

**HEALTH COMMUNICATION AND MALARIA CONTROL IN UGANDA:
A CASE STUDY OF MALARIA CONSORTIUM IN KIBOGA DISTRICT**

BY

KENNETH MUKWABA MULONDO

09/MMSPPM/18/099

**A DISSERTATION SUBMITTED TO THE SCHOOL OF MANAGEMENT SCIENCE
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
MASTERS DEGREE IN MANAGEMENT STUDIES (PROJECT PLANNING
AND MANAGEMENT) OF UGANDA MANAGEMENT INSTITUTE**

DECEMBER, 2014

DECLARATION

I, **Kenneth Mukwaba Mulondo**, declare that this dissertation has never been presented anywhere for any award in any University or Institution of Higher Learning. I stand responsible for what is stated hereunder.

Signed:.....

Date:.....

APPROVAL

This dissertation has been submitted to Uganda Management Institute for examination with our approval as supervisors.

Signed:.....

Date:.....

Ivan Twinomuhwezi
Academic Based Supervisor
Uganda Management Institute

Signed:.....

Date:.....

Amos Zikusoka
Work – Based Supervisor

DEDICATION

This dissertation is dedicated to my wife for her continuous love, support and patience that she extends towards me.

ACKNOWLEDGEMENT

Whereas I may not be able to mention everybody by name, my thanks go to all those individuals who in one way or another contributed to the success of this study.

I am deeply indebted to my wife and Grand Mother – Janet Nnakku Nsibambi, who have successfully pressurized me to complete this study. Without their contribution, the success of this study would have been impossible. I am deeply indebted to them.

Special thanks to my parents for the endless support - my father - Mr. Samite Mulondo and my mother's – Harriet Gwokyalya and Judith Mulondo

Special thanks to the entire management and staff, colleagues at UMI and Malaria Consortium in Uganda for providing an environment that encouraged the study and team work.

I specifically thank my supervisors Mr. Ivan Twinomuhwezi (Academic Based Supervisor, Uganda Management Institute) and Mr. Amos Zikusoka (Work – Based Supervisor) for their critiques, encouragement and support while I undertook this study which was full of challenges.

I am extremely grateful to all those respondents who willingly accepted to provide information that was critical for this study. Lastly, my sincere and heartfelt thanks to go my dear children Karsten Mukungu Mulondo and Kaylee Mwebaza Mulondo for their smiles that give me the reason for being amidst all challenges.

TABLE OF CONTENTS

Declaration	I
Approval	II
Dedication	III
Acknowledgement	IV
Table of Contents	V
List of Tables	XI
List of Figures	XIII
List of Abbreviations	XIV
Abstract	XV
CHAPTER ONE	1
1.0 Introduction	1
1.1 Background to the study	2
1.1.1 Historical background	2
1.1.2 Theoretic background	6
1.1.3 Conceptual background	9
1.1.4 Contextual background	12
1.2 Statement of the problem:	20
1.3 Purpose of the study	21
1.3.1 Specific objectives of the study	21
1.4 Research Questions	21
1.5 Research Hypotheses:	22
1.6 Conceptual Framework:	23
1.7 Scope of the Study:	27

1.7.1 Geographical Scope	27
1.7.2 Time Scope	27
1.7.3 Content Scope	27
1.8 Justification Of The Study:	27
1.9 Significance Of The Study:.....	28
1.10 Operational Definition Of Terms And Concepts	29
CHAPTER TWO	31
LITERATURE REVIEW	31
2.0 Introduction.....	31
2.1 Theoretic Review	31
2.1.1Health Belief Model.....	32
2.1.2 Social Cognitive Theory	33
2.1.3 Ideation Theory (Kincaid, Figueroa, Storey, & Underwood, 2001).....	35
2.2 The relationship between Situation Analysis and Malaria Control	40
2.3 Health Communication Messaging and Malaria Control	43
2.4 Nature of Health Communication Channels and approaches on Malaria Control.....	44
2.5 Frequency of Health Communication and Malaria Control.	46
2.5 Summary of Literature review	47
CHAPTER THREE	49
METHODOLOGY	49
3.0 Introduction.....	49
3.1 Research Design.....	49
3.2 Study Population.....	50
3.3 Sample Size Selection.....	50
3.5 Sampling Techniques And Procedure.....	51

3.6: Data Collection Methods	52
3.6.1: Questionnaire Survey.....	52
3. 6.2: Interviews.....	53
3. 6.3: Documentary Review	54
3. 7 Data Collection Instruments	54
3. 7.1: Questionnaire	54
3.7.2: Interview Guide	55
3.7.3: Documentary Check List	55
3.8 Validity And Reliability Of The Research Instruments.....	56
3.8.1: Validity	56
3.8.2: Reliability.....	57
3.9: Procedure For Data Collection	58
3.10: Data Analysis.....	59
3.10.1: Quantitative Data Analysis:	59
3.10. 2. Qualitative Data Analysis	60
3.11 Measurement of Variables	60
3.12 Ethical Consideration	61
CHAPTER FOUR.....	62
DATA PRESENTATION, ANALYSIS AND INTERPRETATION	62
4.1 Introduction.....	62
4.2 Response Rate.....	62
4.3 Demographical Characteristics	63
4.3.1 Gender and Category of the Respondents.....	63
4.3.2 Age Group and Category of the Respondents.....	65
4.3.3 Religious affiliation of the Respondents.....	66

4.3.4 Education Levels * Economic Activity of the Respondents.....	67
4.4 The Relationship Between Situation Analysis and Malaria Control	68
4.3.2 Correlations.....	73
4.3.3 Regression Analysis.....	74
4.4 The Relationship Between Health Communication Messaging On Malaria Control.	76
4.4.2 Correlations.....	82
4.4.3 Regression Analysis.....	83
4.5 The Relationship Between Nature Of Health Communication Channels and Malaria Control In Uganda.....	85
4.5.2 Correlations.....	92
4.5.3 Regression Analysis.....	93
4.6 The Relationship Between Frequency of Health Communication and Malaria Control.	95
4.6: Dependent Variable (Malaria Control)	100
4.7 The Effect Of Health Communication On Malaria Control In Uganda.....	104
4.8.1 The Relationship Between Situation Analysis And Malaria Control	105
4.3.3 The Relationship Between Channels And Approaches And Malaria Control....	106
CHAPTER FIVE	109
SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS..	109
5.1 Introduction.....	109
5.2 Summary of Findings.....	109
5.2.1 The Relationship Between Situation Analysis and Malaria Control	109
5.2.2 The Relationship Between Health Communication Messaging and Malaria Control	110

5.2.3 The Relationship Between Nature Of Health Communication Channels and Malaria Control.....	111
5.2.4 The Relationship Between Frequency Of Health Communication and Malaria Control	112
5.3 Discussion.....	112
5.3.1 The Relationship Between Situation Analysis and Malaria Control	112
5.3.2 The Relationship Between Health Communication Messaging and Malaria Control	115
5.2.3 The Relationship Between Nature Of Health Communication Channels and Malaria Control.....	117
5.3.4 The Relationship Between Frequency Of Health Communication and Malaria Control	118
5.4 Conclusions.....	119
5.4.1 The Relationship Between Situation Analysis and Malaria Control	119
5.4.2 The Relationship Between Health Communication Messaging and Malaria Control	120
5.4.3 The Relationship Between Nature Of Health Communication Channels and Malaria Control	120
5.4.4 The Relationship Between Frequency Of Health Communication and Malaria Control	120
5.5 Recommendations.....	121
5.5.1 The Relationship Between Situation Analysis and Malaria Control	121
5.5.2 The Relationship Between Health Communication Messaging and Malaria Control	121

5.5.3 The Relationship Between Nature Of Health Communication Channels and Malaria Control	122
5.5.4 The Relationship Between Frequency Of Health Communication and Malaria Control	123
5.6 Implications Of The Findings	123
5.7 Areas For Further Research	124
5.8 Limitations	125
References	127
Appendix 1: Questionnaire	134
Appendix 2:.....	142
Interview Guide (Implementers).....	142
Appendix 3:.....	143
Focus Group Discussion Guide (Target Audience/ Receipts)	143

LIST OF TABLES

Table 1; Sample size and selection	51
Table 2: Content Validity Index Results.....	56
Table 3: Reliability results	57
Table 4: Response rate of distributed questionnaires	62
Table 5: Gender of the respondents	64
Table 6: Age Group and Category of the respondents.....	65
Table 7: Religious affiliation of the respondents	66
Table 8: Cross tabulation of Education levels of the respondents * Economic activity of the respondents.....	67
Table 9: Respondents' attitude on effect of situation analysis of the health communication environment on the Malaria Control (N=192).....	68
Table 10: The Relationship Between Situation Analysis and Malaria Control	74
Table 11: The Relationship Between Situation Analysis and Malaria Control.....	75
Table 12: Causal relationship between situation analysis and Malaria Control	75
Table 13 Regression model between situation analysis and Malaria Control	76
Table 14: Respondents' attitude on the relationship Between Health Communication messaging on Malaria Control	77
Table 15: The the relationship Between health communication messaging on malaria control	82
Table 16: Significance of health communication messaging to malaria control	83
Table 17: Causal relationship between health communication messaging and malaria control	84
Table 18: Model summary of health communication messaging and malaria control	84

Table 19: The relationship between Health Communication channels and the Malaria Control (N=192)	86
Table 20: The the relationship Between nature of Health Communication channels and Malaria Control.....	92
Table 21: Model summary between nature of Health Communication channels and and Malaria Control.....	94
Table 22: Causal relationship between nature of Health Communication channels and approaches and Malaria Control	94
Table 23: Descriptive results for the relationship Between frequency of health communication and malaria control.....	95
Table 24: Correlation matrix between frequency of health communication and malaria control	98
Table 25: the relationship Between frequency of health communication on malaria control	99
Table 26: Causal relationship between frequency of health communication and malaria control	99
Table 27: Regression model between frequency of health communication and malaria control	100
Table 28: The minimum and maximum range and mean results of respondents rating on Malaria Control.....	101
Table 29: correlation matrix amongst situation analysis, messaging, channels and approaches and frequency of health communication on Malaria Control	105
Table 30: Results of the Multiple Regression Analysis.....	107

LIST OF FIGURES

Figure 1; Conceptual framework showing the relationship between Health Communication (independent variable) and malaria control (dependent variable) and the intervening variables and outcome variables	23
Figure 2; Conceptual model showing the relationship between Health Communication (independent variable) and malaria control (dependent variable) and the intervening variables and outcome variables	25
Figure 3; The Ideation Theory	36
Figure 4; factors that influence ideation, intention, and behavior:	38
figure 5. showing the elements of uses and gratifications model.	41
Figure 6; A Framework for Developing Culturally Specific Persuasive Health Message	43

LIST OF ABBREVIATIONS

CMDS	Community Medicine Distributors
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HBMF	Home Based Management of Fever
HSSP	Health Sector Strategic Plan
HPEU	Health Promotion and Education Unit
IEC	Information Education and Communication
ITNs	Insecticide Treated Nets
IPTp	Intermittent Presumptive Treatment for malaria during Pregnancy
MC	Malaria Consortium
RBM	Roll Back Malaria
SMART	Specific, Measurable, Appropriate, Realistic and Time – Bound
UDHS	Uganda Demographic Health Survey
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations International Children’s Education Fund
WHO	World Health Organization

ABSTRACT

The study analyzed how health communication affects malaria control focusing on Malaria Consortium in Uganda as the case study. The three objectives that guided the study were: To establish the effect of situation analysis of the health communication environment on the Malaria Control; to examine how the Health Communication messaging offered by Malaria Consortium affects the Malaria Control ; to determine how the nature of Health Communication channels and approaches offered by Malaria Consortium affects the Malaria Control in Uganda. The study used a cross sectional survey design which involved triangulation of both qualitative and quantitative data. Out of one hundred ninety six (196) questionnaires distributed to the respondents, only 192 (one hundred and ninety two) questionnaires were returned. The findings revealed that situation analysis of the health communication environment had a positive and significant correlation with Malaria Control ($P < 0.01$; $r = 0.441^{**}$). This meant that the two variables were positively and significantly related; that there that there was a positive but not significant relationship between health communication messaging and malaria control was positive but not significant ($p = 0.027 > 0.01$, $r = 0.139$). The findings revealed that there was a positive and significant relationship between nature of Health Communication channels and approaches of and Malaria Control ($p < 0.01$, $r = 0.618^{**}$). This meant that health communication channels had a higher degree of positive relationship with malaria control in Uganda. In line with the findings and conclusions derived, the researcher recommended that: there is a need to develop different Health Communication messages in forms of mass media advertising, interpersonal communication and the traditional media vehicles thus continuously utilized so as to equip people more on various ways of preventing the disease.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Health communication encompasses the study and use of communication strategies to inform and influence individual and community decisions that enhance health (Kreps, 2008). It links the domains of communication and health and is increasingly recognized as a necessary element of efforts to improve personal and public health in societies since it contributes to all aspects of disease control, prevention and health promotion. According to Bandura, (2013) it is relevant in a number of contexts, including health professional-patient relations, individuals' exposure to, search for, and use of health information, individuals' adherence to clinical recommendations and regimens, the construction of public health messages and campaigns, the dissemination of individual and population health risk information, that is, risk communication, images of health in the mass media and the culture at large, the education of consumers about how to gain access to the public health and health care systems, and the development of telehealth applications (Feldman, 2011; Kosa, Antonovsky, & Zola, 2012; McGuire, 2012; 2012; Tichenor, Donohue, & Olien, 2013; Zola, 2011).

Therefore in this regard, the study intended to assess the role of health communication in the malaria control in Uganda focusing on the case study of Malaria Consortium in Uganda. Health communication is conceived as the independent variable while malaria control is the dependent variable as illustrated in the conceptual frame work. This chapter deals with the background to the study, statement of the problem, the purpose, objectives of the study, research questions, hypothesis, justification of the study, scope of the study and operational definitions.

1.1 Background to the study

This section will define the historical, theoretical, conceptual and contextual details of health communication and malaria control.

1.1.1 Historical background

The emergence of health as an important personal concern and the ascendancy of healthcare as a major institution in the middle of the 20th century in the U.S. were major factors in the evolution of the field of health communication (Korsch and Negrete_s, 2012). The conceptualization of “health” as a distinct value in U.S. society represented a major development in the emergence of the healthcare institution. Prior to World War II health was generally not recognized as a value by Americans but was vaguely tied in with other notions of well-being. In the decades following the war personal health became a growing concern, and the adequate provision of health services became an important issue in the mind of the American public. By the last third of the twentieth century, health had become an obsession with Americans (Cassata, 2011; 2011; Costello, 2011; Costello & Pettegrew, 2011).

Health communication has developed over the last twenty-five years as a vibrant and important field of study concerned with the powerful roles performed by human and mediated communication in health care delivery and health promotion. Health communication inquiry has emerged as an exciting applied behavioral science research area. (Maibach, Kreps, & Bonaguro, 2011). It is an applied area of research not only because it examines the pragmatic influences of human communication on the provision of health care and the promotion of public health, but also because the work in this area is often used to enhance the quality of health care delivery and health promotion.

In the second half of the 20th century emerging American values, Health communication is an extremely broad research area, examining many different levels and channels of communication in a wide range of social contexts. The primary levels for health communication analysis include intrapersonal, interpersonal, group, organizational, and societal communication (Gramiccia & Beales, 2008; Festinger, 2007; Rokeach, 2003). Intrapersonal health communication inquiry examines the internal mental and psychological processes that influence health care, such as the health beliefs, attitudes, and values that predispose health care behaviors and decisions. Interpersonal health communication inquiry examines the relational influences on health outcomes, focusing on the provider/consumer relationship, dyadic provision of health education and therapeutic interaction, and the exchange of relevant information in health care interviews.

More still in USA, according to Koop, Pearson and Schwarz, (2001) group health communication inquiry examined the role communication performs in the interdependent coordination of members of collectives, such as health care teams, support groups, ethics committees, and families, as these group members share relevant health information for making important health care decisions. Organizational health communication inquiry examines the use of communication to coordinate interdependent groups, mobilize different specialists, and share relevant health information within complex health care delivery systems to enable effective multidisciplinary provision of health care and prevention of relevant health risks. Societal health communication examines the generation, dissemination, and utilization of relevant health information communicated via diverse media to broad range professional and lay audiences to promote health education, health promotion, and enlightened health care practice.

In both Vietnam and Peru, communication activities were seamlessly integrated into all of the Malaria control program's activities as needed in 2011s. Advocacy secured quality strategic behaviour change communication also known as social and behaviour change communication, which encompassed health communication, social and community mobilization, and it evolved from information, education and communication (IEC) strategies. With components ranging from interpersonal communication between a community health worker and her client to multi-level mass media campaigns, evidence-based and theory-driven BCC interventions were an integral part of all types of health promotion and disease prevention, and had been shown to significantly improve behaviours, notably in the areas of family planning and HIV prevention, but also in hygiene and sanitation, nutrition, and other disease areas (Robbins, 2011). While it is generally acknowledged that the majority of diseases are either treatable or preventable in developed countries, most developing countries lack the advanced medical training and technology prevalent in Westernized countries. However, it is possible for the level of awareness of preventable diseases to be increased with the health communication models and systems that have been created for developing countries (Johns Hopkins, 2010). Unfortunately, this is often not the case. A case study on HIV/AIDS in South Africa shows that posters designed to increase awareness and change people's behavior towards this virus lack integral components from a communication perspective (Beaudoin, 2007).

During the 2011s, another program focusing on reproductive health in Zambia used television to increase commitment and involvement at all levels and kept the issue in the national spotlight (King and Levine 2011, Rajan and Zingales 1998, Calderon and Liu 2002). Mass media educated the public, and motivated them to utilize services and

complete treatment. Both programs trained all personnel in interpersonal communication and counseling to improve relationships between providers and patients and ensure malaria control and continuation with treatment. Community mobilization activities educated the public, reduced the stigma around TB, and created a supportive environment for case detection and treatment. In time, both countries met the WHO targets for TB control.

The relationship between communication and health issues like malaria started in the mid-1970s, which resulted into a health communication discipline. Today the role of health communication in a fast changing social, political, market and public health environment cannot be ignored in view of creating a receptive and favorable health. To date, the field of health communication has been defined with greater emphasis being placed on communication than health. Finnegan and Viswanath (1970) attribute this to the fact that “it was communication scholars who sought to exercise their expertise in health situations rather than the health experts who sought to illuminate communication effects”.

Current and future health communication research will increasingly focus on the effective dissemination of relevant health information to promote public health concerns such as disease control like malaria. Modern health promotion efforts will recognize the multidimensional nature of health communication, identify communication strategies that incorporate multiple levels and channels of human communication, and implement a wide range of different prevention messages and campaign strategies targeted at relevant and specific (well-segmented) audiences (Maibach, Kreps, & Bonaguro, 2013).

Therefore Health communication is becoming increasingly concerned with the role of culture on health and health care such as disease control and prevention. As a result, this

research study intended to assess the role of health communication on malaria control in Uganda since the field of health communication encourage the use of sensitive and appropriate interpersonal communication in health care, empower consumers to take charge of their own health care, enhance the dissemination of relevant health information and the use of strategic communication campaigns to promote public health, facilitate the development of pluralistic ideologies for effective multicultural relations in health care, and suggest adaptive strategies for using health communication to accomplish desired health outcomes.

1.1.2 Theoretic background

There are a multitude of theories that can be used in the communication of health but this study will be based on two theoretical models that include Social Cognitive Theory and the Health Belief Model.

In 1941 Miller and Dollard proposed the theory of social learning. According to Miller (1941), Social cognitive theory is a theory that specifies a core set of determinants, the mechanism through which they work, and the optimal ways of translating this knowledge into effective health practices. The core determinants include knowledge of health risks and benefits of different health practices, perceived self-efficacy that one can exercise control over one's health habits, outcome expectations about the expected costs and benefits for different health habits, the health goals people set for themselves and the concrete plans and strategies for realizing them, and the perceived facilitators and social and structural impediments to the changes they seek.

In 1963 Bandura and Walters broadened the social learning theory with the principles of observational learning and vicarious reinforcement. Bandura provided his concept of self-efficacy in 2011, while he refuted the traditional learning theory for understanding

learning. The Social Cognitive Theory is relevant to health communication (Parraga, 2011). First, the theory deals with cognitive, emotional aspects and aspects of behavior for understanding behavioral change. Second, the concepts of the SCT provide ways for new behavioral research in health education. Finally, ideas for other theoretical areas such as psychology are welcome to provide new insights and understanding. The social cognitive theory explains how people acquire and maintain certain behavioral patterns, while also providing the basis for intervention strategies (Bandura, 1997). Evaluating behavioral change depends on the factors environment, people and behavior. SCT provides a framework for designing, implementing and evaluating programs. The Social Cognitive Theory is relevant for designing health education and health behavior programs. This theory explains how people acquire and maintain certain behavioral patterns. The theory can also be used for providing the basis for intervention strategies (Glanz et al, 2002).

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. The model was developed in response to the failure of a free tuberculosis (TB) health screening program. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS.

The HBM is based on the understanding that a person will take a health-related action (i.e., use condoms) if that person: feels that a negative health condition (i.e., HIV) can be avoided, has a positive expectation that by taking a recommended action, he/she will

avoid a negative health condition (i.e., using condoms will be effective at preventing HIV), and believes that he/she can successfully take a recommended health action (i.e., he/she can use condoms comfortably and with confidence). The HBM was spelled out in terms of four constructs representing the perceived threat and net benefits: perceived *susceptibility*, perceived *severity*, perceived *benefits*, and perceived *barriers*. These concepts were proposed as accounting for people's "readiness to act." An added concept, *cues to action*, would activate that readiness and stimulate overt behavior. A recent addition to the HBM is the concept of *self-efficacy*, or one's confidence in the ability to successfully perform an action. This concept was added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating (Guide for Health Promotion Practice" 1997). The Health Belief Model has been applied to a broad range of health behaviors and subject populations. Three broad areas can be identified (Conner & Norman, 1996): Preventive health behaviors, which include health-promoting (e.g. diet, exercise) and health-risk (e.g. smoking) behaviors as well as vaccination and contraceptive practices, Sick role behaviors, which refer to malaria control with recommended medical regimens, usually following professional diagnosis of illness, Clinic use, which includes physician visits for a variety of reasons.

Basing on the study, both Social Cognitive Theory and the Health Belief Model and theories that explain health communication in reference to malaria control in Uganda focusing on the case study of Malaria Consortium in Uganda are considered the best theories since they are based on the three pillars of emotional aspects and aspects of behavior for understanding behavioral change and also explaining and predicting health behaviors focusing on the attitudes and beliefs of individuals which is essential in malaria

control. In relation to communication health communication and malaria control in Uganda, it is believed that knowledge of health risks and benefits creates the precondition for change. If people lack knowledge about how their lifestyle habits affect their health, they have little reason to put themselves through the travail of changing the detrimental habits they enjoy. But additional self-influences are needed for most people to overcome the impediments to adopting new lifestyle habits and maintaining them. Beliefs of personal efficacy play a central role in personal change. This focal belief is the foundation of human motivation and action to disease control especially malaria. Unless people believe they can produce desired effects by their actions, they have little incentive to act or to persevere in the face of difficulties.

1.1.3 Conceptual Background

Conceptually, Berlin and Donohew (2011) define health communication as “the dissemination and interpretation of health-related messages. The disseminator may be an individual, an organization or a mass medium, whereas the interpreter may be an individual, a group and organization, or an indiscriminate mass public” while on the other hand Costello (2011), Finnegan & Viswanath, (2011) notes that health communication is the study of the process by which individuals acquire and convert data about health into meaningful or consumable information, the ends of which are “those of adaptation.” Therefore this study adopted Cassata (2011)’s definition as “the study of communication parameters (levels, functions and methodologies) applied in health situations/contexts.” It can thus be deduced that interpersonal communication is an important action area of health communication. By implication, the path used to reach intended audiences with health communication messages and material such as the mass media and messages are

the 'connecting doors' that allow communication interventions to reach intended audiences.

According to Simonds (2002), health education is defined as aimed at “bringing about behavioral changes in individuals, groups, and larger populations from behaviour that is presumed to be detrimental to health, to behaviour that is conducive to present and future health.” In the same light, another definition refers to health education as the “process of assisting individuals acting separately or collectively to make informed decisions about matters affecting their personal health and that of others.

According to Nayyar, Breman, Newton, Herrington (2012), Malaria is a mosquito-borne infectious disease of humans and other animals caused by parasitic protozoans (a type of unicellular microorganism) of the genus *Plasmodium*. Commonly, the disease is transmitted via a bite from an infected female *Anopheles* mosquito, which introduces the organisms from its saliva into a person's circulatory system. In the blood, the protists travel to the liver to mature and reproduce. Malaria causes symptoms that typically include fever and headache, which in severe cases can progress to coma or death.

According to Sallares (2002), Malaria control can be defined as reducing malaria morbidity and mortality to a locally acceptable level through deliberate efforts using the preventive and curative tools available today. WHO classifies 82 of the 109 countries or territories with malarious areas in the Control stage. Malaria control relies on effective prevention and case management.

Prevention with vector control interventions aims to reduce transmission and thus decrease the incidence and prevalence of parasite infection and clinical malaria. Prevention with intermittent preventive treatment for pregnant women reduces the impact of placental malaria infection and maternal malaria-associated anemia. Early and effective case management of malaria will shorten its duration and prevent complications and most deaths from malaria (Prugnonle, Durand, Ollomo , Duval , Arieu , Arnathau , Gonzalez , Leroy & Renaud, 2011).

According to Barnlund (2008) Communication (from Latin *commūnicāre*, meaning "to share") is the activity of conveying information through the exchange of thoughts, messages, or information, as by speech, visuals, signals, writing, or behavior. It is the meaningful exchange of information between two or more living creatures. One definition of communication is “any act by which one person gives to or receives from another person information about that person's needs, desires, perceptions, knowledge, or affective states (Wark & McKenzie, 2007). Communication may be intentional or unintentional, may involve conventional or unconventional signals, may take linguistic or non-linguistic forms, and may occur through spoken or other modes” (Mehrabian, 2012).

According to Simonds (2002), Situation analysis refers to a collection of methods that managers use to analyze an organization's internal and external environment to understand the organization's capabilities, customers, and business environment.

1.1.4 Contextual background

Malaria Consortium is an international organization working primarily in Africa and Asia on communicable disease control. Malaria Consortium works closely with Ministries of Health, academic institutions and a range of partners, and is involved in all aspects of malaria control from policy and strategy development to implementation, monitoring and evaluation and operational research. Malaria Consortium also works on the control of other communicable diseases, including tuberculosis, diarrhoea and neglected tropical diseases. Malaria Consortium in Uganda has been active since 2003 and now supports a large and diverse country programme. Malaria Consortium is instrumental in supporting the Ministry of Health and National Malaria Control Programme (NMCP) in the development of the universal coverage strategy and in testing its implementation. This will be the fourth long-lasting insecticide-treated nets (LLINs) distribution Malaria Consortium has conducted in Uganda this year; others have taken place across sub counties in West Nile and the Eastern region.

Malaria Consortium has increasingly found its work on malaria to be effectively integrated with similar public health interventions for greater impact and has therefore expanded its remit to include child health and neglected tropical disease interventions. In its areas of expertise that include disease prevention, diagnosis and treatment, disease control and elimination, health systems strengthening, research, monitoring and evaluation leading to best practice, behaviour change communication, national and international advocacy, and policy development

With 95 percent of its staff working in malaria endemic areas, Malaria Consortium currently has programmes and projects in 12 countries across Africa and Southeast Asia. Its local insight is embedded in technical expertise and practical skills give the people the ability to respond to critical challenges quickly and effectively. Malaria Consortium unique structure and robust approach to tackling malaria and other diseases enables it to deliver among the most cost-effective public health programmes, even in complex and challenging environments. Collaboration and cooperation with others through its work is fundamental to our approach and they are proud to work closely with communities, governments, academic institutions, and local and international organisations.

At the Ugandan context, According to the Malaria Consortium in Uganda, Uganda has the third highest deaths from malaria in Africa and some of the highest recorded malaria transmission rates in the continent, particularly in the areas around Lake Kyoga in central Uganda, where Malaria Consortium is working on various initiatives. On average, a person in Apac district near Lake Kyoga would receive more than 1,500 infectious bites per year. This creates a heavy burden upon the health system, with malaria accounting for approximately 30%-50% of outpatient care, 15%-20% of admissions and 9%-14% of inpatient deaths. [<http://www.malariaconsortium.org/pages/uganda.htm> 09/03/2011]. The malaria situation portrayed by the Malaria Consortium in Uganda is similar to what another agency, Fight Malaria has also established. Fight Malaria has established that malaria is a leading cause of morbidity and mortality in Uganda, responsible for up to 40% of outpatient visits, 25% of inpatient visits and 14% of inpatient deaths. The burden of malaria is greatest among children under five years old and pregnant women www.fightmalaria.gov/funding/contracts/hcp_uganda.pdf 09/03.2011

Due to the above precarious malaria problem in Uganda many agencies are making attempt to fight malaria more so with the endeavor of achieving the 6th Millennium Development Goal of: Combat HIV/AIDS, Malaria and Tuberculosis. The goal outlines targets of addressing prevalence and death rates associated with malaria, proportion of children under 5 sleeping under insecticide-treated bed nets, Proportion of children under 5 with fever who are treated with appropriate anti-malarial drugs Malaria Communication in Uganda is guided by a strategic approach; it is research-based, recognizes the need for a dissemination plan for national policies and strategies, and complements existing and ongoing efforts to build necessary management, logistical and supply structures.

All communication efforts are implemented through the leadership of the Malaria Control Programme (MCP), the Health Promotion and Education Department (HPED) of the Ministry of Health (MoH) and through key partners working in malaria communication for example the Malaria Consortium in Uganda which is the focus on this investigation.

Presently, the MoH implements malaria communication through the Communication Strategy for Home Based Management of Fever/Malaria in Children and Control of Malaria in Pregnancy in Uganda (2001-2005). Presently, the MoH implements malaria communication through the National Malaria Communication Strategy, 2011. This broad based communication strategy includes malaria prevention, case management, vector control, epidemic preparedness. It is this same endeavour that the Malaria Consortium in Uganda is implementing its programs and this forms the basis of undertaking this study.

It should be noted that due the threat malaria is causing to the population of Uganda in terms of being among the high causes of death compounded by the economic and social suffering, the Ministry of Health (MoH) in Uganda is in partnership with various agencies that have designed programs of addressing malaria in Uganda for example John

Hopkins Bloomberg School of Public Health has designed The Health Communication Project Associate Award (HCP II AA) in Uganda, funded by USAID. The program builds on the foundation of the three-year Health Communication Partnership I (2004-2007) award, to change individual behavior, mobilize communities, create an enabling environment for sound health practices, and build capacity in health communication. [<http://www.jhuccp.org/whatwedo/projects/health-communication-partnership-associate-award-uganda-hcp-ii-aa>]

AFFORD has also designed a five-year health marketing initiative funded by USAID, integrating health communication and social marketing techniques to address a variety of health issues and behaviors in Uganda. CCP is leading this project in partnership with Constella Futures, the Malaria Consortium, Pulse Communication, Aclaim Africa, Communication for Development Foundation of Uganda (CDFU) and Uganda Health Marketing Group (UHMG). AFFORD aims to increase access to and affordability of products and services such as counseling and testing for HIV, malaria drugs, long-lasting insecticide-treated nets, multivitamins with zinc, and condoms, and to produce sustainable positive behavior change.

Stop Malaria Project (SMP) is also among the many malaria programs being implemented in Uganda. The Stop Malaria Project (SMP), funded by the President's Malaria Initiative (PMI) and USAID, is designed to assist the Government of Uganda to reach the PMI and Roll Back Malaria goal of reducing malaria-related mortality by 50 percent by 2010. The interventions include: Artemisinin-based Combination Therapy (ACTs) for treatment of uncomplicated malaria, Intermittent Presumptive Treatment of malaria in pregnancy (IPTp), and Long-lasting Insecticide Treated Nets (LLINs). The

Project uses a combination of approaches, including behavior change interventions, service delivery strengthening and institutional capacity building, to rapidly scale-up established interventions for malaria prevention, diagnosis, and treatment.

According to findings by Malaria Consortium, a child dies every 30 seconds, malaria occurs in more than 90 countries, 40% of the World's population are at risk of being affected by malaria. It kills up to 3 million people a year.

It has been noted that 58% of malaria cases occur in the poorest 20% of the World's population. Only US\$ 2.6 billion a year is needed to control malaria yet malaria costs Africa US\$ 12 billion every year. (www.malariaconsortium.org). In Uganda, Malaria is endemic in 95% of the country. The remaining 5% are epidemic – prone areas in the highlands of the southwest and east of the country (National Malaria Communication Strategy, 2005/6 – 2009/10). Out of these mentioned strategies, the research will mainly examine IEC (health communication) and its effect on malaria control. On basis that it has been strategically used to drive demand for and use of malaria in pregnancy services, long lasting insecticide nets, and appropriate treatment of malaria. The ultimate goal of communication is the adoption and maintenance of recommended malaria prevention and treatment practices made increasingly available through Government of Uganda efforts.

This will hopefully be achieved by improving individual and household recognition of their risks of malaria and available options for reducing those risks, strengthening client motivation and efficacy to adopt malaria control practices, and establishing sustainable community processes and norms that support optimal malaria prevention and treatment practices. According to the National Malaria Control Communication Strategy, 2005/6 – 2009/10, the main aim for communication is to build individual, household, community and district competence to stop malaria deaths and reduce malaria morbidity.

General awareness of malaria is high in most parts of Uganda. A baseline survey in five districts from all regions of the country more especially in Kiboga district (Net Mark, 2001) indicated 99% level of awareness. Similarly, Commercial Market Strategies (CMS) study carried out in Mukono, Jinja and Arua indicates 99% level of awareness (Okello, 2001). A study by Kilian (2002) on malaria related knowledge and behaviors in three districts in western Uganda also indicate significant improvement in general knowledge about malaria. The Home Based Management of Malaria/Fever (HBM) baseline (2001) and follow up survey (2003) and PSI (2003) tracking survey also indicate similar levels of awareness about malaria.

Kiboga District is a district in Central Uganda. Like many other Ugandan districts, the district is named after its 'chief town', Kiboga, the location of the district headquarters. Kiboga district was formed in 1991. It is predominantly a rural district. The district is traversed by a major highway linking Kampala, Uganda's capital city with Hoima, the base of Uganda's petrochemical industry. The district is administered by the Kiboga District Administration, with headquarters at Kiboga. In 2010, the district was split into two, the western part being set up as a separate district, Kyankwanzi District. In Kiboga District, malaria accounts for approximately 23% of mortality in children under-five. This high rate of malaria is linked to the intrinsically high to moderate transmission (entomological inoculation rates (EIRs) ranging from 100-1000) as well as to key health system challenges and lack of resource investment. Whilst some parts of the country have achieved both improved levels of access to health care and coverage of prevention measures, both of these in Western Uganda remain low, with less than 35% of

households living within 10km of a health facility and only approximately 10% of households owning a long lasting insecticide treated net (LLIN).

In order to reduce the above burden of malaria in Kiboga District, the Ministry of Health through the National Malaria Control Programme (HSSP 2005/6 – 2009/10) adopted five main intervention strategies which are in line with global ones as prescribed by WHO and Roll Back Malaria global partnership and these include; case management, Control of malaria in pregnancy through Intermittent Presumptive Treatment (IPTp), Vector control, Epidemic preparedness and response and Information Education Communication (IEC) & Social Mobilization. In this toolkit, Uganda Health Communication Partnership (HCP), was developed and implemented communication strategies and tools that aimed to strengthened capacity in social and behavior change communication in the district. It also provided project materials pertaining to: strategy, programme implementation, capacity strengthening, communication, work plans, research, monitoring and evaluation, abstracts and presentations, and success stories.

However despite the remarkable malaria control interventions via health communication, malaria in Kiboga District remains the leading cause of morbidity and mortality with estimated 70,000 – 100,000 deaths per year while accounting for 33% of all outpatient's visits and 25% of all admissions at the hospital and also contributes up to 22% of low birth weight problems amongst the newly born. It additionally, poses severe economic losses in terms of lost school days, labour days and long term disability (UDHS, 2011). Therefore, to have meaningful malaria prevention and control intervention requires motivating households to prevent and treat malaria requires sustained communication interventions guided by well-planned and locally appropriate communication strategies.

Communication programs embrace basic strategies to increase demand for and acceptance of malaria interventions and services, including information, education and communication (IEC) and behavior change communication (BCC) methodologies.

Henceforth, effective and adequate implementation of health communication strategies in controlling malaria in Kiboga District requires a process of partnership and participation that is based on two-way dialogue where there is an interactive interchange of information, ideas, techniques and knowledge between senders and receivers of information on an equal relationship. In this, there is need to create a supportive environment in which people feel motivated to listen to the messages, change behaviors, attitudes thus having an in-depth understanding of the health communication environment as well as the needs, preferences of the target group to have an enabling environment that nurtures dialogue between the senders and receivers of communication. In Uganda, clinically-diagnosed malaria is the leading cause of illness and death accounting for 25-40% of outpatient visits at health facilities, 15-20% of all hospital admissions, and 9-14% of all hospital deaths. The estimated number of deaths from malaria in Uganda ranges from 70,000 to 110,000 each year. In some areas of northern Uganda, the infective biting rates by mosquitoes that transmit malaria are among the highest in the world. Support from the American people for malaria control in Uganda has increased significantly over the years, from \$9.5 million in 2011 to \$33.9 million in 2011. However the disease still remains a challenge amidst remarkable malaria control interventions via health communication by NGOs and civil organizations like Malaria Consortium in Kiboga District during the period of 2008 to 2010. Therefore, this study was needed to establish how effective health communication as a tool in the fight against malaria. The study was justified because a number of malaria control interventions have been on yet the malaria

problems persisted. Hence, a need to establish what would be the reason and whether health communication has been effectively used or not and how it impacts on malaria control.

1.2 Statement of the Problem:

Effective health communication programming through the successful health communication environment analysis, appropriate messaging and lastly the selection and use of the correct channels and approaches can produce a positive impact for malaria control in Uganda. However, according to UDHS Report (2011), malaria remains a major public health problem in Uganda with low utilization of the available proven interventions. UDHS (2011) report continues to say that both children and adults do not get early and proper treatment. The national average of malaria stands at 6 episodes per year while 62% of the under fives with fever in the previous two weeks took anti-malaria's, but only 29% did so the same/ next day of fever, and 1% of those took coartem – the recommended drug policy.

Further, the report shows that pregnant women are not preventing and treating malaria correctly. It should be noted that 18% of pregnant women have received 2+ doses of fansidar and there is also low use of insecticide treated nets. There are only 16% of households who own at least one ITN while 10% of pregnant women, 10% of fewer than 5s slept under ITN the night before the interview. Therefore the above undesirable situation could be attributed to a number of factors which might include health communication gaps in relation to the communication environment, the nature of messaging, selected channels and approaches, poor access to knowledge about the appropriate health behavior in the population which may lead to delay in treatment and wrong treatment, inadequate knowledge on the disease while on the other hand there could be some factors such as the climate change which have led to epidemics; increasing

resistance to anti – malarial, weak health systems with poor access to health care facilities and costly preventive interventions among others. It is from this situation, that the study was intended to seek and clearly find out how Health Communication offered by Malaria Consortium impacts on Malaria Control in Uganda especially in Kiboga District since the district had benefited from the Malaria Consortium's malaria integrated intervention programme.

1.3 Purpose of the Study

The purpose of the study was to find out how Health Communication offered by Malaria Consortium impacts on Malaria Control in Uganda especially in Kiboga District.

1.3.1 Specific Objectives of the study

The following objectives guided the study:

- i. To establish the relationship between situation analysis of the health communication environment and Malaria Control in Kiboga District.
- ii. To examine how the Health Communication messaging offered by Malaria Consortium affects the Malaria Control in Kiboga District.
- iii. To determine the relationship between nature of Health Communication channels and approaches offered by Malaria Consortium and Malaria Control in Kiboga District
- iv. To identify how the frequency of health communication impacts on malaria control.

1.4 Research Questions

The study addressed the following research questions:

- i. What is the relationship between situation analysis of the health communication environment and Malaria Control in Kiboga District?
- ii. What is the relationship between Health Communication messaging offered by Malaria Consortium and Malaria Control in Kiboga District?

- iii. How does the type of Health Communication channels and approaches offered by Malaria Consortium affect the Malaria Control in Kiboga District?
- iv. What is the relationship between frequency of health communication and malaria control in Kiboga District?

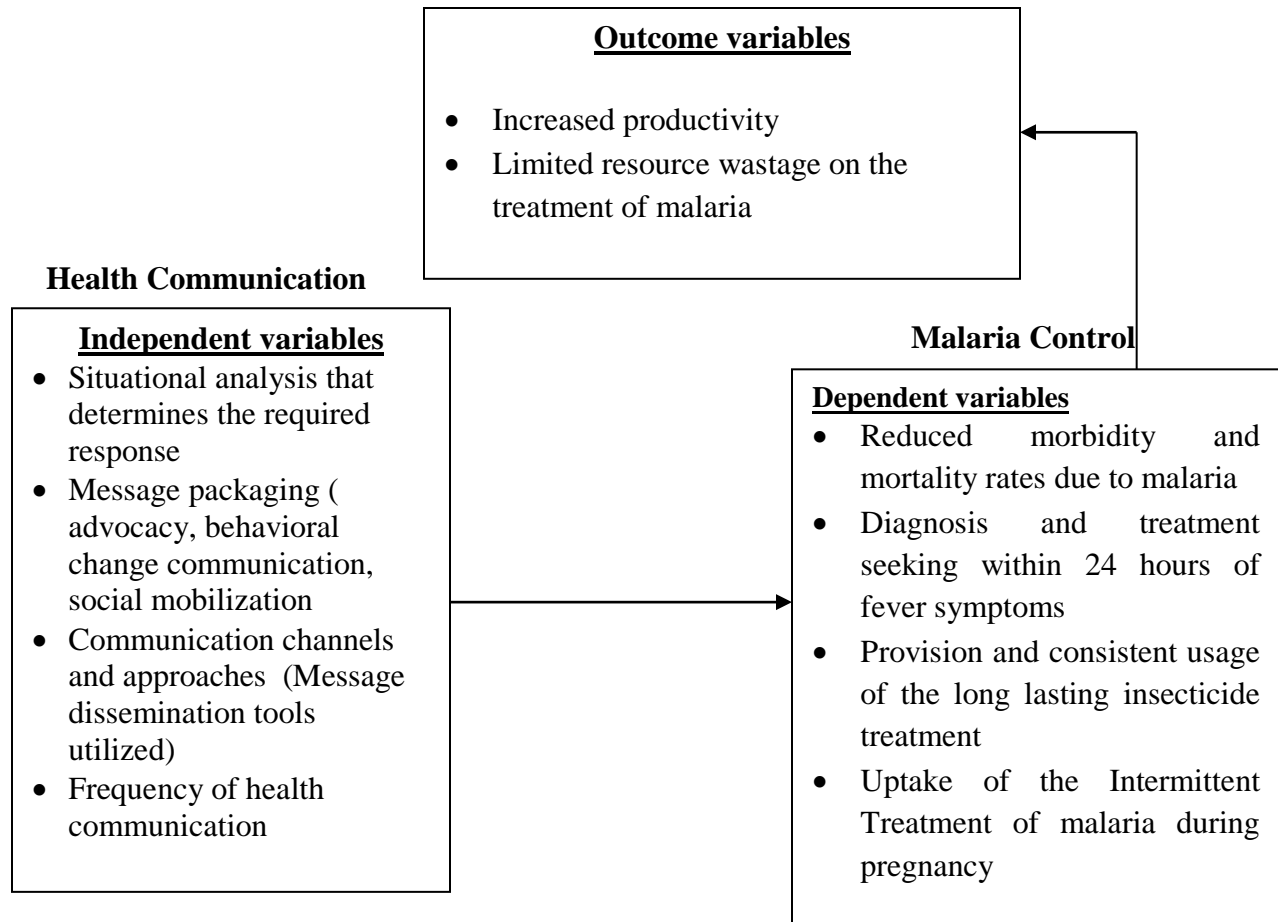
1.5 Research Hypotheses:

The Study was guided by the following hypotheses:

- H₁. Situation analysis of the health communication environment affects Malaria Control in Kiboga District.
- H₂. The Health Communication messaging does not significantly affect Malaria Control in Kiboga District.
- H₃. The Health Communication channels and approaches significantly affect the Malaria Control in Kiboga District.
- H₄. The frequency of health communication significantly affects malaria control

1.6 Conceptual Framework:

Figure 1; Conceptual framework showing the relationship between Health Communication (independent variable) and malaria control (dependent variable) and the intervening variables and outcome variables



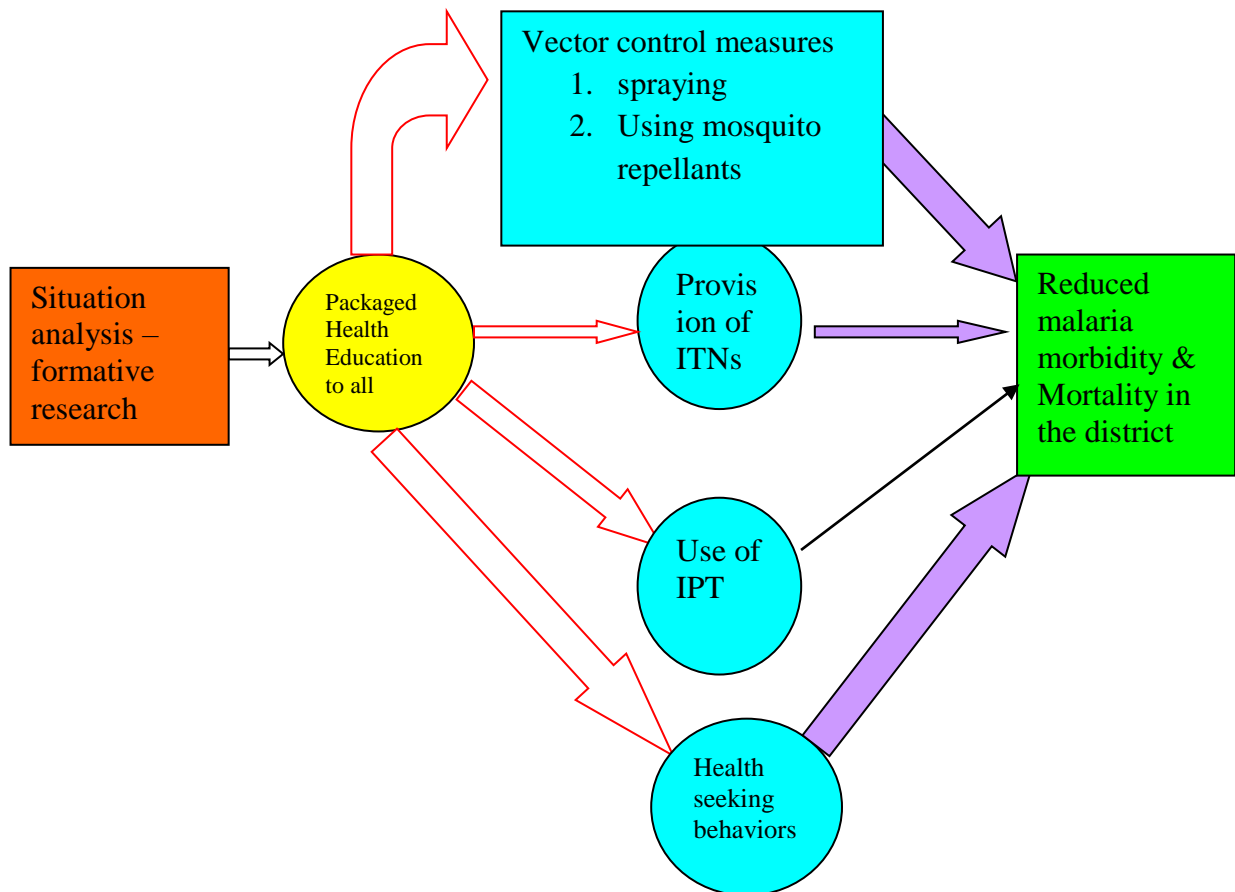
Source: Adopted with modifications from Walley J, Wright J, Hubley J, (2001). *Public Health: An Action Guide to Improving Health in Developing Countries*. Oxford, United Kingdom: Oxford University Press.

From the conceptual framework in Figure 1 above; Health Communication was considered as the independent variable which is studied in terms of Situational analysis that determines the required response; Message packaging (advocacy, behavioral change communication, social mobilization; Communication channels and approaches (Message dissemination tools utilized) and Frequency of health communication. Malaria Control

was considered as the dependent variable and studied in terms of reduced morbidity and mortality rates due to malaria, diagnosis and treatment seeking within 24 hours of fever symptoms, provision and consistent usage of the long lasting insecticide treatment and uptake of the Intermittent Treatment of malaria during pregnancy. Availability of resources to provided the required services to control the deadly disease – malaria is considered as an intervening variables as adopted by Sachs & Malaney (2011) while as increased productivity and limited resource wastage on the treatment of malaria are regarded as outcomes as a result of the impact of health communication on malaria control as adapted by

According to Inhorn & Brown (2002); Makemba, Winch, Makame, Mehl, Premji, Minjas & Schiff (2013) when there is effective and successful uses of health communication utilize multifaceted approaches in order to best reach intended audiences in existence and are well implemented, they will positively affect malaria control programs carried out and in the same way affect health communication and vice versa. Availability of resources to provide the required services to control the deadly disease – malaria can affect Health Communication and Malaria Control in the same way thereby becoming an intervening variable and may cause change in expected results.

Figure 2; *Conceptual model showing the relationship between Health Communication (independent variable) and malaria control (dependent variable) and the intervening variables and outcome variables*



Source; Adapted from Ahorlu C, Dunyo S, Afari E, Koram K, Nkrumah F. Malaria-related beliefs and behaviours in southern Ghana: implications for treatment, prevention and control.

From the figure 2 above, in Situation analysis; before any intervention is done in any area, basic facts are established so as to enable measure the expected outcome using the baseline data, similarly information can be got on the challenges of the intended intervention and solutions are agreed upon before any intervention. Evidence based interventions are more productive and often easy to roll to wider areas as they will be acceptable to majority of the stakeholders.

In the intervention to control people from fall sick due to malaria (Morbidity) and those who fall sick not to die, Malaria consortium developed several intervention that had close inter-linkages to prevent death and morbidity.

Message packaging; the success of the intervention was how well the health communication of the health messages was packaged. The organization had its own information it was to pass on to the community, the packaging of the information was along the following thymes:

Vector control, here several well accepted interventions like closing the doors and windows, sleeping under insecticide treated mosquito nets, bush clearing, destroying containers that act as breeding grounds for mosquitoes and spraying. The individual had to choose which method was appropriate to them and what was affordable

Pregnant mother are encouraged to take presumptive treatment (IPT) atleast twice through the pregnancy

Health seeking behaviour is a major challenge in most communities in Uganda, the malaria consortium encouraged all people who developed fever to always seek early treatment to avoid severe malaria and death.

All these packaged messages were targeting different groups of people within the same community, and for any success all had to be implemented for the success of the intervention.

1.7 Scope of the study:

1.7.1 Geographical scope

The study was conducted in one of the Malaria Consortium supported Districts – Kiboga District in which malaria prevalence has been notably high with consolidated interventions from the National Malaria Control Programme and its partners. The district is located in central region of Uganda, with a population of 333, 812 people. The main economic activity is subsistence farming with limited commercial farming. The study covered three sub counties

1.7.2 Time scope

The study considered the recent malaria eradication campaigns implemented in Kiboga District during the period of 2008 to 2010. This offered considerable span to review the cases of malaria in comparison in reference to the health communication efforts.

1.7.3 Content scope

The study was largely focused on health communication with regard to malaria control. In this, the study analysed the effect of situation analysis of the health communication environment on the Malaria Control, how the Health Communication messaging offered by Malaria Consortium affects the Malaria Control, how the nature of Health Communication channels and approaches offered by Malaria Consortium affects the Malaria Control in Uganda and also identified how the frequency of health communication impacts on malaria control.

1.8 Justification of the study:

According to findings by Malaria Consortium, a child dies every 30 seconds, malaria occurs in more than 90 countries, 40% of the World's population are at risk, malaria kills up to 3 million people a year in Sub-Saharan Africa but Malaria is curable and preventable. (www.malariaconsortium.org). In Uganda, clinically-diagnosed malaria is

the leading cause of illness and death accounting for 25-40% of outpatient visits at health facilities, 15-20% of all hospital admissions, and 9-14% of all hospital deaths. The estimated number of deaths from malaria in Uganda ranges from 70,000 to 110,000 each year. In some areas of northern Uganda, the infective biting rates by mosquitoes that transmit malaria are among the highest in the world. Support from the American people for malaria control in Uganda has increased significantly over the years, from \$9.5 million in 2011 to \$33.9 million in 2011. However the disease still remains a challenge amidst remarkable malaria control interventions via health communication by NGOs and civil organizations like Malaria Consortium in Kiboga District during the period of 2008 to 2010. Therefore, this study was needed to establish how effective health communication as a tool in the fight against malaria. The study was justified because a number of malaria control interventions have been on yet the malaria problems persisted. Hence, a need to establish what would be the reason and whether health communication has been effectively used or not and how it impacts on malaria control.

1.9 Significance of the study:

This study would enable the National Malaria Control Programme to improve its malaria communication interventions in a bid to eradicate malaria in Uganda.

This study would also enable the researcher to find out more about best practices that can be applied for effective health communication. This kind of information will be useful for scholastic purposes if compared with what other researchers have written and recommended as far as health communication is concerned.

Furthermore, the findings would be used to develop a more comprehensive and efficient policy in managing the health communication systems in the control of malaria in Uganda and the findings would also add to available knowledge.

Similarly, the findings of this study would therefore constitute an attempt to add to the existing mass of literature for future scholars and researchers and also giving insightful lessons for the health communication systems in the control of malaria in Uganda.

1.10 Operational definition of terms and concepts

Health Communication; Is the use of communication strategies to inform and influence individual and community decisions that enhance health according to Berlin and Donohew (2011:4).

Malaria; is an infectious disease characterized by cycles of chills, fever, and sweating, caused by a protozoan of the genus *Plasmodium* in red blood cells, which is transmitted to humans by the bite of an infected female anopheles mosquito.

Malaria control; can be defined as reducing malaria morbidity and mortality to a locally acceptable level through deliberate efforts using the preventive and curative tools available today.

Situational Analysis; is defined as a crisis situation that involves examining: what has changed, why, and with what effects; how the situation compares with the pre-crisis situation and what would be normal for the season, and with international standards; trends, expectations, further threats and risks; resources, opportunities, constraints, etc.

Health communication; Is defined as the process of promoting health by disseminating messages through mass media, interpersonal channels and events or the study and practice of communicating promotional health information, such as in public health campaigns, health education, and between doctor and patient which is aimed at

disseminating health information so as to influence personal health choices by improving health literacy.

Health communication messaging; is defined as a health communication containing some information, news, advice, request, or the like, sent by messenger, telephone, email, or other means.

Communication; is simply the act of transferring information from one place to another where a message or communication is sent by the sender through a communication channel to a receiver, or to multiple receivers. The sender must encode the message (the information being conveyed) into a form that is appropriate to the communication channel, and the receiver(s) then decodes the message to understand its meaning and significance.

Communication Channels; is the term given to the way in which we communicate. There are multiple communication channels available to us today, for example face-to-face conversations, telephone calls, text messages, email, the Internet (including social media such as Facebook and Twitter), radio and TV, written letters, brochures and reports to name just a few.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter covers the theoretical review of the literature on how Health Communication offered by Malaria Consortium impacted on Malaria Control in Uganda especially in Kibogo district which was brought into perspective by reviewing the related literature of other authors and researchers in the field of health Communication and Malaria Control. It also reviewed the relationship between situation analysis of the health communication environment and Malaria Control, examined how health Communication messaging offered by Malaria Consortium affected Malaria Control, the relationship between nature of Health Communication channels and approaches offered by Malaria Consortium and Malaria Control and lastly identified how the frequency of health communication impacted malaria control.

2.1 Theoretic Review

Communication has an essential role in any action that aims to improve health and it is difficult to imagine how a message could be delivered to promote healthy choices if we could not communicate. The communication process is a multi-dimensional transaction influenced by a variety of factors. In malaria control work the successful exchange of information between the practitioner and target audience is an area that has received mixed attention. Most commonly the emphasis on theory is clear, but the application of theory to practice is limited. This chapter introduces three theoretical models that can be applied to health promotion work. This chapter will seek to bridge the theory-practice gap using a range of examples enabling the practitioner to link theoretical models to practice.

2.1.1 Health Belief Model

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals. The HBM was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. The model was developed in response to the failure of a free tuberculosis (TB) health screening program. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS.

The Health Belief Model has been applied to a broad range of health behaviors and subject populations. Three broad areas can be identified (Conner & Norman, 1996): 1) Preventive health behaviors, which include health-promoting (e.g. diet, exercise) and health-risk (e.g. smoking) behaviors as well as vaccination and contraceptive practices. 2) Sick role behaviors, which refer to malaria control with recommended medical regimens, usually following professional diagnosis of illness. 3) Clinic use, which includes physician visits for a variety of reasons. The HBM was spelled out in terms of four constructs representing the perceived threat and net benefits: perceived *susceptibility*, perceived *severity*, perceived *benefits*, and perceived *barriers*. These concepts were proposed as accounting for people's "readiness to act." An added concept, *cues to action*, would activate that readiness and stimulate overt behavior. A recent addition to the HBM is the concept of *self-efficacy*, or one's confidence in the ability to successfully perform an action. This concept was added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating.

The Health Belief Model (HBM) can help to elucidate why people many times do not participate in programs that are to their own benefit. The Health Belief Model (HBM) according to Becker et al (1997) was originally intended to explain why people did not participate in programs that could help them diagnose or prevent diseases (National Cancer Institute and National Institute of Health 2002). The major assumption of this model is that in order to engage in health behaviors, intended audiences need to be aware of their risks for severe or life threatening diseases and perceive that the benefit of behavior change outweigh potential barriers or other negative aspects of recommended actions. The Health Belief Model was one of the first theories developed to explain the process of change in relation to voluntary health behaviour. The study will attempt to examine to what extent people participated in the malaria control program, establishing what were the issues behind their participation or not participation in the program.

2.1.2 Social Cognitive Theory

In 1941 Miller and Dollard proposed the theory of social learning. In 1963 Bandura and Walters broadened the social learning theory with the principles of observational learning and vicarious reinforcement. Bandura provided his concept of self-efficacy in 2011, while he refuted the traditional learning theory for understanding learning. The Social Cognitive Theory is relevant to health communication. First, the theory deals with cognitive, emotional aspects and aspects of behavior for understanding behavioral change. Second, the concepts of the SCT provide ways for new behavioral research in health education. Finally, ideas for other theoretical areas such as psychology are welcome to provide new insights and understanding.

The social cognitive theory explains how people acquire and maintain certain behavioral patterns, while also providing the basis for intervention strategies (Bandura, 1997). Evaluating behavioral change depends on the factors environment, people and behavior. SCT provides a framework for designing, implementing and evaluating programs.

Environment refers to the factors that can affect a person's behavior. There are social and physical environments. Social environment include family members, friends and colleagues. Physical environment is the size of a room, the ambient temperature or the availability of certain foods. Environment and *situation* provide the framework for understanding behavior (Parraga, 2011). The situation refers to the cognitive or mental representations of the environment that may affect a person's behavior. The situation is a person's perception of the place, time, physical features and activity (Glanz et al, 2002).

The three factors environment, people and behavior are constantly influencing each other. Behavior is not simply the result of the environment and the person, just as the environment is not simply the result of the person and behavior (Glanz et al, 2002). The environment provides models for behavior. *Observational learning* occurs when a person watches the actions of another person and the reinforcements that the person receives (Bandura, 1997). The concept of behavior can be viewed in many ways. *Behavioral capability* means that if a person is to perform a behavior he must know what the behavior is and have the skills to perform it.

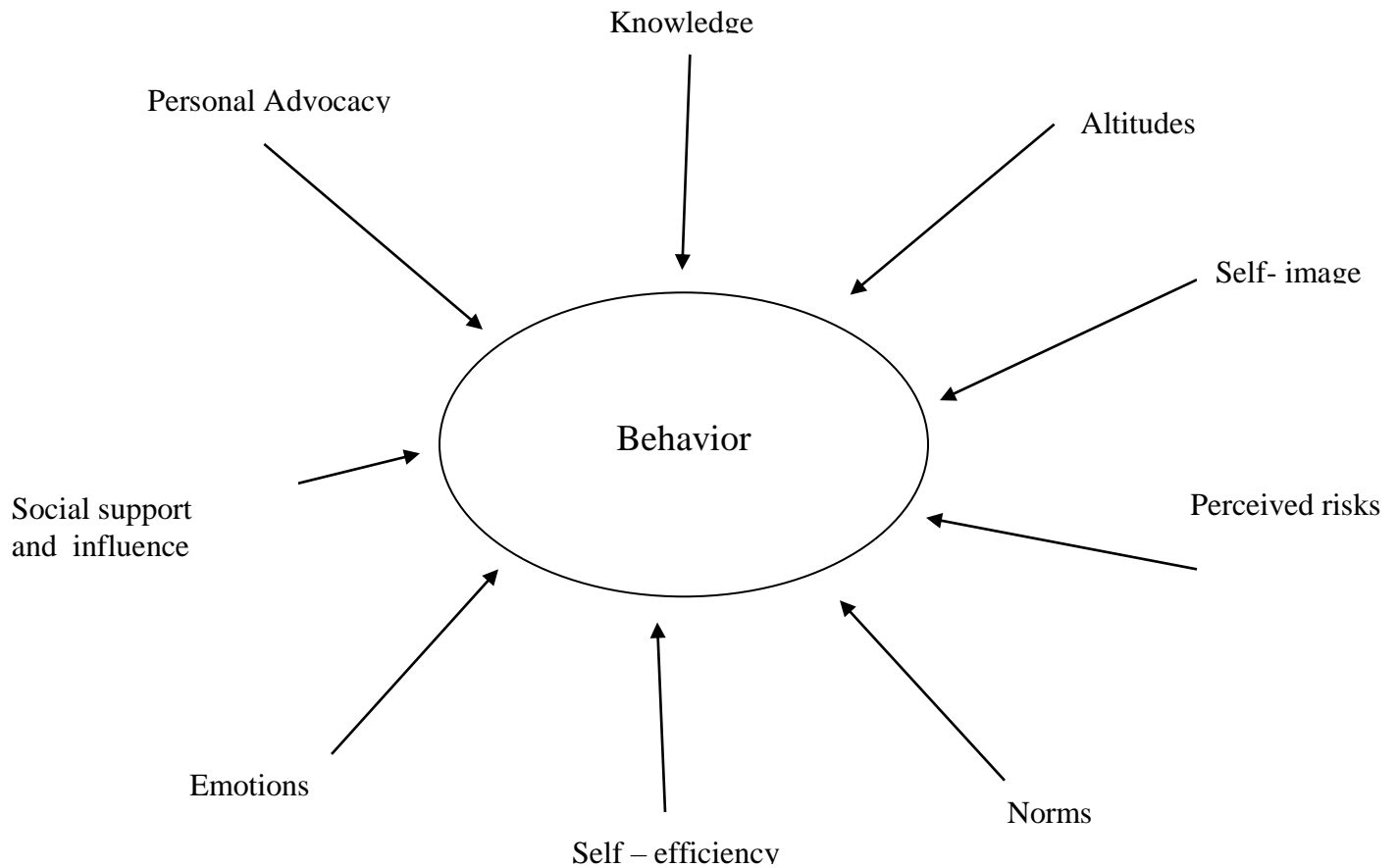
The Social Cognitive Theory is relevant for designing health education and health behavior programs. This theory explains how people acquire and maintain certain behavioral patterns. The theory can also be used for providing the basis for intervention strategies

2.1.3 Ideation Theory (Kincaid, Figueroa, Storey, & Underwood, 2001).

This theory (Cleland, 1985; Cleland et al., 1994; Cleland and Wilson, 1987; Freedman, 1987; Tsui, 1985) refers to new ways of thinking and the diffusion of those ways of thinking by means of social interaction (Bongaarts and Watkins, 1996) in local, culturally homogeneous communities. Recent socio demographic literature has identified ideation and social interaction as important determinants of fertility decline. This perspective amounts to a shift from macro level structural explanations to micro level decision-making explanations of demographic change. Similarly, the Ideation Theory helps in highlighting the issues that may enable people to change their knowledge systems in view of adopting new health behaviors with regard to disease control.

The Ideation Theory in this context refers new ways of thinking and diffusion of those ways of thinking by means of social interaction in local culturally homogenous communities. This theory is used in strategic behavior communications to identify and influence ideational elements such as attitudes, knowledge, self-efficacy, social and peer approval and other factors that can affect and determine health behavior. The Ideation Theory is important because both social and medical illness are often affected by ideational elements and the extent to which these elements are diffused and translated into practice for curing sickness and illness. Kincaid et al, (2004) notes that one of the key premises of ideation theory is, ‘that the more ideational elements that apply to someone, the greater the probability that they will adopt a health behavior’.

Figure 3; The Ideation Theory



Adapted from Ahorlu C, Dunyo S, Afari E, Koram K, Nkrumah F. Malaria-related beliefs and behaviours in southern Ghana: implications for treatment, prevention and control.

Piotrow, Payne Merrit et al, identify four different 'eras' of health communication; the first is the clinic era, based on the medical care model and the notion that if people knew where services were located they would find their way to the clinics; the second is the field era, a more proactive approach emphasizing outreach workers, community based distribution and variety of information, education and communication (IEC) products, the third is the social marketing era, developed from the commercial concepts that consumers will buy the products they want at subsidized prices, and the fourth, the era of strategic

behaviour communications, founded on behavioral science norms and policy environment to facilitate and empower the interactive dynamic process of both individual and social change.

After 15 years of evaluating communication programs everyone at JHU/CCP is aware that communication affects reproductive health behavior. For strategic program design, however, we would also like to say *how* it affects behavior. Our research has shown that communication *directly* influences some members of the audience to visit a service provider or adopt a contraceptive method. We have also found that communication *indirectly* influences behavior by increasing knowledge, changing attitudes, and encouraging discussion of the new behavior with others. Research has shown that when the indirect and direct effects of communication on behavior *both* occur, communication has as strong an effect on behavior as any other influence, including education and socio-economic status. These intervening influences on behavior (knowledge, attitudes, and discussion with others) together are referred to as *ideation*.

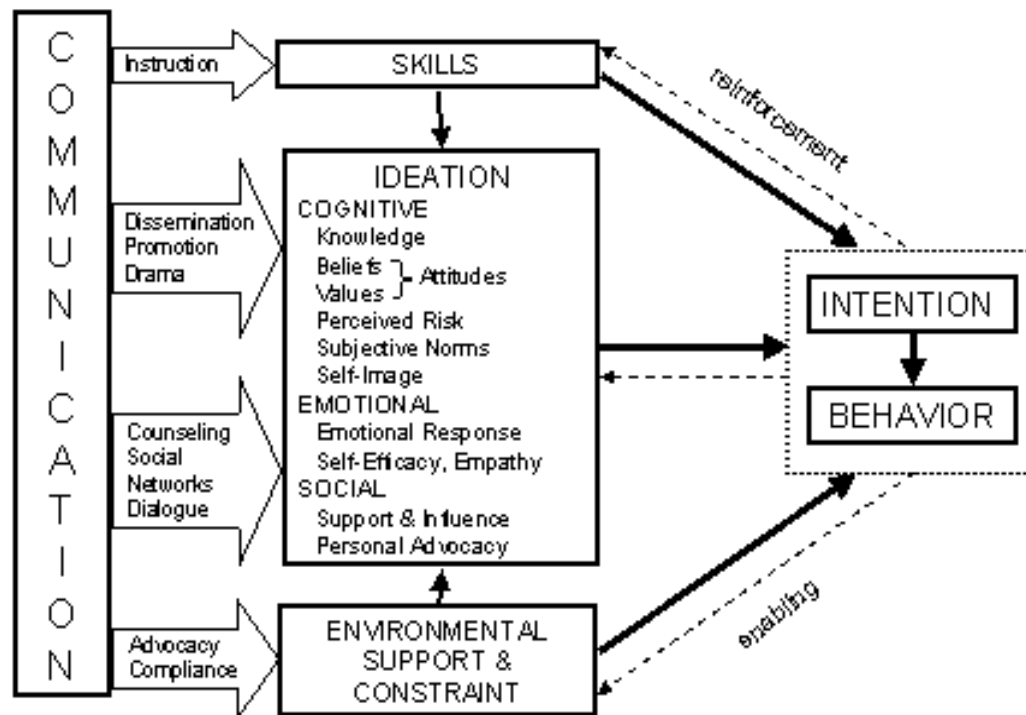
How is ideation related to communication and behavior change? The likelihood of someone adopting a new behavior is much higher when she or he:

- has gained *sufficient knowledge* about it,
- has developed a *positive attitude* towards it,
- has *talked to others* about it, and
- *feels* right about doing it..

These four elements are interrelated in the sense that increased knowledge improves one's attitude, a positive attitude makes one receptive to new information, and discussion of the behavior with others leads to both increased knowledge, a more positive attitude, and

more confidence in doing something new. These changes in turn, motivate one to talk with others and even to advocate the behavior to others. Each one of these elements has its own influence on behavior change and maintenance. Because these four elements are related to one another, the influence of all of them together is stronger than each one by itself. It is like tying several sticks together: the bundle is much stronger than each stick by itself. The following diagram shows an expanded set of factors that influence ideation, intention, and behavior:

A Model of Communication, Ideation, and Behavior Change



Adopted with modifications from Walley J, Wright J, Hubley J, (2001). Public Health: An Action Guide to Improving Health in Developing Countries. Oxford, United Kingdom: Oxford University Press.

Figure 4; factors that influence ideation, intention, and behavior:

How do we measure the effect of ideation on contraceptive behavior and how strong is the effect? The Research and Evaluation Division of the Center has developed indicators

of the components of ideation for use in surveys. As indicators of *knowledge*, we have used spontaneous recall of modern contraceptives, knowledge of contraceptive sources, perceived husband's approval/encouragement of FP, and perceived social support. All of these refer to knowledge of the behavior and its social context. As indicators of *attitudes* we have used an individual's approval of contraceptive use, attitude towards family planning practice, and attitudes towards specific contraceptive methods. All of these refer to the individual's personal opinion about the behavior and its practice. Indicators of *social interaction* include discussing family planning with one's husband/partner and with other women, receiving support and encouragement from others, and advocating family planning to other women. All of these refer to actual interpersonal communication with others regarding the behavior. The application of ideation is not limited to fertility behavior. Similar indicators have been developed for other health behaviors, such as HIV/AIDS prevention, maternal mortality reduction, etc. .

Research has shown that these measures can be added together to create a single indicator of ideation. We have also found that ideation operates in a *cumulative* manner. What this means is that the *greater* the number of ideational elements that apply to someone, the *greater* the likelihood that one will adopt the new behavior and continue its practice, or intend to adopt it in the future. For example, this "*cumulative likelihood of adoption*" can be determined by examining the *percentage* of women who use a contraceptive by *level* of ideation. Theoretically, ideation works like cumulative risk analysis in the study of heart disease. When *combined*, high blood pressure, high cholesterol, obesity, lack of exercise, and smoking greatly increase the risk of heart disease.

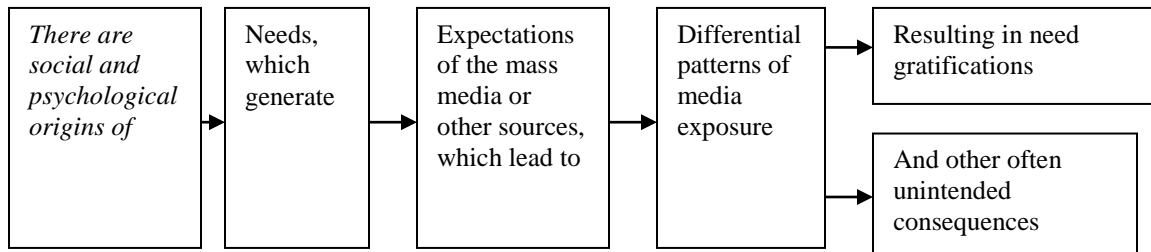
Basing on the study, both Social Cognitive Theory and the Health Belief Model and theories that explain health communication in reference to malaria control in Uganda focusing on the case study of Malaria Consortium in Uganda are considered the best theories since they are based on the three pillars of emotional aspects and aspects of behavior for understanding behavioral change and also explaining and predicting health behaviors focusing on the attitudes and beliefs of individuals which is essential in malaria control.

2.2 The relationship between situation analysis and Malaria Control

Berger (1995) observes “Uses and Gratifications theory implies that members of an audience are active and selective in choosing certain texts (or genres) that provide them with various gratifications.” In other words, the theory suggests that the audience play an active role in choosing and using the media. They have the ability to seek out a media source that best fulfils their needs and, besides, they have alternate choices from which they can satisfy their needs.

The objectives of the uses and gratifications theory are: (a) to explain how people use media to gratify their needs, (b) to understand motives for media behaviour, and (c) to identify functions or consequences that follow from needs, motives and behaviour (Rubin 1994). Blumler and Katz (1974) provide a description of underlying logic of investigations into media uses and gratifications derived from them, as expressed in the model below.

figure 5. showing the elements of uses and gratifications model.



Source: Adapted from McQuail and Windahl, 2011.

The above diagram reveals that the audience is not docile, but rather active and makes motivated choices, based on previous experiences with the media. As Windahl et al, put it, "Audience members will not accept everything that is offered to them". It also shows that the media is not the only means through which people satisfy their needs, and therefore, media influence cannot be automatic.

For communication planning, audience analysis is the core concept in uses and gratifications. Therefore, when designing messages or a campaign, it is important that the audience's needs and expectations are taken into consideration. In addition, they should be able to participate in the campaign process right from the initial stages.

The audience profile is the component of the Persuasive Health Message framework that makes the message "fit" the audience, since it takes into consideration the demographic and psychographic information about the audience, as well as educational levels, cultural beliefs, values, customs etc of the audience (Witte, 1995). Such information is very useful in the health communication programming since it consists of the salient aspects necessary for designing appropriate messages for a given audience.

Kreps and Thornton concur with this principle. They observe that:

To develop strategic health communication messages, the messages must be matched to the key cultural attributes of the audience for whom they are intended...they must appeal to specific audience targeted since audience members who do not perceive the campaign as personally relevant are unlikely to pay attention to, interpret, recall, or heed advice offered in health promotion campaign messages (Kreps and Thornton, 1992)

Additionally, interpersonal influencers are valuable in promoting campaign messages among a given audience. Atkin suggests that campaign planners need to influence other target audiences (interpersonal influencers), that can exert interpersonal influence or help reform environmental conditions that shape the behaviour of the segment to be changed (Atkin, 2001).

This model is believed to have introduced the human being into communication theory. Much as this may be an over statement, the uses and gratifications theory presents a more positive image of the audience member than did any prior communication theory (Windahl et al, 2011)

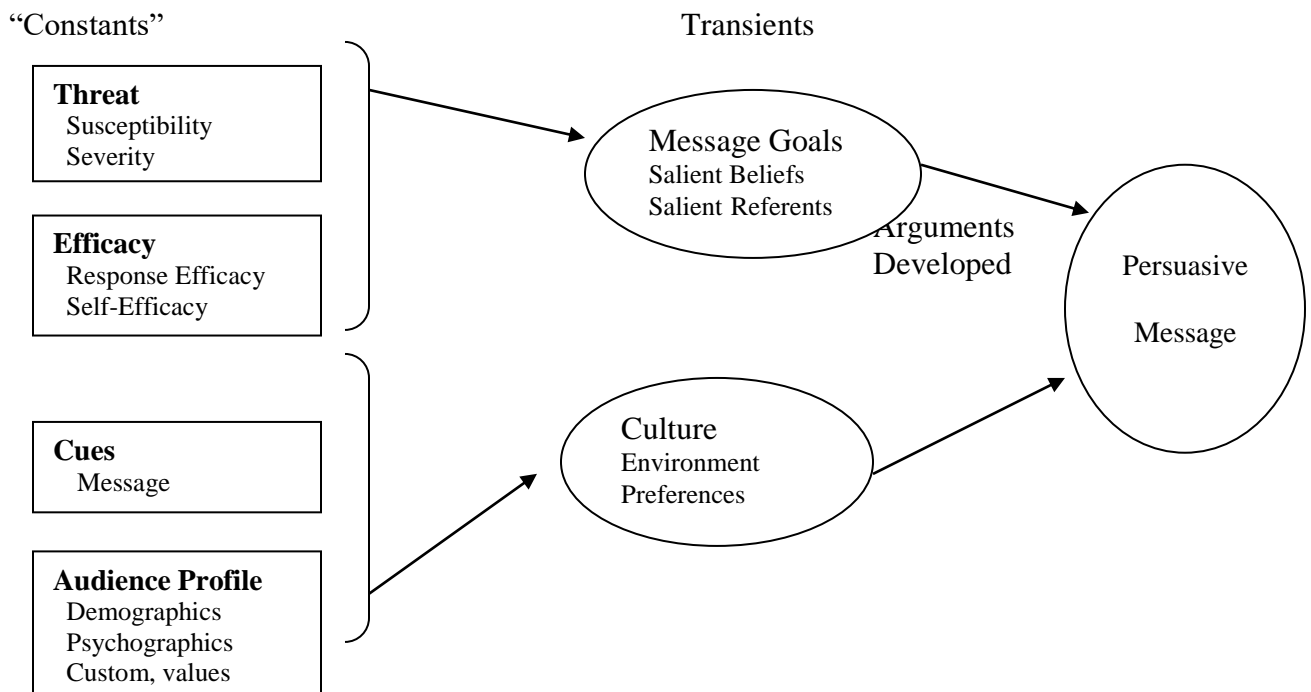
This human element in the model addresses my research question on the factors the communication planners considered while conducting the analysis for the health communication programming for malaria control in view of the situation and target audiences.

It should be noted that the National Malaria Communication Strategy (2005 – 10) highlights that because of the widespread endemicity of malaria in the country, virtually all adult individuals in communities know about the existence of the disease. However, one of the key determinants of people's practices related to malaria is their perception of the severity or potential severity of the disease once an individual contracts it. Children, especially those aged below 5 years and pregnant women are the most at - risk populations for the severe consequences of malaria.

2.3 The relationship between Health Communication messaging and Malaria Control

The Persuasive Health Message framework as advanced by Witte (1995), offers an integrated approach to generating effective campaigns. The framework has constant and transient factors that always must be addressed before developing campaign messages. This framework is suitable for this study since it summarizes some basic elements necessary for successful campaigns. It is represented in the diagram below.

Figure 6; A Framework for Developing Culturally Specific Persuasive Health Message



Source Adapted from Witte (1995)

According to the framework, a persuasive health message should contain a threat message, an efficacy message, various cues, and should be targeted toward a specific audience, regardless of the topic, type of message or environment. The threat message, also known as the fear appeals in messages, aims at enhancing perceived risk and motivating adaptive behavior change among the target audience (Stephenson and Witte

2001). The assumption is that when people are faced with a health threat or feel they are vulnerable to a perceived threat, they are bound to adhere to the recommended responses. On the other hand, the *efficacy* part of the message reassures individuals that they can perform the recommended response, which can effectively avert the threat (Witte, 1995). The other elements of the framework are *Cues*, defined as “those variables that can influence the persuasive process in an indirect manner” (Witte, 1995). The two variables that act as cues in the PHM framework are the *source* and *message*.

It is important for the communicator to consider variables related to the source of the message such as credibility, attractiveness, legitimacy, similarity or power. These elements may sound subtle but have significant impacts on whether the audience takes the message seriously and is motivated to act (McGuire, 2012).

Windahl et al, recommend that the audience ought to know who is communicating to them. When the audience question the authenticity and legitimacy of the message, it is likely to be rejected. The onus is thus on the communication planner to make it clear to the audience who actually is communicating with them and in whose interests (McQuail and Windahl, 2011). Use of source presenters in delivering messages is also an added advantage. A source presenter is usually a messenger or model that appears in messages, delivers information, demonstrates behaviour, or provides a testimonial (Atkin, 2001).

2.4 The relationship between nature of Health Communication channels and Malaria Control

We have so far seen how the elements of the PHM framework, together with the use of theory and formative research, can enhance the success of a campaign. However, these

would still not be achieved without the source, using appropriate channels to disseminate messages to the target audience, or carrying out a needs assessment.

Communication planners must determine which communication channels will most effectively accomplish their campaign objectives. Several scholars agree that for campaign messages to reach the target audience, multiple communication channels (interpersonal and mass media) have to be used (Windahl et al 2011, Flay and Burton, 2011, Kreps and Thornton 1992, Atkin 1989, 2001 etc).

Kreps and Maibach (1991), propose criteria that can be followed to select the best channels for a campaign. They highlight the following; a) *reach*, how large an audience can be communicated with via the channel; b) *specify*, which particular group or individuals can be communicated with via the channel and c) *rate of influence*, how credible the channel of communication is with those individuals it reaches (in Kreps and Thornton, 1992).

Atkin point outs that campaigns that mainly use traditional media channels to disseminate messages often produce unimpressive results (Atkin, 2001). He therefore suggests that more diverse channels be adopted. In addition, when campaigns utilize multiple channels of communication they maximize the strength of each channel, while minimizing the channels' limitations (Flay and Burton 2011, Rogers and Storey, 1987). Ideally, interpersonal channels can be used to influence people, while mass media channels can be used for widespread knowledge and awareness.

The manner in which the message is organized, the type of appeal given, the number of repetitions in a message, the vividness of language used, and more, can influence the

persuasive process (Witte, 1995). It is also important for messages to be simple without being complications (Flay and Burton, 2011). Short of this, it is likely that the receiver may totally misinterpret the message.

Windahl et al, further observe that often, the communicator and receiver get different meanings from a message and yet communication planners frequently over look this disparity. “It is a common flaw in sender-oriented communication theory and practice to embrace the sender’s definition of the message and disregard the interpretation by the receiving side. The result, of course, is ineffective communication” (McQuail and Windahl, 2011). When planners take note of such disparities and try to reach a mutual understanding, between sender and receiver, then effective communication in campaigns is possible (Witte, 1995).

2.5 The relationship between frequency of health communication and malaria control.

At the practical level of causation, frequency of health communication performs the role of stimulating society to a higher level in terms of malaria control. According to Gambo (2008) equally observes that the frequency of health communication is social institutions that serve the society by gathering, writing and distributing news of the day. Gambo (2008) further states that the mass media have the whole people as an audience and this fact more than any other thing else makes their social and strategic importance apparent in any country. Consequently, the frequency of health communication being strategically located in the scheme of things in the society could and should play a central role in the education of the general public in terms of malaria control (Gambo op cit).

Having noted earlier that improved health system in terms of malaria control undoubtedly is also a major issue in the developmental drive of any nation, that is, continued battle against epidemics and other killer diseases such as malaria, typhoid fever, yellow fever, HIV/AIDS, tuberculosis, leprosy, cholera, diarrhea, diabetes, hypertension and so on, - which mostly characterize developing countries, it has equally been observed over the years that mass media (radio, television etc) and communications in general have a greater role to play particularly in educating the general public on the causes, symptoms, effects and prevention of these diseases which constitute issues in the public health system. The emphasis to improve the health of the citizenry and as a major effort in achieving development is also unequivocally expressed by the United Nations in its millennium declaration christened "Millennium Development Goals" (MDGs). This is made a mandate to all nations of the world with emphasis on the developing nations and to be achieved by 2015. Importantly, three of the goals focus on health issues.

More importantly, a clear and specific mention was given to malaria owing to its degree of deadliness and the rate at which the parasite is ravaging the countries of the world most especially the developing nations. This shows that efforts to combat malaria and other killer diseases are efforts toward the development of whatever countries affected. In addressing the problems of issues of public health in general, it has long been realized that the place of mass media and communications cannot be overemphasized. This has equally led to a relatively new area of study in communication called "Health Communication".

2.5 Summary of literature review

The above literature review showed that there is a big challenge in investing in health communication programs and activities in respect to malaria control in Uganda.

However, no known research had been conducted in connection with an assessment of health communication that affects malaria control in Uganda while focusing on the effect of situation analysis of the health communication environment, Health Communication messaging, the nature of Health Communication channels and approaches and the frequency of health communication on malaria control in Uganda by Malaria Consortium Uganda hence presenting a substantial knowledge gap which if bridged, can contribute to the improvement of Health Communication in affecting malaria control in Uganda. Therefore the connection between Health Communication and malaria control in Uganda has not attracted empirical research thus creating a need for this study to establish the empirical information on the impact of Health Communication and malaria control in Uganda.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The methodology section of a research study describes and explains methods and procedures that were followed in conducting the study (Mugenda and Mugenda, 2010). This chapter therefore provides a detailed account of the strategy and methods that were used in collecting and analyzing data. It includes the research design, study population, sample size and sample selection procedures, data collection methods and instruments reliability and validity, procedure for data collection, measurement of variables and data analysis.

3.1 Research design

A cross - sectional survey design was used in the study. Cross sectional designs are simple and least costly alternative to use with larger area coverage, (Sekaran, 2003). Cross sectional design also allows for a wider range of the sample to be studied at the same time and more data is covered within a short period of time, (Sekaran, 2003). The cross sectional survey design involved triangulation (use of multiple data collection techniques simultaneously) i.e. utilizing both quantitative and qualitative approaches at the same time to achieve a substantive review of the impact of health communication offered by Malaria Consortium on effectiveness of malaria control of Uganda. Alongside the cross-sectional design, the researcher used a descriptive study design ascertain and be able to describe the characteristics of variables in the study (Sekaran, 2008, p. 121).

Mugenda and Mugenda (2010) define quantitative approach as that approach that produces discrete numerical data while the qualitative approach produces textual and non-numerical data. They further state that the advantages of using both approaches is

that they help supplement each other as each method checks on another to reduce bias. The quantitative approach was used to gather information for proper analysis and making appropriate inferences, generalizations and conclusions to the population (Mugenda and Mugenda, 2010). Qualitative approach was employed so as to capture the information on attitudes and behavior, hence supplementing information from quantitative sources (Arya and Yesh, 2001).

3.2 Study Population

Kombe and Tromp (2011) define population as a group of individuals, objects or items from which samples are taken for measurement or a larger group from which the sample is taken while as Mugenda and Mugenda (1999) define a study population as a complete set of individual cases or objects to be studied which have some observable characteristics. Therefore, the study population comprised 400 subjects, who included Malaria Consortium staff both communication officers and operation persons at the head office and those within Ministry of Health Promotion and Education Unit, Kiboga district -District Health Management team and recipients of the Malaria Consortium health communication activities in Kiboga District (*Malaria Consortium Uganda, Kiboga District Report December, 2013*).

3.3 Sample size selection

Sekaran (2003) considers a sample as a subset of the population that comprises of some members of the population selected to represent the population of the study. A representative sample of 196 respondents was selected from a population of 400. The selection of the sample size was based on the sample size selection table by Krejcie and Morgan (1970), cited in Amin, (2005). The sample size selected included Malaria Consortium staff both communication officers and operation persons at the head office

and those within Ministry of Health Promotion and Education Unit, Kiboga district - District Health Management team and recipients of the Malaria Consortium health communication activities in Kiboga District within the 13 sub counties of the district as indicated by Sekaran, (2000).

Table 1; Sample size and selection

Category	Target Population	Sample Size	Percentage	Sampling Technique
Ministry of Health Promotion and Education Unit	10	10	5.1%	Purposive sampling
Malaria Consortium communication officers	2	2	1%	Purposive sampling
Malaria Consortium operation persons	2	2	1%	Purposive sampling
Kiboga district -District Health Management team	70	33	16.7%	Stratified Sampling
Kiboga district Local Councillors	16	16	8.2%	Purposive sampling
Kiboga district Malaria Consortium Recipients	300	133	68%	Simple random sampling
Total	400	196	100	

Source: Adapted and modified from Malaria Consortium Uganda, Kiboga District

Report December, 2009.

3.5 Sampling techniques and procedure

The researcher employed simple random sampling for selecting the Kiboga district Malaria Consortium Recipients in the various sub-counties of the district where the malaria project was carried out. This was done by choosing randomly and entirely by chance, such that each individual has the same probability of being chosen at any stage during the sampling process.

Purposive sampling was used to select Ministry of Health Promotion and Education Unit, Malaria Consortium communication officers and Malaria Consortium operation persons who were knowledgeable on how health communication affected malaria control in the district and these participated as key informants. The selection of key informants was done basing upon a variety of criteria which included specialist knowledge about the effect of the health communication on malaria control malaria control in Uganda focusing on Kiboga district and also ability and willingness to participate in the research.

Stratified Sampling was used to select the Kiboga district -District Health Management team. The Kiboga district -District Health Management was grouped into straits during data collection in finding out how Health Communication offered by Malaria Consortium impacts on Malaria Control in Uganda especially in Kiboga District. This was a statistical method that relied on dividing members of the population into homogeneous subgroups before sampling. This method of sampling was used being the most representative of a population.

3.6: Data Collection Methods

Primary data was collected using questionnaires, guided interviews and face to face interviews focus group discussions while secondary data was obtained through documentary reviews through review of available documents at Malaria Consortium.

3.6.1: Questionnaire Survey

A questionnaire is a data collection method consisting of a series of questions and other prompts for the purpose of gathering information from respondents (Mellenbergh, 2008). A structured questionnaire was developed and administered to the respondents to extract information on their opinions on the effect of health communication on the control of malaria in Uganda focusing on Kiboga district. The reason for selecting the questionnaire

was because it was an appropriate method for collecting data, it offered greater assurance of anonymity, could be filled at the respondent's convenience hence increasing chances of getting valid information and it was a cheap way of collecting data from a wide geographical area (Amin 2005). The questionnaire survey method of data collection was used to collect data from the Kiboga district -District Health Management team and recipients of the Malaria Consortium health communication activities in Kiboga District within the 13 sub counties of the district.

3. 6.2: Interviews

An interview is one of the methods of collecting data from respondents to obtain information on the issues of interest (Sekaran, 2003). Interviews can be unstructured or structured, and conducted either face to face or by telephone or online. Interviewing involves face to face encounters and requires maximum cooperation between the researcher and the respondent if reliable information is to be obtained.

In-depth interviews with key informants (KIs) were conducted amongst 30 respondents to generate findings that were directly used in the report. Interviewing allows key informants a wider chance to give detailed information that is not possible to obtain using questionnaires. This method was used to throw a completely different light on an issue that the interviewer has previously never considered on the kind of effect of health communication on the control of malaria in Uganda focusing on Kiboga district. The researcher gathered data through interviews with key informants who mainly comprised of Malaria Consortium staff both communication officers and operation persons at the head office and those within Ministry of Health Promotion and Education Unit. This helped the researcher to address the questions to one key informant at a time.

3. 6.3: Documentary review

It involved obtaining information by studying written documents. These included; research reports, Malaria Consortium resource center policy documents for example; malaria control reports and control surveys, malaria control journals and malaria control conference papers.

3. 6.4: Focus Group Discussions

Focus Group discussions formed the basis of the researcher's primary data. In this regard the researcher met groups of respondents. Roscoe (1976) observes that small groups of respondents are effective to manage and gives better results than bigger ones. In this regard, the researcher lead respondents into responding to the questions asked.

3. 7 Data Collection Instruments

The researcher used a set of data collection instruments namely questionnaires, interview guide and documentary review checklist.

3. 7.1: Questionnaire

The researcher used two sets of questionnaires namely self-administered and researcher administered questionnaires as data collection instruments to respondents (refer to Appendix 1). A self-administered questionnaire was designed on a likert scale that was used to collect data from respondents who could write and read well. This enabled to reach a sparse population (the sub - counties were spread apart). The technique was also found suitable since it was time saving to both the researcher and the respondents; it was cost effective for the researcher and helped to ensure confidentiality. . It was structured in five Likert standardized rating scale of 1+5 (1-strongly disagree, 2-disagree, 3-neither agree nor disagree, 4-agree, 5- strongly agree. It was used because of its convenience and efficiency in collection of both the qualitative and quantitative data (Sekaran, 2003, p. 69) a copy of the questionnaire is hereto attached.

3.7.2: Interview guide

An interview guide is a set of items that the researcher interviews about. It can have structured, semi- structured or unstructured questions (Kombo and Tromp, 2011).

An interview guide with pre-determined set of open –ended questions was followed and used during the interview to enable cover the variables under study. The instrument was followed by the researcher to ask questions prompting responses from KIs who were mainly Malaria Consortium staff both communication officers and operation persons at the head office and those within Ministry of Health Promotion and Education Unit (refer to Appendix 2).

3.7.3: Documentary check list

To support the interview and observation methods, a documentary review checklist and interview was used to gather and collect secondary data. This involved analyzing documents mainly the organization’s malaria control reports for additional information, reviewing books, malaria control articles, malaria control journal articles published with keen interest on the study variables. This also helped the researcher to document literature as well as conceptualizing the variables in the study. The instrument was used in guiding the researcher to review relevant documents in order to collect data required to answer the research questions (Punch, 2000, p.10).

3.7.4: Focus Group Discussions

Focus Group discussions formed the basis of the researcher’s primary data. In this regard the researcher met groups of responds. Roscoe (1976) observes that small groups of respondents are effective to manage and gives better results than bigger ones. In this regard, the researcher lead respondents into responding to the questions asked.

3.8 Validity and Reliability of the Research Instruments

3.8.1: Validity

In order to test and improve the validity of the data collection instruments, the researcher availed the instruments to the respondents, who looked at the items and checked on language clarity, relevancy, content comprehensiveness and length of the questionnaire. On addition, the validity of the instruments was tested to determine whether research measures what it intended to measure and to approximate the truthfulness of the results using the Content Validity Index (CVI) using expert judgment of the Research Supervisor taking only variable scoring above 0.70 accepted for Social Sciences (Amin, 2005). The results of the CVI are shown in Table 3.2 below. The CVI was measured using the formula:

$$\text{CVI} = \frac{\text{Number of items declared valid}}{\text{Total number of items}}$$

Table 2: Content Validity Index Results

Variable	Anchor	CVI
situation analysis of the health communication environment	5 point	0.88
Health Communication messaging	5 point	0.83
nature of Health Communication channels and approaches	5 point	0.88
frequency of health communication	5 point	0.80

Source: Expert Judgments

Table 3.2 shows that situation analysis of the health communication environment yielded CVI of 0.88, Health Communication messaging yielded a CVI of 0.83, and nature of Health Communication channels and approaches yielded a CVI of 0.88, while

performance of frequency of health communication yielded a CVI of 0.80. Since all variables yielded a CVI above 0.70 it is accepted for social sciences as recommended by Amin, (2005).

3.8.2: Reliability

The reliability of the instrument was tested to determine its consistency, or the degree to which it measured the same way each time it was used under the same condition with the same subjects. This was done by pilot-testing the questionnaire on a sample of 10 subjects in the Malaria Consortium staff both communication officers and operation persons at the head office and those within Ministry of Health Promotion and Education Unit, Kiboga district -District Health Management team and recipients of the Malaria Consortium health communication activities in Kiboga District and adjustments were made to enhance its reliability. These 10 subjects were not part of the 196 respondents in the sample size. The internal consistence (reliability) of the instrument was measured using Cronbach’s alpha coefficient taking only variables with an alpha coefficient value more than 0.70 accepted for social research; (Amin, 2005) generated from SPSS.

Table 3: Reliability results

Variable	Anchor	Cronbach’s Alpha coefficient
situation analysis of the health communication environment	5 point	0.85
Health Communication messaging	5 point	0.81
nature of Health Communication channels and approaches	5 point	0.83
frequency of health communication	5 point	0.77

Source: Primary data

Table 3.3 above shows that situation analysis of the health communication environment yielded Cronbach’s alpha value of 0.85, Health Communication messaging yielded

Cronbach's alpha value 0.81, nature of Health Communication channels and approaches yielded Cronbach's alpha of 0.83 while frequency of health communication yielded Cronbach's alpha of 0.77. Since all variable yielded alpha values above 0.70 accepted for social research; Amin (2005), it was concluded that the instrument was consistent in measuring the effect of health communication on the control of malaria in Uganda focusing on Kiboga district.

3.9: Procedure for Data Collection

Upon successful proposal defense, the researcher was issued a letter releasing him to conduct the data collection exercise. The exercise was preceded by conducting a pretest of the study instruments, after which they were edited where adjustments needed to be made. The researcher then issued the questionnaires to the respondents and where necessary, the questionnaires were researcher administered. Contacts were also made with the respondents who were meant to participate in the key informant interviews, appointments secured, after which the interviews were conducted directly by the researcher.

During the face to face interviews, the researcher also took notes. The researcher too conducted documentary review and took notes, as well as taking note of the visual occurrences under observation. In all data collection procedures, protocol was observed by obtaining and presenting permission letters to collect data both from UMI, Malaria Consortium head office, Ministry of Health Promotion and Education Unit, Kiboga district -District Health office and sub –counties with recipients of the Malaria Consortium health communication activities in Kiboga District to enable access to study elements and to convince the responsible people to give the data.

3.10: Data Analysis

Data analysis is the process of bringing order, structure and meaning to the mass of information gathered (Mugenda & Mugenda, 1999). Data collected from the field was sorted, coded by assigning themes to the study variables and later entered into a computer using statistical software (SPSS) to enable analysis. The data was able to answer the research questions and hypotheses.

3.10.1: Quantitative data analysis:

The analysis of quantitative data encompasses calculations such as averages, totals as compared to totals of responses expected. The process of data analysis involved editing, examining the collected raw data to detect errors and omissions and to correct where necessary. The first editing was done in the field and scrutinizing of the completed questionnaire. It was done on a daily basis after the interviews and at times on spot. After fieldwork, central editing was also done to review and edit when all questionnaires had been completed and returned to the researcher. Corrections for wrong entries and omissions were then done. After central editing, questionnaires were then brought back to where computer data entry was done into a statistical package for social scientist (SPSS) software version 17.0.

A statistical software SPSS was used to capture data, data analysis and management. Tables were generated and these were then exported from SPSS into the word document and interpretation was done. In addition, the researcher described or summarized data using descriptive statistics. The researcher obtained measures of central tendency (mean, mode and median) as well as measures of dispersion (standard deviation). The final outputs and selected summary tables were transferred into the main report, findings presented, interpreted and conclusions deduced. In order to find out the degree, direction

and strength of association between the study variables, the researcher conducted Pearson correlations. To confirm the correlation results and establish the effect of the independent variables on the dependent variable, the regression analysis was done.

3.10. 2. Qualitative data analysis

The researcher organized and prepared the qualitative data for analysis by sorting and arranging the data into various themes as it was reflected in the key informant guide, while ensuring that the themes reflected the study objectives and questions. The researcher read through all the data to obtain a general understanding of the information collected, coded the responses, generated themes for analysis and interpretation of the meaning of the data. The qualitative data helped to supplement the data that had been generated quantitatively.

3.11 Measurement of Variables

To measure variables in a quantitative approach is to transform attributes of the conceptual framework of variables studied into numerical quantities. According to Amin (2005, pg 261), measurement is the process of transforming abstractly conceived concepts or variables into numerical quantities. The independent variable health communication was measured using: Situational analysis that determines the required response; Message packaging (advocacy, behavioral change communication, social mobilization; Communication channels and approaches (Message dissemination tools utilized) and Frequency of health communication, while malaria control was measured in terms of; Reduced morbidity and mortality rates due to malaria; Diagnosis and treatment seeking within 24 hours of fever symptoms; Provision and consistent usage of the long lasting insecticide treatment and Uptake of the Intermittent Treatment of malaria during pregnancy.

3.12 Ethical Consideration

Upon approval of the research proposal by Uganda Management Institute Higher Degrees Research, an introductory letter was obtained to seek permission to conduct the study from the local leaders and the District Health Office before conducting the study. The free and informed consent of each individual participant was obtained at the start of the study. Respondents were read an informed consent form that explained the following 1) the purpose of the study, 2) what participation in the study would involve, 3) How confidentiality and anonymity was to be maintained, 4) The right to refuse to participate in the study or to withdraw from the study without any penalty, 5) the benefits and risks of participating in the study. Study participants were not required to undergo any invasive procedures. Personal / sensitive issues were explored when a good relationship had been established with the informant.

The research team was urged and required to respect the culture of the respondents during the data collection process. Confidentiality and anonymity was maintained by the use of code numbers on the questionnaire other than names. Information obtained was only used for the purposes of this study. The data collected was accessible only to the people involved in the study and the principal investigator stored the questionnaires and other study tools in a lockable filing cabinet.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents results and their interpretation. The presentation in shows the results as tested according to the objectives of the study. The chapter presents the response rate of the distributed questionnaires and interviews carried out, secondly the demographic characteristics of the respondents such as age, educational level, marital status, economic activity, religious affiliation and gender, which were all presented using cross tabulations. Lastly the descriptive statistics for the variables under study, that is, the correlation and regression results are analyzed, presented and interpreted according to the objectives of the study. All statistical test results were computed at the rate of 2 – tailed level of significance in accordance with the non- directional hypothesis testing.

4.2 Response Rate

The study took an inquiry into knowing the response rate of the respondents in the study.

Table 4: Response rate of distributed questionnaires

	Frequency	Percent	Cumulative Percent
Response	192	97.5	97.5
Non-response	4	2.0	100.0
Total	196	100.0	

Source; primary data

Ten (10) key informants were interviewed among the Malaria Consortium staff both communication officers and operation persons at the head office and those within Ministry of Health Promotion and Education Unit while 196 questionnaires were distributed to the Kiboga district -District Health Management team and recipients of the

Malaria Consortium health communication activities in Kiboga District within the 13 sub counties of the district. The results in Table 3 show that out of the one hundred and ninety six (196) questionnaires distributed to the respondents, only 192 (one hundred and ninety two) questionnaires were returned.

Therefore 192 respondents who had completed and returned the questionnaires together with the ten (10) key informants interviewed comprised the total number of respondents used for testing the hypothesis of the study. This gave a response rate of 97.5%, which according to Mugenda and Mugenda (2010:83) is a very good response rate. This implied that nearly all the respondents who were selected to take part in the study actually participated in the study.

4.3 Demographical Characteristics

To present demographical characteristics, cross tabulations and frequency distributions were used to indicate variations of respondents based on age, educational level, tenure and gender. The sample characteristics were presented basing on the responses from the respondents.

4.3.1 Gender and category of the respondents

Cross tabulation was used by the researcher to present the Gender and category of the respondents. Table 5 below presented the results:

Table 5: Gender of the respondents

			Category		Total
			District Health Management team	Malaria control Recipients	
Gender	Male	Count	22	74	96
		Row %	(22) 23%	(74) 77%	100
	Female	Count	21	75	96
		Row %	(21) 21.39	(75) 78.61	100
Total		Count	43	149	192
		Row %	22.4%	77.6%	100%

Source: Primary data

From the results in table 5 above, out of the 192 respondents, 96 (50%) were male while on the other hand 96 (50%) of the total population were also females. Furthermore the results reveal that (21) 21.39% were District Health Management team and (75) 78.61 were recipients of the Malaria Consortium health communication activities in Kiboga District within the 13 sub counties of the district, whereas, for the female respondents, (22) 23% were District Health Management team and (74) 77% were recipients of the Malaria Consortium health communication activities in Kiboga District for the male respondents. From the results, there was relative representation of the gender for the respondents.

4.3.2 Age group and Category of the respondents

Cross tabulation was used by the researcher to present the age group and category of the respondents. Table 6 below presented the results:

Table 6: Age Group and Category of the respondents

		Respondent Category			Total
		District Health Management team	Malaria Recipients	control	
Age Group	18-24 yrs	Count		7	7
		Row %		100	100
		Column %		2.63	1.84
	25-29 yrs	Count	15	27	42
		Row %	35.71	64.29	100
		Column %	13.04	10.15	11.02
	30-34 yrs	Count	23	39	62
		Row %	37.10	62.90	100
		Column %	20	14.66	16.27
	34-39 yrs	Count	51	106	157
		Row %	32.48	67.52	100
		Column %	44.35	39.85	41.21
	Over 40 yrs	Count	26	87	113
		Row %	23.01	76.99	100
		Column %	22.61	32.71	29.66
Total		Count	58	134	192
		Row %	30.18	69.82	100
		Column %	100	100	100

Source: Primary data

According to the results in table 6 above, 7 (1.84%) of the respondents belonged to the 18-24 years age group, 42 (11.02%) belonged to the 25-29 years age group, (62) 16.27% belonged to the 30-34 years age group, 157 (41.21%) belonged to the 34-39 years age group and (113) 29.66% belonged to the 40 years and above age group. Additionally, 58 (30.18%) of the respondents were District Health Management team and 134 (69.82%) were recipients of the Malaria Consortium health communication activities in Kiboga District within the 13 sub counties of the district. From the findings, the majority of the respondents belonged to the 34-39 years age group. Therefore, "the opinions expressed in the questionnaire could well reflect the attitudes and perception of middle-age and

younger respondents. This again indicates that the sample somewhat reflects the composition of young and vibrant generations and it also implied that malaria mainly affects more of young people in the age range of 18-35 years, thus most of these respondents had been recipients of the Malaria Consortium health communication activities in Kiboga District within the 13 sub counties of the district in malaria control project.

4.3.3 Religious affiliation of the respondents

Frequency tabulation was used by the researcher to present Religious affiliation of the respondents. Table 7 below presented the results:

Table 7: Religious affiliation of the respondents

Religious affiliation	Frequency	% age	Cumulative %
Catholic	47	24.5	24.5
Protestant	77	40.1	64.6
Moslem	37	19.3	83.9
Pentecostal	6	3.1	87
Others	25	13	100
Total	192	100	

Source: Primary data

According to the results in table 7 above 37 (19.3%) of the respondents were Moslems, 47 (24.5%) of the respondents were Catholics, 25 (13%) of the respondents were in the category of others who were not mentioned in the research, 6 (3.1%) of the respondents were Pentecostal and lastly 77(40.1%) of the respondents were Protestants. From the results the majority of the respondents of the respondents were Protestants amongst respondents that included District Health Management team and recipients of the Malaria

Consortium health communication activities in Kiboga District within the 13 sub counties of the district.

4.3.4 Education levels * Economic activity of the respondents

Cross tabulation was used by the researcher to present the education levels of the respondents and their working period. Results are presented in Table 8.

Table 8: Cross tabulation of Education levels * Economic activity of the respondents

			Economic activity of the respondents			Total
			Public servant	Private Business	Others	
education levels of the respondents	Certificate	Count	16	13	17	46
		% of Total	8.3%	6.8%	8.9%	24.0%
	diploma	Count	4	12	1	17
		% of Total	2.1%	6.2%	.5%	8.9%
	Degree	Count	13	68	25	106
		% of Total	6.8%	35.4%	13.0%	55.2%
	Others specify	Count	9	8	6	23
		% of Total	4.7%	4.2%	3.1%	12.0%
Total		Count	42	101	49	192
		% of Total	21.9%	52.6%	25.5%	100.0%

Source: Primary data

According to the results in table 8 above, 16 (8.3%) of the respondents had certificate, 4 (2.1%) had diploma, 13 (6.8%) had degree and other categories not mentioned were 9 (4.7%) were in the category of Public servant; from those between 2-3 years were 13 (6.8%) had certificate, 12 (6.2%) had diploma, 68 (35.4%) had degree and 8 (4.2%) were in other categories not mentioned; 17 (8.9%) of the respondents had certificate, 1 (.5%) had diploma, 25 (13.0%) had degree and other categories not mentioned were 6 (3.1%) were in the category of Others which was not mentioned. From the findings, the majority of the respondents were degree holders. On the other hand, this

implied that majority of the respondents were in the Private Business as their economic activity.

4.4 The relationship between situation analysis and Malaria Control in Kiboga District

Regarding the relationship between situation analysis and Malaria Control in Kiboga District, the respondents were asked to provide their views on this objective and below were the results obtained from the survey. The respondents were asked to indicate their attitude, views and perceptions on situation analysis of the health communication environment, using a total of eight (8) items. The results in Table 9 were generated using a scale which was coded such that the views from the respondents would reflect their level of agreement or disagreement (SA = strongly agree, A = agree, NS = not sure, D disagree SD = strongly disagree), ranging from (5, 4, 3, 2 and 1) respectively. A mean close to 1 or 2 shows disagreement, while one close to 4 or 5 shows agreement. Means values close to 3 reflect uncertainty with the issue at hand, while those close to 4 or 5 indicate agreement. The smaller values for standard deviation were also a reflection of responses were majority of the respondents were more inclined to agreement and the reverse was also true.

Table 9: Respondents’ attitude on the relationship between situation analysis and Malaria Control in Kiboga District (N=192)

The relationship between situation analysis of the health communication environment and Malaria Control in Kiboga District	Responses in percentages (%)						
	SD	D	NS	A	SA	Mean	SD
Malaria Consortium considered the current malaria control situation in the health communication programming	1.4 % (3)	8.2% (16)	5.5% (11)	57.5% (110)	27.4% (52)	3.71	1.60
Malaria Consortium’s health communication addressed the	2.7% (5)	2.7% (5)	9.6% (19)	76.7% (147)	8.2% (16)	4.29	0.89

Malaria Consortium considers the malaria control situation in the health communication programming system in the district while carrying out its activities since the majority, 163 (84.9%) agreed to this.

On whether Malaria Consortium's health communication addressed the constraints in the current malaria control situation; 16 (8.2%) strongly agreed, 147 (76.7%) agreed, 19 (9.6%) were not sure, 5 (2.7) disagreed and 5 (2.7) strongly disagreed, which showed that the Malaria Consortium's health communication addressed the constraints in the current malaria control situation. This implied that overall, it is important for health providers and communities to appreciate the epidemiologic and technical dimensions of the malaria problem as well as the factors that affect whether particular control options will be feasible, technically possible, socially acceptable, environmentally friendly, and politically advantageous. Asked whether Malaria Consortium considers the current malaria control situation in the health communication programming; 16 (8.2%) strongly agreed, 134 (69.9%) agreed, 21(11%) were not sure, 19 (9.6%) disagreed and 3 (1.4%) strongly disagreed. This implied that generally, Malaria Consortium considers the current malaria control situation in the health communication programming since 78.1% agreed to this. On whether the Malaria Consortium's health communication address the constraints in the current malaria control situation; 24 (12.3%) strongly agreed, 116 (60.3%) agreed, 31 (16.4%) were not sure, 16 (8.2%) disagreed, and 5 (2.7%) strongly disagreed. This implied that Malaria Consortium's health communication address the constraints in the current malaria control situation.

On the issue of whether Malaria Consortium's health communication observes the opportunities that existed to bridge the gaps; (24) 12.3% strongly agreed, 134 (69.9%)

agreed, 26 (13.7%) were not sure and 8 (4.1%) disagreed. This meant that Malaria Consortium's health communication observe the opportunities that existed to bridge the gaps. On the question of whether Malaria Consortium observes the pregnant women and caretakers of children under 5 years of age as the most vulnerable and understands their needs to adopt the positive behaviors; 21.9% strongly agreed, 68.5% agreed, 11 (5.5%) were not sure, 5 (2.7%) disagreed, and 3 (1.4%) strongly disagreed. This revealed that Malaria Consortium observes the pregnant women and caretakers of children under 5 years of age as the most vulnerable and understands their needs to adopt the positive behaviors since 90.4% agreed to this. On whether Health Workers/ leaders are considered as a tertiary audience in the health communication programming of malaria consortium and recognized for contribution; 110 (57.5%) strongly agreed, 21 (11%) agreed, 26 (13.7%) were not sure, 11 (5.5%) disagreed and 24 (12.3%) strongly disagreed. This serves to explain that Health Workers/ leaders are considered as a tertiary audience in the health communication programming of malaria consortium and recognized for contribution.

On this issue of whether Male involvement is considered in the health communication programming of Malaria Consortium since they are key decision makers in the household; 17.8% (34) strongly agreed, 53.4% (103) agreed, 17.8% (34) were not sure, 4.1% (8) disagreed and 6.8% (13) strongly disagreed. This showed that Male involvement is considered in the health communication programming of Malaria Consortium since they are key decision makers in the household since 78.8% agreed to this. Consequently, public health battles are fought continuously through various integrated means and approaches. Importantly, there has to be a universal consensus that the role of situation analysis of the health communication environment on the Malaria

Control cannot be overemphasized if battle against various public health issues be victorious.

The quantitative results were further supplemented by the findings from the key informants who further affirmed that the role of situation analysis of the health communication environment on the Malaria Control cannot be overemphasized if battle against various public health issues be victorious.

One of the respondents shared;

“.....the effective health communication of information on Medical Conditions and health lifestyles has played an important part in the improvement of the health status of a less developed country like Uganda. At the same time, it is hard to ignore the negative impact that ineffective health communication can have within the healthcare arena.

In response to the Global Malaria Action Plan lays out an achievable blueprint for fighting malaria-now it is time for the world to take action", one respondent shared:

“It is imperative that Universal Coverage of prevention and treatment for the millions of people who suffer and die from malaria is attained. The Global Malaria Action Plan will guide and unify the malaria community in its efforts to provide timely and effective assistance to endemic countries. With sufficient funding and political support, this plan will help us reap dramatic gains against malaria in the coming”.

This meant that quite often, the reasons for ineffective health communication in malaria control is also attributed to the burden of malaria even more of a concern is the high

failure rate of anti-malaria drugs, drug resistant malaria parasites that hinder case management by decreasing the efficacy of anti-malarial drugs and by requiring the use of alternate drugs that are often more costly, less safe and less easy to administer; Insecticide resistance decreases the efficacy of interventions that rely on insecticides such as insecticide-treated bed nets and insecticide spraying; Inadequate health infrastructure in poor countries are unable to conduct recommended interventionism; The people most exposed to malaria are often poor and lack education. They often do not know, they often do not have the financial means to purchase the necessary products such as drugs and bed nets act more as rubber stamps.

The above findings are supported by the findings from key informants whereby one of the officials from the Ministry of Health Promotion and Education Unit had this to say;“.... *"The Global Malaria Action Plan in line with Malaria Consortium Uganda makes a strong case for investigating in malaria and commitment to reducing the burden of malaria and other communicable diseases – particularly those that affect young children such as pneumonia and diarrhoea . I urge advocates in Countries and at Global level to use this plan to mobilise resources for malaria control and help answer the UN Secretary General's call for universal access to malaria prevention and treatment"*”

Therefore, this further indicated that situation analysis significantly improves on the Malaria Control.

4.3.2 Correlations

To further explain the descriptive statistics results and establish whether a relationship existed between situation analysis and Malaria Control, to test the strength and direction of that relationship, Pearson correlation results were computed, as shown in Table 10.

Table 10: The relationship between situation analysis and Malaria Control in Kiboga District

Correlations			
		situation analysis	Malaria Control
situation analysis	Pearson Correlation	1	.441**
	Sig. (2-tailed)		.000
	N	192	192
Malaria Control	Pearson Correlation	.441**	1
	Sig. (2-tailed)	.000	
	N	192	

** Correlation is significant at the 0.01 level (2-tailed).

The results in the Table 10 above reveal that situation analysis had a positive and significant correlation with Malaria Control ($r = 0.441^{**}$ $P < 0.01$). This means that the two variables are positively related, implying that any improvement in situation analysis of the health communication environment results into improvement in Malaria Control. This supports the hypothesis that there is a positive and significant relationship between situation analysis of the health communication environment and Malaria Control. This also implied that situation analysis of the health communication environment is a significant predictor of Malaria Control and therefore, with more situation analysis of the health communication environment, the more Malaria Control will be registered.

4.3.3 Regression Analysis

A linear regression model was used to determine the proportion that the independent variable, situation analysis accounts for Malaria Control. The results are summarized in tables below as shown.

Table 11: The relationship between situation analysis and Malaria Control in Kiboga District

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.165	1	8.165	193.604	.000 ^a
	Residual	8.182	195	4.217E-02		
	Total	16.347	196			
a. Predictors: (Constant), situation analysis of the health communication environment						
b. Dependent Variable: Malaria Control						

The independent variable, situation analysis, was statically significant in affecting Malaria Control in Kiboga District, where $f = 193.604$ (<0.01) as shown in table 11 above. This implied that there is a meaningful positive relationship between the independent variable situation analysis and the dependent variable Malaria Control in Kiboga District.

Table 12: Causal relationship between situation analysis and Malaria Control

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.455	.048		9.451	.000
	situation analysis	.445	.039	.441	13.914	.000
a. Dependent Variable: Malaria control						

The regressions results from the table 12 above show that a unit of change in situation analysis brings about .441 or 44% change in Malaria Control. Hence, H_1 which states that situation analysis positively impacts Malaria Control is supported and accepted.

Table 13 Regression model between situation analysis and Malaria Control

Model	Adjusted R Square	t-value	Std. Beta (β)	Sig	Std. Error of the Estimate
Performance management	0.232	4.740	0.493	0.000	0.52

Source: Primary data
 $P \leq 0.05$

Table 13 above shows adjusted R^2 values of 0.232 between situation analysis and Malaria Control suggesting that use of situation analysis in the Malaria Control predicts 23.2% of the variance in the Malaria Control. The adjusted $R^2 = 0.232$, $t = 4.740$, $\beta = 0.493$ and significance 0.000 suggested that situation analysis of the health communication environment was a significant predictor of the variance in Malaria Control in the district and efforts directed to strengthening the situation analysis through setting performance targets and client charters and their measurement will significantly contribute to improve performance of Malaria Control in the district. The study therefore accepted the hypothesis that:

“That situation analysis of the health communication environment positively impacts Malaria Control”

4.4 The relationship between Health Communication messaging and Malaria Control

The results in the table 14 below were generated using a scale which was coded such that one represents (SA = strongly agree, A = agree, NS = not sure, D = disagree SD = strongly disagree), ranging from (5, 4, 3, 2 and 1) respectively.

Table 14: Respondents' attitude on the relationship between Health Communication messaging and Malaria Control

	Responses in percentages (%)				
	SD	D	NS	A	SA
Malaria Consortium effectively addresses the issue of malaria during pregnancy as one of its Health Communication messaging on Malaria Control	1.4% (3)	8.2% (16)	5.5% (11)	57.5% (110)	27.4% (52)
Generally health communication messaging by Malaria Consortium have the potentials to prevent and reduce malaria attacks in Kiboga District	2.7% (5)	2.7% (5)	9.6% (19)	76.7% (147)	8.2% (16)
The health communication messaging by Malaria Consortium has made a great impact on the residents in the district and allows them to prevent frequent malaria attack	1.4% (3)	9.6% (19)	11% (21)	69.9% (134)	8.2% (16)
health communication messaging by Malaria Consortium complements the efforts of the medical practitioners- in Kiboga District in preventing and reducing malaria attack among the people of the District	5.5% (11)	5.5% (11)	16.4% (31)	52.1% (100)	20.5% (39)
The use of health communication messaging by Malaria Consortium contact points with the health system and community groups and networks to inform, counsel, support and encourage use of ITNs and rapid treatment of malaria symptoms	2.7% (5)	8.2% (16)	16.4% (31)	60.3% (116)	12.3% (24)
health communication messaging increases awareness among mothers of how to recognize malaria and treat it among their children	0	4.1% (8)	13.7% (26)	69.9% (134)	12.3% (24)
The use of health communication messaging creates opportunities for dialogue among community members, networks and	1.4% (3)	2.7% (5)	5.5% (11)	68.5% (132)	21.9% (41)

organizations about how they can support women in protecting their children with ITNs and prompt medical attention for malaria symptoms and control					
The residents specifically listen to health communication messaging to improve or manage their health system towards malaria control	5.5% (11)	12.3% (24)	13.7% (26)	57.5% (110)	11% (21)
The use of health communication messaging brings out preventive measures in reducing the menace of malaria in Kiboga District	6.8% (13)	4.1% (8)	17.8% (34)	53.4% (103)	17.8% (34)

Key: Strong Agree (SD), Agree (A), Not sure (NS), Disagree (D), Strongly Disagree (SD)

5

4

3

2

1

Source: Primary data

In regard to the respondents' attitude on the relationship between Health Communication messaging and Malaria Control, responses were as shown in the Table 14 above. Respondents' views on Health Communication messaging on Malaria Control were tested using nine (9) questionnaire items based on a five point Likert scale. When the respondents were asked to give their opinion on whether Malaria Consortium effectively addresses the issue of malaria during pregnancy as one of its Health Communication messaging on Malaria Control, out of the 192 respondents who answered the questionnaire; 52 (27.4%) strongly agreed, 110 (57.5%) agreed, 11 (5.5%) were not sure, 16 (8.2%) disagreed and (3)1.4% strongly disagreed. This indicated that Malaria Consortium effectively addresses the issue of malaria during pregnancy as one of its Health Communication messaging on Malaria Control since the majority, 84.9% agreed to this.

On whether generally health communication messaging by Malaria Consortium have the potentials to prevent and reduce malaria attacks in Kiboga District; (16) 8.2% strongly agreed, 147 (76.7%) agreed, 19 (9.6%) were not sure, 5 (2.7%) disagreed and 5 (2.7%) strongly disagreed, which showed that a good number of respondents agreed. This meant that generally, health communication messaging have the potential of above suggests that responses from most of the respondents affirm that health communication messaging messages have the potential of preventing and reducing malaria attack among the people of Kiboga District.

Asked whether the health communication messaging by Malaria Consortium has made a great impact on the residents in the district and allows them to prevent frequent malaria attack; (16) 8.2% strongly agreed, (134) 69.9% agreed, (21) 11% were not sure, (19) 9.6% disagreed and (3) 1.4% strongly disagreed. This implied that the health communication messaging by Malaria Consortium has made a great impact on the residents in the district and allows them to prevent frequent malaria attack since 78.1% agreed to this.

On whether the health communication messaging by Malaria Consortium complements the efforts of the medical practitioners- in Kiboga District in preventing and reducing malaria attack among the people of the District; (39) 20.5% strongly agreed, (100) 52.1% agreed, (31) 16.4% were not sure, 5.5% (11) disagreed and 5.5% (11) strongly disagreed, which showed that a good number of respondents agreed that the health communication messaging by Malaria Consortium complements the efforts of the medical practitioners- in Kiboga District in preventing and reducing malaria attack among the people of the District. On whether the use of health communication messaging by Malaria Consortium contact points with the health system and community groups and networks to inform,

counsel, support and encourage use of ITNs and rapid treatment of malaria symptoms; (24) 12.3% strongly agreed, (116) 60.3% agreed, (31) 16.4% were not sure, (16) 8.2% disagreed, and (5) 2.7% strongly disagreed. This implies that the use of health communication messaging by Malaria Consortium involves contact points with the health system and community groups and networks to inform, counsel, support and encourage use of ITNs and rapid treatment of malaria symptoms.

On whether health communication messaging increases awareness among mothers of how to recognize malaria and treat it among their children; 12.3% (24) strongly agreed, 69.9% (134) agreed, 13.7% (26) were not sure, and lastly 4.1% (8) disagreed, which showed that a good number of respondents agreed. Asked whether the use of health communication messaging creates opportunities for dialogue among community members, networks and organizations about how they can support women in protecting their children with ITNs and prompt medical attention for malaria symptoms and control; 21.9% (41) strongly agreed, 68.5% (132) agreed, 5.5% (11) were not sure, 2.7% (5) disagreed and 1.4% (3) strongly disagreed. This implied that the use of health communication messaging creates opportunities for dialogue among community members, networks and organizations about how they can support women in protecting their children with ITNs and prompt medical attention for malaria symptoms and control since 78.1% agreed to this.

Lastly on whether the residents specifically listen to health communication messaging to improve or manage their health system towards malaria control; 11% (21) strongly agreed, 57.5% (110) agreed, 13.7% (26) were not sure, 12.3% (24) disagreed and 5.5% (11) strongly disagreed, which showed that a good number of respondents agreed that the residents specifically listen to health communication messaging to improve or manage

their health system towards malaria control. On whether the use of health communication messaging brings out preventive measures in reducing the menace of malaria in Kiboga District; 17.8% (34) strongly agreed, 53.4% (103) agreed, 17.8% (34) were not sure, 4.1% (8) disagreed, and 6.8% (13) strongly disagreed. This implies that the use of health communication messaging brings out preventive measures in reducing the menace of malaria in Kiboga District.

Views were sought from the key informants to further explain matters related to health communication messaging in respect to malaria control in Kiboga District. The above results are in line with those of the key informants where it was revealed that health communication messaging affects malaria control in Kiboga District positively. One of the senior health management team in Kiboga District staff pointed out that effective messaging as one of the major variables that positively influence malaria control or ineffective messaging can also affect malaria control negatively.

He pointed out that;

.....” *The success of a malaria control programme depends on the support and involvement of local people through health communication messaging. This can be gained by ensuring they have a better understanding of the disease and the ways they protect themselves against it and demonstrating that a programme will be of benefit to everyone. Health Communication Messaging and Information-Education -Communication is therefore central to any malaria control programme”.*

Another ministry official had to say that;

.....” *Health Communication Messaging can motivate people to action because it is 'everywhere. The signals are carried on the electromagnetic spectrum to almost every nook and cranny. Hardly a place in the -world is beyond the reach of the message say by use of radios ... nineteen of 20 automobile comes with radios and many people wake up with clock radios...*”

4.4.2 Correlations

These findings were further analyzed using Pearson correlation Analysis in order to establish the strength and direction of the relationship between the variables in the study. Regression Analysis was used to examine the variance in malaria control (dependent variable) that is explained by health communication messaging (independent variables).

Table 15: The effect of health communication messaging on malaria control

		health communication messaging	malaria control
health communication messaging	Pearson Correlation	1	.259**
	Sig. (2-tailed)		.000
	N	192	192
malaria control	Pearson Correlation	.259**	1
	Sig. (2-tailed)	.000	
	N	192	192
**.			<i>Correlation is significant at the 0.01 level (2-tailed).</i>

Source: Primary data

The Correlation results in table 15 above indicated a significant positive relationship between health communication messaging and malaria control ($r = .259^{**}$, $p < .01$). This means that and the two variables are positively related, implying that any positive change in health communication messaging creates in improvement in malaria control, there is a

likelihood that this will result into improvement in Malaria Control. This supports the hypothesis that there is a positive and significant relationship between health communication messaging and Malaria Control. This also implied that health communication messaging is a significant predictor of Malaria Control and therefore, with more health communication messaging, the more Malaria Control will be registered.

4.4.3 Regression Analysis

Regression analysis was used to determine the extent to which health communication messaging predict malaria control in Kiboga District. The results obtained are shown by Table 16, 17 & 18 below:

Table 16: Significance of health communication messaging to malaria control

ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.037	1	1.037	13.625	.000 ^a
	Residual	14.458	190	.076		
	Total	15.495	191			
a. Predictors: (Constant), Health communication messaging						
b. Dependent Variable: Malaria control						

The independent variable, health communication messaging, was statically significant in significant in explaining malaria control (Sig=0.027, $p > 0.05$, $F = 1.198$), as shown in table above. This implies that there is a meaningful positive relationship between the independent variable health communication messaging and the dependent variable malaria control in Kiboga district.

Table 17: Causal relationship between health communication messaging and malaria control

Model		Coefficients ^a				
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.879	.060		14.595	.000
	Health communication messaging	.164	.045	.259	3.691	.000

a. Dependent Variable: Malaria control

The regressions results from the table above shows that a unit change in Health communication messaging brings about .879 change in Malaria control in Kiboga district. This also implies that health communication messaging is amongst the significant predictors of malaria control while on the other hand it also implies that focus on improving malaria control should be put on minimizing the effect of health communication messaging. Hence, H₁ which states that Health communication messaging positively impact Malaria control in Kiboga district is supported and accepted.

Table 18: Model summary of health communication messaging and malaria control

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.113	3.172	0.354	0.002
Predictors: (Constant), Health communication messaging				

Source; primary data

From the above Table 18 above shows adjusted R² values of 0.113 between health communication messaging and malaria control suggesting that health communication messaging predicted 11.3% of the variance in malaria control in the district. The adjusted

$R^2 = 0.113$, $t = 3.172$, $\beta = 0.354$ and significance 0.002 suggested that, although health communication messaging was a significant predictor of the variance in malaria control in the district it predicted a less significant predictor as other variables predicted the remaining majority of 89.7%. Never the less, this study inferred that since health communication messaging was a significant predictor of the variance in the malaria control in the district, adequate and continued health communication messaging will contribute to improved malaria control in the district. Therefore from the Table 16, 17 & 18; it can be concluded that the findings did not support the H₂ that states that health communication messaging affect malaria control levels.

4.5 The relationship between nature of Health Communication channels and Malaria Control in Uganda

The researcher wanted to know whether nature of Health Communication channels and approaches have a relationship on Malaria Control in Uganda especially in Kiboga District. The findings are summarized in the Table 18 below. The results in the table below were generated using a scale which was coded such that one represents (SA = strongly agree, A = agree, NS = not sure, D disagree SD = strongly disagree), ranging from (5, 4, 3, 2 and 1) respectively. A mean close to 1 or 2 shows Disagreement, while one close to 4 or 5 shows Agreement. Means close to 3 reflect uncertainty with the issue at hand.

Table 19: the relationship between nature of Health Communication channels and Malaria Control in Uganda (N=192)

The relationship between nature of Health Communication channels and Malaria Control in Uganda	Responses in percentages (%)					Mean	SD
	SD	D	NS	A	SA		
Broadcasting Media (Radio and Television) is one of the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium that creates an impact.	1.4 % (3)	8.2% (16)	5.5% (11)	57.5% (110)	27.4% (52)	4.29	1.62
Malaria Consortium uses interpersonal communication in its health communication programming to create an effect in malaria control in the district	2.7% (5)	2.7% (5)	9.6% (19)	76.7% (147)	8.2% (16)	3.71	1.60
Print media is one of the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium that creates an impact.	1.4% (3)	9.6% (19)	11% (21)	69.9% (134)	8.2% (16)	4.39	0.89
Campaign Posters are also one of the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium that creates an impact.	5.5% (11)	5.5% (11)	16.4% (31)	52.1% (100)	20.5% (39)	2.44	1.21
Message presentation in all the natures of Health Communication channels and approaches spell out how dangerous malaria can be if people do not get proper and immediate treatment.	2.7% (5)	8.2% (16)	16.4% (31)	60.3% (116)	12.3% (24)	3.17	1.17
The characters presented and mentioned in the all the natures of Health Communication	0	4.1% (8)	13.7% (26)	69.9% (134)	12.3% (24)	3.50	1.60

Malaria Control used by Malaria Consortium that creates an impact at a (Mean = 2.44). On the contrary the majority of the respondents indicated agreement to the statement “Message presentation in all the natures of Health Communication channels and approaches spell out how dangerous malaria can be if people do not get proper and immediate treatment”, with (Mean = 3.17). Further, most respondents agreed that the characters presented and mentioned in the all the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium create an impact at a (Mean = 3.50) and that there is salient element of the all the natures of Health Communication channels and approaches like TV adverts is richness of visual images that make a message more vivid and entertaining on malaria control at a (Mean = 3.86).

Lastly there was uncertainty by the respondents on whether Malaria Consortium weighs the benefits of the natures of Health Communication channels and approaches against the negative outcomes of malaria control at a (Mean = 3.07). This implied that a salient element of the TV adverts is richness of visual images that make a message more vivid and entertaining. In spite of this, TV adverts could only be relevant for audiences in urban areas that have access to electricity and TV. Given the nature of most rural societies, TV adverts were inappropriate for rural audiences. An alternative to TV images could have been the campaign posters. Unfortunately, in my study location, distribution of posters was poor.

The above results are in line with those of the key informants. Notably, one key informant Medical Officer In charge of Bukuku HSD, Dr.Muhumuza Simon revealed that;

.... he attributed the shortage of posters to insufficient supply from the MOH. He said that, the capacity of the health education department at the district is weak and still dependant on MOH for IEC materials and support. On the other hand, the malaria focal person in Kiboga District, Byamukama said that health units were given posters which they did not display possibly because it was not a malaria peak season. Both Dr. Muhmuza and Byamukama mentioned that the problem of inadequate funds could not enable the Health Education Unit to develop enough IEC materials in local languages. They said that not even the Primary Health Care (PHC) grant from MOH could sustain the development of such IEC materials.”

However all the three key informants I interviewed at the Health centres maintained that they had not received campaign posters from the district in a long time. Considering Rogers and Storey’s definition of public communication campaigns objectives, among which is to inform as a way of increasing individual levels of knowledge, to raise awareness of certain consequences, of options or of support available to increase the salience of an idea.....,” the language barrier created by the posters in English could only suppress such a process in communities where English is not understood.

During my interview and focus group discussion with Byangyire I learnt that due to inadequate funding at the HEPU, interpersonal methods were not being put to good use as the case should be. However, she said that there were intentions of concentrating more on interpersonal methods once the Global Fund materialized. Support from the fund would be used to increase awareness and other behaviour change communication initiatives through interpersonal methods especially at community level. Irrespective of that observation, the situation was different at district level because I later established that

Kiboga District's HEU communication activities relied on interpersonal channels of communication to reach the community.

Kiboga District's MFP, Byamukama and the Medical Officer In-charge of Bukuku HSD Dr. Muhumuza, mentioned that the district strategies greatly depended on interpersonal channels in educating the people on the need to seek early and proper treatment from health facilities and CBDs. Key preventive measures like using ITNs were other messages interpersonal messengers were required to educate the people about. The interpersonal contacts they mentioned included; LCs, Medical Personnel, Community Health Workers, Religious Leaders and CBDs. I present findings from each of these categories. This is further ascertained by target audience who identified the following interpersonal channels as their sources of information.

In a focus group discussion with seven Local Councillors (LCs) I ascertained that they were partly involved sensitizing their community on malaria related issues and HBMF. When asked where they obtained information they used to educate the community, they mentioned health personnel and radio adverts as their sources of information. From my findings, I established that 20% of the respondents said that LCs were their source of information on malaria treatment and prevention. Among the issues they raised, LCs expressed dissatisfaction at the failure of medical personnel and health workers to attend meetings where they could address the community directly on malaria. They observed that the only time such personnel attended an LC meeting was in February 2013. They argued that since health personnel were more knowledgeable on malaria related issues, it was the main reason why they should attend meetings and address people's concerns.

Secondly, LCs admitted to not ardently promoting the use of ITNs because of the cost implications in purchasing ITNs. They noted that most of the people are very poor and could not afford an ITN that costs 7,000 Uganda shillings (approximately \$ 3.5). Knowing their people's economic situations, it would be insensitive and a mockery to mention ITNs to them, they added. They said that much as promoting ITNs was one of government's key interventions in the HBMF initiative, it was not practical for people in rural areas. True to my findings, only 10% of the respondents had children sleeping under ITNs. The LCs decision not to promote ITNs also proves Windahl et al's observation that opinion leaders can be selective about what information they receive and disseminate (2011:54).

The LCs acknowledged their role in sensitizing people about HOMPAK, the main drug administered to under-fives in the HBMF initiative. They said, they often talked about HOMPAK during community meetings and even advised the people on where to find CBDs. They went on to underscore the apathetic attitude of some parents who they claimed do not complete medication after getting the full dose from CBDs. According to them, parents had to get more medication from the health facility in addition to that administered by CBDs.

I later learnt from my interviews with the CBDs that this assertion was false. The medication administered by the CBDs was a full dose which did not necessitate follow up treatment from a health facility unless malaria became persistent. Regarding what key messages they communicate to the community, the LCs pinpointed their message emphasis on environmental interventions as means to safeguarding themselves against malaria. The key interventions they promoted include: boiling drinking water, clearing

bushes, clearing stagnant water, and closing windows and doors before dusk, as a means to preventing breeding places for mosquitoes.

4.5.2 Correlations

These findings were further analyzed using Pearson correlation Analysis in order to establish the strength and direction of the relationship between the variables in the study. Regression Analysis was used to examine the variance in Malaria Control (dependent variable) that is explained by nature of Health Communication channels and approaches (independent variables).

Table 20: The relationship between nature of Health Communication channels and Malaria Control in Uganda

		Nature of Health Communication channels and approaches	Malaria Control
Nature of Health Communication channels and approaches	Pearson Correlation	1	.618**
	N	192	192
Malaria Control	Pearson Correlation	.618**	1
	N	192	192

** Correlation is significant at the 0.01 level (2-tailed).

From the Table 20 above, the findings revealed positive and significant relationship between nature of Health Communication channels and approaches of and Malaria Control ($p < 0.01$, $r = 0.618^{**}$). When the correlation value was squared in order to establish the effect of the independent variable dimension to the dependent variable, the results revealed that 38% was the percentage effect of nature of Health Communication channels and approaches on Malaria Control. This implied that poor nature of Health Communication channels and approaches could affect the level of Malaria Control since

there will be in the spread and cause of malaria in the district. On the other hand, where there is a good and effective nature of Health Communication channels and approaches, Malaria Control can be realized, for fear of the negative repercussions.

In order for effective communication to occur, the occurrence of misinformation identified above between nature of Health Communication channels and approaches like interpersonal sources and the target audience needs to be addressed. Considering their roles as opinion leaders, it is important for community leaders, such as LCs to give timely and accurate information to the target audience. Health personnel should also create time for community meetings so as to supplement information relayed to the community by LCs and other interpersonal messengers. There is no doubt that people have confidence in LCs and health personnel which explains why 86.6% and 70% of the respondents identified LCs and health personnel respectively, as their preferred source of information on malaria prevention and treatment.

4.5.3 Regression Analysis

Regression analysis was used to determine the extent to which nature of Health Communication channels and approaches predict Malaria Control in Kiboga District. The results obtained are shown by Tables 21 and 22;

Table 21: Model summary between nature of Health Communication channels and approaches and Malaria Control

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.618 ^a	.380	.610	.48254		
a. Predictors: (Constant), Nature of Health Communication channels and approaches						
Table 22: Causal relationship between nature of Health Communication channels and approaches and Malaria Control						
Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.268	.252		5.026	.000
	Nature of Health Communication channels and approaches	.354	.149	.618	2.369	.020
a. Dependent Variable: Malaria Control						

From the regression Table 21 and 22 above, the findings further revealed that there is a significant positive relationship between nature of Health Communication channels and approaches and Malaria Control. The standardized coefficient of 0.618 shows that 0.618 of the successfulness of Malaria Control can be explained by the nature of Health Communication channels and approaches by Kiboga District. Therefore, the null hypothesis which stated that “nature of Health Communication channels and approaches improves Malaria Control levels was accepted and alternative hypothesis accepted.

4.6 The Relationship Between frequency of health communication and malaria control.

The fourth objective of the study was to establish the impact of frequency of health communication on malaria control. This was conceptualized to include indicators of frequency of health communication on malaria control measured using 17 items scored on a five point Likert scale ranging from; 5 for Strongly agree, 4 for Agree, 3 for Not sure, 2 for Disagree and 1 for Strongly disagree. The findings are tabulated below using mean and standard deviation descriptive statistics.

Table 23: Descriptive results for Relationship between frequency of health communication and malaria control

Relationship Between frequency of health communication and malaria control	Mean	S.D
Malaria Consortium develops and implements interventions consisting of training workshops and dissemination of education materials as frequency of health communication on malaria control.	4.75	0.436
The health communication programmes by Malaria Consortium have made a great impact on people and allows them to control and prevent frequent malaria attack in the district	4.62	0.568
There exists a significant relationship between the possibilities of listening to health- communication related programmes on the different channels and approaches and eventual reduction in the menace of malaria in the district	4.54	0.871
The degree at which the intensity (the degree of effects) of health programmes on communication related programmes on the different channels and approaches significantly complements the efforts of Malaria Consortium and medical practitioner in district in preventing and reducing malaria attack among the people of the community	4.46	0.502
There is a significant relationship between the respondents pattern (frequency of listening to health-related radio programmes) of listening to health	1.92	0.960

programmes on radio and its impacts in preventing malaria in district		
The frequency of Health programmes complement the efforts of the medical practitioners in district in preventing and reducing malaria attack among the people of the Community	1.79	0.711
Most people in the district listen to health related messages on radio for the purpose of improving their health conditions especially in relation to malaria and other diseases	3.96	1.180
Most people in the district believe in frequent preventive measures in reducing the menace of malaria in the community	3.92	0.868
There is a good perception of the district residents on the impact of health communication programmes on the different channels like radio vis-a-vis the improvement of their health condition	1.79	1.006

Source; Primary Data

Table 23 above shows that respondents indicated that Malaria Consortium develops and implements interventions consisting of training workshops and dissemination of education materials as frequency of health communication on malaria control (Mean=4.75, Standard deviation=0.436) while they also indicated that The health communication programmes by Malaria Consortium have made a great impact on people and allows them to control and prevent frequent malaria attack in the district (Mean=4.62, Standard deviation=0.568). Similarly, the respondents agreed that there exists a significant relationship between the possibilities of listening to health-communication related programmes on the different channels and approaches and eventual reduction in the menace of malaria in the district (Mean=4.54, Standard deviation=0.871) while they also indicated that the degree at which the intensity (the degree of effects) of health programmes on communication related programmes on the different channels and approaches significantly complements the efforts of Malaria Consortium and medical practitioner in district in preventing and reducing malaria attack among the people of the community (Mean=4.46, Standard deviation=0.502). These

findings suggested that the more they listen to health-related programmes on radio, the more they are equipped with the required information in preventing malaria in the community. That is, more and more health-related programmes on radio considerably facilitate the messages and efforts of medical practitioners on malaria attack.

However, the respondents felt that there is no a significant relationship between the respondents pattern (frequency of listening to health-related radio programmes) of listening to health programmes on radio and its impacts in preventing malaria in district (Mean=1.92, Standard deviation=0.960) while they also disagreed that the frequency of Health programmes does not complement the efforts of the medical practitioners in district in preventing and reducing malaria attack among the people of the Community (Mean=1.79, Standard deviation=0.711). The respondents felt that most people in the district listen to health related messages on radio for the purpose of improving their health conditions especially in relation to malaria and other diseases (Mean=3.96, Standard deviation=1.180) while they felt that most people in the district believe in frequent preventive measures in reducing the menace of malaria in the community (Mean=3.92, Standard deviation=0.868).

The respondents also felt that there is a good perception of the district residents on the impact of health communication programmes on the different channels like radio vis-a-vis the improvement of their health condition (Mean1.79=, Standard deviation=1.006). This implied that

To establish the impact of frequency of health communication on malaria control and to establish the strength and the direction of the relationship between the two variables,

Pearson's correlation coefficient analysis was undertaken at the 99 and 95% confidence limits as shown below.

Table 24: Correlation matrix between frequency of health communication and malaria control

		Frequency of Health comm.	Malaria control
Frequency of health communication	Pearson Correlation	1.000	.493**
	Sig. (2-tailed)	.	.000
	N	192	192
Malaria Control	Pearson Correlation	.493**	1.000
	Sig. (2-tailed)	.000	.
	N	192	192

** .Correlation is significant at the 0.01 level (2-tailed). $P \leq 0.05$

Source: Primary data

Table 24 above show Pearson's correlation coefficient $r = 0.493^{**}$ between frequency of health communication and malaria control suggesting that the two variable were related. The Pearson's correlation coefficient $r = 0.493^{**}$ and significance $p = 0.000$ shows that there was a high positive significant relationship between frequency of health communication and malaria control. This implied that the efforts to frequently use health communication adequately will significantly contribute to malaria control in the district.

A simple regression analysis was conducted to determine the effect of frequency of health communication on malaria control using ANOVA statistics of adjusted R^2 , t-values, Beta (β), significance and standard error of the estimate and the findings are shown below.

Table 25: The relationship between frequency of health communication and malaria control

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.758	1	.758	5.556	.019 ^a
	Residual	25.909	190	.136		
	Total	26.667	191			

a. Predictors: (Constant), frequency of health communication

b. Dependent Variable: malaria control

The independent variable, frequency of health communication, was statically significant in affecting malaria control, $F = 1.556$ (<0.01) as shown in table above. This implies that there is a meaningful positive relationship between the independent variable frequency of health communication and the dependent variable malaria control in Kiboga district.

Table 26: Causal relationship between frequency of health communication and malaria control

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.920	.108		8.538	.000
	frequency of health communication	.227	.096	.169	2.357	.019

a. Dependent Variable: malaria control

The regressions results from the table above shows that a unit change in frequency of health communication brings about .920 change in malaria control in Kiboga district.

Table 27: Regression model between frequency of health communication and malaria control

Model	Adjusted R Square	t-value	Std. Beta (β)	Sig	Std. Error of the Estimate
Frequency of health communication	0.232	4.740	0.493	0.000	0.52

Source: Primary data
 $P \leq 0.05$

Table 27 above shows adjusted R^2 values of 0.232 between frequency of health communication and malaria control suggesting that use of frequency of health communication in the district predicted 23.2% of the variance in malaria control. The adjusted $R^2 = 0.232$, $t = 4.740$, $\beta = 0.493$ and significance 0.000 suggested that frequency of health communication was a significant predictor of the variance in malaria control and efforts directed to strengthening the frequency of health communication systems through setting malaria control programmes. The study therefore accepted the hypothesis that: *“Frequency of health communication significantly improves malaria control”*

4.6: Dependent Variable (Malaria Control)

The purpose of the study was to analyze how Health Communication offered by Malaria Consortium impacts on Malaria Control in Uganda taking a case of Malaria Consortium Uganda in Kiboga District. In order to achieve this purpose of the study, respondents were asked whether they agree with the variables that constitute Malaria Control and the various roles played by different stakeholders towards Malaria Control.

Table 28: The minimum and maximum range and mean results of respondents rating on Malaria Control

Malaria Control	Min.	Max.	Mean
Malaria Consortium uses Intermittent Presumptive Treatment of malaria during pregnancy as a measure of malaria control in the district	1.00	5.00	4.52
Long Lasting Insecticide treated Nets (LLIN) are given to Pregnant women & children under 5 years to sleep under as a measure of malaria control by Malaria Consortium	1.00	5.00	4.44
Malaria Consortium uses effective communication between the local and district level on how to protect myself from malaria using LLIN	1.00	5.00	3.56
Malaria Consortium conducts specific Malaria epidemic health education campaigns a measure of malaria control	1.00	5.00	4.61
Malaria Consortium organizes regular press releases/conferences/articles for public information on malaria control as a measure of malaria control	1.00	5.00	3.60
Malaria Consortium reinforces health information systems for reporting and epidemic monitoring, preferably on a weekly basis as a measure of malaria control	1.00	5.00	2.08
There is promotion of pro-active clinical case detection and management/referral as a measure of malaria control	1.00	5.00	2.73
There a budget allotted for malaria epidemic response control	1.00	5.00	3.67
Ensuring that all clinics and health facilities are operational and have sufficient drugs, equipment and trained staff is one of the measures of malaria control in the district	1.00	5.00	3.57
Malaria Consortium ensures that the correct diagnosis and treatment is provided at all health facilities and at community level	1.00	5.00	3.01
Malaria Consortium establishes treatment centres (temporary clinics or mobile clinics) where access is a problem or health facility coverage is low	1.00	5.00	2.34
There is a well equipped active surveillance system for early detection of any epidemics including malaria working at prone district level	1.00	5.00	3.77

Source; primary data

In regard to the dependent Variable (Malaria Control), responses were as shown in Table 28 above. The results revealed that the respondents agreed that Long Lasting Insecticide treated Nets (LLIN) are given to Pregnant women & children under 5 years to sleep under as a measure of malaria control by Malaria Consortium at a (Mean 4.44); Malaria

Consortium uses effective communication between the local and district level on how to protect myself from malaria using LLIN at a (Mean 3.56); Malaria Consortium organizes regular press releases/conferences/articles for public information on malaria control as a measure of malaria control at a (Mean 3.60). This implied that the respondents had an agreement on the above statements.

However, they disagreed that Malaria Consortium does not reinforce health information systems for reporting and epidemic monitoring, preferably on a weekly basis as a measure of malaria control at a (Mean 2.08); There is promotion of pro-active clinical case detection and management/referral as a measure of malaria control at a (Mean 2.73); Malaria Consortium establishes treatment centres (temporary clinics or mobile clinics) but access is not a problem or health facility coverage is not low at a (Mean 2.34); This implied that the respondents had a disagreement on the above statements.

While on the other hand the respondents were uncertain as to whether Malaria Consortium ensures that the correct diagnosis and treatment is provided at all health facilities and at community level at a (Mean 3.01) respectively.

The respondents agreed as regards to whether there a budget allotted for malaria epidemic response control at a (Mean 3.67); Ensuring that all clinics and health facilities are operational and have sufficient drugs, equipment and trained staff is one of the measures of malaria control in the district at a (Mean 3.57); Malaria Consortium conducts specific Malaria epidemic health education campaigns a measure of malaria control at a (Mean 4.61); Malaria Consortium uses Intermittent Presumptive Treatment of malaria during pregnancy as a measure of malaria control in the district at a (Mean 4.52) and

lastly that there is a well equipped active surveillance system for early detection of any epidemics including malaria working at prone district level at a (Mean 3.77), respectively. This implies that the post-epidemic assessment exercise is one vital step within the epidemic circle to identify success and failure of all interventions planned or unplanned and ultimately consider if detecting systems and control options have had an impact on the malaria burden. This important exercise is frequently neglected by implementing partners and MOH. It means that good or bad lessons are not seriously taken on board and may can be used to modify or strengthen existing interventions. Building on past lessons will improve to update preparedness plan of action, articulate and support provided by national and district partners

It was further revealed by the key informants that malaria control levels in Uganda within Kiboga District continue to be low despite efforts by the Malaria Consortium Uganda to put in place measures to improve malaria control (MoH Strategy Report, 2011-2014). As one of the respondents had to say that;

.....Early access by everybody to efficient drugs during a malaria epidemic is key intervention to minimise the malaria burden. People at risk are non-immune and existing cheap monotherapies especially in Africa are not longer fully effective. There is a need to shift to other policy options such as combination therapies in endemic countries but also in prone countries to perhaps set up specific approaches (MoH Strategy Reports, 2011/2007; 2007/2008).

It was further revealed by the MoH Strategy Reports (2011-2014) that states that to increase positive responses to the control of malaria in Uganda, including to the finger stick for anaemia and parasite testing, a series of community sensitization measures are

undertaken. These include a general informational letter and accompanying flyer for districts and local communities. These include information about the purpose of control of malaria, the procedures control of malaria, and the importance of household participation in the control of malaria. A series of radio spots are developed in local languages and aired on both national and local community radio stations with service areas matching the selected EAs. The radio spot contains a 45-second message from the Ministry of Health introducing the survey, describing the importance of doing finger sticks to determine parasitemia and anemia among children, and encouraging participation.

4.7 The relationship between Health Communication and Malaria Control in Uganda within Kiboga District

To test the effect of Health Communication on Malaria Control in Uganda within Kiboga District focusing on Malaria Consortium Uganda, each of the independent variables (situation analysis of the health communication environment, Health Communication messaging, channels and approaches and frequency of health communication) was individually computed into a single variable with the dependent variable (Malaria Control) using SPSS by calculating their combined new variables namely:

- a) situation analysis of the health communication environment
- b) Health Communication messaging
- c) channels and approaches
- d) frequency of health communication

These variables were correlated with dependent variable, Malaria Control. The correlation results are presented in Tables 29 and 30 below.

Table 29: correlation matrix amongst situation analysis, messaging, channels and approaches and frequency of health communication on Malaria Control

		Situation Analysis	Messaging	Channels and Approaches	Malaria Control
Situation Analysis	Pearson Correlation	1	.845**	.169**	.259**
	Sig. (2-tailed)		.000	.019	.000
	N	192	192	192	192
Messaging	Pearson Correlation	.845**	1	.111	.567**
	Sig. (2-tailed)	.000		.000	.000
	N	192	192	192	192
Channels and Approaches	Pearson Correlation	.169**	.111	1	.169*
	Sig. (2-tailed)	.019	.000		.019
	N	192	192	192	192
Malaria Control	Pearson Correlation	.259**	.567**	.169*	1
	Sig. (2-tailed)	.000	.000	.019	
	N	192	192	192	192
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Source; Primary Data

4.8.1 The relationship between Situation Analysis and Malaria Control

From table 29 above results indicate that the Pearson product moment correlation index obtained is positive at $r = .259$. This result indicates that there is a positive and significant relationship between Situation Analysis and Malaria Control. This implies that Situation analysis of the health communication environment was observed to be positively related to Malaria Control in the district.

4.8.2 The relationship between Health Communication messaging and malaria control

Health Communication messaging had a positive correlation with the Malaria control ($r = 0.845^{**}$ $P < 0.01$). This meant that the two variables are positively related, implying that effective Health Communication messaging results into increased malaria control. This

means that most health messages contain frequent health communication vivid presentations because material in the form of pictures, concrete information, examples of specific cases/stories, or television presentations is typically more persuasive than text only, abstract arguments, population or base-rate estimates, or print presentations. However, the vividness effects are reversed or disappear when audiences are highly involved in frequency of health communication.

4.3.3 The relationship between Channels and Approaches and malaria control

The results in the Table 29 above reveal that Channels and Approaches had a positive correlation with the Malaria control ($r = 0.169^{**}$ $P < 0.01$). This means that the two variables are positively related. This implies that Health Communication channels and approaches strengthens all strategic components of malaria control and prevention programmes by supporting delivery of interventions like case management improvement, Integrated Vector Management and programme management. Health Communication channels and approaches is the deliberate use of communication means to promote positive health outcomes, based on proven theories and models of behavior change which includes approaches with an interactive process with communities that develops tailored messages to increase knowledge of malaria for instance, stimulating social and communication dialogue, promoting essential attitude change and creating demand for information and services.

Regression Analysis

The regression model was used to determine the degree to which situation analysis of the health communication environment, Health Communication messaging, channels and approaches and frequency of health communication can explain or predict Malaria Control in Uganda within Kiboga District focusing on Malaria Consortium Uganda. This

was done since there was more than one predictor variable impacting on the dependent variable. Table below presents the regression analysis results.

Table 30: Results of the Multiple Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.514	.310		1.658	.099
	Health communication environment					
	Health Communication messaging	.581	.068	.443	8.514	.000
	Channels and approaches and frequency of health communication	.250	.043	.303	5.815	.000
a. Dependent Variable: malaria control						
R		.630				
R Square		.397				
Adjusted R Square		.392				
F Statistic		87.430				
Sig. F Statistic		.000				

Source: Primary Data

Results from Table 30 above indicate that health communication in terms health communication environment, Health Communication messaging and Channels and approaches and frequency of health communication explain 39.7% of the variance in the malaria control (Adjusted R Square = .392). Results further indicate that Health Communication messaging (Beta = .443, sig. < .01) are a better predictor of malaria control than the Channels and approaches and frequency of health communication (Beta = .303, sig. < .01). The regression model was significant at the 99% confidence level. Finally, Health communication variable also have a constant relation with malaria control in District, it is every 1 unit increase in Health communication with incur the raise of 0.630 units in malaria control. The highest beta indicates the independent variable is the most significant variable toward it dependent variable. From the table above, the

independent variable of Health Communication messaging has the highest positive beta of 0.392, this mean that the independent variable of Health Communication messaging has contributed the most and has stronger effect toward malaria control in District if compared to other independent variable. Therefore Kiboga District focusing on Malaria Consortium Uganda should prioritize Frequency of health communication followed by the nature of Health Communication channels and approaches, situation analysis of the health communication environment and lastly, Health Communication messaging in a bid to increase the control of malaria in the district. The regression model was also observed to be significant (sig. <.01) and could thus be used to reliably make deductions and recommendations for Kiboga District and Malaria Consortium Uganda in line with the control of malaria in the district.

CHAPTER FIVE

SUMMARY, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study, discussions of the findings, conclusions and recommendations made. It also presents proposed areas for further research. The discussions, conclusions, and recommendations are presented according to the objectives of the study.

5.2 Summary of findings

5.2.1 The relationship between situation analysis and Malaria Control in Kiboga District

The results in the Table 10 revealed that situation analysis of the health communication environment had a positive and significant correlation with Malaria Control ($r = 0.441^{**}$ $P < 0.01$). This meant that the two variables were positively related, implying that any improvement in situation analysis of the health communication environment results into improvement in Malaria Control. This supported the hypothesis that there was a positive and significant relationship between situation analysis of the health communication environment and Malaria Control. The independent variable, situation analysis of the health communication environment, was statically significant in affecting Malaria Control in Kiboga District, where $f = 193.604$ (<0.01) as shown in table 11. This implied that there is a meaningful positive relationship between the independent variable situation analysis of the health communication environment and the dependent variable Malaria Control in Kiboga District.

The findings further revealed that the regressions results from the table 12 showed that a unit of change in situation analysis of the health communication environment brings about .441 or 44% change in Malaria Control. Hence, H_1 which stated that situation

analysis of the health communication environment positively impacts Malaria Control was supported and accepted.

5.2.2 The relationship between Health Communication messaging and Malaria Control

The study findings revealed that the Correlation results in table 15 indicated a significant positive relationship between health communication messaging and malaria control ($r = .259^{**}$, $p < .01$). This meant that and the two variables were positively related, implying that any positive change in health communication messaging created in improvement in malaria control, there was a likelihood that this would result into improvement in Malaria Control. This supported the hypothesis that there was a positive and significant relationship between health communication messaging and Malaria Control. This also implied that health communication messaging was a significant predictor of Malaria Control and therefore, with more health communication messaging, the more Malaria Control would be registered.

Further the regressions results revealed that a unit change in Health communication messaging brings about .879 change in Malaria control in Kiboga district which implied that health communication messaging was amongst the significant predictors of malaria control while on the other hand it also implied that focus on improving malaria control should be put on minimizing the effect of health communication messaging. Hence, H_1 which states that Health communication messaging positively impact Malaria control in Kiboga district is supported and accepted while as the results in Table 18 showed that adjusted R^2 values of 0.113 between health communication messaging and malaria control suggesting that health communication messaging predicted 11.3% of the variance in malaria control in the district. The adjusted $R^2 = 0.113$, $t = 3.172$, $\beta = 0.354$ and significance 0.002 suggested that, although health communication messaging was a

significant predictor of the variance in malaria control in the district it predicted a less significant predictor as other variables predicted the remaining majority of 89.7%. Nevertheless, this study inferred that since health communication messaging was a significant predictor of the variance in the malaria control in the district, adequate and continued health communication messaging will contribute to improved malaria control in the district. Therefore from the Table 16, 17 & 18; it can be concluded that the findings did not support the H₂ that states that health communication messaging affect malaria control levels.

5.2.3 The relationship between nature of Health Communication channels and Malaria Control in Uganda

The findings revealed that there was a positive and significant relationship between nature of Health Communication channels and approaches of and Malaria Control ($p < 0.01$, $r = 0.618^{**}$). When the correlation value was squared in order to establish the effect of the independent variable dimension to the dependent variable, the results revealed that $r^2 = 0.38$ or 38% was the percentage effect of nature of Health Communication channels and approaches on Malaria Control. This implied that poor nature of Health Communication channels and approaches could affect the level of Malaria Control since there will be in the spread and cause of malaria in the district. On the other hand, where there is a good and effective nature of Health Communication channels and approaches, Malaria Control can be realized, for fear of the negative repercussions. On the hand the findings further revealed that there was a standardized coefficient of 0.618 which showed that 6.18% of the successfulness of Malaria Control could be explained by the nature of Health Communication channels and approaches by Kiboga District. Therefore, the null hypothesis which stated that “nature of Health

Communication channels and approaches improves Malaria Control levels was accepted and alternative hypothesis accepted.

5.2.4 The Relationship Between frequency of health communication and malaria control.

The findings carried basing on Pearson's correlation coefficient revealed that there was $r = 0.493^{**}$ between frequency of health communication and malaria control suggesting that the two variable were related. The Pearson's correlation coefficient $r = 0.493^{**}$ and significance $p = 0.000$ shows that there was a high significant relationship between frequency of health communication and malaria control. This implied that the efforts to frequently use health communication adequately observed will significantly contribute to malaria control in the district. On the other hand, the adjusted R^2 values of 0.232 between frequency of health communication and malaria control suggesting that use of frequency of health communication in the district predicted 23.2% of the variance in malaria control. The adjusted $R^2 = 0.232$, $t = 4.740$, $\beta = 0.493$ and significance 0.000 suggested that frequency of health communication was a significant predictor of the variance in malaria control and efforts directed to strengthening the frequency of health communication systems through setting malaria control programmes. The study therefore accepted the hypothesis that: *"Frequency of health communication significantly improves malaria control"*

5.3 Discussion

5.3.1 The relationship between situation analysis and Malaria Control in Kiboga District

The findings revealed that situation analysis of the health communication environment had a positive correlation with malaria control in Uganda; in this situation analysis of the health communication environment is a significant predictor of Malaria Control in

Uganda. The implication is that the risk of malaria is also influenced by such important environmental factors as altitude, precipitation, and temperature (Kazembe, 2007, Ernst et al., 2011, Hernandez-Avila et al., 2011). These environmental factors have been extensively investigated in relation to their effect on spatial clustering of malaria. This finding is in agreement with a study conducted in the western highlands of Kenya observed that the risk of malaria was higher in children who were underweight, who lived at lower altitudes, and who lived in households where drugs were not kept at home (Brooker et al., 2004).

Brentlinger (2007) in his a study of prevalence and predictors of maternal peripheral malaria parasitemia in Mozambique, Brentlinger et al observed that although the study communities were all located within 200km of each other in a region previously thought to be at uniformly high risk of malaria infection there was heterogeneity of maternal peripheral parasitemia prevalence (Brentlinger et al., 2007). Thus, the importance of understanding the microepidemiology of malaria in an area cannot be underestimated as this is very vital for targeting prevention and control measures to the population which most at risk.

According to World Bank (2005), the Roll Back Malaria is an international response to malaria whereby affected countries together with multilateral organizations namely: WHO, WB, UNDP, UNICEF aim to half the malaria burden by half by the year 2010 and eventually reduce it to a level where it is no longer a major public health threat by 2030. RBM is unique in the sense that it recognizes the burden of malaria as a responsibility of everybody, and tries to enlist everybody's participation in malaria control. It is a social movement aimed at minimizing suffering from malaria and it approaches malaria from a partnership viewpoint. Each partner contributes according to his or her comparative advantage as offered by his/her location in society. The movement emphasizes cost

effective utilization of available resources and technologies. RBM is committed to a 4-part strategy of: prevention, rapid diagnosis and treatment, prophylaxis and treatment of pregnant women and the rapid response to malaria epidemics. Although the money committed to RBM has been increasing, there is agreement that more money is needed to halve deaths by 2010. For example, while the rising costs of treatment require US\$1-3 billion each year, GFATM committed a total of US\$904.5 million as of December 2004 covering two years up to mid 2011.

The findings further concur with the revelations of Millennium Development Goals in 2000 again the UN general assembly on recognition of the impact of malaria on development also set goals (Millennium Development Goals) to halt and reverse the scourge of HIV/AIDS, malaria and tuberculosis. The Millennium Declaration did not set any targets for malaria control implying that SSA countries have to use the Abuja targets and the RBM to conceive and organize appropriate policy for disease control. The —quick win|| actions recommended by the United Nations (UN) for malaria control in the MDGs are the provision of free bed nets and effective antimalarials to all children by the end of 2007, ending user fees for essential health services; massive training of community based workers to ensure that by 2015 each local community has expertise in health and other service sectors, expertise in public sector management, and gender equality and participation..

In a related view, Hunja (2003) observes that the health sector is highly dependent on external funding (Okello et al 2004). Multi-lateral and bilateral development partners (the donors) are reported not only to bring financial resources and technical support, but they also come with micro policies, priorities, perspectives to problem solution, and

procedures of accessing and using resources. These policies and underlying values reflect those of their mother countries or organizations and sometimes conflict with each other (Wekwete, Zwi and Mills 1995, Okello et al 1998, Okuonzi and Macrae 1995, Walt 1994, MoFPED 2004, Okuonzi and Birungi 2000). A good example is the conflict regarding whether to implement a comprehensive primary health care or selective primary health care which was engaged in by WHO on the one hand, and UNICEF and USAID on the other. It is indicated that such a situation may result in confusion on the part of government and policy implementers (Zwi and Mills 1995, Walt 1994).

5.3.2 The relationship between Health Communication messaging and Malaria Control

The findings revealed that Health Communication messaging was also found not to be significant predictors of Malaria Control. This finding revealed that effective malaria control depends on the use of Health Communication messaging among health workers in rural areas could overcome delays, ensure nearly real-time data acquisition, and through computerized platforms make available pre-defined indicators to control managers. Such timely visibility could strengthen governance of scarce resources and should thereby result in prompt responses at different levels of the health system (in many cases, responses at the district level could be sufficient to mitigate the problem). For example, within our first proposed area of intervention—aiming to improve disease and treatment effectiveness surveillance district supervisors could respond by initiating investigations of and targeted interventions to unusual upsurges of malaria, by reinforcing health workers' testing and treatment practices for detected discrepancies between test-positive and reported malaria cases, or by verifying reports of increased treatment failures and calling for urgent support for studies to confirm or rule out artemisinin resistance

These findings were in confirmatory with Guy (2000), who argued that the impact of text messaging applications in the areas of malaria adherence and post-treatment review is still unclear in Africa. Feasibility projects including rigorous cost-effectiveness evaluations and qualitative research to better understand determinants of the successes or failures of SMS interventions are urgently required. Importantly, even if text message reminders are shown to be simple, inexpensive, and effective in improving adherence they are unlikely to achieve perfect outcomes on their own. Therefore they should be seen as a booster to malaria care and not as a solution replacing basic programmatic inputs such as delivery of in-service training, guidelines and supportive supervision, clinical audits for health workers, or provision of child-friendly medicine formulations with pictorial inserts for patients.

Guy, (2004) quoting Calvert et.al, (1989), Moe (1985) and wood Waterman (1991) found that one way to explain this relationships and its effect on the widespread use of Health Communication messaging, the least-expensive mobile phone function, offers a solution that could rapidly overcome weaknesses in communication, potentially leading to improved delivery of health services and better health outcomes. Text messaging is particularly attractive because it is available on most basic handsets without the need for additional applications. SMS functions on a lower bandwidth than does voice, requires minimal skills in its use, offers automated delivery, and is personally convenient because of its asynchronous character. These scholarly submissions appropriately place Health Communication messaging as a relevant medium whose messages can go far and wide in preventing and reducing the menace of malaria generally and specifically in the community.

5.2.3 The relationship between nature of Health Communication channels and Malaria Control in Uganda

The findings revealed that there was a positive and significant result between nature of Health Communication channels and approaches on Malaria Control in Uganda. This finding has been demonstrated by the World Health Organisation (WHO), the World Bank and other international agencies. The fact that health Communication channels and approaches such as the media variously echoed by WHO, Centre for Disease Control (CDC) and others as reviewed by this study show the great potential of radio in combating the scourge of malaria. Also, the various theories like diffusion of innovation, agenda setting, and social responsibility theory and so on lend credence to the fact that mass media can be strategically used to educate the populace on the dangers of malaria thereby improving the rate at which they can prevent malaria attacks.

Howsam, (1985) provides an almost perfect explanation as to why word of mouth is the most common way people communicate with each other. The study on malaria treatment seeking behaviour found that family; neighbors and friends are important sources of information especially with limited access to a health facility or medical professional. In this regard, even the local pharmacy shop serves a source of information particularly among those practising self medication. A study on media trends in Myanmar showed the predominant use of television among metro and urban dwellers with the greatest number reported for Yangon followed by Mandalay. Younger persons aged 10-17 years followed by the 18-24 years age group make up the greatest percentage of viewers. As age increases, TV viewing decreases. Older persons tend to listen to the radio more than the younger persons. Video viewing follows the same trend as for TV. Metro and urban populations watch more video than their rural counterpart (Musawenkosi, Mabaso, Sharp

and Lengeler (2004). Media usage varies with socio economic class. Those in the higher socio economic groups reported regular use of television, radio and print. One out of five persons interviewed from the mid-upper socio economic groups use television and radio with little or irregular print readership. Two out of five individuals from the same group regularly watch television but little or did not use the other mass media channels. One in three individuals from the low socio economic groups do not use media regularly. Romance, drama series, and sports such as martial arts and soccer are the most watched television programmes. Individuals in the midlower socio-economic groups make up the bulk of radio listeners. Nine out of 10 individuals who read print belong to the highest socio-economic group.

5.3.4 The Relationship Between frequency of health communication and malaria control.

The findings carried basing on Pearson's correlation coefficient revealed that there was a positive and significant result between frequency of health communication and malaria control suggesting that the two variables were related. The Pearson's correlation coefficient $r = 0.493^{**}$ and significance $p = 0.000$ shows that there was a high significant relationship between frequency of health communication and malaria control. This implied that the efforts to frequently use health communication adequately observed will significantly contribute to malaria control in the district. These findings were in confirmation with Roll Back Malaria (2003) who stressed that the role of communication in malaria control and management has long been acknowledged by various national and international agencies. This is later tagged frequency of Malaria health communication, for instance, Roll Back Malaria (2003) states that health communication needs to be fully integrated into the broad spectrum of malaria interventions and not seen as isolated

intervention and resources, strategically designed communication can play an important role in scaling up prevention and control efforts at the individual/household, community, decentralised and national levels.

As equally noted by March & Kachor (2002), WHO & UNICEF (2003), communication efforts should be strategically designed from an audience perspective to address the social and contextual environment as well as individual behaviours and knowledge. The coordinated use of interpersonal communication, community mobilization, advocacy and mass media have been effective in a variety of other public health agendas. Malaria communication should be integrated with other health education and communication efforts. Malaria control programmes need to balance malaria-focused and integrated communication approaches. For example, after initial introduction through focused strategic communications, malaria control in pregnancy should become an integral part of reproduction and maternal health communication. Likewise, information and education about home management of malaria in children should become part of integrated management of children illness (IMCI) communication.

5.4 Conclusions

This section presents the conclusions, reflecting key lessons that were observed on the basis of the study results and the preceding discussion.

5.4.1 The relationship between situation analysis and Malaria Control in Kiboga District

The study sought to investigate the effect of situation analysis of the health communication environment on the Malaria Control in Uganda. Also on a full analysis, it is clear that situation analysis of the health communication environment is a significant predictor of Malaria Control in Uganda. The implication is that the more situation

analysis of the health communication environment is done; the more the Control of Malaria will be achieved.

5.4.2 The relationship between Health Communication messaging and Malaria Control

The results revealed that there was a positive but not significant relationship between Health Communication messaging offered by Malaria Consortium and Malaria Control in Uganda. The results showed that Health Communication messaging explain 24.5% of the variation in influencing the Malaria Control in Uganda, implying that if efforts to improve Malaria Control in Uganda are to be well directed, they should be put on minimizing the effect of Health Communication messaging.

5.4.3 The relationship between nature of Health Communication channels and Malaria Control in Uganda

From the correlation and regression results, it was clear that there was a positive and significant results between nature of Health Communication channels and approaches and Malaria Control in Uganda ($p < 0.01$, $r = 0.618$). This implied that nature of Health Communication channels and approaches add that another cause of failure of Malaria Control in Uganda. On the hand the findings further revealed that there was a significant positive relationship between nature of Health Communication channels and approaches and Malaria Control in Uganda whereby 25.8% of the successfulness of Malaria Control was explained by the nature of Health Communication channels and approaches.

5.4.4 The Relationship Between frequency of health communication and malaria control.

From the correlation and regression results, it was clear that there was a positive and significant results between nature of frequency of health communication and malaria control ($p < 0.01$, $r = 0.618$). This implied that frequency of health communication add that

another cause of failure of Malaria Control in Uganda. On the hand the findings further revealed that there was a significant positive relationship between frequency of health communication and Malaria Control in Uganda whereby the Pearson's correlation coefficient $r = 0.493^{**}$ and significance $p = 0.000$ shows that there was a high significant relationship between frequency of health communication and malaria control. This implied that the efforts to frequently use health communication adequately observed will significantly contribute to malaria control in the district.

5.5 Recommendations

In light of the research findings, the following recommendations are made:

5.5.1 The relationship between situation analysis and Malaria Control in Kiboga District

There is a need for investment in high-quality situation analysis of the health communication environment as good practice for malaria control in the district, and should be an integral component of malaria control strategies from the start. At the same time, rigorous evaluations are needed to increase the evidence base across different transmission settings. By supporting the use of situation analysis of the health communication environment and research on its effectiveness, donors can be assured of a much stronger return on their investments in malaria control.

5.5.2 The relationship between Health Communication messaging and Malaria Control

Since the battle against malaria is continuous and may take longer years especially in Africa and other developing countries. Therefore, there is a need to develop different Health Communication messages in forms of jingles, special announcements, formal speech by top government officials or high profiled personalities and celebrities, drama, discussion programmes featuring experts, songs specially composed on malaria, poems

pecially composed on malaria and so on should continuously be aired on different radio stations so as to equip people more on various ways of preventing the disease.

Specifically however, the study recommends that governments at all levels in the country should embark on mass production of malaria messages as comprehensive as possible and make them available in cassettes, CD and DVD to be distributed to many families in the communities.

This cassette should be well packaged as educative and interactive as possible and should be made available free tertiary, secondary and primary health centres for the people. No doubt, all these efforts put together and conscientiously implemented would equip many people to be able to prevent against malaria and as such, reduce its attack as drastic as possible in Uganda and Africa as a whole.

5.5.3 The relationship between nature of Health Communication channels and Malaria Control in Uganda

More of health programmes should be used by governments at all levels, nongovernmental organizations and other international agencies in the course of communicating malaria messages to the people. Radio is of great potentials to such an extent that all forms of language and dialects can be used to reach people coupled with the fact that it reaches the most remote area of the community. This study shows that there are Health Communication channels and approaches offered by Malaria Consortium on Malaria Control in Uganda which feature various health issues, emphasis should however be made more on health programmes that would be specifically dedicated to

malaria. These can be tagged “Malaria World”, "End Road to Malaria", and "You and Malaria"

5.5.4 The Relationship Between frequency of health communication and malaria control.

Considering the fact that malaria is associated with poverty where poverty itself is usually attributed to the grass roots people who occupy the larger proportion of the population and reside in the rural areas, in ensuring the impact of the frequency of health communication on malaria control, the use of radio should be emphasized in communicating malaria messages to them most importantly when radio allows for the use of any language including various mother tongues – luganda, lusoga, Hausa, Igbo and soon. Emphatically, no other frequency of health communication on malaria control would best achieve this compared to radio because radio breaks literacy barrier, enjoys the widest reach, depends minimally on electricity, very cheap and could be afforded appreciably by all and very portable and could be carried about (even those who drive all day long who have access to radio in their cars).

5.6 Implications of the Findings

This study raises a number of implications that have to be addressed if malaria control is to be improved. Since we believe the field of health communication is moving toward a sophisticated multidimensional agenda for applied health communication research that will examine the role of communication in health care at multiple communication levels, in multiple communication contexts, evaluate the use of multiple communication channels, and assess the influences of communication on multiple health outcomes. We are hopeful that future health communication inquiry and education will provide relevant

information about the development of cooperative relationships between interdependent participants in the modern health care system, encourage the use of sensitive and appropriate interpersonal communication in health care, empower consumers to take charge of their own health care, enhance the dissemination of relevant health information and the use of strategic communication campaigns to promote public health, facilitate the development of pluralistic ideologies for effective multicultural relations in health care, and suggest adaptive strategies for using health communication to accomplish desired health outcomes.

Another implication is that health communication research will increasingly focus on the effective dissemination of relevant health information to promote public health. Modern health promotion efforts will recognize the multidimensional nature of health communication, identify communication strategies that incorporate multiple levels and channels of human communication, and implement a wide range of different prevention messages and campaign strategies targeted at relevant and specific (well-segmented) audiences. Modern campaigns will become increasingly dependent upon integrating interpersonal, group, organizational, and mediated communication to effectively disseminate relevant health information to specific at-risk populations.

5.7 Areas for further research

Basing on the study that was undertaken a number of gaps were identified that required further research. Therefore, further studies should be carried out by scholars to explore how various forms of communication -interpersonal communication, traditional communication or folk media and other media of mass communication - television, newspaper, magazine, and billboard can be explored to combat the scourge of malaria in

various communities in Uganda and Africa as a whole. Policy orientation and direction of various national governments in Africa is another area of great concern that can be examined in further studies by other scholars in relation to the menace of malaria and its prevention.

5.8 Limitations

The study had a limited generalization. However, given that it was a case study, the objective was hoped to be transferable to see whether other organizations can learn from the study findings. Generally the researcher experienced a lot of constraints: One of them was information concerning the location of the case study centre as a measure of accessibility was not captured. In some areas, some of the case study centre in Kiboga district was no longer existent and a few had changed locations.

The second constraint was the time respondents took to give responses; it took the researcher more than two months to get responses from both the questionnaires and interviews compared to the planned one month. Some respondents did not understand the how Health Communication offered by Malaria Consortium impacts on Malaria Control in Uganda especially in Kiboga District, which did not help the researcher to comprehensively discover their the impact of Health Communication offered by Malaria Consortium on Malaria Control in Uganda especially in Kiboga District.

However, from the face to face discussions with the key informants during interviews, the researcher was able to identify the methods of Health Communication offered by Malaria Consortium talked about and later give an analysis of the subject matter. In addition, during the key informants' interviews, interactions with the most technical

persons helped to clarify issues to do with Health Communication offered by Malaria Consortium.

Further to that, the researcher experienced unwillingness of Malaria Consortium staff to answer the questionnaires for fear that they could be quoted in the study. However the researcher tried to convince respondents that the information they provided was to be kept confidential.

In addition Language barrier was a constraint in some areas specifically among the Somali, but this was solved through Somali English speaking interpreters while as recall bias was experienced by some respondents affecting the accuracy of the responses though this was solved by further probing. During sampling, the author does not rule out bias and precision of the estimates obtained using the SPSS method.

REFERENCES

- Abeokuta .M. (2008): *Globalisation and Development Communication in Africa*, Ibadan University Press, Nigeria, Ibadan
- Abeokuta A. R. (ed) (2008): *Mass Media and Society: A Multi-Perspective Approach* Department of Mass Communication, University of Lagos, Nigeria,
- Ademowo .O.G. (2009): *Challenges in the management and treatment of malaria*, paper presentation at the National Institute of medical Research, Nigeria, Yaba,
- Ahorlu C, Dunyo S, Afari E, Koram K, Nkrumah F. *Malaria-related beliefs and behaviours in southern Ghana: implications for treatment, prevention and control*
- Akola, S.M. (2009): *The Role of the Media in Achieving the Millennium Development Goal in Africa and the Question of Human Capital Exchange*, conference paper at the 2008 International conference organised by the Society for Interdisciplinary Research (SIR) held in Lagos, July 2009.
- Akure.D .C. (2011): *Practical Guidebook for the Fight Against Malaria*, Paris, Sanisphere.
- Amin, M.E (2005). *Conception, Methodology and Analysis. Social Science research* Makerere University Press
- Atkin, C & Freimuth, V (1989) "Formative Evaluation Research in Campaign Design" In *Public Communication Campaigns*. Newbury Park: Sage publications
- Atkin, C & Wallack, L (eds), (2011) *Mass Communication and Public Health: Complexities and Conflicts*, Newbury Park: Sage Publications.
- Atkin, C and Arkin, B.E (2011) "Issues and Initiatives in Communicating Health Information to the Public" In Atkin C & Wallack L (eds) *Mass Communication and Public Health. Complexities and Conflicts*. Newbury Park: Sage Publications,

- Atkin, C. K (2001) "Theories and Principles of Media Health Campaigns", In *Public Communication Campaigns*. Thousand Oaks: Sage publications
- Bandura, A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart, & Winston.
- Bandura, A. (1971). *Social learning theory*. Morristown, NJ: General Learning Press.
- Bandura, A., & Walters, R.H. (1963). *Social learning and personality development*. New York: Holt, Rinehart, & Winston.
- Berger, A.A (1995) *Essentials of Mass Communication Theory*, Thousand Oaks: Sage publications
- Berlin, R.E. & Donohew, L (2011) *Communication and Health: Systems and Applications*. (2RD eds) New Jersey: Lawrence Erlbaum Associates
- Blumler M (2011) "Social Research in Developing Countries. General Introduction": In Bulmer, M and Warwick, P. D. (eds) *Social Research In Developing Countries. Surveys and Censuses in the Third World*. London: UCL Press.
- Cassata, D. (2011). Health communication theory and research: Overview of the communication specialist interface. In B. Ruben (Ed.), *Communication Yearbook 2*, 495-504. New Brunswick, NJ: Transaction Press.
- Cassata, D. (2011). Health communication theory and research: A definitional overview. In D. Nimmo (Ed.), *Communication Yearbook 4*, 583-589. New Brunswick, NJ: Transaction Press.
- Costello, D. (2011). Health communication theory and research: An overview. In B. Ruben (Ed.), *Communication Yearbook 1*, 555-567. New Brunswick, NJ: Transaction Press.

- Costello, D., & Pettegrew, L. (2011). Health communication theory and research: An overview of health organizations. In D. Nimmo (Ed.), *Communication Yearbook* 3, 607-623. New Brunswick, NJ: Transaction Press.
- Dirks, K. T., & Ferrin, D. L. (2001). The Role of Trust in Organizational Settings. *Organizational Science* , 450-467.
- Donohew, L. (2011) "Public Health Campaign: Individual Message Strategies and a Model." In, Berlin, R.E. and Donohew, L (eds) *Communication and Health. Systems and Applications*. New Jersey: Lawrence Erlbaum Associates
- Feldman, J. (1966). The dissemination of health information. Chicago: Aldine.
- Festinger, L. (1957). A theory of cognitive dissonance. Evanston, IL: Row Peterson.
- Festinger, L. (1964). Conflict, decision, and dissonance. Stanford, CA: Stanford University Press.
- Finnegan, J. J.R and Viswanath, K (2011) "Health Communication: Medical and Public Health Influences on the Research Agenda. New Jersey: Lawrence Erlbaum Associates
- Fishbein, M. & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, MA: Addison-Wesley.
- Flay R.B & Burton, D. (2011) *Effective Mass Communication Strategies for Health Campaigns*; London: Sage Publications,
- Freeman, H.E. (1963). *Handbook of medical sociology*. Englewood Cliffs, NJ: Prentice Hall.
- Guide for Health Promotion Practice" 1997)
- Health Sector Strategic Plan (2005/6 – 2009/10)
- Home Based Management of Malaria/Fever (HBM) baseline (2001)

- Inhorn C., Janis, I., & Brown, H. (1953). *Communication and persuasion*. New Haven, CT: Yale University Press.
- Kilian, J. (1960). *The effects of mass communication*. New York: The Free Press.
- Korsch, B.M. (1989). Current issues in communication research. *Health Communication*, 1(1), 5-9.
- Korsch, B.M., & Negrete, V. (1972). Doctor-patient communication. *Scientific American*, 227, 66-74.
- Kosa, J., Antonovsky, A., & Zola, I.K. (1969). *Poverty and health: A sociological analysis*. Cambridge, Harvard University Press.
- Krejcie, R.V. & Morgan, D.W. (2013). Determining Sample Size for Research Activities. *Journal of Educational and Psychological Measurement*, 30, 607 – 610.
- Kreps, G. L & Thornton, B.C (1992) *Health Communication: Theory and Practice*. Illinois: Waveland Press
- Kreps, G. L (2011) "Communication and Health Education." In, Berlin, R. E and Donohew, L (eds) *Communication and Health. Systems and Applications*. New Jersey: Lawrence Erlbaum Associates.
- Kreps, G.L. (1989). Setting the agenda for health communication research and development: Scholarship that can make a difference. *Health Communication*, 1(1), 11-15.
- Kreps, G.L. (2011). Communication and health education. In E.B. Ray & L. Donohew (Eds.), *Communication and health: Systems and applications*, 187-203. Hillsdale, NJ: Lawrence Erlbaum.
- Kreps, G.L. (1996a). Communicating to promote justice in the modern health care system. *Journal of Health Communication*, 1(1), 99-109.

- Kreps, G.L. (1996b). Promoting a consumer orientation to health care and health promotion. *Journal of Health Psychology*, 1(1), 41-48.
- Maibach, E & Parrott R.L (2013) (eds) *Designing Health Messages Approaches from Communication Theory and Public Health Practice*. Thousand Oaks: Sage publications
- Maibach, E.W, Rothschild, M. L and Novelli, W. D (2002) "Social Marketing." San Francisco: Jossey-Bass publishers
- Maibach, E.W., Kreps, G.L., & Bonaguro, E.W. (2011). Developing strategic communication campaigns for HIV/AIDS prevention. In S. Ratzan (Ed.), *AIDS: Effective health communication for the 90's*. Washington, D.C.: Taylor and Francis.
- Makemba, M, Makame.H & Schiff, D. (1972-1973). The agenda-setting function of mass media. *Public Opinion Quarterly*, 36, 176-187.
- Malaria Consortium Uganda, Kiboga District Report December, 2013*
- McCombs M, & Shaw D.L. (2012): The Agenda Setting of the Mass Media, *Public Opinion Quarterly*, 36, 176-185
- McGuire, William (1989) "Theoretical Foundations of Campaigns." In Rice, R.E and Atkin, K.C (eds) *Public Communication Campaigns*. Newbury Park: Sage Publications.
- McQuail, D (1987) *Mass Communication Theory: An Introduction*. London: Sage Publications.
- McQuail, D (1994) *Mass Communication Theory: An Introduction*. London: Sage Publications.
- McQuail, D (2000) *Mass Communication Theory: An Introduction*. London: Sage Publications.

- McQuail, D and & Windahl, S (2011) *Communication Models for the Study of Mass Communication*. New York: Longman
- MCSP- *Malaria Control Strategic Plan (2001/2- 2004/5)*. NMCP: Ministry of Health
- Miller K. (2003). *Communication Theories: Perspectives, Processes and Contexts*, USA, McGraw Hills
- Ministry of Health Uganda (2001) *Malaria Control Strategic Plan. 2001/2- 2004/5*. Kampala: MOH.
- Mugenda J. & Mugenda. J (2010). *Research methods – quantitative and qualitative approaches*. Nairobi, Kenya ACTS press.
- National Cancer Institute and National Institute of Health 2002
- National Communication Strategy for malaria control in Uganda (2005 – 2010)
- Nayyar.H., Breman.J., Newton.K. & Herrington .U. (2012). Public communication as a strategy for inducing health promoting behavioral change. *Preventive Medicine*, 13, 299-319,
- Nsom .H. (2008): Effective Communication is Vital for the Elimination of Malaria, Retrieved from the Internet on the 16/01/2010
- Parraga, L.S. (1987). Theoretical plurality in health communication. In J. Anderson (Ed.), *Communication Yearbook 11*, (298-308). Newbury Park, CA, Sage.
- Robbins, K.K. (2011). The role of persuasion in health promotion and disease prevention Review and commentary. In J. Anderson (Ed.), *Communication Yearbook 11*, (276-297). Newbury Park, CA, Sage.
- Rogers, E. M & Storey, J.D (1987); “Communication Campaigns.” In Berger, C. R and Chaffee, H (eds) *Handbook of Communication Science*. Newbury Park: Sage Publications.
- Rokeach, M. (1973). *The nature of human values*. New York: The Free Press.

Rubin, M.A (1994) “Media Uses and Effects: A Uses and Gratifications Perspective.” In,
Bryant, J & Zillmann, D (eds) *Media Effects. Advances in Theory and Research*.
New Jersey: Lawrence Erlbaum Associates.

Sekaran, U. (2003). *Research methods for business: A skill building approach*. New
York: John Wiley and Sons.

Tichenor, P.J., Donohue, G.A., & Olien, G.N. (1970). Mass media flow and differential
growth in knowledge. *Public Opinion Quarterly*, 34(2), 158-170.

Uganda Demographic Health Survey Report (2011); Ministry of Health Uganda

Walley J, Wright J, & Hubley J, (2001). *Public Health: An Action Guide to Improving
Health in Developing Countries*. Oxford, United Kingdom: Oxford University
Press.

Windahl, S, Signitzer, B & Olson, J.T (1995) *Using Communication Theory: An
Introduction to Planned Communication*. London: Sage Publications.

Witte, K (1995) “Fishing for Success. Using the Persuasive Health Message Framework
to Generate Effective Campaign Messages.

Zola, I.K. (2011). Culture and symptoms: An analysis of patients presenting
complaints. *American Sociological Review*, 3, 615-630.

Websites used for this research document:

John Hopkins University Center for Communication Programmes www.jhuccp.org

Ministry of Health, Uganda. www.health.go.ug

Malaria Consortium www.malariaconsortium.org

Roll Back Malaria www.rbm.who.int

UNICEF www.unicef.org

World Health Organisation. www.who.int

APPENDIX 1: Questionnaire

The Role of Health Communication in the Malaria Control by Malaria Consortium: A Case Study of Kiboga District

Questionnaire for (Target Audiences/ Récipients)

My name is Kenneth Mulondo, am a student pursuing a Degree in Management Studies. As part of the requirements for the academic award from Uganda Management Institute and I am here to carry out a study on “*establishing the role of health communication in malaria control*”. I request you to participate in this study by way of filling in the questionnaire. Please be informed that all information provided here will only be used for the purposes of this study. All responses will be kept confidential and will only be accessed by the researcher. I would therefore request that you proceed to answer the questionnaire, unless you have any other issue that you would like me to clarify.

SECTION A: BACKGROUND INFORMATION

In this section, please circle the category that best describes you.

<p>(a) Age of the respondent</p> <ol style="list-style-type: none">1. Below 20 years2. 20 – 30 years3. 31 – 40 years4. Above 40 years	<p>(b) Education level</p> <ol style="list-style-type: none">1. No formal education2. Primary level education3. Secondary level education4. Tertiary level education5. Others
<p>(c) Marital status</p> <ol style="list-style-type: none">1. Never married2. Married3. Divorced4. Widowed	<p>(d) Gender</p> <ol style="list-style-type: none">1. Male2. Female
<p>(e) Religious affiliation</p> <ol style="list-style-type: none">1. Catholic2. Protestant3. Moslem4. Pentecostal5. others	<p>(f) Economic activity</p> <ol style="list-style-type: none">1. Public servant2. Local Administration3. NGO4. Private Business5. Farmer

SECTION B: INDEPENDENT VARIABLE (SITUATION ANALYSIS OF THE HEALTH COMMUNICATION ENVIRONMENT)

In this section, please read the following statements carefully and rate on a scale of 1-5 for each of the categories. Circle the appropriate box against each statement to indicate your rating, where; 5=Strongly Agree, 4=Agree, 3 =Uncertain, 2= Disagree, 1= Strongly Disagree.

(a) The effect of situation analysis of the health communication environment on the Malaria Control

situation analysis of the health communication environment	5	4	3	2	1
Malaria Consortium considered the current malaria control situation in the health communication programming					
Malaria Consortium’s health communication addressed the constraints in the current malaria control situation					
Malaria Consortium considered the current malaria control situation in the health communication programming					
Malaria Consortium’s health communication addressed the constraints in the current malaria control situation					
Malaria Consortium considers the current malaria control situation in the health communication programming					
Malaria Consortium’s health communication address the constraints in the current malaria control situation					
Malaria Consortium’s health communication observes the opportunities that existed to bridge the gaps					
Malaria Consortium observes the pregnant women and caretakers of children under 5 years of age as the most vulnerable and understands their needs to adopt the positive behaviors					
Health Workers/ leaders are considered as a tertiary audience in the health communication programming of malaria consortium and recognized for contribution					
Male involvement is considered in the health communication programming of Malaria Consortium since they are key decision makers in the household					

SECTION C: INDEPENDENT VARIABLE (HEALTH COMMUNICATION MESSAGING)

Please read the following statements carefully and rate on a scale of 1-5 for each of the categories. Circle the appropriate box against each statement to indicate your rating, where; 5=Strongly Agree, 4=Agree, 3 =Uncertain, 2= Disagree, 1= Strongly Disagree.

• Health Communication Messaging	5	4	3	2	1
Malaria Consortium effectively addresses the issue of malaria during pregnancy as one of its Health Communication messaging on Malaria Control					
Generally health communication messaging by Malaria Consortium have the potentials to prevent and reduce malaria attacks in Kiboga District					
The health communication messaging by Malaria Consortium has made a great impact on the residents in the district and allows them to prevent frequent malaria attack					
health communication messaging by Malaria Consortium complements the efforts of the medical practitioners- in Kiboga District in preventing and reducing malaria attack among the people of the District					
The use of health communication messaging by Malaria Consortium contact points with the health system and community groups and networks to inform, counsel, support and encourage use of ITNs and rapid treatment of malaria symptoms					
health communication messaging increases awareness among mothers of how to recognize malaria and treat it among their children					
The use of health communication messaging creates opportunities for dialogue among community members, networks and organizations about how they can support women in protecting their children with ITNs and prompt medical attention for malaria symptoms and control					
The residents specifically listen to health communication messaging to improve or manage their health system towards malaria control					
The use of health communication messaging brings out preventive measures in reducing the menace of malaria in Kiboga District					

SECTION D: INDEPENDENT VARIABLE (HEALTH COMMUNICATION CHANNELS AND APPROACHES)

Please read the following statements carefully and rate on a scale of 1-5 for each of the categories. Circle the appropriate box against each statement to indicate your rating, where; 5=Strongly Agree, 4=Agree, 3 =Uncertain, 2= Disagree, 1= Strongly Disagree.

• Health Communication Channels and Approaches	5	4	3	2	1
Broadcasting Media (Radio and Television) is one of the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium that creates an impact.					
Malaria Consortium uses interpersonal communication in its health communication programming to create an effect in malaria control in the district					
Print media is one of the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium that creates an impact.					
Campaign Posters are also one of the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium that creates an impact.					
Message presentation in all the natures of Health Communication channels and approaches spell out how dangerous malaria can be if people do not get proper and immediate treatment.					
The characters presented and mentioned in the all the natures of Health Communication channels and approaches on the Malaria Control used by Malaria Consortium create an impact.					
There is salient element of the all the natures of Health Communication channels and approaches like TV adverts is richness of visual images that make a message more vivid and entertaining on malaria control					
Malaria Consortium weighs the benefits of the natures of Health Communication channels and approaches against the negative outcomes of malaria control.					

Identify the communication channels that were used in disseminating health communication messages

.....
.....
.....

Did the target group participate in identifying these channels

YES

NO

If yes how?

.....
.....
.....

Which one of the all the channels you used was most effective?

.....
.....
.....

How was it effective?

.....
.....
.....
.....
.....

Why was it effective?

.....
.....
.....
.....
.....

SECTION E: INDEPENDENT VARIABLE (FREQUENCY OF HEALTH COMMUNICATION)

Please read the following statements carefully and rate on a scale of 1-5 for each of the categories. Circle the appropriate box against each statement to indicate your rating, where; 5=Strongly Agree, 4=Agree, 3 =Uncertain, 2= Disagree, 1= Strongly Disagree.

• Frequency of Health Communication	5	4	3	2	1
Malaria Consortium develops and implements interventions consisting of training workshops and dissemination of education materials as frequency of health communication on malaria control.					
The health communication programmes by Malaria Consortium have made a great impact on people and allows them to control and prevent frequent malaria attack in the district					
There exists a significant relationship between the possibilities of listening to health- communication related programmes on the different channels and approaches and eventual reduction in the menace of malaria in the district					
The degree at which the intensity (the degree of effects) of health programmes on communication related programmes on the different channels and approaches significantly complements the efforts of Malaria Consortium and medical practitioner in district in preventing and reducing malaria attack among the people of the community					
There is a significant relationship between the respondents pattern (frequency of listening to health-related radio programmes) of listening to health programmes on radio and its impacts in preventing malaria in district					
The frequency of Health programmes complement the efforts of the medical practitioners in district in preventing and reducing malaria attack among the people of the Community					
Most people in the district listen to health related messages on radio for the purpose of improving their health conditions especially in relation to malaria and other diseases					
Most people in the district believe in frequent preventive measures in reducing the menace of malaria in the community					
There is a good perception of the district residents on the impact of health communication programmes on the different channels like radio vis-a-vis the improvement of their health condition					

SECTION F: DEPENDENT VARIABLE (MALARIA CONTROL)

In this section, Please rate the Malaria Control practices and rate on a scale of 1-5 for each of the categories. Circle the appropriate box against each statement to indicate your rating, where; 5=Strongly Agree, 4=Agree, 3 =Uncertain, 2= Disagree, 1= Strongly Disagree.

Malaria Control	5	4	3	2	1
Malaria Consortium uses Intermittent Presumptive Treatment of malaria during pregnancy as a measure of malaria control in the district					
Long Lasting Insecticide treated Nets (LLIN) are given to Pregnant women & children under 5 years to sleep under as a measure of malaria control by Malaria Consortium					
Malaria Consortium uses effective communication between the local and district level on how to protect myself from malaria using LLIN					
Malaria Consortium conducts specific Malaria epidemic health education campaigns a measure of malaria control					
Malaria Consortium organizes regular press releases/conferences/articles for public information on malaria control as a measure of malaria control					
Malaria Consortium reinforces health information systems for reporting and epidemic monitoring, preferably on a weekly basis as a measure of malaria control					
There is promotion of pro-active clinical case detection and management/referral as a measure of malaria control					
There a budget allotted for malaria epidemic response control					
Ensuring that all clinics and health facilities are operational and have sufficient drugs, equipment and trained staff is one of the measures of malaria control in the district					
Malaria Consortium ensures that the correct diagnosis and treatment is provided at all health facilities and at community level					
Malaria Consortium establishes treatment centres (temporary clinics or mobile clinics) where access is a problem or health facility coverage is low					
There is a well equipped active surveillance system for early detection of any epidemics including malaria working at prone district level					

Are there any traditional means and strategies for preventing malaria?

YES

NO

For your answer above elaborate

.....

.....

.....

.....

How effective are the traditional strategies for malaria control

.....

.....

.....

.....

APPENDIX 2:

INTERVIEW GUIDE (IMPLEMENTERS)

Topic: The Role of Health Communication in the Malaria Control by Malaria Consortium: A Case Study of Kiboga District

Dear Respondent,

My name is Kenneth Mulondo, a student of Uganda Management Institute pursuing a Degree in Management Studies. As part of the requirements for the academic award, I am undertaking a study to establish the role of health communication in malaria control. The findings of this research will serve academic purposes. Please spare some time and give your most appropriate and honest response.

Position in the Program:

- 1) How does Malaria Consortium generate the health communication programs?
- 2) Were you part of the development for health communication programming by Malaria Consortium?
- 3) How did you participate in the development of health communication programming?
- 4) What were your roles in the development of health communication programming?
- 5) In your opinion, what were the key constraints and benefits of the health communication messaging?
- 6) How do you perceive the approaches and channels that were defined and utilized in the health communication programming?
- 7) What other factors, do you think affect the success of health communication programs?
- 8) What suggestions, do you have that may favor successful health communication in malaria control?
- 9) What was the finding of your baseline study
- 10) What are the key success in your program implementation (Indicators)

APPENDIX 3:

FOCUS GROUP DISCUSSION GUIDE (TARGET AUDIENCE/ RECEIPENTS)

TOPIC: The role of health communication in the malaria control by Malaria Consortium

Dear Respondent,

My name is Kenneth Mulondo, a student of Uganda Management Institute and I am pursuing a Degree in Management Studies. As part of the requirements for the award of this degree, am undertaking a study to establish the role of health communication in malaria control. The findings of this research will serve academic purposes. Please spare some time and give your most appropriate and honest response.

Location in Kiboga District:.....

- 1) Do you receive any malaria prevention/control messages?
- 2) What are your key channels and approaches for the malaria prevention/control messages?
- 3) Can you describe the key malaria messages that you receive?
- 4) What have you do as a result of the messages /How would you describe your response/ reaction to the malaria messages?
- 5) Why do you respond in the way described above?
- 6) What are key factors that influence your reactions to the malaria messaging?
- 7) Do you have any suggestions on how best health communication can be improved in order to control malaria?
- 8) What are some of the benefits of the messages got from MC