. (a) What information on malaria prevention have you received from Roll Back Malaria and its Partners?

(b)From where did you get the information on malaria prevention by Roll Back Malaria and its Partners?

(c) Do you believe the messages on malaria prevention by Roll Back Malaria and its Partners?

(d) What do you do with the information on malaria prevention you received from Roll Back Malaria and its Partners?

5. (a) What measures do you take to control malaria in your home?

(b) How did you get to know about these measures?

6. Do you use mosquito nets at home? If yes why and if no why?

7. Do you know about ACT Therapy? Do you understand it? If yes, do you use it to treat malaria?

8. Do you understand the process of malaria treatment for pregnant women? How did you know about it?

APPENDIX 4

KEY-INFROMANTS INTERVIEW GUIDE

1. What are the goals of your malaria prevention information in south –West Nigeria generally?

2. Who are your target audience for such information?

3. Who is responsible for initiating and developing malaria prevention information for people in South-west Nigeria? What are the qualifications and training of such people?

4. Do you consider the socio-economic status of the prospective audience in different regions in developing malaria prevention information? Why?

6. What special considerations do you have for rural dwellers in South-west Nigeria in the development of malaria prevention information?

7. What are the common theories you often use as guide to the development of malaria prevention information?

8. Where are your billboards on malaria prevention sited in Osun and Lagos states?

9. What factors determine the location of such billboards?

10. How effective is the malaria prevention information disseminated among rural dwellers by Roll Back Malaria and other Parners in Sourth-West Nigeria?

12. Through what means or channels do you pass across malaria prevention information to rural dwellers in South-west Nigeria?

12. What is your justification for the choice of such channels?

13. How do you evaluate the success of your malaria prevention information among rural dwellers in South-west Nigeria?

13. What are the lessons you have learnt from the field concerning access to, and utilisation of malaria prevention information among rural dwellers in South-west Nigeria?

APPENDIX 5

CONTENT CODING SHEET FOR MALARIA PREVENTION INFORMATION PRODUCED BY ROLL BACK MALARIA AND PARTNERS

TITLE OF MESSAGE:----------

PRODUCED BY:----------

LOCATION :----------

Instruction: Carefully study the attached message, thereafter read each of the following statements, then mark the right answer in each case.

CATEGORY A: ATTRACTING ATTENTION

The size of the headline is bold……..	(Yes) (No)
The slogan contained in the message is catchy……	(Yes) (No)
The typography of the message is legible….	(Yes) (No)
Display of Unique Selling Point is distinct…	(Yes) (No)
Position in Publication/Location of Billboard is promiment….	(Yes) (No)
The colour used for the message production is bright…	(Yes) (No)
The concept used to illustrate the message is clear…	(Yes) (No)

B: GENERATING INTEREST

The message is composed in precise and concise words	(Yes) (No)

The message is simple and easy to understand	(Yes) (No)
The illustrations are easy to understand	(Yes) (No)
The illustrations are relevant to the environment	(Yes) (No)
CATEGORY C: BENEFITS TO DESIRE	
The message contains benefits that are meaningful to audience	(Yes) (No)
The message contains benefits that are relevant to audience	(Yes) (No)
The benefits are topical to the audience	(Yes) (No)
The benefits are important to the audience	(Yes) (No)
CATEGORY D: SENSITIVITY	
The message is sensitive to culture of audience	(Yes) (No)
The message is sensitive to religion of audience	(Yes) (No)
The message is sensitive to gender	(Yes) (No)
The message contains words that indicate consideration for rural audience	(Yes) (No)
CATEGORY E: CREDIBILITY	
The claims offered by the message are true and sincere	(Yes) (No)
The claims offered by the message are believable	(Yes) (No)
The models used to illustrate the message are acceptable	(Yes) (No)
CATEGORY F: ACTION CUE	
The message contains action-oriented words	(Yes) (No)
The message contains specific steps to be taken by audience	(Yes) (No)
The message indicates boldly where to obtain the specific service	(Yes) (No)
CATEGORY G: MESSAGE APPEAL	
The appeal in the message is positive	(Yes) (No)
The appeal in the message is negative	(Yes) (No)
The appeal in the message is threatening	(Yes) (No)
The appeal in the message is encouraging	(Yes) (No)
The appeal in the message is rational	(Yes) (No)
The appeal in the message is emotional	(Yes) (No)
CATEGORY H: MESSAGE APPROACH	
The message contains encouraging words	(Yes) (No)
The message contains educational words	(Yes) (No)

The message contains *informational* words	(Yes) (No)
The message contains persuasive words	(Yes) (No)
The message contains *action –oriented* words	(Yes) (No)

APPENDIX 6

CONTENT CODING SHEET FOR MALARIA PREVENTION INFORMATION PRODUCED BY ROLL BACK MALARIA AND PARTNERS ON RADIO

TITLE OF MESSAGE:----------

PRODUCED BY:----------

LOCATION :----------

Instruction: Carefully study the attached message, thereafter read each of the following statements, then mark the right answer in each case.

1. ATTRACTING ATTENTION

The slogan contained in the message is funny	(Yes) (No)
The tempo of the jingle is quick	(Yes) (No)
The tune of the jingle is lively	(Yes) (No)
The background music used in the jingle is melodious	(Yes) (No)
The rhythm of the jingle is fast	(Yes) (No)

2. GENERATING INTEREST

The message is composed in active and clear words	(Yes) (No)
The message is simple and easy to understand	(Yes) (No)
The message engages the audience attention	(Yes) (No)
The illustrations are relevant to the environment	(Yes) (No)

The product name is mentioned at least thrice in the jingle (Yes) (No)

The jingle is not too long to sustain interest (Yes) (No)

3. BENEFITS TO DESIRE

The message contains benefits that are meaningful to audience (Yes) (No)

The message contains benefits that are relevant to audience (Yes) (No)

The benefits are topical to the audience (Yes) (No)

The benefits are important to the audience (Yes) (No)

4. SENSITIVITY

The message is sensitive to culture of audience (Yes) (No)

The message is sensitive to religion of audience (Yes) (No)

The message is sensitive to gender (Yes) (No)

The message contains words that indicate consideration for rural audience (Yes) (No)

5. CREDIBILITY

The claims offered by the message are true and sincere (Yes) (No)

The claims offered by the message are believable (Yes) (No)

The voice-over models used in the message are acceptable (Yes) (No)

6. ACTION CUE

The message contains action-oriented words (Yes) (No)

The message contains specific steps to be taken by audience (Yes) (No)

The message indicates clearly where to obtain the specific service (Yes) (No)

7. MESSAGE APPEAL

The appeal in the message is positive (Yes) (No)

The appeal in the message is negative (Yes) (No)

The appeal in the message is threatening (Yes) (No)

The appeal in the message is encouraging (Yes) (No)

The appeal in the message is rational (Yes) (No)

The appeal in the message is emotional (Yes) (No)

8 .MESSAGE APPROACH

The message contains encouraging words (Yes) (No)

The message contains educational words (Yes) (No)

The message contains informational words (Yes) (No)

The message contains persuasive words (Yes) (No)

The message contains action –oriented words (Yes) (No)

APPENDIX 7

RADIO JINGLES PRODUCED BY MAPS AND OSUN MALARIA PROGRAMME

NOTE: ONLY JINGLES 1-6 WERE ANALYSED IN THE STUDY.

JINGLE 1: YORUBA

FOCUS: AWARENESS JINGLE TO PROMOTE USE OF LLIN IN OYO STATE

Length: 2:34

INTRO: MUSIC (1st six seconds, 15 seconds interlude and last 4 seconds)

Apo apefon a lalope

Yoo gba'wo atebi re lowo aisan iba

Sun sinu apo efo

Ko gbadun orun re falala

Ke k'apo apefon le efon jina si o.

Chorus:

Apo apefon ko lewu rara

Konilo a tun f'ogun si nigbagbogbo

Ka sa ma se itoju re daadaa

Fo to ba doti

Ran to bay a

O fi ni lokan bale

Lo apo efon re bo ti ye

Ko to loo tee si ategun

Fun wakati merinlelogun

Ta apo apefon re sori ibusun re

Lale sun sinu re

K'efon jina si o

Chorus:

Apo apefon ko lewu rara

Konilo a tun f'ogun si nigbagbogbo

Ka sa ma se itoju re daadaa

Fo to ba doti

Ran to bay a
O fi ni lokan bale

Se itoju apo apefon re daadaa
Ka soke tile ba ti mo
Foo to ba doti
Pelu ose ti o ni soda (sugar)
Kaa si iboji ko gbe
Tete ran to bay a
F'apeere rere lele

Chorus:
Apo apefon ko lewu rara
Konilo a tun f'ogun si nigbagbogbo
Ka sa ma se itoju re daadaa
Fo to ba doti
Ran to bay a
O fi ni lokan bale

END VOICE: Apo apefon yi le lo to odun meta gbako. Ikede yii was lat'odo Ijoba ipinle Oyo ati ajo ti n gbogun ti aisan iba l'agbaye

JINGLE2: YORUBA

FOCUS: AWARENESS JINGLE TO PROMOTE USE OF LLIN AFTER FREE DISTRIBUTION IN OYO NORTH SENATORIAL ZONE

Length: 1:12

O ti ye ki iwo ati molebi re ma sun sabe apo apefon alallope bayii. Sugbon rii daju pe o ti naa s'ategun niboji fun wakati merinlelogun, iyen ojo meji gbako, ki o to loo.

Sisun sinu apo apefon alalope yi yoo maa dab obo iwo ati molebi re lowo aisan iba, owo wa yoo si ma gb'owo wa nigbati a o ba ni aisan iba lati toju. Se itoju apo apefon re nipa fifoo to ba doti pelu ose ti ko ni soda beeni ki o raan to bay a.

Gba aladugbo re niyanju lati ma sun sabe apo apefon lalaale. Ojuse wa ni lati gbogun ti aisan iba. Darapo mo awon alawokose nipa sisun sinu apo apefon ati nipa gbigba awon mii niyanju lati maa sun sinu apo apefon lalaale.

Daabo bo ara re lowo efon to n fa aisan iba. Maa sun sinu apo apefon lalaale.

Pinpin apo apefon ni awon agbegbe to ku yoo waye laipe jojo.

Ikede yii wa lati odo Ijoba Ipinle Oyo ati ajo ti on gbogun ti aisan iba lagbaye

ENDS

JINGLE 3: PIDGIN ENGLISH

FOCUS: AWARENESS JINGLE TO PROMOTE USE OF LLIN AFTER FREE DISTRIBUTION IN OYO NORTH SENATORIAL ZONE

Length: 1:14

Opening with sound of Town crier's gong, then a calm male voice starts the announcement

Make una listen to this special announcement wey Oyo State Government plus Roll back Malaria Partners bring una.

You and your family supposed to dey sleep for inside your net now. But make sure say una don first spread am yakata for under shade for breeze for 24 hours before una begin use am. If you and una family dey sleep inside the net every night, e go dey protect una from malaria, saved you money because why , you no go spend money on top malaria.

Make sure say you take care of una net well well. Wash am if he don dirty with soap wey no bet soda. Sow dem if you see say he don dey tear.

Tell una neighbour to hang up and sleep inside dem nets. Na we job to fight malaria together. Make una tell others to sleep inside dem mosquito nets.

Take cover from mosquitoes wey dey spread malaria. See say una dey sleep for inside the net every night.

People wey dey the remaining two zones go get dem own net very soon.

Na Oyo state government plus Roll Back malaria Partners dey bring una this message.

ENDS

JINGLE 4: YORUBA

FOCUS: AWARENESS JINGLE TO PROMOTE USE OF LLIN AFTER FREE DISTRIBUTION IN OYO NORTH SENATORIAL ZONE

Length: 1:19

Intro: voice of a young female hawker is heard faintly from the background. A man is then heard snoring; then a female voice calls to wake him up. It is later discovered to be a market place. The female voice is later identified as that of Iya Kike .The following dialogue ensues between Iya Kike and the snoring male, who is later identified as Baba Kemi:

Iya Kike: Baba kemi (2ce). Se o si nkan ti e n sun lasiko oja yii?

Baba Kemi: Iya Kike, aisun ni mo se moju. Ogun esu ni awon efon ile wa. Awon ni mo fi gbogbo oru dode.

Iya Kike: hahaha, Baba Kemi, se pee eyin si n dode efon? Iyen ti doro itan lodo tiwa!

Baba Kemi: Se looto?

Iyya Kike: Beeni o. Apo efon alalope tawon ijoba ha fun wa nijo onii, se bi iyawo yin naa gba n be? Ibo le ko won si?

Baba Kemi (hiss loudly) won wa n le. Se won wulo ni?

Iya Kike: Hahaha. Apo efon alalope yen yoo dab obo yin lowo efon to n fa arun iba, te ba ti yaa de'le, e yaa ri wipe e naa s'ategun niboji fun wakati merinlelogun, eyi ti n se ojo kan gbako. Leyin eyii, e ta sori ibusun yin ki e si maa sun sinu re lalaale.

Baba Kemi: awon efon t'odo wa won ti fe han wa leemo.

Iya Kike: Eheen, idi niyen ti e fi gbudo lowo si igbofun ti aisan iba. Gbogbo wa lo ye k' maa sun sinu apo apefon alalopee

Baba Kemi: O seun, Iya kike. Bi mo ba ti wa dele, n se boo ti wi ge le. Bee si ni awon molebi mii yoo bere si sun sinu re logan!

Announcer: Pinpin apo apefon ni awon agbegbe to ku yoo waye laipe jojo.

Ikede yii wa lati odo Ijoba Ipinle Oyo ati ajo ti on gbogun ti aisan iba lagbaye

ENDS

JINGLE 5: PIDGIN

FOCUS: AWARENESS JINGLE TO PROMOTE USE OF LLIN AFTER FREE DISTRIBUTION IN OYO NORTH SENATORIAL ZONE

Length: 1:31

Intro: voice of a young female hawker is heard faintly from the background. A man is then heard snoring; then a female voice calls to wake him up. It is later discovered to be a market place. The female voice is later identified as that of Mama Kike .The following dialogue ensues between Mama Kike and the snoring male, who is later identified as Baba Kemi

Mama Kike: Baba Kemi (2ce), why you dey sleep for market for dis kin time?

Baba Kemi: I beg Mama Kike, no vex. Na mosquitoes no gree me for sleep last night.

Mama Kike: haha, Baba Kemi! You mean say you still dey dis mosquito wahala level? To me o, dat one na old tory.

Baba Kemi: You mean am?

Mama Kike: Yes ke! The two free Long Lasting Nets wey dem just give una woman, na wetin you take am do?

Baba Kemi: (Hiss loudly) Nets? Dem dey house now!

Mama Kike: Ha! How una go sleep for night? The nets na to protect una family for mosquito wey dey spread malaria. If you reach house, spread the net for inside shade for breeze for 24 hours. Na one day be dat o! after, make you hang the net and begin sey sleep inside.

Baba Kemi: Ha! The mosquitoes wey dey my house don show me and my family serious wahala o!

Mama Kike: Na for dat reason you must to join in the fight against malaria one time. Na inside the net you suppose to dey sleep because why, the benefits na we own o!

Baba Kemi (Laughing) Madam, thank you well, well o. for sake of say you don help me this morning, make you take this jara.

Mama Kike: hehee! Thank you Baba Kemi. You do well o. Make una take cover from mosquito wey dey spread malaria. Make sure say you dey sleep inside the net.

Peopl wey dey the remaining two zones go get dem own net very soon.

Na Oyo state government plus Roll Back malaria Partners dey bring una this message.

ENDS

JINGLE 6: YORUBA

FOCUS: AWARENESS JINGLE TO PROMOTE GENERAL BEHAVIOUR AGAINST MALARIA INCLUDING USE OF LLIN AMONG RESIDENTS OF OSUN STATE

Length: 1:01

Opening with sound of local drumming, female voices sing the chorus twice, before the lead singer breaks in:

Chorus:

Iba lo

Iba lo nile yi o

Iba lo.

Lead: A se'ku pa ni

Chorus: *Iba lo*

Lead: A dani l’oro

Chorus: *Iba lo*

Lead: A nini lara

Chorus: *Iba lo*

Lead: Aisan iba yi buru jojo

Chorus: *Iba lo*

Iba lo nile yi o

Iba lo

Female Announcer: Ti a ba n soro awon aisan t’o n yara pa ni, papa julo awon alaboyun ati omo wewe lati odun marun sisale, okan Pataki laisan iba je. Idi niyi ti ile ise eto ilera ipinle Osun se n kede pe ojuse gbogbo wa ni lati le aisan iba lo lawujo wa,ka le dekun ose to n se nipa iku alaboyun ati omo wewe.

Nitorinaa, e je ka tele ofin imototo, ka ri wipe ayika wa mo tooto nigbagbogbo, ka pale ibi ti efon ba le ye si mo, ka si rip e a de apo efon ti a pese si ibi ti a n sun. Ti a ba wa ri aisan iba lara enikeni, ile iwosan ijoba ni ki e tete gba lo, fun amojuto to peye. Ki a ye f’emi ara eni fa taala.

Ile ise ilera ipinle Osun n ke pe, aisan iba, aseku pani ni, e sora, e sora!!! (echoes and fades...)

ENDS

OTTHER JINGLES

JINGLE 7: YORUBA

FOCUS: AWARENESS JINGLE TO PROMOTE REGISTRATION FOR THE COLLECTION OF LLIN IN OYO NORTH SENATORIAL DISTRICT

Length: 1:40

Opening with sound of Town crier’s gong, then a calm, male voice starts the announcement.

E teti si ikede pataki yii lati odo Ijoba Ipinle Oyo ati ajo ti n gbogun ti aisan iba ni agbaye.

Pinpin apo apefon alalope yoo bere ni ejun ariwa ipinle yii laipe. Apo apefon alalope yoo dab obo iwo ati molebi re lowo efon to n fa iba.

Awon osise ti won wo aso ti on ni ami ajo to n gbogun ti aisan iba yoo ma ti ojule de ojule lati gb’oruko yin sile. Won yoo si fun yin ni kaadi pelebe kan. Kaadi yii ni yoo fun yin ni anfani lati gba apo apefon alalope yii.

E gbo o. Laisi kaadi yi, ko si apo apefon. E duro nile ki e si tara sasa da won lohun, ki won le de gbogbo ile to wa ladugbo yin pata. O kere tan, ibudo meta ti won yoo ti ma pin apo apefin yii lo wa ni ward yin kookan.

E lo si ibudo ti won ba ko si kaadi yin lati gba apo apefon yin laarin aago mejo aaro si merin irole lati ojo kokandinlogun si ojo kokanlelogun osu keje odun yii.

Ni kete ti e ba ti fun won ni kaadi yi ni won yoo fun yin ni apo apefon alalope meji lofe. Ofe ni apo alalope yii o. ijoba ati ajo to n gbogun ti aisan iba l'agbaye ti sanwo re.

Ri daju pe o o ta to ba ti gba oo. Ojo merin pere ni pinpin apo apefon yii yi o fi waye; lati ojo konalelogun titi di ojo kejilelogun osu keje odun yii. Ma je ki anfani yii fo o ru.

Pinlpin apo apefon ni agbegbe mejo yoku yi o waye ni aipe jojo.

Ikede yi waye lati odo Ijoba Ipinle Oyo ati ajo ti n gbogun ti aisan iba ni agbaye.

JINGLE 8: PIDGIN

FOCUS: AWARENESS JINGLE TO PROMOTE REGISTRATION FOR THE COLLECTION OF LLIN IN OYO NORTH SENATORIAL DISTRICT

Length: 1:27

Opening with sound of Town crier's gong, then an excited female voice starts the announcement

Make una listen to this special announcement wey Oyo state government plus Roll Back malaria Partners bring una.

Distribution of free LLIN go begin very soon for Oyo North senatorial zone. The net go protect you plus your family from mosquitoes wey dey spread malaria.

Community Mobilisers wey wear uniform, we y carry Roll Back Malaria logo, go dey visit una house one by one to register all of una and also give una Net card, wey una go use to collect the free nets. Remember o, no card, no net!

As dem come, answer them quick quick so that dem go fit visit other people wey dey una area. Make una waka go distribution point wey dem write for your card from eight for morning reach four oclock for evening from July 19 o till July 22 this year.

Show them una card and collect two nets free. The mosquito nest na free o! Government and Roll Back Malaria Partners don pay for am. But I beg o, no sell the net ooo.

Collection an for only four days; from july 19 to July 22 this year.

Make una sure say you sleep for inside thenet. People wey dey for the remaining two zones go get dem own free nets soon.

Na Oyo Oyo state government plus Roll Back malaria Partners dey bring una this message.

JINGLE 9: YORUBA

FOCUS: AWARENESS JINGLE TO PROMOTE ACTUAL COLLECTION OF LLIN IN OYO NORTH SENATORIAL DISTRICT

Length: 1:25

Opening with sound of Town crier's gong, then a calm male voice starts the announcement

E teti si ikede pataki yi lati odo Ijoba Ipinle Oyo ati ajo ti on gbogun ti aisan iba lagbaye.

Pinpin apo apefon alalope ti yio dabo bo iwo ati ebi re lowo efon ti n fa aisan iba ti bere lekun ariwa ipinle yii.

Lo si ibudo ti won ko si ara kaadi ti won ti fun o laarin aago mejo aaro titi di aago merin irole lati ojo kokandinlogun titi di ojo kejilelogun osu keje odun yii. Fun awon osise ni kaadi re ki o si gba apo apefon alalope meji lofee.

E gbo oo, laisi kaadi, ko si apo apefon o. ofe ni apo apefon yi i o. Ijoba ati ajo to n gbogun ti aisan iba lagbaye ti sanwo won.

Ojo merin pere ni pinpin apo apefon yii yoo fi waye, lati ojo kokandinlogun titi di ojo kejilelogun osu keje odun yii

E ri daju pe e na apo apefon yin sinu ategun labe iboji fun wakati merinlelogun ti n se ojo kan gbako ki e to maa sun s'abe re lalale.

E gba awon aladugbo yin niyanju lati maa sun sinu apo apefon alalope lalale

Daabo bo ara re lowo efon ti n fa aisan iba. Sun sinu apo apefon lalale.

Pinpin apo apefon l'awon ekun idibo meji to ku yoo waye laipe jojo.

Ikede yii wa lati odo Ijoba Ipinle Oyo ati ajo ti on gbogun ti aisan iba lagbaye

ENDS

JINGLE 10: PIDGIN ENGLISH

FOCUS: AWARENESS JINGLE TO PROMOTE ACTUAL COLLECTION OF LLIN IN OYO NORTH SENATORIAL DISTRICT

Length: 1:24

Opening with sound of Town crier's gong, then a calm male voice starts the announcement

Make una listen to this special announcement wey Oyo State Government plus Roll back Malaria Partners bring una. Ehe ehe ehe! E don dey happen o. Distribution of free Long Lasting nets wey go protect you and una family from mosquitoes wey dey cause malaria, e

don start o for Oyo North senatorial Zone. Make una go the distribution centre wey dem write for una card between 8am and 4pm everyday from July 19 to July 22 this year.

Make una show una Net Card for dia and collect two nets free of charge. Remebner sha o, no card, no nets! Government and Roll back Malaria Partners don pay for am. Collection go last for only four days pere, from July 19 to July 22 this year.

Make sure say una spread the net for breeze under the shade for 24 hours before una family begin to dey sleep inside am every night o. make una encourage una neighbour to hang dem net and sleep inside am. Make una take cover quick quick from mosquitoes wey dey spread malaria. Make una dey sleep inside the net every night.

People wey dey for the remaining zone will get dem own free net very soon.

Na Oyo state government plus Roll Back malaria Partners dey bring una this message.

ENDS

JINGLE 11: YORUBA

FOCUS: AWARENESS JINGLE TO PROMOTE ACTUAL COLLECTION OF LLIN IN OYO NORTH SENATORIAL DISTRICT

Length: 1:10

Two women, Iya Abike and Iya Asake are heard in conversation. Iya Asake is calling out to Iya Abike, who is presented as running towards an unknown location. The following dialogue ensues:

Iya Asake: (calling out) Iya Abike, Iya Abike

Iya Abike: Mo n je o

Iya Asake: Ibo lo a da t'o n sare to bayii?

Iya Abike: bee laa bi ni. Ibudo ti won ti n pin apo apefon alalope ni mo n lo. Mo fe lo gba ti molebi mii. Woo, kaadi mi ree. Ojo merin pere ni won ni yoo fi waye ni ekun idibo ariwa ipinle yii, lati ojo kokandinlogun si ojo kejilellogun osu keje odun yii.

Iya Asake: Ojo merin pere?

Iya Abike: Bee ni

Iya Asake: haa, je a jo ma lo.

Iya Abike: Nje kaadi re wa lowo re bi?

Iya Asake: beeni, o wa lowo mii

Iya Abike: e hen, je a j omaa lo

Iya Asake: A mo sa o, emi o ma mowo kankan dani o. ti won ba beere owo lohun nko?

Iya Abike: Ko si iyonu. Ofe ni. Ijoba ati ajo ti n gbogun ti aisan iba lagbaye won ti sanwo gbogbo e.

Iya Asake: Eyi n mo daa o

Iya Abike: Dakun, je a yara ka lo gba apo apefon ti wa naa

Iya Asake: O ti ya!

Male Voice: Beeni o. Tara sasa, lo si ibudo ti woin ti n pin apo apefon alalope ti won ko sori kaadi re lati ojo kokandinlogun si ojo kejilellogun osu keje odun yii. Fun won ni kaadi ki o si gba apo apefon alalope meji lofee.

Pinpin apo apefon ni awon agbegbe to ku yoo waye laipe jojo.

Ikede yii wa lati odo Ijoba Ipinle Oyo ati ajo ti on gbogun ti aisan iba lagbaye

ENDS

JINGLE 12: PIDGIN

FOCUS: AWARENESS JINGLE TO PROMOTE COLLECTION OF LLIN IN OYO NORTH SENATORIAL ZONE

Length: 1:28

Two women, Mama Abike and Mama Asake are heard in conversation. Mama Asake is calling out to Mama Abike, who is presented as running towards an unknown location. The following dialogue ensues:

Mama Asake: mama Abike (2x)

Mama Abike: I dey answer you, Mama Asake.

Mama Asake: Na where you dey rush go?

Mama Abike: I wan reach Distribution Point make I con collect my LLnet for me and my family because na only four days pere, n im we get to collect am, from July 19 to July 22 dis year for Oyo North senatorial zone.

Mama Asake: ha! I beg make we dey go together.

Mama Abike: Ehn, e kuku better like dat o. sugbon, sey u don carry una Net Card with you sha?

Mama Asake: yes ke! I get am for here.

Mama Abike: E good like dat o . Remember sey no card, no net o.

Mama Asake: But wait o…I no hold money o

Mama Abike: Haha! You no need any money at all, at all because the nets nko, na free! Government and Roll Back malaria Partners don pay for the net patapata.

Mama Asake: Eh! dat one good o.

Mama Abike: A beg make we rush go collect our net o

Mama Asake: make we chase malaria commot patapata.

Mama Abike: O yes! Make una go the Distribution Point wey dem write for una card from July 19 to July 22 this year, make you show dem una card and you go get two free Long Lasting Mosquito Nets. Make una take cover from mosquito wey dey cause malaria. Dey sleep inside the net every night.

People wey dey the remaining two zones go get dem own net very soon.

Na Oyo state government plus Roll Back malaria Partners dey bring una this message.