

UNIVERSITY OF GHANA

**THE ROLE OF SOCIAL MARKETING THEORY IN ASSESSING
INSECTICIDE-TREATED NET USAGE INTENTIONS AMONG
PREGNANT WOMEN IN GHANA**

BY

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FOR THE AWARD OF MPhil MARKETING DEGREE**

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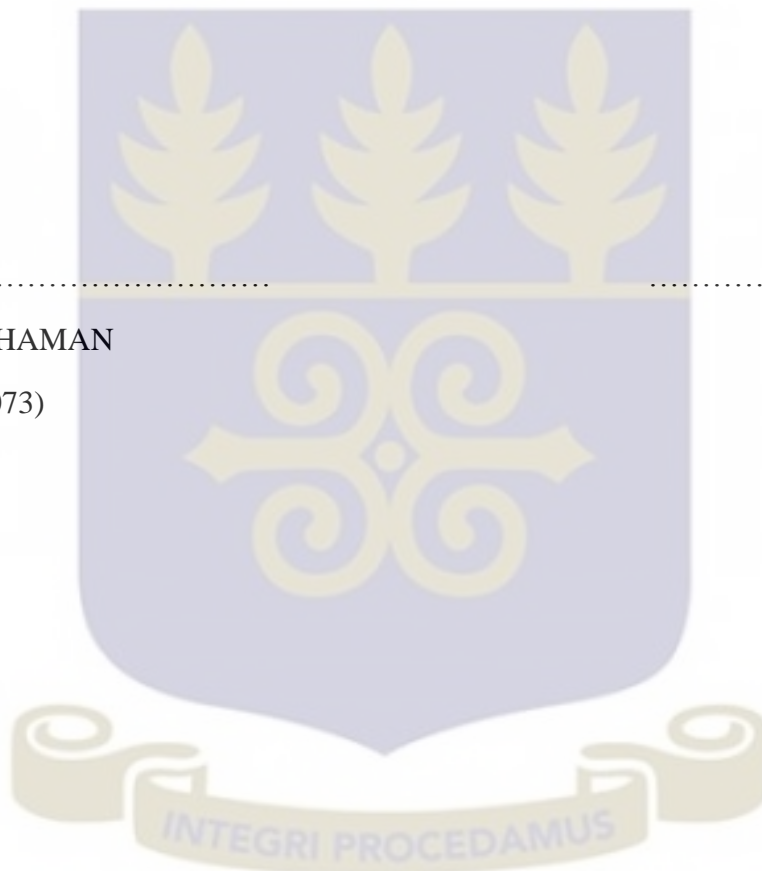
DECLARATION

I do hereby declare that this work is the result of my own research and has not been presented by anyone for any academic award in this or any other university. All references used in the work have been fully acknowledged.

I bear sole responsibility for any shortcomings.

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CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University.

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(CO-SUPERVISOR)

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DATE



DEDICATION

This work is dedicated to my late parents, Abdulai Alhaji S. Manda and Marie Issahaku. Also to my uncle Alhaji D.S Manda and all my siblings for their support and encouragement.



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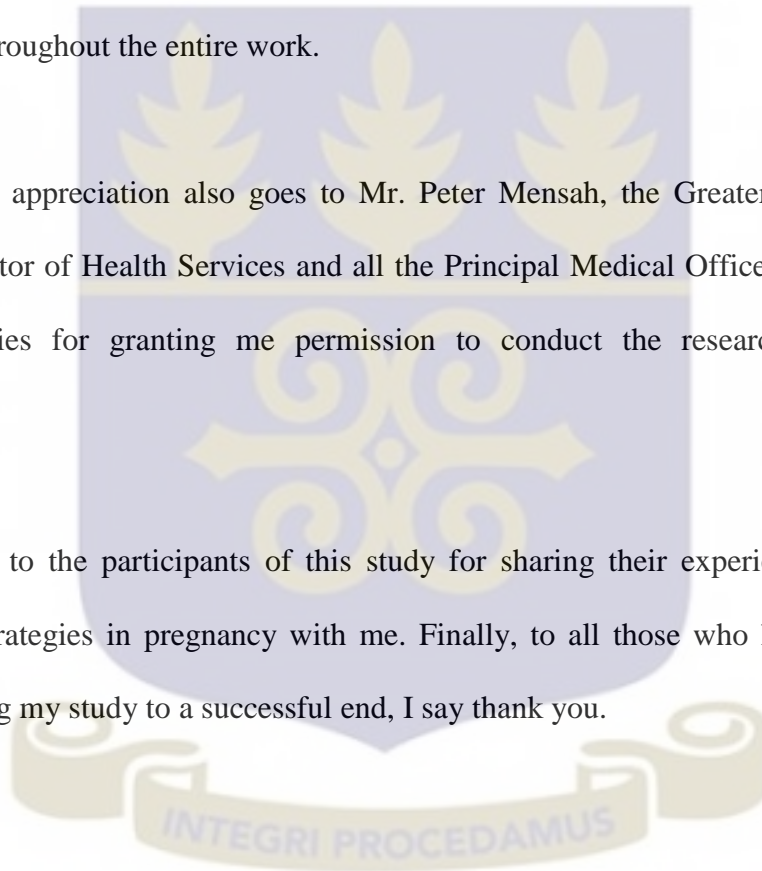


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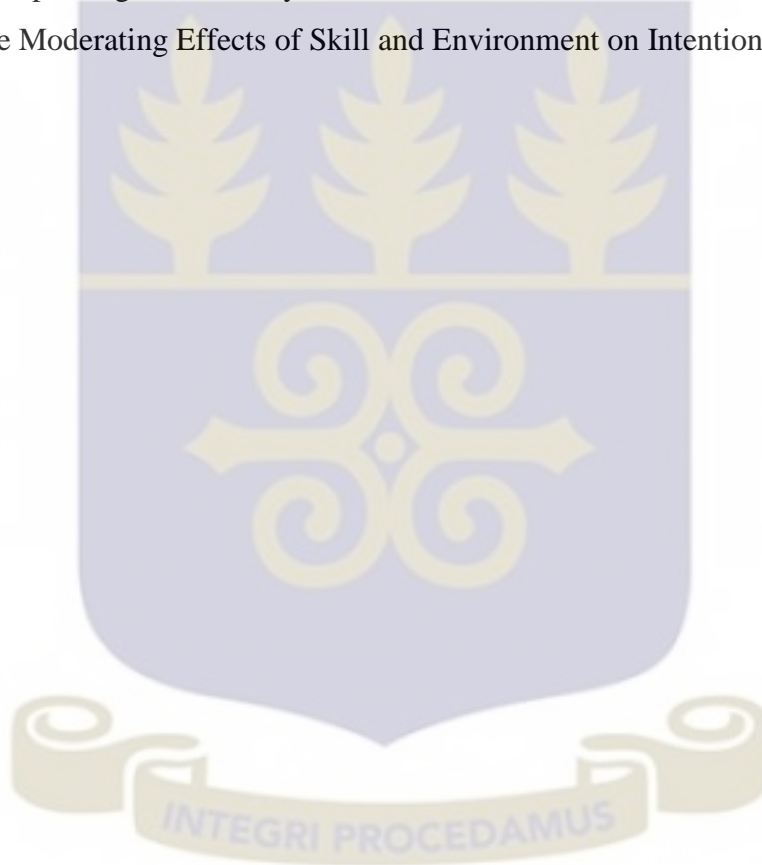
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LIST OF ABBREVIATIONS

ACT:	Artemisinin-based combination therapy
AIDS:	Acquired Immuned Deficiency Syndrome
AMA:	Accra Metropolitan Assembly
ANC:	Antenatal Care
CHPS:	Community-Based Health Planning and Services
CIA:	Central Intelligence Agency
DDHS:	District Director of Health Services
DHS:	Demographic Health Survey
DfID:	Department for International Development
GHS:	Ghana Health Service
GMAP:	Global Malaria Action Plan
GSS:	Ghana Statistical Service
GSMF:	Ghana Social Marketing Foundation
HBM:	Health Belief Model
HIV:	Human Immunodeficiency Virus
IMBP:	Integrative Model of Behaviour Prediction
IEC:	Information, Education and Communication
IPTp:	Intermittent Preventive Treatment for Pregnant Women
IRS:	Indoor Residual Spraying
ITNs:	Insecticide-Treated Nets
LLIN:	Long-Lasting Insecticide Treated Net
MIP:	Malaria in Pregnancy
MIS:	Malaria Indicator Survey
MOH:	Ministry of Health
NHIS:	National Health Insurance Scheme
NHS:	National Health Service
NMCP:	National Malaria Control Programme

NMSP:	National Malaria Strategic Plan
RBM:	Roll Back Malaria
SPSS:	Statistical Package for the Social Sciences
WHO:	World Health Organisation
MICS:	Multiple Indicator Cluster Survey
UNICEF:	United Nation Children Education Fund
USAID:	States Agency for International Development



ABSTRACT

Malaria infection in pregnancy is highly risky for the mother and the fetus. The use of Insecticide-Treated Nets (ITNs) is a key social marketing intervention for malaria prevention during pregnancy. As a malaria endemic country, statistics show that Ghana records about 3.2 million malaria cases annually with about 38,000 of these cases leading to death due to low utilization of ITNs, thus making it imperative for the need for behaviour change interventions that positively position ITN as an effective strategy to prevent malaria. This research sought to utilize the Integrated Model of Behaviour Prediction (IMBP) to examine the ITNs usage intention among pregnant women in Ghana. The study was a cross-sectional survey that involved the use of self-administered structured questionnaire to collect primary data from pregnant women in Accra. Also, a convenience-based non-probability sampling method was employed to select the four hundred (400) pregnant women who completed the survey instrument. Hypotheses were tested through correlational and regression analytic procedures. Data was analyzed using the SPSS 20.0. The results from the regression indicate that there is a strong and significant reliability between variables used for the constructs. The results further show that, among the three main constructs that influence intention in the model (attitude, perceived norms, and self-efficacy), attitude and perceived norms were the potent predictors of intention to use ITNs, with attitude being the highest contributor of intention to use ITNs for malaria prevention. The implication of this finding is that social marketing for malaria prevention programmes must place more emphasis on attitude-changing interventions in order to influence malaria related preventive behaviour.

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

One of the most important considerations for social marketing is the issue of disease prevention, for which malaria prevention is no exception. Social marketing, as a discipline, has made enormous strides since its distinction in the early 1970s, and has had a profound positive impact on social issues in the areas of public health, injury prevention, the environment, community involvement, and more recently, financial well-being (Lee & Kotler, 2011). In spite of impressive progress in malaria prevention interventions in many endemic countries, malaria still remains one of the most devastating global health issues (Shiff, Thuma, Sullivan, & Mharakurwa, 2011; Chirebvu, Chimbari, & Ngwenya, 2013; Yasuoka, Jimba, & Levins, 2014) and is endemic in more than 100 countries worldwide, including Ghana (WHO, 2010). Today, malaria is found throughout the tropical and sub-tropical regions of the world and causes more than 300 to 500 million acute illnesses and at least one million deaths annually (WHO, 2010; Chirdan, Zoakah & Ejembi, 2009; Schantz-Dunn & Nour, 2009).

Report from the world health organization (WHO, 2010) suggests that over the last two decades, morbidity and mortality from malaria have been rising due to deteriorating health systems, growing drug and insecticide resistance, periodic changes in weather patterns, civil unrest, human migration, and population displacement. An estimated 3.4 billion people were at risk of malaria in 2012 (WHO, 2013). Globally, there were an estimated 207 million cases of malaria in 2012 and an estimated 627,000 deaths (WHO, 2013).

Malaria continues to pose a complex public health problem in Africa (Antwi, 2010) where the disease accounts for over 90% of the global malaria burden (WHO, 2008; Morel, Lauer, & Evans 2005; Schantz-Dunn & Nour 2009). It is estimated that 74% of the African population lives in highly endemic areas, while 19% lives in epidemic prone zones (Antwi, 2010) . Only 7% of the population lives in malaria-free or low risk areas (Antwi, 2010). Malaria infection during pregnancy remains a significant risk to both mother and fetus (Antwi, 2010). An estimated 50 million women in malaria endemic nations across the world become pregnant. Of this number, 50% live in tropical Africa, where the transmission of the plasmodium falciparum is intense (Antwi, 2010). Each day almost 3,000 people, mostly pregnant women and children, die as a result of malaria (NetMark, 2000). The human toll has been described as tragic and the economic cost enormous (Sachs & Malaney 2002; Morel, et al., 2005).

The malaria situation in Ghana is typical of Sub-Saharan Africa, where malaria is ranked first among the ten diseases most frequently seen in most health facilities in the country (Ahorlu, 2005; WHO, 2008). As a malaria endemic country, Ghana records about 3.2 million malaria cases annually with about 38,000 of these cases leading to death (GHS, 2008), thus making the need for better prevention and control of malaria cases imperative (Adjah & Panayiotou, 2014). All Ghana's population of 24.2 million is at risk of malaria infection, but children under five years of age and pregnant women are at higher risk of severe illness due to lowered immunity (MICS, 2011). According to the Ghana Health Service (GHS) health facility data, malaria is the number one cause of morbidity, accounting for about 38 percent of all outpatient illnesses, 35 percent of all admissions, and about 34 percent of all deaths in children under five years (NMCP, 2013). Between 3.1 and 3.5 million cases of clinical malaria are reported in public health facilities each

year, of which 900,000 cases are in children under five years (WHO, 2008). There were an estimated 21,000 deaths due to malaria for children under age 5 in 2006 (WHO, 2008). Findings from the Ghana urban malaria study (2013) reveal that the burden of malaria is significantly lower in Accra, Kumasi, and Tamale than in smaller communities located in the same ecological zone (NMCP, 2013). Due to widespread poverty in Ghana, particularly among the smaller communities, many households depend on a combination of herbs and over-the-counter drugs, usually consisting of inadequate doses of antimalarials (Ahorlu, 2005). According to the World Health Organization report in Ghana, US\$27 million and US\$38 million was spent on malaria in 2008 and 2009 respectively. In spite of the huge amount of money invested, Ghana still recorded very worrying figures with 3,694,671 cases in 2009 compared to 3,200,147 in 2008 (Ghana Web, 2011). Admission to hospitals due to malaria also went up from 272,802 in 2008 to 277,047 in 2009. Death due to malaria from the records of clinics stood at 3,378 in 2009 (Ghana Web, 2011).

Malaria places an enormous economic burden on Ghana's economy and has a detrimental effect on economic and social development (WHO, 2008). In his address on the Strategic Plan for Malaria Control (2008-2015) in Ghana, the then minister of health Dr. Sipa-Adjah Yankey noted that malaria is the leading cause of illness and death in the country. Furthermore, it impacts negatively on the different demographic and socio-economic groups. For instance, pregnant women and their unborn children are particularly vulnerable to malaria, as a result of low birth weight and maternal anaemia (UNICEF, 2007; WHO, 2008). Pregnant women infected with malaria usually have more severe symptoms and outcomes, with higher rates of miscarriage, intrauterine demise, premature delivery, low-birth-weight neonates, and neonatal death. They are also at a higher risk for

severe anemia and maternal death (Schantz-Dunn & Nour, 2009). Other effects to the country include high expenditure on treatment by the government and loss of man hours due to time taken off from productive activities especially by pregnant women (WHO, 2008).

Perhaps the greatest tragedy is that many of these illnesses, deaths, and related expenditures are preventable. The World Health Organization (WHO) recommends insecticide-treated nets (ITNs) as the best way for families to protect themselves from malaria, as this has been proven to reduce the risk of infection by up to 45% and the risk of death by 30% (Lee & Kotler, 2011). In 1992, the world Health Organization convened a ministerial conference in Amsterdam to give a new impetus to control activities (WHO, 2003). While the consensus at this meeting was that prompt access to diagnosis and treatment remained the mainstay of malaria control, there was a renewed emphasis on preventive measures, both at the community and at the individual level (WHO, 2003). The most promising preventive measures mentioned were insecticide-treated bed nets and curtains, collectively known as insecticide-treated nets (ITNS). In 1998, the main international health agencies launched an ambitious partnership, themed “Roll Back Malaria”, to tackle the global malaria issue. The wide-scale implementation of ITNs is now one of the four main strategies to reduce morbidity and mortality from malaria (WHO, 2003), with a target set by African Heads of state to protect 60% of all pregnant women and children by 2005.

Ghana has promoted ITNs use in pregnancy along with other evidence-based interventions for malaria control since the Abuja Malaria Summit (WHO, 2003). In spite of these improvements, there seem to be a gap (about 33%) between ownership and usage of ITNs

among pregnant women to prevent malaria in Ghana (NMCP, 2013). Findings from a study conducted by Tweneboah-Koduah, Braimah and Otu (2012) indicate that most of the current strategies on malaria prevention seem to focus on the distribution of ITNs, and that the usage of ITNs remains low. This seems to suggest that the current mass distribution of ITNs at antenatal facilities and community levels may not necessarily lead to use unless it is accompanied by behaviour change interventions that address the community level perceptions, misconceptions and positively position ITN as an effective prevention device to prevent malaria (Ankomah, Adebayo, Arogundade, Anyanti, Nwokolo, Inyang & Meremiku, 2012).

Social marketing is an approach to developing health, environment, and social change campaigns that aim to influence target audiences to voluntarily accept, reject, modify, or abandon a behaviour for the benefit of individuals, groups, or society (Andreasen, 2002; Lee & Kotler, 2011). The social marketing approach also relies on the appropriate use of behavioural theory to provide frameworks for developing initiatives by specifying the determinants of health behavior. By understanding these factors, intervention strategies can be developed that specifically address important theoretical constructs (Luca & Suggs, 2013; Tweneboah-Koduah, 2014).

1.1 Statement of the problem

Like most African countries, studies on social marketing and disease prevention have focused on HIV/AIDS (Walden, Mwangulube, & Makhumula-Nkhoma, 1999), with little attempt to study the area of social marketing and malaria prevention.

The extant literature suggests that most of the applications of behaviour change models to social marketing have been done in developed countries (Cited in Tweneboah-Koduah & Owusu-Frimpong, 2013). In Ghana, the few studies conducted on malaria prevention have concentrated on burden of malaria, drug efficacy and effectiveness, and information, education and communication (IEC). (WHO, 2008; Adongo, Kirkwood, & Kendall, 2005; Ahorlu, 2005; Breman, Alilio, & Mills, 2004; Asenso-Okyere, Asante, Tarekegn, & Andam, 2011; Tweneboah-Koduah, Braimah, & Otuo, 2012; Adjah & Panayiotou, 2014).

Although there are a plethora of research studies on social marketing suggesting the contribution of theory in optimizing campaign effectiveness (Thackeray, Fulkerson & Neiger, 2012; Frazee, Rivera-trudeau, & Mcelroy, 2007; Lombardo & Léger, 2007; Thackeray & Neiger, 2000; Fishbein & Cappella, 2006), to date there has not been any attempt to employ an integrative behavioural prediction model on this subject matter, especially on its application to ITN usage among pregnant women to prevent malaria in Ghana (Tweneboah-Koduah & Owusu-Frimpong, 2013). To address this gap, this study investigates how an integrative behavioural prediction model could be employed by social marketers to determine ITN usage behaviour of pregnant women and to design interventions on malaria prevention in Ghana. Social and behavioral research on the role of theory in health campaigns suggests that it provides valuable frameworks to design and evaluate interventions (Glanz & Rimer, 1997; Hastings, 2007) and that effective campaigns tend to use theory (Lombardo & Léger, 2007; Thackeray & Neiger, 2000; Luca & Suggs, 2013). An integrative behavioural prediction model can help social marketers efficiently plan campaigns by adding theory-based campaign elements in addition to the social marketing framework (Thackeray & Neiger 2000; Frazee, Rivera-trudeau, & Mcelroy, 2007).

1.2 Research purpose and objectives

The purpose of this study is to investigate how an integrative behavioural prediction model could be employed by social marketers to determine ITN usage behaviour of pregnant women in Ghana. To achieve this purpose, the study outlines the following objectives:

1. To determine the extent to which attitudes, perceived norms, and self-efficacy of pregnant women influence their intention to use ITN in the prevention of malaria in Ghana.
2. To determine the ITN usage intention of pregnant women in Ghana.
3. To examine the moderating effects of skills (abilities) and environmental factors on ITN usage intention among pregnant women in Ghana.

1.3 Research questions

1. To what extent do pregnant women's attitudes, perceived norms and their self-efficacy influence intentions to use ITN to prevent malaria?
- 2: What is the intention of pregnant women in Ghana towards their ITN usage behaviour?
3. What is the moderating effects of skills and environmental factors on the ITN usage intention among pregnant women in Ghana?

1.4 Scope of the study

The scope of this study is limited to the Accra metropolitan area in the Greater Accra Region of Ghana. The selection of Accra Metropolis was necessitated by the fact that many studies about malaria prevention and health seeking behaviour among women and children have been directed at the rural settings (Browne, Maude, & Binka, 2001; Adongo, Kirkwood, & Kendall, 2005; Osei-Kwakye, Asante, Mahama, Apanga, Owusu, Kwara & Owusu-agyei, 2013). Attention toward urban areas is rare though the cases of high malaria

prevalence in rural communities also manifest in urban settings (Atinga, Baku & Adongo, 2015).

1.5 Significance of the study

The study will contribute to existing literature on social marketing and malaria prevention by applying theory in designing effective social marketing interventions on preventing the disease in Ghana. Thus the findings could serve as a reliable source of reference for future researchers who want to conduct related researches in social marketing education.

The study will also serve as an input for development agencies, policy makers, local and international NGOs, health officials, and all other stakeholders in the fight against malaria to change behaviour.

The study has the significance of helping participants understand better ways of preventing malaria through effective social marketing communications interventions.

1.6 Chapter disposition

The thesis shall be structured as follows:

Chapter one: This chapter introduces the research and comprises the research background, research problem, research purpose and objectives, research questions, research significance, and the organization of the study.

Chapter two: Entails the contextual background of the study.

Chapter three: This chapter focuses on a review of relevant literature on social marketing, the problem of malaria and the theoretical framework.

Chapter four: This chapter deals with the methodological approach which highlights the study area, study population, sampling techniques and sampling size, data collection instrument and method, data processing and analysis, variables, and ethical considerations.

Chapter five: This chapter entails data presentation, analysis, and discussion of findings.

Chapter six: This chapter comprises the discussions of research implications, summary, conclusions and recommendations. The references and appendices follow this chapter.



CHAPTER TWO

CONTEXTUAL BACKGROUND OF THE STUDY

2.0 Introduction

This chapter presents the contextual background information of the study including a profile of the health sector of Ghana. The chapter also discusses the malaria situation in Ghana and the main approaches for preventing the disease in the country and provides some information on the institutions involved in the fight against malaria in Ghana.

2.1 Profile of Ghana

Ghana is situated on the coast of West Africa between latitudes 8° north and longitude 2° west (CIA, 2014). It is bordered on the west by La Côte D'Ivoire, north by Burkina Faso, east by Togo and on the south by the Atlantic Ocean (Tabi, Powell & Hodnicki, 2006). The country has an estimated surface area of 238,537 km² (GHS, 2008). It has three ecological areas of vegetation, namely, the drier tropical savannah in the north, the forest, and the coastal savannah in the south. The nation's temperature ranges from 19° to 40°C, with variations in the ecology (GHS, 2010). Ghana gained independence from British rule on 6 March 1957, and became a republic in the British Commonwealth of Nations on 1 July, 1960. There are 10 administrative regions, Western, Central, Greater Accra, Volta, Eastern, Ashanti, BrongAhafo, Northern, Upper East, and Upper West. Its administrative and political capital is Accra, with a population of 1.7 million (GSS, 2002). The population of the country as at July 2014 was 25,758,108 (CIA, 2014), with an annual population growth rate of 2.4% (The World Bank 2010), and a rural-urban population ratio of 48.5:51.5 as of 2010 (76.7:23.3 in 1960) respectively (CIA, 2012). Life expectancy at birth in Ghana is 65.75 years (male: 63.38 years; female: 68.19 years) (CIA, 2014). Maternal and infant mortality rates are 350/100,000 and 103/1000 live births respectively (WHO,

2010). The percentage of pregnant women receiving antenatal care is 90.1% as of 2008 (CIA, 2012).

2.2 Accra Metropolitan Assembly

Accra is located on the East coast of Ghana, approximately 5° North of the Equator, between longitudes 0° 05' West and 0° 20' West and between latitudes 5° 30' North and 5° 5' North. AMA is the most populous area of the Greater Accra region with an estimated urban population of 2.269 million and a population growth rate of 3.4% (CIA, 2014). The metropolis is made up of 11 submetros each of which is treated as an administrative district. In spite of the growing population density in the metropolis, coverage of public health facilities remains low with people living in the slums and some indigenous communities being the worse served. The city of Accra has approximately 20 government-run health facilities, which include: Four Hospitals (Achimota Hospital; Princess Marie Louise Children's Hospital; La General Hospital; and Ridge Hospital); Six Polyclinics; Three Quasi-Governmental Facilities; Ten Smaller Clinics; Two CHPS Compounds; and over 800 private health facilities. AMA covers an area of 17,362 ha. It falls within the dry equatorial climatic region, and it receives an average annual rainfall of 810 mm/year. The climate is hot and humid, with mean temperatures varying from 24 °C in August and 27 °C in March. The area is characterized by the coastal savannah vegetation type and it is subject to severe erosion due to its proximity to continental shelf, strong coastal and wind action. There is a well-established network of primary drains within the Metropolitan area. However, their poor maintenance, careless dumping of rubbish into drainage systems and poor development control has created severe flooding, siltation and pollution problems in many parts of the metropolitan area.

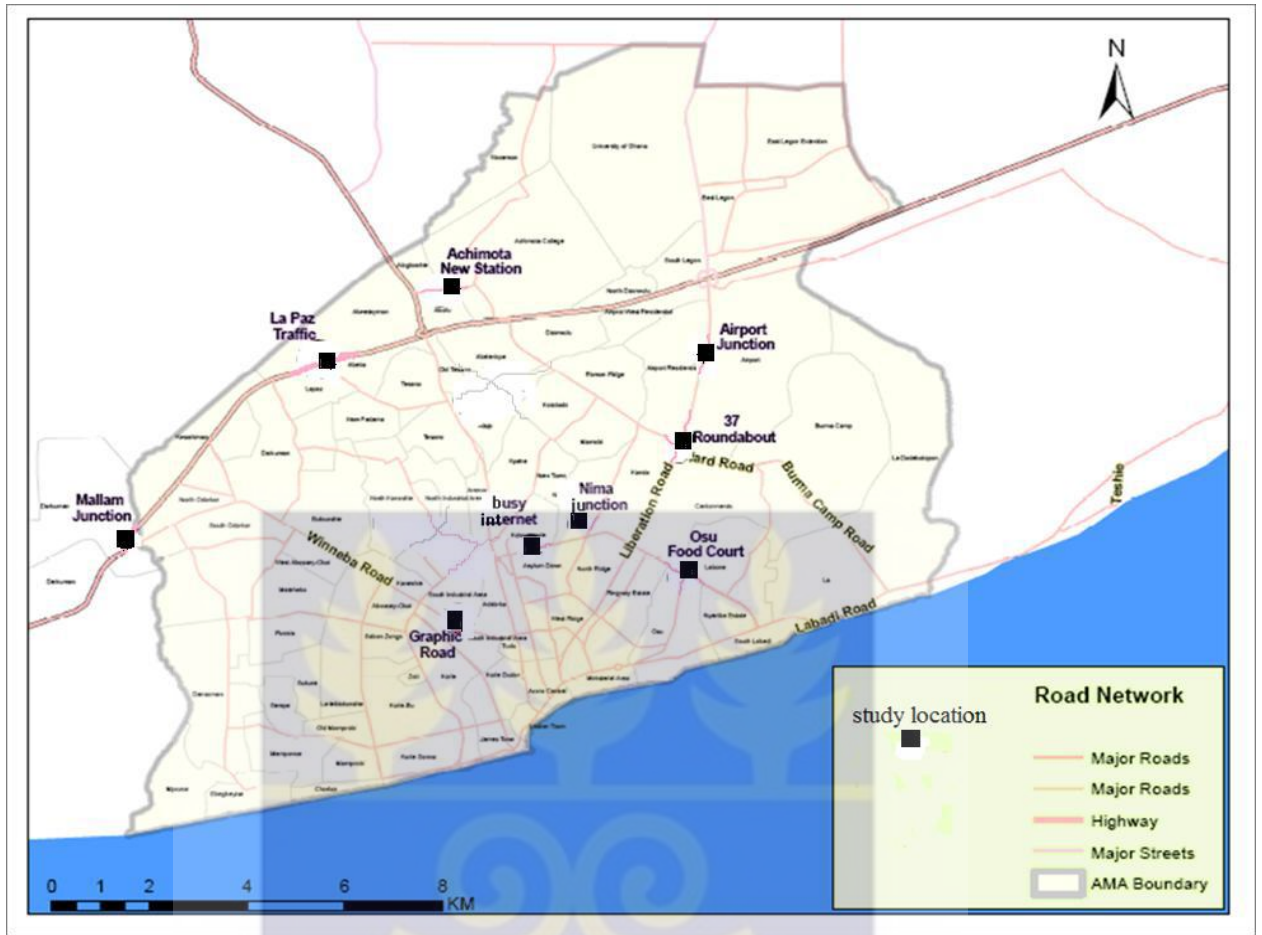


Figure 2.1: Map of the Accra Metropolitan Assembly (Source: Field work, 2015)

2.3. The health sector of Ghana

The Ghana Health Service (GHS) was established under Act 525 as an agency of the Ministry of Health to ensure access to health services at the community, sub district, district and regional levels (GHS, 2010). The health system in Ghana and for that matter malaria control is managed according to the ten administrative regions, each of which has a regional director of health services (RDHS) supported by the regional health management team (RHMT). Each region has a regional hospital, and every district has a district hospital. At the district level, the district health service is managed by the district director of health services (DDHS) (Ackon, 2001). Below the district level are health centres and CHPS compounds (GHS, 2010). Health care delivery in Ghana is provided by

both the public and private sectors. However, the Ministry of Health exercises the overall oversight control over the entire health system. Its primary responsibilities lie in policy formulation, monitoring and evaluation of progress in achieving set targets. Its agencies consist of the Ghana Health Service, Teaching Hospitals, Health Training Institutions, and Health Regulatory Bodies (WHO, 2008).

The Ghana Health Service is one of the agencies responsible for service delivery and implementation of health policies and programmes, together with the private sector, faith-based health institutions and the Teaching Hospitals. It undertakes its responsibility by fostering partnership with private NGOs, Civil Society Organizations (CSO), the communities, and other Ministries, Departments and Agencies (MDAs). About 83% of all health facilities in Ghana belong to the public sector, 9% to faith-based institutions and 7% to the private sector (GHS, 2010). As of 2009, there were 3,217 health facilities in Ghana. These facilities consist of 3 teaching hospitals; 9 regional hospitals; and 3 psychiatric hospitals. Other health facilities involve district and other hospitals (mission, 70; quasi government, 48; private, 156; polyclinics, 18); health centres and clinics (mission, 176; government, 1,106; quasi government, 60; private, 732); and maternity homes (private, 318; government, 795) (GHS, 2010). There were a total of 2033 number of doctors and 24,974 nurses working in Ghana in 2009 (GHS, 2010).

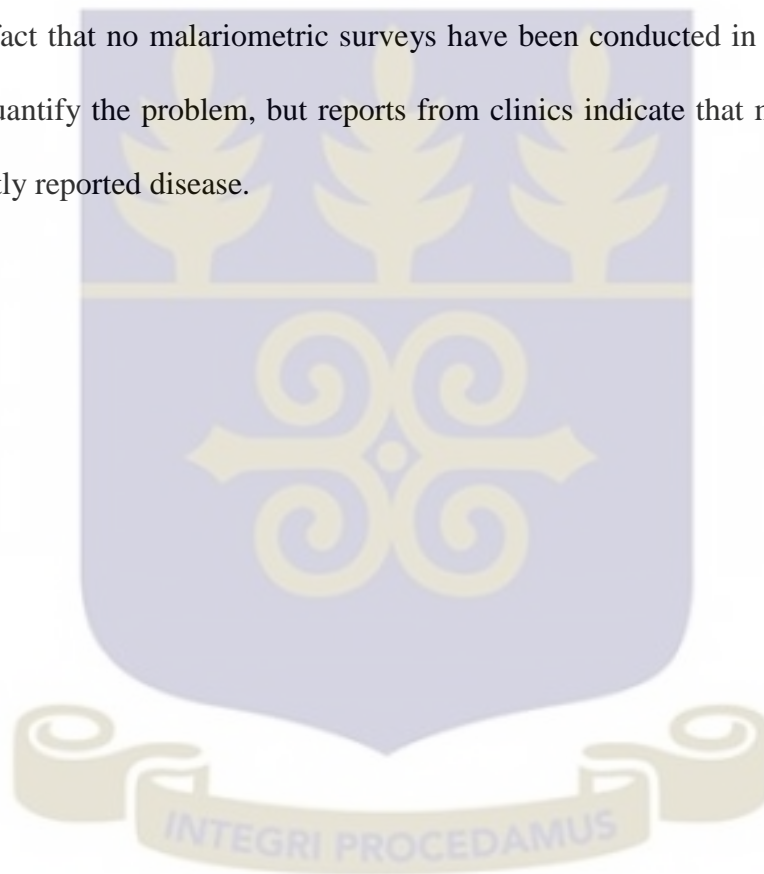
Access to healthcare in rural settings remains relatively poor. For example, only about 5% of Ghanaians have access to community health nurses through the innovative community-based health planning and services (CHPS) policy (PMI, 2014). As part of efforts towards increasing access, a major recent development in Ghana has been the introduction of the National Health Insurance Scheme (NHIS), initially implemented in 2006. By July 2008, 50% of the population had been enrolled, resulting in increased attendance at health

facilities (PMI, 2014). A recent case study at the Ridge Regional Hospital in Accra, which focused on the role of the NHIS from user and provider perspectives shows that the scheme is making a great contribution towards utilisation of health services at the facility level in Ghana (Opoku, 2012). The implementing agency for the National Malaria Control Programme is the Ghana Health Service. Primary interventions include: intermittent preventive treatment (IPTp) for pregnant women; scaling-up vector control measures with emphasis on universal ITN coverage; targeted indoor residual spraying (IRS) application in selected areas; and early diagnosis with prompt and effective treatment of malaria using artemisinin-based combination therapy (ACT) (GHS, 2008; 2009; PMI, 2015). The provision of quality maternal health services is a high priority (GHS, 2009).

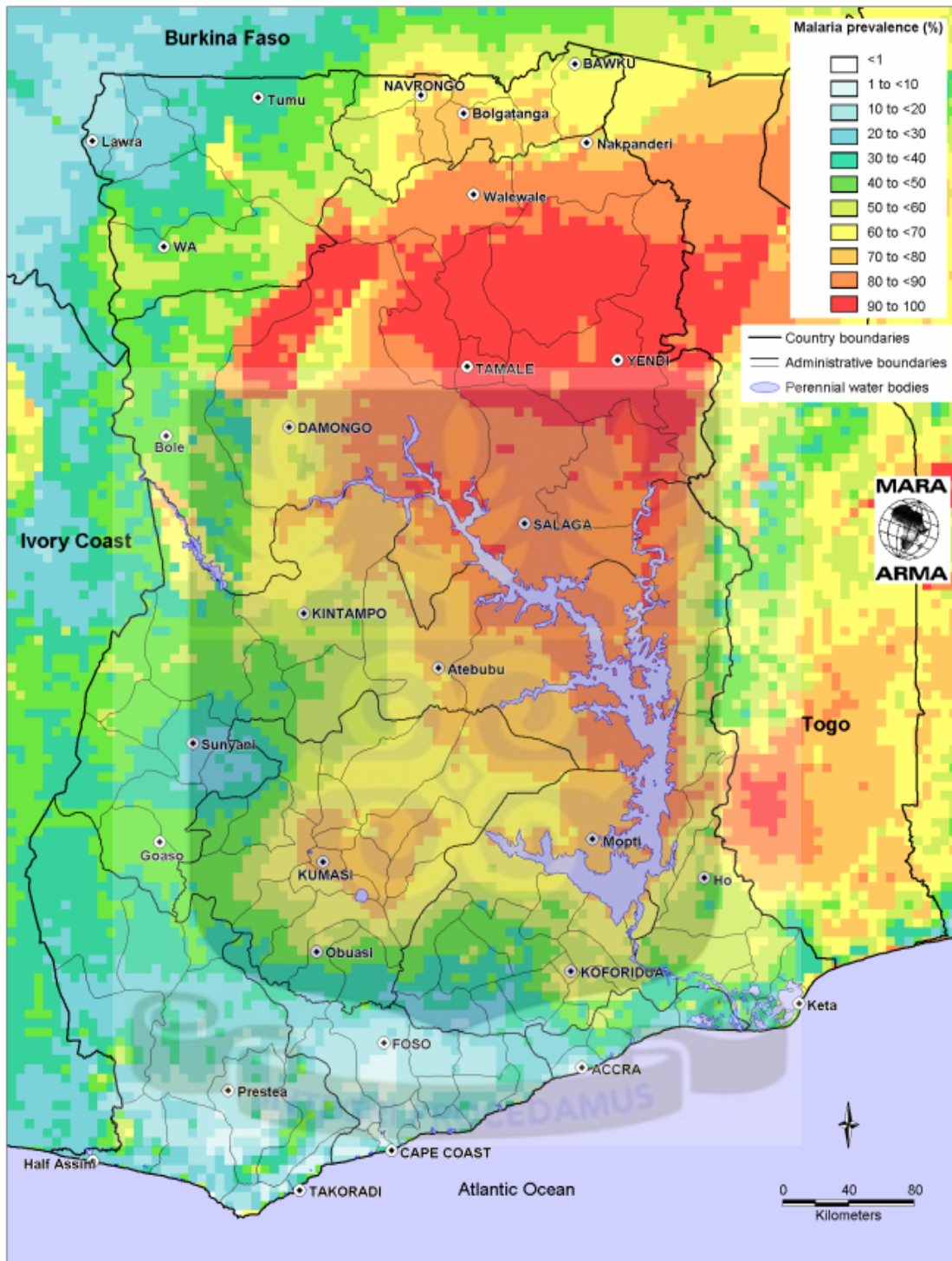
2.3.1 The malaria situation in Ghana

Malaria is hyper endemic across Ghana, with the entire population at risk. The transmission of malaria occurs all year-round with seasonal variations during the rainy season. Malaria is the number one cause of all OPD cases, accounting for 32.5% of all OPD attendances (GHS, 2012), 36% of all admissions and 33% of all deaths in children under five years (GHS, 2008; PMI, 2014). It is the most frequently reported disease in Ghana. Crude parasite rates – that is, the percentage of people in specified age groups who are parasitaemic range between 10 and 70% (Health Research Unit, Accra, unpublished data). Three species of human plasmodia are present - *Plasmodium falciparum*, the predominant parasite species which accounts for 80–90% of infections, *Plasmodium malariae*, which accounts for 20–30% of infections, and *Plasmodium ovale*, which is relatively uncommon and unevenly distributed and accounts for 0–15% of infections (GHS, 2009). There is considerable diversity of incidence and seasonal variation country-wide due to differences in topography, ecology, climate, and vector and human habitat and

behaviour. Annual reports for the Greater Accra Region, show malaria consistently to be the most frequently reported disease accounting for some 40% of cases at outpatient departments (Agyepong, 1992). In Osu-Clotey, transmission is somewhat variable because of different local environmental conditions within the area (Agyepong & Manderson, 1999). In some areas, heavy pollution of ground water would inhibit Anopheline breeding. In other newer areas, construction work has created new breeding sites and drainage is inadequate, leading to increased risk of transmission during the rainy season. The fact that no malariometric surveys have been conducted in the area makes it difficult to quantify the problem, but reports from clinics indicate that malaria is still the most frequently reported disease.



Ghana: Malaria Prevalence Model



This map is a product of the MARA/ARMA collaboration (<http://www.mara.org.za>). March 2002, Medical Research Council, PO Box 17120, Congella, 4013, Durban, South Africa
 CORE FUNDERS of MARA/ARMA: International Development Research Centre, Canada (IDRC); The Wellcome Trust UK; South African Medical Research Council (MRC);
 Swiss Tropical Institute, Multilateral Initiative on Malaria (MIM) / Special Programme for Research & Training in Tropical Diseases (TDR), Roll Back Malaria (RBM).
 Malaria Prevalence Model: I. Kleinschmidt et al. 2001. An empirical malaria distribution map for West Africa. Tropical Medicine and International Health 6: 779-786.
 Topographical data: African Data Sampler, WRI, http://www.igc.org/wri/sdis/maps/ads/ads_id

Figure 2.2: Ghana: Malaria Prevalence Model (Source: De Savigny & Binka, 2004)

2.3.2 Cause and transmission of malaria

Malaria is caused by a single-celled parasite called Plasmodium, and is transmitted by the female Anopheles mosquito. The main parasite species that causes malaria in Ghana is *P. falciparum* (over 90-95 percent of infections in most prevalence studies). *P. malariae* (<10 percent), and *P. ovale* (<2 percent) are also found. *P. vivax* is not known in Ghana. The major vectors found throughout the country are *Anopheles gambiae* species complex and *A. funestus*. These species generally bite late in the night, are indoor resting, and are commonly found in the rural and peri-urban areas where socio-economic activities lead to the creation of breeding sites. Outdoor biting is more common in the northern savannah zone. *Anopheles melas* is found in the mangrove swamps of the southwest (WHO, 2008). Transmission is greatest during the rainy season because the increase in relatively clean, temporary fresh stagnant water bodies favour the breeding of *Anopheles* mosquitoes during that period. The normal duration of the intense malaria transmission season ranges from approximately 6-7 months in the northern-most part of the country (May-October) up to 10-11 months in the forest zone. Peak levels of malaria infection and malaria-associated anaemia in the population persist for 2-3 months into the dry season (MICS, 2011).

2.3.3 Fighting malaria in Ghana

Many attempts have been made to relieve Ghana from its heavy malaria burden. In the last years of the 1960's, the WHO succeeded in dramatically reducing the prevalence of malaria by using toxins aimed at mosquitoes and its larvae. With this success, malaria was not considered a problem anymore, the program was discontinued and the prevalence quickly jumped back to previous levels (NMCP, 2013). In November 1992, the Ministry of Health (MOH) of the Republic of Ghana launched its 5-year Malaria Control Action Plan (MAP) (1993-1997) with the objective, as recommended by WHO, to reduce

malaria-related morbidity and mortality to such low levels that it will cease to be a public health problem. This program was not successful in significantly reducing the malaria problem due to administrative problems and to antimalarial drug resistance (Ahorlu, 1997).

In order to provide a coordinated global approach to fighting malaria, the Roll Back Malaria Partnership was launched in 1998 by the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), the United Nations Development Programme (UNDP) and the World Bank. In 2000, the African Summit on "Roll Back Malaria" was held in Abuja, Nigeria, with representatives from 44 of the 50 malaria-affected countries in Africa. This resulted in all attending countries signing a declaration where they committed themselves to making an intensive effort to halve the malaria mortality for Africa's people by 2010, through implementing strategies and actions for malaria reduction. The leaders of the countries also agreed to initiate appropriate and sustainable action to strengthen the health systems. One of the goals set at Abuja was to ensure that by the year 2005 at least 60% of those at risk of malaria, particularly children under five years of age and pregnant women, would be protected by ITNs or other intervention measures, in order to prevent infection. (WHO, 2008).

To meet the goals stated in the Abuja target, a large scale project built on the policies of the Roll Back Malaria movement was launched in Ghana and is currently in progress. The project is a joint venture between USAID, President's Malaria Initiative (PMI), the Global Fund and several other donors and is carried out by the NMCP. The project includes several components, where one of the main preventive strategies was the use of insecticide

treated nets (ITNs), and indoor residual spraying (IRS). The second preventive measure is intermittent preventive treatment (IPT) that targets pregnant women.

2.3.4 Insecticide-Treated Nets (ITNs)

One of the most effective measures for preventing malaria is the use of insecticide-treated bed net (ITN). ITNs have been shown not only to reduce malaria transmission by as much as 90 percent under trial conditions, but also to reduce the indoor vector population (Binka, Kubaje, Adjuik, Williams, Lengeler, Maude, & Smith, 1996). ITNs also reduce malaria morbidity and mortality. From 2002 to 2009, the Ghanaian Ministry of Health (MOH) embraced a mixed model of ITN distribution, in which subsidized distribution through the public and private sector contributed. This resulted in 42 percent of ITN ownership (GHS, 2008). In order to promote the ownership of mosquito nets, the government of Ghana, since 2002, has implemented a tax waiver policy on the importation of mosquito nets into the country. Development partners contributed by providing ITNs for distribution at subsidised costs to pregnant women and children under five in disadvantaged areas of the country through routine public health services. During 2002-2010, the NMCP, PMI, World Bank, UNICEF and Global Fund between them provided enhanced support for subsidized ITN distribution in all regions except Greater Accra. JICA continued such support in Upper West through 2011 (MICS, 2011).

In 2010, Ghana Health Service, led by the NMCP, and with the support of development partners, began focusing on a “catch-up” strategy of implementing free mass distribution campaigns with the goal of achieving universal coverage of LLINs in all ten regions by 2012. This campaign provided free LLINs in door-to-door, hang-up exercises nationwide, distributing approximately 14 million LLINs over two years. The LLIN hang-up exercises

were carried out through a program of door-to-door visits by community volunteers in each region (GHS, 2010).

The door-to-door, hang-up approach was tested in May 2010 in the Northern Region, through a campaign which targeted just children under five and pregnant women. The remaining campaign targeted universal coverage of the general population, defined as one net per every two persons. The NMCP goal for these campaigns was to achieve 75 percent of households owning at least one LLIN. However, universal coverage campaigns had been completed in the Eastern, Volta, and Western regions. Central Region began its campaign toward the end of 2011. The remaining regions had their campaigns in 2012 (GHS, 2012).

2.4 Information on the institutions involved in the fight against malaria in Ghana

2.4.1 The Ministry of Health

The Ministry of Health is the ministry charged by law to be responsible for securing the health of the people of Ghana. It is responsible for policy formulation and overall coordination of the different structures (both public and private) involved in the implementation of their policies. It has divisions responsible for policies, planning, monitoring and evaluation (PPMED), Human Resource Development (HRHD), Research and Information Management (RIM) together with administrative offices servicing the Office of the Chief Director and the Ministers. Its agencies consist of the Ghana Health Service, Teaching Hospitals, Health Training Institutions, and Health Regulatory Bodies. Its mission is to contribute to national socio-economic development and wealth creation through:

- (i) The promotion of health and vitality

(ii) Ensuring access to quality health and nutrition services, including those for malaria, and

(iii) Facilitating the development of a local health industry GHS, 2012).

2.4.2 Ghana Health Service

The Ghana Health Service is one of the agencies responsible for service delivery and implementation of health policies and programmes, together with the private sector, faith-based health institutions and the Teaching Hospitals. It undertakes its responsibility by fostering partnership with private NGOs, Civil Society Organizations (CSO), the communities, and other Ministries, Departments and Agencies (MDAs). Administratively, the Ghana Health Service is organized into a three-tiered system: national, regional and district levels but in terms of service delivery it is organized under five levels of national, regional, district, sub-district and Community Health Planning and Services (CHPS) zonal levels.

At the national level, the Ghana Health Service (GHS) is composed of ten main divisions. Each division has departments with responsibilities for carrying out the functions of the division. The NMCP is a programme within the Disease Control Department of the Public Health Division.

2.4.3 The National Malaria Control Programme

The National Malaria Control Programme (NMCP) is a programme within the Disease Control Department of the Public Health Division responsible for policy formulation and strategy development, overseeing implementation of malaria control interventions, management of human resources, partnership development, monitoring and evaluation.

The National Malaria Control Programme was launched in 1992. Until then there was no national programme (NetMark, 2000). The NMCP is organized into three zonal offices (Northern, Middle and Southern zones), each with a zonal coordinator, data manager and a technical officer, coordinating all activities within the zone and reporting to the programme manager. The core technical team consists of the programme manager, the zonal coordinators, data managers and technical officers. They are supported by the administrative officer, accounts officer, drivers, secretaries, cleaners and security personnel. There are other staff at the regional and district levels that have been designated as malaria focal persons in addition to their regular duties. The NMCP receives a lot of financial and technical support from the Global Fund, WHO, USIAD/PMI, DFID, and UNICEF.

The NMCP spearheads all activities and campaigns in relation to malaria in the country. It collaborates with more than fifty (50) non-governmental organizations and other partner agencies to achieve its results. It also works with other programmes health service as well as with the private medical sector and corporate bodies.

The National Malaria Control Programme (NMCP) is in the process of implementing its National Malaria Strategic Plan (NMSP) 2010 – 2015. The overall goal of the NMSP is to facilitate human development by reducing the malaria disease burden by 75% by 2015. This goal is to be achieved through overall health sector development, improved strategic investments in malaria control, and increased coverage towards universal access to malaria treatment and prevention interventions, including at the community level (NMCP, 2013).

2.4.4 NetMark

NetMark is a unique cross-sector partnership created to fight malaria in sub-Saharan Africa where the disease kills more than two million people each year. It was initiated by the United States Agency for International Development (USAID) and developed under the management of the Academy for Educational Development (AED), a nonprofit human and social development organization (NetMark, 2005).

NetMark's mandate is to reduce the burden of malaria in sub-Saharan Africa by increasing the commercial supply of and demand for insecticide-treated nets (ITNs), a simple but effective way to prevent the mosquito bites that cause malaria. To accomplish this task, AED has developed a market-based approach of shared risk and investment dubbed "Full Market Impact"TM (FMITM), based on the premise that as demand grows within a competitive market, consumers will benefit from improved quality, lower prices, and wider availability. NetMark and its commercial partners have worked to create sustainable commercial markets for ITNs, making them available to all socio-economic groups. For instance, high risk group such as pregnant women and children below five years are receiving free or subsidized ITNs.

The NetMark project was launched in Ghana in November 2002, and is in partnership with five manufacturers and distributors of ITN products in the country. The project is a major player in the RBM partnership in Ghana and currently the coordinator of the ITN sub-committee which aims to harmonize all ITN programs to maximize public health impact and minimize clashes between subsidized and commercial efforts.

2.4.5 NetMark Full Market Impact and the “4 Ps” of Business

While AED expected the NetMark project to be an experimental process of innovation, trying things out and keeping what works, team members knew that they needed to align their project design with the way business thought about the market and, at the same time, expand the traditional view of the market. A conscious effort was made, therefore, to align NetMark’s design with the classic ‘4Ps’ (product, place, price, and promotion). The aim was to demonstrate how meeting the needs of the poor could translate into good business that promotes expansion into new market segments. Gradually, over several years, a model has emerged that meets the needs of the various stakeholders. This model, dubbed ‘Full Market Impact’ (FMI), encompasses five factors that can be addressed to achieve public health and business objectives through integrated strategies: supply, access, affordability, demand, and equity/sustainability.

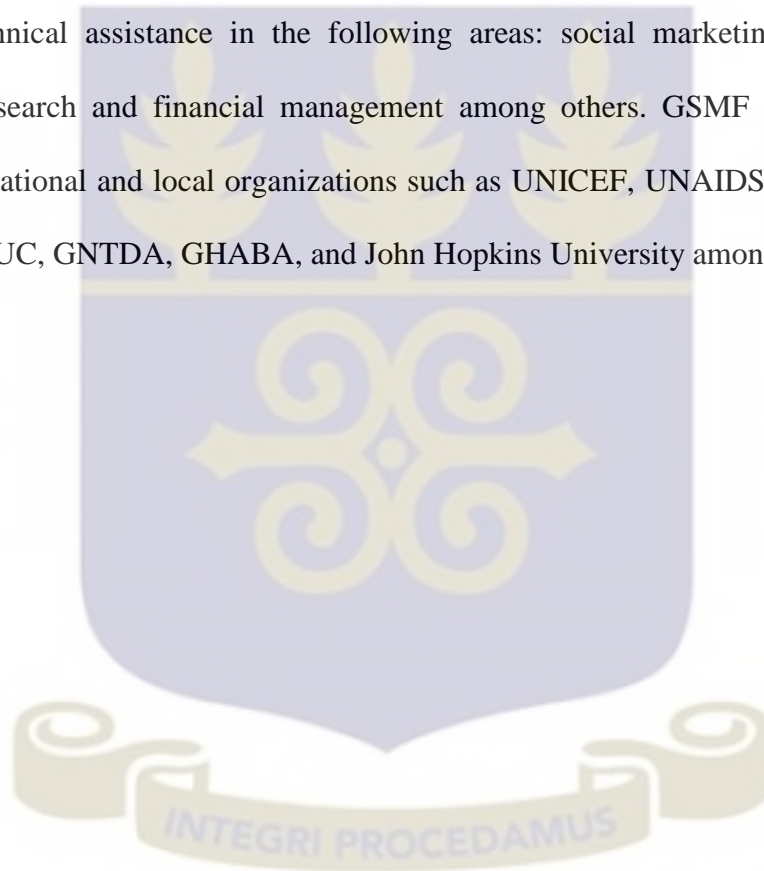
1. **Product (Supply):** NetMark is increasing the supply of ITNs by improving the coordination of commercial and institutional procurements, providing technical and financial support to expand manufacturing capacity and quality, and creating strong links between manufacturers and the best distributors in Africa. Increasing the supply of ITNs is necessary to meet the rapid increase in demand for ITNs (particularly long-lasting ITNs [LLINs]) among consumers and institutional buyers (AED, 2002).
2. **Place (Distribution):** NetMark is working with suppliers and distributors to ensure the uninterrupted distribution of ITNs at a national scale through improved stock management, joint investment to expand the number of outlets carrying ITNs, partnerships with grassroots organizations for community-level distribution, and mobile promotional teams (AED, 2002).

3. Price (Affordability): NetMark will continue to support the transfer of technology for LLIN production so that LLINs are available to individual and institutional buyers at the lowest possible cost. NetMark will continue to seek the elimination of taxes and tariffs in the countries where the project works and beyond by working in close coordination with local RBM partners (AED, 2002).
4. Promotion (Demand/Appropriate Use): NetMark builds demand for ITNs through marketing campaigns based on extensive behavioral research. This effort is amplified by joint investment with African distributors and ITN suppliers who market their own brands. As demand grows within a competitive market, consumers should benefit from improved quality, lower prices, and wider availability (AED, 2002).
5. Sustainable Markets (Equity): NetMark works with commercial and public sector partners to ensure there is equal demand and access to ITNs across all socio-economic groups. NetMark uses targeted subsidies to provide discounted or free ITNs to the most vulnerable populations via the commercial sector. Over time the commercial sector will continue to increase its investment in the ITN market and grow a robust retail market, which will lead to long-term market viability and sustainability across all income groups (AED, 2002).

2.4.6 The Ghana Social Marketing Foundation (GSMF)

GSMF International is a Ghanaian non-profit organization with its headquarters in Ghana, West Africa. The foundation was formed in 1985 under the auspices of Washington D.C.-based Future Group International. GSMF grew out of a social marketing programme supported by United States Agency for International Development (USAID) under a bilateral agreement with the government of Ghana. The organization is currently

registered with USAID as a private Voluntary Organization and possesses a 501(C) (3) status. Since its inception, GMSF has become a leader in the marketing of contraceptives and other health products. The organization utilizes social marketing and other behaviour change techniques to effect behaviour change among target audiences. GMSF has contributed immensely towards the building of a healthy sustainable population in Ghana. Some of these include HIV/AIDS prevention campaigns, malaria prevention, fertility management, Adolescent Reproductive Health, and Sanitation. The organization also provides technical assistance in the following areas: social marketing, public health, marketing research and financial management among others. GMSF collaborates with several international and local organizations such as UNICEF, UNAIDS, WHO, UNFPA, GPRTU of TUC, GNTDA, GHABA, and John Hopkins University among others.



CHAPTER THREE

LITERATURE REVIEW

3.0 Introduction

This chapter reviews relevant and contemporary literature on the concept of social marketing, its origin and definition, how it differs from commercial marketing, the social marketing benchmark criteria, social marketing and public health, and the effectiveness of social marketing. The chapter also reviews literature on behavioural change theories used in social marketing with much emphasis on the integrative model of behavioural prediction as a theoretical framework.

3.1 An overview social of marketing

Marketing is a societal process by which individuals and groups obtain what they need and want through creating, offering and freely exchanging product and services of value with others (Kotler, Keller, Ancarani & Costabile, 2014). The question, ‘why can’t you sell brotherhood like you sell soap?’, posed by the sociologist, Wiebe in the early 1950s, has had a profound effect on the domain of marketing (Glenane-Antoniadis, Whitwell, Bell, & Menguc, 2003). Hastings, MacFadyen and Anderson (2000) assert that, marketing has remarkably been successful in encouraging people to buy products such as Coca Cola and Nike trainers. It follows then that, it can also encourage people to adopt behaviours that will enhance their own and their fellow citizens’ lives. Mah, Deshpande and Rothschild (2006) posit that marketing can make behaviour easy, possible, and attractive by promoting the benefits of behaviour, by providing opportunities to perform the behaviour, and by reducing the costs of the behaviour. As Andreasen (2002) reminds us, marketers are concerned with human behaviour. They need to understand why customers, competitors and stakeholders behave as they do, so that they can influence and generate

profits from this behaviour. The need for profits ensures that marketers study human behaviour assiduously, and their successful acquisition funds the resulting stream of marketing and academic research. As a result, the private sector can essentially be seen as an enormous laboratory dedicated to understanding why people do as they do (Hastings & Saren, 2003). Mah et al. (2006) opine that marketing is applicable to the achievement of social as well as commercial goals and that, the application of marketing to social goals ('social marketing') enables a social marketer to be effective in persuading an audience to adopt a desired behaviour that benefits the society (Mah et al., 2006).

A US review concluded that more than 50% of morbidity and premature death is directly attributable to lifestyle factors (McGinnes & Foege, 1993). Major killers like AIDS, lung cancer and obesity are primarily caused by our own behaviour. Furthermore, many other social ills such as crime, racism and road accidents can, at least partly, be seen as problems of human behaviour (Hastings & Saren, 2003). In a paper captioned "A Synopsis of Social Marketing", MacFadyen, Stead and Hastings (1999) alluded to this assertion by emphasizing that many social and health problems have behavioural causes and that the spread of AIDS, traffic accidents and unwanted pregnancies are all the result of everyday, voluntary human activity. The defining feature of social marketing is its focus on behavior change (Hastings et al., 2000). While commercial marketers measure success in terms of shareholder value, sales or profitability, Andreasen (1995) notes that for the social marketer, "consumer behaviour is the bottom line" (Andreasen, 1995). Hastings et al. (2000) indicate that social marketing offers a unique and powerful method of facilitating voluntary behaviour change.

Social marketing as a concept emerged as a discipline in the 1970s with the studies of Philip Kotler and Gerald Zaltman regarding marketing. There are a plethora of research studies underpinning the concept of social marketing (Domegan, 2008; Andreasen, 1994; French & Blair-Stevens, 2007; Lee & Kotler, 2011; Hastings, 2007). Social marketing is most often used as a paradigm for behaviour change in public health but its broader applicability has also been recognized (Andreasen & Herzberg, 2005; Hastings et al., 2000) and it is increasingly being applied to broader domains.

3.1.1 The origin of social marketing

The origins of social marketing according to Dibb (2014) can be traced to Philip Kotler and Sidney Levy, after they became interested in Wiebe's famous question 'Why can't you sell brotherhood like you sell soap?' In a seminal article that explored the broadening of marketing beyond its commercial roots, Kotler and Levy (1969) proposed applications to the marketing of cities and locations, health-related and other causes, and even to people (Dibb, 2014). Through this broadening in scope, marketing was able to become 'more socially relevant' (Andreasen, 1994). Reflecting this move, Kotler and Zaltman (1971) adopted the term 'social marketing' to encapsulate marketing practices in pursuit of social rather than monetary gain (Kotler & Keller, 2014).

The idea of broadening the application of marketing to social causes was abhorrent to some critics and they heavily opposed it (MacFadyen et al., 1999; Dibb & Carrigan, 2013). For instance, Luck (1974) objected on the grounds that replacing a tangible product with an idea or bundle of values threatened the economic exchange concept. Others feared it would lead to social control and propaganda (Laczniak, Lusch, & Murphy, 1979). However, the opposition appears to have helped the proponents of social marketing to

refine their ideas and address cited ethical concerns (MacFadyen et al., 1999). The expansion of the marketing concept combined with a shift in public health policy towards disease prevention began to pave the way for the development of social marketing. During the 1960s, commercial marketing technologies began to be applied to health education campaigns in developing countries (Manoff, 1985). Early examples of social marketing emerged during the 1960s as part of international development efforts in third world and developing countries (Walsh, Rudd, Moeykens & Moloney, 1993). For instance, oral rehydration projects in Africa began to take a more consumer oriented approach to programme development. Important initiatives in the developed world included the Stanford Heart Disease Prevention Program, the National High Blood Pressure Prevention Program, and the Pawtucket Heart Health Program (Lefebvre & Flora, 1988).

Harvey (1999) opines that the social marketing field project had its origins with the promotion of family planning in India in 1964 (Harvey, 1999). This early effort focused on marketing of Nirodh condoms with the assistance of major private sector marketers like Unilever and Brooke Bond Tea Company, who did much to secure wide distribution of the new low-cost private sector product (Andreasen, 2003). This venture was soon followed by a number of significant social marketing efforts over the next decade primarily involving the marketing of family products and services in a wide range of countries and with considerable success (Manoff, 1985). Andreasen (2003) noted that the growth of social marketing, except within the world of family planning, was relatively slow until the mid-1980s. During this period, collections of essays on social marketing appeared (Fine, 1981), but they tended to conflate the many possible meanings of the term. The first textbook by Kotler and Roberto did not appear until 1989 (Andreasen, 2003). According to Andreasen, the limited expansion in social marketing before the mid-1980s was

attributable to the fact that practitioners were held back in diversifying their applications, by the early association of social marketing with the marketing of products (Andreasen, 2003), and also partly attributable to the original definition of social marketing of Kotler and Zaltman (1971). The definition made it difficult for those in areas like health communication, diffusion or health education to understand how social marketing differed, significantly, from what they were already concerned about and doing (Hastings & Haywood, 1991; Hill, 2001).

3.1.2 Definitions of social marketing

Social Marketing was first explicitly defined in 1971 by Kotler and Zaltman (1971) as “The application of principles and tools of marketing to achieve socially desirable goals, with benefits for society as a whole rather than for profit or other organizational goals and includes the design, implementation and control of programs calculated to influence the acceptability of social ideas and involves considerations of product planning, pricing, communications and market research.” Although since then other social marketing definitions have emerged (Kotler, Roberto & Lee, 2003; Maibach, 2003; Andreasen, 2002), they appear similar as all the definitions emphasize the use of marketing principles for social good. The most widely used definition in the UK public health sector is by the National Social Marketing Centre which states:

“Social marketing is the systematic application of marketing concepts and techniques, to achieve specific behavioural goals to improve health and reduce health inequalities” (French & Blair Stevens, 2007, p.33).

3.1.3 How social marketing differs from commercial marketing

There have been a number of research papers emphasizing the differences between social marketing and commercial marketing (Fox & Kotler, 1980; NSMC, 2007; Kotler & Lee, 2011; Kestane, 2014). While previously, social issues concerned mostly public corporations and nonprofit organizations; now they have become important for businesses and all other individuals, entities and organizations (Kestane, 2014). Social projects and campaigns have been conducted for the purpose of drawing attention to and solving such social issues. Right at this point, concepts such as social marketing, corporate social responsibility, cause-related marketing and public relations have become essential (Kestane, 2014).

Lee and Kotler (2011) note the following important differences between social marketing and commercial marketing. First, in the commercial sector, the primary aim is selling goods and services that will produce a financial gain for the corporation. But in social marketing, the primary aim is influencing behaviors that will contribute to societal gain. The social marketing product is often inherently more complex than a commercial product (Mcdermott, Stead, & Hastings, 2005; MacFadyen et al, 1999). Again, given their focus on financial gain, commercial marketers often favor choosing primary target audience segments that will provide the greatest volume of profitable sales. In social marketing, segments are selected based on a different set of criteria, including prevalence of the social problem, ability to reach the audience, readiness for change, among others. Also, although both social and commercial marketers recognize the need to identify and position their offering relative to the competition, their competitors are very different in nature. Because, as stated earlier, the commercial marketer most often focuses on selling goods and services, the competition is often identified as other organizations offering similar goods

and services. In social marketing, the competition is most often the current or preferred behaviour of our target audience and the perceived benefits associated with that behaviour. This also includes any organizations selling or promoting competing behaviors (e.g., the tobacco industry). Kestane (2014) argues that while social marketing activities are seen as being more the responsibility of the government, profit making businesses come into prominence in Corporate Social Responsibility.

Cause promotions are primarily focused on efforts to raise awareness and concern for a social issue (e.g., global warming, domestic violence) but typically stop short of changing itself with changing behaviours. In the non-profit sector, marketing is more often used to support utilisation of the organisation's services (e.g., ticket sales), volunteer recruitment, advocacy efforts, and fundraising (Lee & Kotler, 2011). Kestane (2014) posits that cause-related marketing efforts are mostly for organizations in the private sector while public organizations are generally the leader and performer in social marketing studies. Also, cause related marketing covers the use and sale of goods and services of the firm while social marketing does not cover this (Kestane, 2014).

3.2 The social marketing benchmark criteria for social marketing interventions

Social marketing experts have attempted to pinpoint what differentiates social marketing from other approaches to social change such as legislation and education (McDermott et al., 2005). Andreasen (2002) argues that it is its emphasis on voluntary behaviour change that makes it unique, and he proposes six 'benchmarks' for identifying a genuine social marketing programme: voluntary behavior change, audience research, audience segmentation, use of social marketing mix, exchanges, and competition. These benchmarks have been applied by scholars and have proved useful in identifying the social

marketing components of program interventions (Mcdermott et al., 2005; Stead, Gordon, Angus & McDermott, 2007; Truong & Hall, 2013). More recently, the National Social Marketing Centre, England, reviewed the six benchmark criteria and included two more components: “Insight Driven” and “Theory Based and Informed.” The two components emphasize the need for deep understanding (insight) of what motivates consumers’ patronage and for interventions to be guided by behavioural theory respectively. The eight components in total make up the National Benchmark Criteria for England which guides policy and strategy development as well as implementation and delivery of social marketing interventions (NSMC, 2007). The six components of social marketing as originally defined by Andreasen (2002) are summarized in Table 3.1 and thereafter discussed.

3.2.1 Behaviour change

The ultimate goal of social marketing is behaviour change, which can only be achieved when detailed attention is paid to defining the behavioural focus (Edgar, Boyd & Palamé, 2009). Behaviour change involves understanding people and their motivations, and developing strategies that lead to real change (Tweneboah-Koduah et al., 2012). Allyson, Dooley, Jones and Iverson (2012) note that changing awareness, attitudes, and beliefs are all important, but the fundamental goal of social marketing campaign efforts is behaviour change and success is determined using behavioural measures (Andreasen, 1995; NSMC, 2007).

Interventions which have adopted social marketing principles in their design and implementation have been utilized in a number of settings and contexts to change behavior. One area in which a significant amount of research has been collated supporting

the effects of social marketing campaign interventions is the area of health related behavior (Gregory-Smith, Wells, & Manika, 2015). Studies have reported successful promotion and uptake of insecticide-treated nets for malaria prevention (Agha, Rossem, Stallworthy, & Kusanthan, 2007), early diagnosis of lung cancer (Athey, Suckling, Tod, Walters, & Rogers, 2012), increased use of condoms and safe sex (Kegeles, Hays, & Coates, 1996) and prevention of obesity in school children (Foster, Sherman, Borradaile, Grundy, Vander Veur, Nachmani, & Shults, 2008), among other behaviours.

Table 3.1: Andreassen (2002) benchmark criteria for social marketing interventions

Benchmark criteria	Explanation
Behaviour change	Intervention seeks to change behaviour and has specific measurable behavioural objectives.
Consumer research	Intervention is based on an understanding of consumer experiences, values and needs. Formative research is conducted to identify these. Intervention elements are pre-tested with the target group.
Segmentation and targeting	Different segmentation variables are considered when selecting the intervention target group. Intervention strategy is tailored for the selected segment/s.
Exchange	Intervention considers what will motivate people to engage voluntarily with the intervention and offers them something beneficial in return. The offered benefit may be intangible (e.g. personal satisfaction) or tangible (e.g. rewards for participating in the programme and making behavioural changes).
Marketing mix	Intervention considers the best strategic application of the “marketing mix”. This consists of the four Ps of “product”, “price”, “place” and “promotion”. Other Ps might include “policy change” or “people” (e.g. training is provided to intervention delivery agents). Interventions which only use the promotion P are social advertising, not social marketing.
Competition	Competing forces to the behaviour change are analysed. Intervention considers the appeal of competing behaviours (including current behaviour) and uses strategies that seek to remove or minimise this competition.

Source: Adapted from McDermott et al., 2005

The reviews of Gordon, McDermott, Stead, & Angus (2006), and Stead, Gordon, Angus, & McDermott (2007) found that for alcohol, tobacco, illicit drugs and physical activity interventions, social marketing techniques were effective.

3.2.2 Consumer research

The cornerstone of any successful social marketing initiative is a thorough understanding of the target audience (Edgar, Boyd, & Palamé, 2009). Intervention is based on an understanding of consumer experiences, values and needs, and that formative research is conducted to identify these (Gordon, McDermott, Stead & Angus, 2006; Stead, Gordon, Angus & McDermott, 2007).

Formative research with the target population is therefore important in understanding what motivates or deters people from adopting recommended behaviours such as using a condom for protection against sexually transmitted infections (STI), or using an ITN for preventing malaria (Wakhisi, 2012).

Lee and Kotler (2011) defined consumer research as “research used to help form strategies, especially to select and understand target audiences and develop draft marketing strategies”. Edgar et al., (2009) emphasize that without a deeper understanding of the lives of the audience and how individuals view a particular public health issue within the context of their own reality, there is little chance of convincing people to change. Therefore audience research in its various forms is considered an essential ingredient for any social marketing effort. Formative research that provides insights into the mindsets and actions of potential audience members is always the starting point (Edgar et al., 2009). Andreasen (1995) argues that expert social marketers must recognise that the way to get where they want to go is to start with where the customers are. According to

Edgar et al., (2009) once initial insights have been gained about target audiences (e.g. what channels of communication they prefer, what they value most in life, barriers they perceive to behaviour change, benefits they see to adapting new behaviours and the reasoning behind the beliefs that they hold), social marketers place great emphasis on using a variety of techniques to pre-test message concepts and final executions with members of the target audience. To be effective in the field of social marketing and influence behaviour change, marketers must understand what their target audiences perceive to be the barrier and benefit to change (Lee & Kotler, 2011). Marketers focus on removing barriers to an activity while simultaneously enhancing the benefits. This is because, there is a tendency for individuals to respond positively to actions that are highly beneficial and have few barriers (Lee & Kotler, 2011).

After thoroughly pre-testing the approach, social marketers closely monitor the implementation of the strategy through process evaluation to make certain that the system for delivery is in place and that the audience has been exposed to the initiative as intended (Edgar et al., 2009). Social marketing also heavily emphasizes the constant need for rigorous outcome evaluation, which is planned from the very start of the initiative and matched to clearly articulated objectives (Edgar et al., 2009). Lee and Kotler (2011), identified three types of objectives: behaviour objectives which seek to increase a percentage of the target audience who obtain information about emergencies, complete an emergency plan, and purchase an emergency kit; knowledge objectives which focus on increasing a percentage of the target audience who know more about emergency situations and how to respond; belief objectives which focus on decreasing a percentage of the target group who believe that there are many emergencies that one cannot simply prepare for.

3.2.3 Segmentation and targeting

Social marketing places heavy emphasis on audience segmentation, which refers to the process of dividing a population into distinct segments based on characteristics that influence their responsiveness to interventions such as the benefits they find most attractive or the advocates they most trust (Edgar et al., 2009). According to Grier and Bryant (2005), segmentation involves categorizing audience members into pertinent subgroups based on shared behaviours, lifestyles, desires, and beliefs that make them likely to respond similarly to public health interventions. Social marketers are more likely to divide populations into distinct segments on the basis of current behaviour (e.g., heavy versus light smoking), future intentions, readiness to change, product loyalty, and/or psychographics (e.g., lifestyle, values, personality characteristics) (Grier & Bryant, 2005). Segmentation allows social marketers to identify the subgroups they can realistically reach with available resources. It also permits motivation of distinct groups based on their needs and values (Forthofer & Bryant, 2000).

The segmentation process can be done through segmentation variables and behaviour models (Lee & Kotler, 2011). The most widely used segmentation variable is demographic factors (e.g., age, gender, family size, income, occupation, education, religion, and generation) because of their easy availability and predictable power of market needs, wants, barriers, and behaviours. Other segmentation variables include geographic factors (e.g., country or region, city or metro size, density, climate, etc.), psychographic factors (e.g., social class, lifestyle, and personality), and behavioural factors (e.g., occasions, benefits, user status, usage rate, loyalty status, readiness stage, and attitude toward product). Derived from marketing techniques, this “psychographic” approach selects variables on the basis of their ability to predict health behaviours (Rimal, Brown,

Mkandawire, Folda, Böse, & Creel, 2009). Choosing target markets needs to be based on priority of segments (Lee & Kotler, 2011). Grier and Bryant, (2005) assert that, the identification of target segments is crucial in the design of the marketing mix component.

3.2.4. Social marketing intervention mix

The marketing mix refers to the traditional “4P’s” of marketing, i.e. product, place, price and promotion. In many instances, a fifth “P” for partnerships needs to be added when creating and implementing social marketing campaigns, as societal problems such as malaria in pregnancy have to be addressed through a concerted effort of many parties and stakeholders (Henley, Raffin, & Caemmerer, 2011). These key elements of social marketing are central to the planning and implementation of an integrated marketing strategy (ibid). Social marketing emphasizes the use of all four elements of marketing mix-product, price, place, and promotion to form a campaign strategy (Lee & Kotler, 2011).

3.2.4.1 Product

Product refers to the set of benefits associated with the desired behaviour or service usage (Grier & Bryant, 2005). In social marketing, a product may be tangible (for example, contraceptives, Chlamydia test kit or medication) or intangible, for example, health education or counselling service (NSMC, 2007). Lee and Kotler (2011) proposed that there are three levels of product in a social marketing context: core product (i.e., benefits of a desired behavior), actual product (i.e., tangible objects and services provided to facilitate a behavioral change), and augmented product (i.e., any additional tangible goods or services). In social marketing, the products are primarily ideas such as, in the context of malaria prevention, “the use ITN”. This product involves a tangible product component

(ITN) but the core social product is the underlying benefit of being healthy. The recommended behaviour is to use ITN. Performing the behaviour, i.e. using ITN, offers the individual a way to achieve the benefit (Henley et al., 2011). Although it is possible for the product to be a physical object such as a condom or ITN, as it would be with commercial marketing, more commonly social marketers attempt to ‘sell’ an intangible product that is an idea, social cause or, most frequently, a change of behavior (Edgar et al., 2009). When the product is not something one can easily hold or touch such as a behaviour, the social marketer has the challenge of making these intangibles meaningful in a way that appeals to the target audience (Lefebvre & Flora, 1988). A key to success with social marketing is for the social marketer to reposition the product (i.e. the behaviour) within the minds of the target audience in such a way to create a customer-focused value proposition that presents a cogent reason for why the audience should engage in the new behaviour (Edgar et al., 2009). Social marketing experts recommend that the repositioning be guided by a simple statement that takes the form of ‘We want [TARGET AUDIENCE] to see [DESIRED BEHAVIOR] as [DESCRIPTIVE PHRASE] and as more important and beneficial than [COMPETITION]’ (Thackeray & Neiger, 2000; Andreasen, 1994; 1995; Kotler, Roberto, & Lee, 2003).

3.2.4.2 Price

In commercial marketing, price usually refers to the monetary value placed on a product. In social marketing, money also can figure into the price an audience member must pay in order to change behaviour. But price refers in large part to the collective barriers that an individual must overcome to adopt the proposed action (Edgar et al., 2009; Grier & Bryant, 2005). Price usually encompasses intangible costs, such as diminished pleasure, embarrassment, loss of time, and the psychological hassle that often accompanies change,

especially when modifying ingrained habits (Grier & Bryant, 2005). Edgar et al. (2009) note that giving up a strongly held belief and accompanying behaviour that provides real psychological comfort and perceived physical relief from illness is a large price to pay. However, social marketers must also convince the target audience that the new behaviour that replaces the old one has attractive benefits of its own (Grier & Bryant, 2005).

3.2.4.3 Place

“Place” or the distribution channel refers to the process by which the product is made available to the members of the target audience at the time and place when it will be of greatest value to them (Maibach, 2003). Edgar et al. (2009) argue that, in order for social marketers to take advantage of the most ideal places, they have to identify path points, which are locations people regularly visit; times of the day, week or year of their visits; and points in the life cycle where people are likely to act. A place strategy also includes consideration of the role of intermediaries who are people and/or organizations that provide goods, services and information and perform other functions that facilitate the change process (Grier & Bryant, 2005). Place includes settings such as working places, homes, schools, colleges, and health institutions (NSMC, 2007). The review of previous initiatives has shown that these settings can serve as key points of contact with audiences (Edgar et al., 2009). Social marketers who design a comprehensive initiative relying on all four ‘P’s must pay close attention to the lessons learnt from the past work in these places and consider how intermediaries who work in them can help to deliver the message and facilitate behaviour. At the same time, social marketers must explore new places for engaging target audiences (Edgar et al., 2009). Help lines and websites are also used extensively in social marketing to provide a convenient “place” where the product or idea can be made more available to the consumer (Henley et al., 2011).

3.2.4.4 Promotion

Promotion refers to the process of informing and persuading members of the target market about the costs, benefits and availability of the product (Maibach, 2003). Promotional strategy involves a carefully designed set of activities intended to influence change and usually involves multiple elements: specific communication objectives for each target audience; guidelines for designing attention-getting and effective messages; and designation of appropriate communication channels (Grier & Bryant, 2005). Thackeray, Neiger and Hanson (2007) assert that decisions relating to a promotion strategy should be based on three criteria: the purpose of the communication; the target audience's preferences; and the attached costs. Promotional tools include advertising, personal selling, sales promotion and public relations (Pickton & Broderick, 2005). Edgar et al. (2009) argue that promotion typically receives the most attention because it is the component that becomes the face of an initiative, is the most tangible and is most easily shared with others through presentation or posting on a web site. Although promotion alone will not lead to behaviour change, it is vital to the success of any campaign (Edgar et al., 2009).

3.2.5 Exchange

The traditional economic exchange theory postulates that, in order for an exchange to take place, target markets must perceive benefits equal to or greater than perceived cost (Bagozzi, 1978). Edgar et al. (2009) assert that one of the defining characteristics of the social marketing perspective is that individuals will only change their behaviour when they are convinced that they are engaging in a fair and attractive exchange. Exchange theory, which is derived from psychological and economic principles, assumes that we are need-directed beings with a natural inclination to try and improve our own situation

(Hastings & Saren, 2003). Edgar et al., (2009) posit that, in order for a successful exchange to occur, both parties act primarily to fulfil their own interests.

Wakhisi (2012) notes that, in contrast to commercial exchanges where a consumer receives a product for cash, in public health situations rarely is there an immediate, explicit payback to target audiences in return for their adoption of specified health behaviour. This in the past has been considered a significant barrier to health behaviour change and uptake of some services such as screening which have no immediate rewards (Wakhisi, 2012). Social marketing therefore emphasizes the need to consider using either tangible or intangible incentives and outlining that clearly to the consumer/client who must feel that he or she is receiving valued benefits in return of effort (NSMC, 2007; Grier & Bryant, 2005). The emphasis on exchange theory differentiates social marketing from other approaches to behaviour change such as education, which assumes that knowledge in and of itself leads to change, and a regulatory approach, which relies on enforcement to affect behaviour. For instance, in a health-related initiative, an organization engaged in social marketing assesses and meets the needs of a target audience, and the organization (and, in this case, all of society) benefits in return when members of the audience change their behaviour (Maibach, 2003).

Kotler (1972) asserts that exchange is the core concept of marketing and that free exchange takes place when the target market believes they will get as much or more than they give. However, exchange in social marketing is more complicated. Edgar et al., (2009) argue that although offering an attractive exchange is necessary for successful social marketing campaigns, it is often difficult to identify an exchange that strongly resonates with audiences and allows them to see immediate benefits that will improve their

lives. Anti-smoking advocates, for instance, have faced obstacles in constructing social marketing initiatives aimed at young people. In the past, health communicators focused on long-term benefits such as reducing the risk of developing lung cancer, but the success of such efforts was limited because teenagers cannot easily relate to pleasure that will not be experienced for several decades. To offer a more attractive exchange, social marketers in recent years have highlighted benefits that provide more immediate pleasure (e.g. persuading teens that they will be more desirable for dating partners if they refrain from smoking) (Frederickson, Koh, & Bush, 2005).

3.2.6 Competition

In commercial marketing, competition refers to products and companies that try to satisfy similar needs and wants as the product being promoted, but in social marketing, competition refers to behavioural options that compete with public health recommendations such as the glamorisation of risky sexual behaviour, alcohol and drug misuse among the youth by some television channels, music and magazines, bottle-feeding versus breastfeeding, using ITNs versus not using ITNs (Grier & Bryant, 2005). Edgar et al. (2009) propose that, part of the overall strategy for a social marketer is to provide a means for target audiences to either eliminate the competition, which is unlikely, or to reframe it so that the conflict presents less of a dilemma. In designing an intervention, a social marketer would therefore consider how to counter the existing competition and develop a sustainable competitive advantage (Hastings, 2007). McKenzie-Mohr and Smith, (1999) proposed a framework to change the ratio of benefits to barriers so that the desired behaviour will be more attractive to target markets: “increase the benefits of target behaviour; decrease barriers/or cost to the target behaviour; decrease the benefits of the competing behaviours; and increase the barriers and/or cost of the competing behaviour”.

Typically, whereas barriers are structural elements that make the behaviour more difficult, such as the absence of bicycle lanes on busy city streets, benefits refer to a person's reasons for engaging in the target behaviour (Mckenzie-Mohr & Schultz, 2014). Lee and Kotler (2011) also suggested that marketers should make social marketing products and services more accessible or make access to competition difficult and unpleasant.

3.2.7 Theory

Theory has been defined as “a set of interrelated concepts, definitions, and propositions that present a systematic view of events or situations by specifying relations among variables in order to explain and predict the events or situations” (Glanz & Rimer, 1997). Green, Glanz, Hochbaum, Kok, Kreuter, Lewis and Rosenstock (1994) state that “the role of theory is to untangle and simplify for human comprehension the complexities of nature”.

Health behaviour theories and models help social marketers deepen their understanding of how their target audience changes behaviours (Andreasen, 2002). Behaviour change theories and models such as the Social Cognitive Theory (Bandura, 1986), the Health Belief Model (Rosenstock, Strecher, & Becker, 1988), the Trans theoretical Model (Prochaska, DiClemente, & Norcross, 1992), and the Theory of Reasoned Action (Fishbein & Ajzen, 1975) have become core components of health education practice. When considered at a broader level, various behaviour theories suggest that a person ought to possess the following attributes to perform a desired behaviour (Fishbein, 2000; Lee & Kotler, 2011):

- The person intends to carry out the desired behaviour;

- Few environmental constraints in regards to carrying out the desired behaviour exist in the person's life;
- The person believes he/she 'can' perform the desired behaviour;
- The person anticipates that the outcome of performing the behaviour will be beneficial;
- The person perceives social pressure to behave desirably;
- The person has positive emotions to perform the desired behaviour.

3.3 Social marketing and public health

Social marketing applies commercial marketing principles to promote public health. The adoption of social marketing by public health is thought to have been formalized when Weibe (1951) evaluated four different social change campaigns in the United States of America (USA) and concluded that the more similarity they had with commercial marketing, the more successful they were (Wakhisi, 2012). Public health experts developed and refined this thinking by examining international development efforts where social marketing was being used mainly in family planning and disease control and made a similar observation (Manoff, 1985; Gordon et al., 2006). Although initially, social marketing was mainly practiced in developing countries, the approach has spread rapidly to most developed countries in the past two decades (Gordon et al., 2006).

In the USA, social marketing is increasingly being advocated as the core public health strategy for influencing voluntary behaviours such as smoking, drinking, drug use and diet (Gordon et al., 2006). In the UK, the potential for social marketing was recognized in the 2004 Public Health White Paper (Department of Health, 2004) which highlighted the power of social marketing and marketing tools being used to build public awareness and

behaviour change. This was followed by the creation of the National Social Marketing Centre in 2005 with a mission to help realize the full potential of effective social marketing in contributing to national and local efforts to improve health and reduce health inequality (Gordon et al., 2006). The National Social Marketing Centre in collaboration with the Department of Health released the first strategic framework for maximizing the potential of social marketing and health related behaviour in 2008 (Department of Health, 2008).

3.4 Effectiveness of social marketing

To review the effectiveness of social marketing campaigns, it is necessary to conduct evaluation research of social marketing campaigns. According to Lee and Kotler (2011), depending on various purposes of evaluation, measures of evaluation of social marketing campaigns fit in one or more of the three categories: output/process measures, outcomes measures, and impact measures. The present study reviewed effectiveness of social marketing campaigns targeted at preventing malaria, and social marketing that emphasizes behavioural change. Thus, the present study focused on reviewing outcomes measures and impact measures.

Outcome measures assess the target audience's response to the efforts of a social marketing campaign (Lee & kotler, 2011). These measures are built on the campaign goals, the specific measurable results that a social marketing program wants its target audience to achieve. Lee and Kotler (2011) proposed that to evaluate a social marketing campaign, nine types of change should be measured:

1. Changes in behaviour, including changes in percentage or numbers;
2. Changes in behaviour intent;

3. Changes in knowledge, including changes in awareness of social causes (e.g. important facts, information, and recommendations);
4. Changes in beliefs, such as changes in attitude, opinions, and values;
5. Responses to campaign elements, such as how many hits to the campaign website;
6. Campaign awareness, which provides feedback on the degree to which the campaign is noticed and recalled;
7. Customer satisfaction levels, such as ratings of levels of satisfaction with a specific campaign strategy (e.g. walking events);
8. Partnerships and contributions created, which might be associated with positive responses to the campaign; and
9. Policy changes, which may be appropriate for campaigns targeting “upstream” individuals who are in government agencies.

The most rigorous and costly measure of evaluation of social marketing campaigns is to measure the impact of behavioural change that a campaign achieves (Lee & Kotler, 2011). Marketers may need more time to measure the impact of a campaign because a target audience needs time to respond. Also, measuring the impact of a social marketing campaign needs rigorous methodology, preferably a randomized, experimental-control design. A social marketing campaign may not necessarily lead to a positive impact since other factors can influence the impact as well (for example, reduction of obesity is a result of diet, physical activity, and genetic features).

3.5 Behaviour change theories in social marketing

In order to develop effective malaria prevention programmes, it is important to have accurate knowledge of how people behave in different situations. It is essential to know

when and under what conditions people will be prepared to change their behaviour (Van Dyk, 2008). Information on target audience barriers, benefits, and the competition will help deepen your understanding, but it may not be enough. To effectively change health and social behaviours, you will need to combine an understanding of behaviour change theory with interpretation of your research results (Lee & Kotler, 2011). Health education has borrowed theories from social and behavioural sciences to help understand health-related behaviour (D’Onofrio, 1992; Hochbaum, Sorensen, & Lorig, 1992). In 1988, Lefebvre and Flora suggested that social marketing is a necessary condition for health education interventions (Thackeray & Neiger, 2000). However, although the use of social marketing in health education has increased, with some success, McDermott (2000) maintains that the use of social marketing by health educators is less than optimal. Andreasen (1997) stated that most social marketing planning models lack a theoretical framework, and recommended that if the application of social marketing to other fields was to expand, the use of theory in social marketing planning is necessary. D’Onofrio (1992) asserts that whereas theory can indicate what needs to be done to change behaviour, but not how to do it, social marketing can provide direction for how to do it. Thackeray and Neiger (2000) therefore argue that the integration of both social marketing and behaviour change theory can have considerable benefit to health education practice.

French (2010) indicates that having an understanding of the use of theory (particularly behavioural theory) is important, as it can strengthen and enhance the development and delivery of social marketing interventions and therefore ultimately improve and strengthen their potential impact and effectiveness (Tweneboah-Koduah & Owusu-Frimpong, 2013). Frazee, Rivera-Trudeau and McElroy, (2007), Maibach, (2003) and Thackeray and Neiger, (2000) also posit that behavioural change theories can help social marketers to efficiently

plan campaigns by adding theory-based campaign elements in addition to the social marketing framework. There are a number of behavioural change theories that could be employed to design effective social marketing intervention programmes on HIV/AIDS and malaria related behaviours (Tweneboah-Koduah & Owusu-Frimpong, 2013). They include health belief model (Rosenstock, Strecher, & Becker, 1988), protection motivation theory (Rogers, 1975), social cognitive theory (Bandura, 1986), the TTM (Prochaska et al., 1992) and theory of reasoned action/theory of planned behaviour (Fishbein & Ajzen, 1975; Montano & Kasprzyk, 2008). Thackeray and Neiger, (2000) noted that these behaviour change theories and models have become core components of health education practice. Although these provide a tremendous amount of information that is useful for understanding behaviour and for implementing interventions that will be effective in changing behaviour (Ajzen, 1991), there are only a limited number of variables that need to be considered when predicting and understanding behaviour (Fishbein & Yzer, 2003). The theories which include these variables and which are widely used in health behaviour research are described briefly. The first three theories are referred to by Fishbein & Yzer (2003): the health belief model, social cognitive theory and the theory of reasoned action. The fourth important theory, the theory of planned behaviour, is a revision of the theory of reasoned action and is one of the most compelling and accepted conceptual frameworks for human action (Ajzen, 1991). The last theory which will be described below is the integrative behavioural prediction model (Fishbein, 2000) which forms the theoretical framework of this study. This theory integrates important aspects of the four aforementioned theories but also goes beyond these theories by adding important aspects.

3.5.1 Health Belief Model

The health belief model (HBM) is a socio-psychological model that attempts to explain and predict health behaviour by focusing on the attitudes and beliefs of individuals (Diteweg et al., 2013). The health belief model attempts to explain the conditions that are necessary for behaviour change to occur (Strecher & Rosenstock, 1997). The Health Belief Model (HBM) is based on the premise that one's personal thoughts and feelings control one's actions. It proposes that health behaviour is therefore determined by internal cues (perceptions or beliefs), or external cues (e.g. reactions of friends, mass media campaigns, etc.) that trigger the need to act (Strecher & Rosenstock, 1997). It specifically states that an individual will take action to prevent, screen for, or control a disease or condition based on the following factors:

- *Perceived Susceptibility*: The individual must believe that he or she is vulnerable to the condition.
- *Perceived Severity*: The individual must believe that getting the disease or condition leads to severe consequences.
- *Perceived Benefits*: The individual must believe that engaging in the preventive behaviour will reduce the threat or provide other positive consequences.
- *Perceived Barriers*: The individual must believe that the tangibles or psychological costs of performing the behaviour are of less magnitude than the benefits.
- *Cues to Action*: The individual must encounter something that triggers readiness to perform the behaviour.
- *Self-efficacy*: The individual must believe he or she can take action.

3.5.2 Social Cognitive Theory

Social Cognitive Learning theory states that behaviour change is influenced by factors within the individual and the environment (Bandura, 1986). Social learning theory proposes that two key factors influence behaviour. A person must believe the benefits outweigh the costs. More importantly, the person must have a sense of personal agency, or self-efficacy (Bandura, 1995). A person with a developed sense of self-efficacy holds strong convictions that he or she has the skill and abilities to act consistently to protect his or her health, despite various obstacles.

Self-efficacy builds when people set goals, monitor their behaviour and enlist incentives and social support. Bandura's research shows that if people are not convinced of their personal efficacy, they rapidly abandon the skills they have been taught when they fail to get quick results.

Another central concept is that individuals can acquire cognitive skills and new patterns of behaviour vicariously by observing others. Bandura emphasizes the power of mass media, particularly television, in creating a 'symbolic environment' in which new ideas and social practices are rapidly diffused within and between societies.

3.5.3 Protection Motivation Theory

Protection Motivation Theory describes adaptive and maladaptive coping with a health threat as a result of two appraisal processes - a process of threat appraisal and a process of coping appraisal, in which the behavioural options to diminish the threat, are evaluated (Boer & Seydel, 1996). The appraisal of the health threat and the appraisal of the coping responses result in the intention to perform adaptive responses (protection motivation) or

may lead to maladaptive responses. Maladaptive responses are those that place an individual at health risk. They include behaviours that lead to negative consequences (e.g. smoking) and the absence of behaviours, which eventually may lead to negative consequences (e.g. not participating in breast cancer screening and thus missing the opportunity of early detection of a tumour). The Protection Motivation Theory proposes that the intention to protect oneself depends upon four factors:

- 1) The perceived *severity* of a threatened event (e.g., a heart attack)
- 2) The perceived probability of the occurrence, or *vulnerability* (in this example, the perceived vulnerability of the individual to a heart attack)
- 3) The efficacy of the recommended preventive behaviour (the perceived *response efficacy*)
- 4) The perceived *self-efficacy* (i.e., the level of confidence in one's ability to undertake the recommended preventive behaviour).

Protection motivation is the result of the threat appraisal and the coping appraisal. Threat appraisal is the estimation of the chance of contracting a disease (vulnerability) and estimates of the seriousness of a disease (severity). Coping appraisal consists of response efficacy and self-efficacy. Response efficacy is the individual's expectancy that carrying out recommendations can remove the threat. Self-efficacy is the belief in one's ability to execute the recommend courses of action successfully. Protection motivation is a mediating variable whose function is to arouse, sustain and direct protective health behaviour (Boer & Seydel, 1996).

3.5.4 Theory of Reasoned Action and Theory of Planned Behaviour

The theory of reasoned action (Ajzen & Fishbein, 1980) was first introduced in 1967 by Fishbein in an effort to understand the relationship between attitude and behaviour. It attempts to explain the relationship between beliefs, attitudes, intentions and behaviour. According to the theory of reasoned action, the most accurate determinant of behaviour is behavioural intention. The direct determinants of people's behavioural intentions are their attitudes towards performing the behaviour and the subjective norms associated with the behaviour. Attitude is determined by a person's beliefs about the outcomes or attributes of performing a specific behaviour (that is, behavioural beliefs), weighted by evaluations of those outcomes or attributes. The subjective norm of a person is determined by whether important referents (that is, people who are important to the person) approve or disapprove of the performance of a behaviour (that is, normative beliefs), weighted by the person's motivation to comply with those referents (Ajzen & Fishbein, 1980; Montano & Kasprzyk, 2002).

According to Montano and Kasprzyk (2002), the theory of reasoned action is successful in explaining behaviour when volitional control is high. In conditions where volitional control is low, the theory of planned behaviour (Ajzen, 1991) is more appropriate to explaining behaviour.

Ajzen (1991) proposed the theory of planned behaviour by adding perceived behavioural control (PBC) to the theory of reasoned action, in an effort to account for factors outside a person's volitional control that may affect her/his intentions and behaviour. This extension was based on the idea that behavioural performance is determined by motivation (intention) and ability (behavioural control). According to Montano and Kasprzyk (2002), perceived behavioural control is similar to Bandura's concept of self-efficacy, which

refers to an individual's belief in his/her ability to perform a particular behaviour under various conditions. According to the theory of planned behaviour, perceived behavioural control is determined by control beliefs concerning the presence or absence of facilitators and barriers to behavioural performance, weighted by the perceived power or input of each factor to facilitate or inhibit behaviour. Thus, a person who holds strong control beliefs about factors that facilitate behaviour will have high perceived control, which translates into an increased intention to perform the behaviour (Ajzen, 1991; Montano & Kasprzyk, 2002).

3.5.5. Theoretical framework

In order to develop an effective behaviour change intervention, the social marketer should have an understanding of all personal and contextual variables that could underlie decisions (Fishbein, 2000). When the social marketer has this information, he can design social marketing interventions in such a way that it targets these beliefs. To this end, this research adopts an integrative behavioural prediction model (IBPM), by Fishbein (2000) to determine ITNs usage behaviour among pregnant women and design effective interventions on malaria prevention in Ghana. According to Yzer (2008), people's intentions will be positively affected when their beliefs change in a positive way. Subsequently, improved intention can lead to improved behaviour (Yzer, 2008). In identifying the specific beliefs that need to be addressed to change (or maintain) a certain behaviour and intention to perform the behaviour, Fishbein's (2000) integrative model of behavioural prediction (IMBP) can be a useful tool. Much research examining cognitive predictors of health behaviours has used the Theory of Reasoned Action (Ajzen & Fishbein, 1980) and its more recent iteration, the Integrated Model of Behavioral Prediction (Fishbein & Yzer, 2003). These models are useful for health communicators

because they identify which categories of cognitions (attitudinal, normative, and behavioral control) most strongly predict whether or not an individual intends to engage in a preventive behavior (Robbins & Niederdeppe, 2015). Also they can be used to identify specific beliefs that: correlate strongly with the health behaviour; have room to change; and could be modified through strategic messages (Fishbein & Yzer, 2003). Categories of cognitions and beliefs that possess these three criteria are promising message targets because if changed, they have strong potential for influencing the behaviour itself (Fishbein & Yzer, 2003). This model was adopted because while many recent health communication studies have utilized this approach to identify promising message targets for interventions (Dillard, 2011; Fishbein & Yzer, 2003; Diteweg et al, 2013; Robbins & Niederdeppe, 2015), there has been very little or no attention to malaria in this line of research especially on its application to ITN usage among pregnant women in Ghana.

From the theories described above, Fishbein and Yzer (2003) suggested three critical determinants of a person's intentions and behaviours. The first determinant is the person's attitude towards executing behaviour, the second is the perceived norm, and the third is self-efficacy. These variables have been incorporated into the integrative model of behaviour prediction (IMBP). The IBPM suggests that "behaviour is most likely to occur if one has a strong intention to perform a behaviour, if a person has the necessary skills and abilities required to perform the behaviour, and if there are no environmental constraints preventing behavioural performance" (Fishbein, 2000). Intention is "the most immediate determinant of a person's behavior", but someone who has an intention to perform a certain behaviour may still be restricted from bringing it into practice because of barriers caused by their environment or own skills (Yzer, 2008). If people have not learned certain skills or abilities which are necessary to perform the behaviour, it is unlikely that

their intention leads to actual behaviour. Besides a lack of skills, people might encounter environmental constraints while trying to perform the intended behaviour. Environmental constraints could, for example, be that it costs too much money to perform the behavior; or that one feels warm when sleeping under a mosquito bed net. If lack of skills or environmental constraints is the reason that people do not act upon their intentions, the only solution is to help them remove the barriers. However, if people have no strong intention to perform the behaviour to begin with, removing practical barriers related to environment and skills is usually not enough to accomplish behavioural change. According to the IBPM, an individual's intention is influenced by three global types of perceptions: attitude, perceived norm and self-efficacy. Each of these global perceptions is in turn influenced by underlying beliefs and evaluations. Figure 3.1 shows the model with all its variables and relations.

3.8.5.1 Behavioural intention and ITN usage behaviour.

The IMBP framework holds that beliefs relating to attitude, norm, and control each contribute to intention to perform the behaviour, a good indicator of whether or not the behavior will be performed (Fishbein & Ajzen, 2009). Some social psychologists have argued that behavioural intentions are the single strongest contributing factor to behavior (Ajzen & Fishbein, 2000). Although skills and environmental constraints influence the strength of the relationship between intentions and behaviour, changing these factors may require different communication strategies or may not be amenable to communication interventions at all (Fishbein & Yzer, 2003).

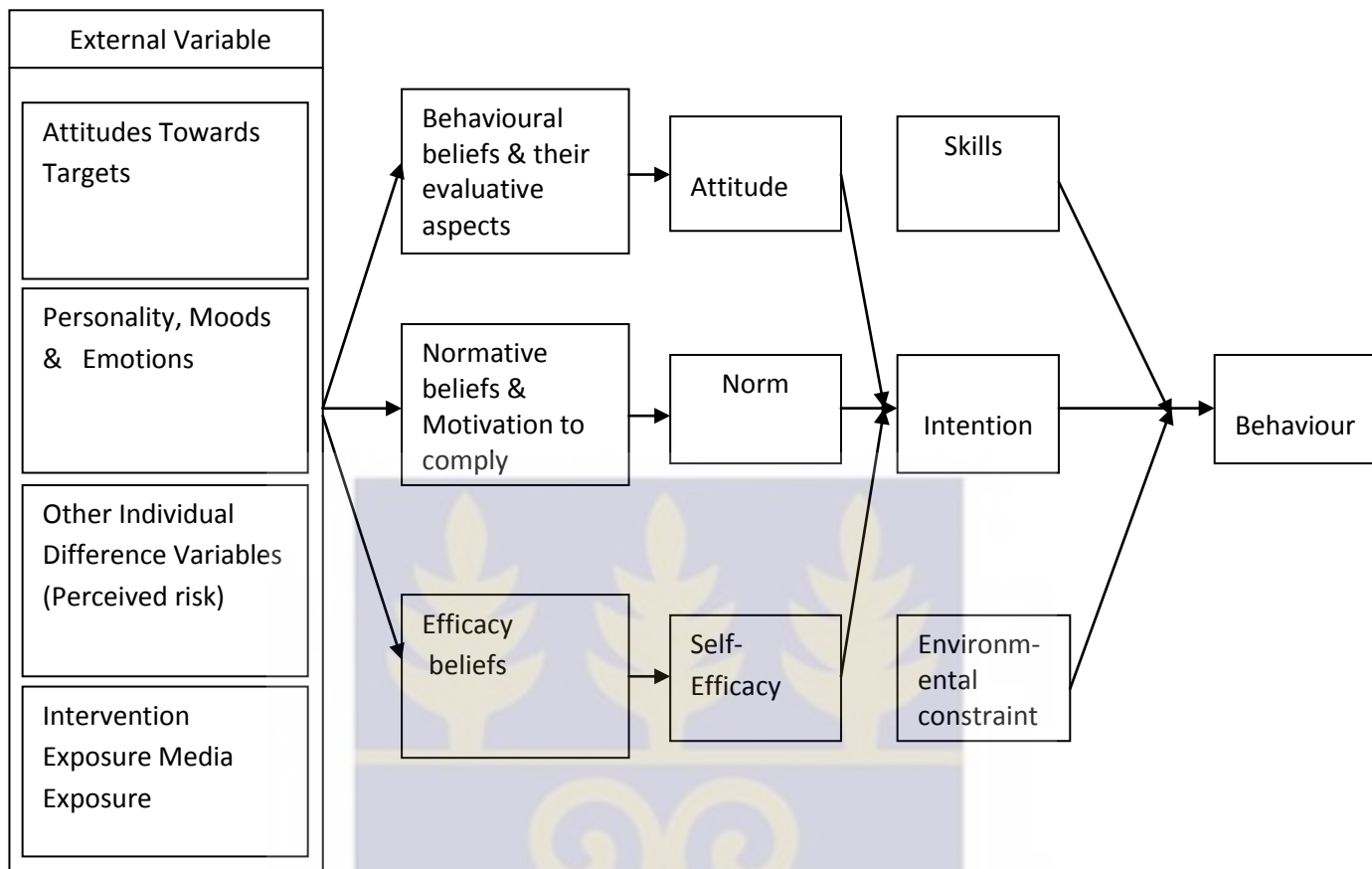


Figure 3.1: An Integrative Model of Behaviour Prediction (Fishbein, 2000).

This research thus examines relationships between the three IMBP categories of cognitions and both behavioural intention and ITN usage behaviour.

Attitude, the first of the three global perceptions in the IM, is a function of behavioural beliefs and outcome evaluations, i.e. “beliefs about the likelihood that [the behaviour] results in certain outcomes (outcome beliefs) and an evaluation of these outcomes in terms of good or bad” (Yzer, 2008). Attitude towards a certain behaviour can be predicted by multiplying outcome beliefs with their corresponding outcome evaluations (Ajzen & Fishbein, 1980).

The second global perception in the IMBP is *perceived norm*. Before forming an opinion on a certain behaviour, a person might consider whether important others like family, friends and the community view the behaviour as good or bad. Such normative beliefs will be more influential when a person is highly motivated to comply with the norms and expectations of important others, such as family or friends, than when a person does not feel a strong urge to comply (Fishbein & Yzer, 2003). Perceived norm can be predicted out of its underlying beliefs in the same way as attitude: normative beliefs multiplied by their corresponding motivation to comply results in a score that can predict perceived norm with regard to a certain behaviour (Ajzen & Fishbein, 1980).

Self-efficacy is the third global perception included in the IMBP. This perception is based on efficacy beliefs, which reflect a person's belief if he will be able to perform a particular behaviour. For example, someone can be very confident that he has the skills and abilities that are necessary to perform the behaviour. In that case he holds positive efficacy beliefs, which leads to high perceived self-efficacy. It should be noted that self-efficacy is not necessarily the same as actual skills, as a person can misjudge what he is capable of (Fishbein & Yzer, 2003).

Based on the review of the theoretical constructs of the IMBP, the following sets of testable hypothesis are formulated:

Hypothesis 1: There will be a significant, positive relationship between attitude and intentions to use ITN.

Hypothesis 2: There will be a significant, positive relationship between perceived norms and intention to use ITN.

Hypothesis 3: There will be a significant, positive relationship between self-efficacy and intention to use ITN.

Hypothesis 4: Intention will have a positive relationship with ITN usage behaviour.

Hypothesis 5: Skill (ability) will moderate the relationship between the intention to use ITN and actual use of ITN.

Hypothesis 6: Environmental factors will moderate the relationship between the intention to use ITN and actual use of ITN.

The IMBP has been tested in over 50 countries in both the developed and the developing worlds (Fishbein & Yzer, 2003). The IMBP has been applied to teachers' willingness to use ICT, individuals' intention to practice safe sex, HPV, knowledge sharing behaviour in the context of Wikipedia, mothers' beliefs regarding infants' and toddlers' TV viewing, genetically modified food consumption, healthy sleep behaviour, and HIV/AIDS VCT behaviour among others (Kreijns, Vermeulen, Kirschner, Buuren & Acker, 2013; Bleakley, Hennessy, Fishbein & Jordan, 2011; Dillard, 2011; Cho, Chen & Chung, 2010; Vaala, 2014; Robbins & Niederdeppe, 2015; Diteweg et al, 2013; Rhodes, Stein, Fishbein, Goldstein & Rotheram-Borus, 2007; Buhi & Goodson, 2007).

Buhi and Goodson (2007) used the IMBP to better understand why adolescents start sexual activity at early ages. A study of Rhodes et al. (2007) examined in detail how components of the IMBP assessed prior to, and immediately after the delivery of an intervention, are associated with reported condom use three months later. Diteweg et al. (2013) applied the IMBP to study AIDS awareness and VCT behaviour amongst sports team members in Limpopo, South Africa.

Several relationships between the variables described in the model were found in different correlation studies. Research done by Conner and McMillan (1999) and Armitage and Conner (Hewstone, De Wit, Schut, Stroebe & Van Den Bos, 2007) show a correlation of 0.70 and 0.68 between attitude and intention. Conner and McMillan (1999) found a correlation of 0.55 between subjective norm and intention. According to Ajzen (1991) and Ajzen and Manstead (Bos, Van den Hewstone, De Wit, Schut & Stroebe, 2007) self-efficacy has the strongest impact on intention. Although there is sufficient evidence for a significant relationship between salient beliefs and attitude, subjective norm and self-efficacy, the causal direction of the relationships is still undetermined (Ajzen, 1991).

In project RESPECT (Rhodes et al., 2007), which was based in America and focused on increasing condom use, the effects of three different clinic-based intervention strategies were compared. The purpose of the clinical trials was to increase participants' intention to use condoms during sexual intercourse. It was hypothesized that intention to use a condom would be influenced by attitude, perceived norm and self-efficacy. It turned out that the IMBP was indeed a valuable instrument for predicting intention to use condoms and that the three variables did influence intention. However, results also showed that the relative importance of each variable differed depending on participants' gender and type of partner (Rhodes et al., 2007).

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.0 Introduction

This chapter provides an exposition of the research methods, the research approach and design of the study. It presents a discussion on the population, sample and sampling techniques, instrument and statistical procedures used for the data analysis. It also addresses issues of ethical considerations, data collection methods and credibility of the research.

Research methodology is the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts and reaching certain conclusions either in the form of solutions towards the concerned problem or in certain generalisation for some theoretical formulation (Kothari, 2011). According to Saunders, Lewis and Thornhill (2007), research methodology defines the systematic and scientific procedures used to arrive at the results and findings for a study against which claims for knowledge are evaluated. Research methodology also refers to the framework used to conduct a research within the context of a particular paradigm (set of philosophical assumptions) (Wahyuni, 2012).

4.1 Research approach

According to Creswell (2009) and Flick (2011), there are two main approaches to research investigations, namely quantitative (deductive) and qualitative (inductive). Cooper and Schindler (2006) describe quantitative research as involving measurement of variables and the delivery of findings in numerical form in which research findings are described by test of significance, confidence intervals, and mathematically demonstrated relationships. Flick

(2011) argues that quantitative research has been characterized by concepts, hypothesis, and measurements. This assertion is supported by Boateng (2014) who notes that, in quantitative research the fundamental skill needed by the researcher is the ability to develop hypotheses and test them with proper statistical technique and interpret the statistical information in to descriptive information.

Qualitative descriptive study on the other hand, involves the exploration of the phenomenon of interest with the participants in a particular situation (Creswell, 2009). According to Kothari, (2011), qualitative research is associated with face to face contact with people in their research settings, together with verbal data, observations, and uses techniques such as focus group interviews, projective techniques and in-depth interviews.

This study utilizes the quantitative approach which is based on the post-positivist philosophy (Creswell, 2009). This post-positive philosophy is a basic set of beliefs that guide action (Guba, 1990) in which the researcher essentially uses to develop knowledge that is: cause and effect thinking; based on careful observation and measurement of the objective reality that exist in the world; and reduced into specific ideas such as hypotheses and research questions, use of measurements and observation, and the test of theories (Creswell, 2009).

The post-positivists believe that the goal of research is to achieve agreement among researchers about the perceived nature of reality (Creswell, 2009). Although post-positivists value objectivity, they argue that objectivity is not achieved through elimination of biases but rather through the use of multiple perspectives. Besides, post-positivists also have a distinct view of what constitutes a “true” explanation. From their standpoint,

explanation is true only when it is based on facts; logically connected to laws, and; replicable (Neuman, 2007). Thus, facts are seen as unbiased observations, and if there is disagreement over facts it is not because there are different possible interpretations, but rather because of “improper use of measurement instruments or inadequate observation” (Neuman, 2007). In addition, there are laws and these laws operate according to strict, logical reasoning. Researchers connect causal laws and observe facts with deductive logic (Trochim, 2002).

Neuman (2007) noted that the decision by a researcher between the aforementioned approaches should be informed by the research purpose, and the one that provides the best and most accurate understanding of the study should be adopted. This study is therefore based on the quantitative approach. This is premised on the fact that by applying such an approach, the main constructs employed in the integrative model of behavioural prediction would be validated. Besides, to get the best measure of what is happening in reality, it is important to employ multiple measures and observations. This study engaged in an in-depth analysis of statistical data to achieve the stated objectives and hypotheses as the empirical study was guided by a conceptual model and hypotheses that have been derived from pre-existing theories and research in the area of social marketing and malaria prevention. In addition to this is the need to rely on the greater research community, to develop the most thorough and accurate understanding of reality that is possible (Fishbein & Yzer, 2003; Robbins & Niederdeppe, 2015). With regard to this research, the goal was, therefore, to contribute to the greater research community’s perception of reality (i.e., the exact nature of ITNs usage intention) by examining the antecedents and outcome variables in the IMBP in Ghana.

4.2 Research design

The research design is the actual structure that indicates: the time frame in which data will be collected; when the intervention will be implemented and; how many groups will be involved in the research study (Edmonds & Kennedy, 2012). According to Wilson (2014), a research design is a detailed plan or blueprint that helps to guide a researcher through the research process.

Research can be cross-sectional study or longitudinal study. Whereas a cross sectional study is carried out once and represents a snap-shot of one point in time, a longitudinal study is a study repeated over an extended period (Cooper & Schindler, 2006). A cross-sectional study is the most frequently used descriptive design in most business research (Hair, Black, Babin, Anderson, & Tatham, 2006; Neuman, 2007). The purpose of a cross-sectional study is either to describe the incidents of phenomena, or explain how factors are related in organisations (Saunders et al, 2007). It involves the collection of information from any given sample of population elements only once (Leedy & Ormrod, 2010; Malhotra & Birks, 2007; Neuman, 2007). This study is a cross-sectional study in which quantitative data was collected using questionnaires. The purpose for employing this approach was to obtain data on different variables at a given point in time so that the variables are measured and compared and eventually employed in drawing inferences on the research findings.

Many authors such as Cooper and Schindler (2006), Maholtra and Birks (2007) and Saunders (2000) agree that research can be categorized into descriptive, explanatory (correlational), or exploratory. In a descriptive study, the researcher attempts to describe the existing situation or the characteristics of certain existing variables to discover

associations among different variables, and usually answers “what”, “where”, “when”, and “how” questions (Cooper & Schindler, 2006). In an explanatory study, the researcher seeks to examine the causal relationship that exists between variables in a particular research context, while in an exploratory study the researcher seeks to find out about what exist and what people think and feel about a phenomenon in a particular context. Descriptive study can further be categorised into survey, causal and relational study. A survey is a study that seeks to ask for the opinion, attitude, and feelings of a target population. This study, per the nature of its composition and goals, is descriptive; specifically, it assumes the nature of a survey. It is a descriptive study because it seeks to describe the intentions, attitudes, knowledge, skills and abilities of pregnant women towards ITNs use. It will therefore answer “how” and “what” questions. Specifically, this descriptive study is a survey because it seeks the opinions of pregnant women regarding their ITN usage behaviour.

4.3. Population

According to Saunders, Lewis, and Thornhill (2009), it is necessary for a researcher to clearly define the research population prior to taking the decision of carrying out the sampling. Walliman (2011) refers to the research population as a collective term used to describe the total quantity of cases, which are relevant subjects to the study. Neuman (2007) also defines population as the name for large general group of many cases from which a researcher draws a sample and which is usually stated in theoretical terms. Burns and Grove (2009) are of the opinion that a research population should be considered as the target population, the whole or total set of individuals or elements who meet the sampling criteria. Sampling criteria refers to the essential characteristics of the membership in the target population (Burns & Grove, 2009).

In this study, the target population comprised pregnant women attending antenatal clinics at the selected public health facilities in Accra during the study period.

4.4 Sampling and Sampling technique

Sampling is the analysis, estimation and the calculation of how representative the information gathered can reflect the whole population (Walliman, 2011). In his opinion, Boateng (2014) refers to sampling as a process of selecting samples from a group or population to become the foundation for studying a population in order to obtain data to address a research problem. Sampling is considered necessary when the population is relatively large and is physically inaccessible (Saunders, Lewis, & Thornhill, 2009). The success of the outcome of findings in social research relies on the sampling procedures used to collect data from a sample of subjects selected from a target population to study the problem that is affecting the entire population (Katebire, 2007). There are two main groups of the sampling procedure or technique. These are; probability sampling, which is adopted in quantitative research and non-probability sampling, which is considered most favourable for qualitative research. According to Thomas (2009), probability sampling is where every respondent in the population has an equal chance of being included in the study. Non-probability sampling technique on the other hand is the use of relatively small number of respondents to clearly and comprehensively illustrate the phenomena under investigation.

Saunders et al. (2009) identified five types or groups of probability sampling including:

Simple random sampling - this gives each individual in the target population equal chance of being selected but it requires a sample frame; *Systematic sampling* this is also called interval sampling and it involves selecting the sample at regular interval or systematic

pace from the sampling frame; *stratified sampling* - in this, the population (target) is divided into homogeneous group or strata based on main attributes or traits (for example age, sex, occupation and so on) required for study; *cluster sampling* - this involves dividing the population in to discrete groups and later selecting the sample from the groups or the random selection of areas that have already been determined; and *multi-stage sampling* - this is similar to cluster sampling but it involves more than one stage of selecting the subjects. Wilson (2014) referred to cluster sampling as a development of cluster sampling normally used to overcome problems associated with a geographically dispersed population.

Cluster sampling was used for selection of health facilities in the Accra Metropolis. The health facilities were divided into two clusters which were hospitals and polyclinics. In all, 2 hospitals and 3 polyclinics in the metropolis were included in the study. Three polyclinics were obtained using simple random sampling without replacement technique. In implementing this technique, 6 pieces of folded paper, each with the name of a polyclinic in the metropolis was presented for random picking. 3 of the folded pieces of paper were picked randomly to select 3 polyclinics. The same exercise was undertaken for the hospitals where 2 hospitals were selected out of the 4 hospitals. Table 4.1 shows the selected health facilities that were involved in the study.

Table 4.1: Health facilities in the Accra Metropolitan Assembly which were involved in the study

S/N	Hospital	Polyclinic
1.	Achimota Hospital	Maamobi Polyclinic
2.	Ridge Hospital	Adabraka Polyclinic
3.		Kaneshie Polyclinic

4.5 Sample size

A convenience-based non-probability sampling technique was employed to select 400 pregnant women due to lack of sampling frame in the selected hospitals. As a general rule of thumb, at least 400 cases are deemed comfortable, 800 as very good and 1000 as excellent (Comrey & Lee 1992; Tabachnick & Fidell 2001). The selection of the sample size for this study is based on the cost basis approach, since there was no external funding for this research. In this case, the size of a sample depends on the acceptable sample error balanced against the cost for that sample size (Burns & Bush, 2010). It is always important to note that the cost of research should not exceed the value of the information expected from the research (Burns & Bush, 2010). If the researcher decided to increase the sample size to 800 respondents, for instance, the additional cost might have exceeded the additional information expected. Therefore, the researcher deemed it appropriate to use a sample size of 400.

4.6 Sources of Data

Two main sources of data collection in research have been identified, these include: primary and secondary data sources. According to Malhotra and Birk (2007), “Primary data are data originated by the researcher for the specific purpose of addressing the

research problem.” It is what the researcher originally collects from the sample or target population. Hair et al (2006) also referred to primary data as an original data source where data is collected first-hand by the researcher for a particular purpose. “Secondary data are data collected for some purpose other than the problem at hand (Malhotra & Birks, 2007). Secondary data sources are data that have already been gathered and assembled for other purposes than the current research problem data (Saunders et al., 2009; Yin, 1994; Hair et al., 2006).

In this study, both primary and secondary data sources were employed in order to answer the research questions objectively. The primary data used were those responses of pregnant women accessed via a questionnaire survey. Secondary data for this study were collected from the web sources, research reports on malaria in Ghana, as well as published online articles in refereed journals, books and periodicals.

4.7 Data collection instrument

According to many scholars, the main instruments used in data collection are interview guide and questionnaires or a combination of both (Cooper & Schindler, 2006; Malhotra & Birks, 2007; Saunders et al., 2009). They further agree that, generally, the questionnaire can be used for descriptive or explanatory study, and must have a good layout, unambiguous questions, complete items, non-offensive but relevant items, logical arrangements of items, and the ability to elicit willingness to answer by respondents. As a result, in this study, a self-administered, structured questionnaire was used to collect data from respondents. The questionnaire was developed to find the most important determinants for intention to use ITNs.

The questionnaire was divided into two sections. The first section contained socio-demographic profile of age, level of education, marital status, and employment status. (These were not necessarily considered to be distal variables influencing intention, but were meant to get background information about the sample), past and current ITNs usage behaviour questions. In the second section, all three global perceptions from the IMBP (Fishbein, 2000): attitude, perceived norm and self-efficacy were included in the questionnaire, as well as the underlying beliefs, outcome beliefs, evaluation of outcome beliefs, normative beliefs, and efficacy beliefs. Furthermore, intention to use ITN and possible environmental constraints and skills (abilities) were measured. It was decided not to include the variable actual behaviour, as this was considered to be too difficult to measure by means of a single questionnaire - when researching people's behaviour with regard to testing, questions can only be asked about their past behaviour (have they already used ITN?) and their intention (do they want to use ITN in the near future?), but it is hardly meaningful to ask in the same questionnaire if they will actually behave in accordance with their intention, as answers will only reflect their intention again. Therefore, actual behaviour should probably be measured with different research methods than chosen in this study.

The following presents all variables and items included to measure these variables in the order in which they appeared in the questionnaire. Some of the items were developed specifically for this study, others were derived from previous research (Francis, Eccles, Johnston, Walker, Grimshaw, Foy & Bonetti, 2004).

Section A: In this section, the respondents were asked to indicate their ages, their level of education, marital status and their employment status. They were also asked about their

general knowledge on malaria. After this, three questions were asked about past and current behaviour with regard to ITNs usage. First, respondents were asked to indicate if they had ever considered using ITN (with the options ‘yes/no/not sure’). The next question was ‘have you ever used ITN?’ (with the options ‘yes/no/not sure’). The final question in this section asked respondents how often they use ITNs.

Section B: This section consisted of eleven (11) sub-sections that measured constructs based on the IMBP, namely intention, attitude, behavioural beliefs, and outcome evaluation, perceived norms, normative beliefs and motivation to comply, self-efficacy and efficacy beliefs, environmental constraints and skills (abilities).

Francis et al. (2004), Montano & Kasprzyk (2002) recommend that IMBP questionnaires make a distinction between *direct* and *indirect* measurement of constructs. Direct measures are overall or general measures of direct determinants of individuals’ attitudes, subjective norms and self-efficacy in relation to health behaviour. Indirect measures, on the other hand, are belief-based in that they ask respondents about what a specific behaviour means to them and what they believe would be the outcome of *that* specific behaviour. A questionnaire based on Likert-style five-point rating scale was used to measure the degree of agreement of 1 for strongly agree and 5 for strongly disagree. The 25- item questionnaire measured the following constructs:

Behavioural intention (Items 12 - 15): Francis et al. (2004) propose three methods of measuring behavioural intention: intention performance, generalized intention and intention simulation. Intention performance is a method used in situations where it is possible to observe the actual performance of behaviour. Generalized intention is used

where individual respondents report on their own health-related behaviour. Intention simulation is used in experimental contexts where proxy measures of actual behaviour can be produced to approximate “real” situations. The generalized intention method, which Francis and colleagues consider the method with the highest internal consistency, was used in this study. Behavioural intention was measured with four items.

Attitude (Items 16 – 21): Direct attitude was measured by a 2-item semantic differential scale (items 16 – 17). Behavioural beliefs (an indirect measure of attitude) were measured by two items (items 18 to 19). Outcome evaluations (another indirect measure of attitude) were measured by two items (items 20 to 21).

Perceived norms (Items 22 – 27): Direct perceived norms were measured by two-items (items 22 – 23). Normative belief (an indirect measure) was measured by two items (items 24 to 25). Motivation to comply with referents (another indirect measure) was measured with two-items (items 26 – 27).

Self-efficacy and efficacy beliefs (Items 28 – 31): Self-efficacy (a direct measure) was measured by two items (items 28 – 29). Efficacy beliefs (an indirect measure) were also measured by two items (items 30 – 31).

Perceived environmental constraints (Items 32 – 33): This sub section consisted of two items focusing on possible environmental constraints on using ITN.

Skills and abilities: The last sub section of the questionnaire consisted of three items focusing on the skills and abilities with regards to using ITNs.

4.8 Pilot study

Having designed the questionnaire, it became imperative to test the suitability and applicability of the questionnaire before collecting the main data. The questionnaire was pretested to ensure that there are no problems regarding the clarity of the questions,

instructions, determinant of appropriate levels of independent variables, reliability and the fact that face validity is satisfactory (Hair et al., 2006). For research studying the integrative behavioural prediction model, Francis et al. (2004) recommend that at least 25 people should be used for pre-testing the material and at least 80 for the main research. This study complied with this requirement, in that a pre-test of the material was done with 25 pregnant women in the University of Ghana hospital while 310 participated in the final study. They were asked to fill out the questionnaire and write down any remarks they had. They were specifically asked if instructions were clear enough, if they understood every question, if they encountered any problems while filling out the questionnaire and if they were able to stay focused. The pre-testing was used to rephrase some questions which did not have clear meaning and also to add or delete some questions depending on their relevance to answering the research questions posed. The questionnaire was then finalised for administration to respondents at the selected health facilities in Accra.

4.9 Data collection phase

Before the data collection commenced, the researcher had earlier conducted a reconnaissance survey to get himself acquainted with the issues in the selected health facilities and also to inform the hospitals' administration of the proposed study. A formal introductory letter was issued to the researcher by the Ghana Health Service (Greater Accra Regional Health Directorate) to the principal medical officers in charge (PMO/C) of the selected hospitals. This was carried out to comply with ethical procedures required in research and to avoid confrontations during the data collection. Above all, it was also used as way of sensitizing the respondents of the data collection exercise. Permission was then granted to the researcher by the principal medical officers in charge (PMO/Cs) of the selected hospitals to commence the data collection exercise.

The questionnaire was administered face-to-face to respondents in Accra, the capital city of Ghana. In all, 400 respondents were contacted but 310 cooperated, representing a 77.5% response rate. The administration of the questionnaire was done by the researcher himself since he could speak both Twi and Hausa. Although the indigenes of the study area were Gas, they could speak Twi and some were able to express themselves in English Language. The researcher did not find difficulty communicating with respondents in these two languages. However, there were few instances where the researcher had to make use of translators because few of the indigenes (Gas) in the study area could not speak English, Twi or Hausa (languages the researcher could speak). On such occasions, close relatives of the respondents were used to translate the questions.

4.9.1 Data coding, entry and analysis

The researcher pre-coded all the questions. The responses to these questions were entered and stored into the Statistical Package for the Social Sciences (SPSS) version 20.0 software. Both descriptive and inferential statistical tools were employed in the analysis of the data. The demographic characteristics of employees were examined using descriptive statistics such as frequency, percentage, mean and standard deviation.

Cronbach's alpha, Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity were used to measure the reliability and internal consistency of the data. The KMO values for the individual items and Bartlett's test revealed that the correlations between items were sufficiently large for factor analysis [PCA] (Field, 2009). Thus, principal component analysis was conducted to reduce the data by excluding any redundancy occurring among the variables, and obtain a factor loading for each item in the corresponding factors. For factor loadings, any value less than 0.4 was suppressed and the

variable associated with that factor loading was excluded from the rest of the variables (Field, 2009). Finally, all quantitative data were inspected for statistically significant relationships using correlational, and multiple regression analyses.

Multiple correlation coefficients (R) between the weighted combination of constructs of the integrative model of behavioural prediction and behavioural intentions of participants were computed to determine the degree of relationship. The multiple correlations obtained were then entered into a regression analysis to determine the extent to which the theoretical constructs predicted intentions.

4.10 Ethical Consideration

First, a letter of introduction was obtained from the Department of Marketing and Customer Management to introduce the researcher to the Ghana Health Service (GHS) for permission to carry out the research within the various hospitals. Respondents were assured of anonymity and confidentiality of their responses. All documents such as professional and academic articles and other published papers collected have been duly acknowledged in the reference list.

4.11 Validity

Validity refers to whether the statistical instrument measures the purpose it is intended to measure, i.e. accuracy of measurement (Saunders, 2000). Validity can be internal or external. The following are the relevant forms of internal validity ensured in this study:

- *Face validity*: involves assessing whether a logical relationship exists between the variables and the proposed measure (Cited in Gyasi & Azumah, 2009). This type of validity is highly subjective and thus does not provide enough proof of validity.

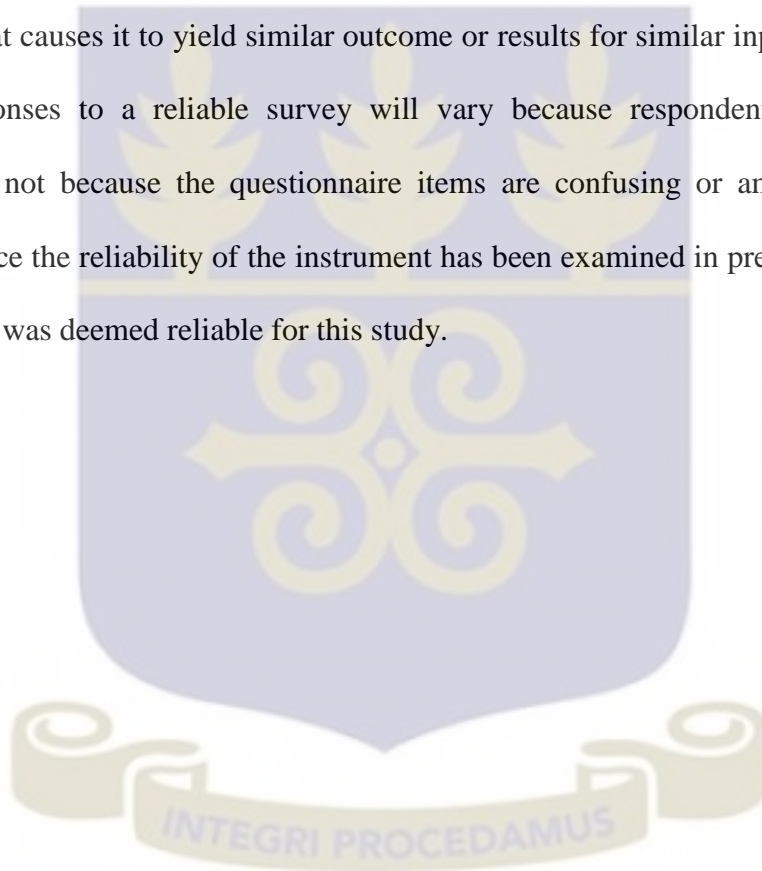
Therefore it was logical to study pregnant women intention towards ITN usage using questionnaire-based instrument in a survey.

- *Content validity*: content validity or sampling validity refers to whether a measurement instrument has adequate and representative coverage of the concepts in the variables being measured (Gyasi & Azumah, 2009). It is usually achieved by seeking opinion of other investigators or experts. The questionnaire for this study has been proven valid in previous studies (Diteweg et al., 2013; Van Dyk & Van Dyk, 2003).
- *Criterion validity*: This refers to ensuring validity by showing a correlation between the measurement instrument and some other criterion or standard that is believed to accurately measure the variable being considered. If the instrument is measured by a similar instrument that has been developed and tested to be valid, then such comparison is termed con-current validity. Thus in this study, the questionnaire developed was compared with other similar validated instruments that have been developed and used in several studies in malaria prevention in pregnancy (Akinleye, Falade, & Ajayi, 2009; Browne et al., 2001; Buabeng, Duwiejua, Dodoo, Matowe, & Enlund, 2007) This was to ensure that the items in the questionnaire match up with the validated ones.
- *Construct validity*: This has to do with measuring an instrument to an overall theoretical framework in order to determine whether the device confirms a series of hypothesis derived from an existing theory. Thus, the instrument must have existing conceptual or theoretical bases in the literature. In this work, this construct validity was ensured by deriving the dimensions of behaviour change from the integrative behavioural prediction model (Fishbein, 2000).

- *External validity*: This refers to the extent to which the results of a study could be generalized. In this work, to ensure external validity, the findings and results was interpreted in the context of Ghana.

4.12 Reliability

Reliability refers to whether a measurement instrument is able to yield consistent results each time it is applied (Saunders, 2000). It is the property of a measurement device that causes it to yield similar outcome or results for similar inputs. This implies that responses to a reliable survey will vary because respondents have different opinions, not because the questionnaire items are confusing or ambiguous. In this study, since the reliability of the instrument has been examined in previously validated studies, it was deemed reliable for this study.



CHAPTER FIVE

DATA ANALYSIS AND DISCUSSION OF FINDINGS

5.0 Introduction

The principal goal of this research is to explore the role of theory in social marketing interventions on malaria prevention in Ghana. Following from the previous chapters, which discussed the literature review and the research methodology for this study, this chapter provides an insight into the analysis of data including demographic profile of respondents, the descriptive statistics and reliability of the various scale items. Finally, a multiple regression is performed to examine the various hypotheses proposed in the study.

5.1 Demographic Profile of Respondents

Respondents for the survey have been profiled according to their age, levels of education, marital status as well as their employment status. Results from the demographic data of the sampled respondents reveal that there were 27.7% of the pregnant women aged between 18-24 years; 35.5% aged 25-30 years and 35.8% aged between 31-40 years. The remaining 1% of the sampled pregnant women was aged above 40 years. Regarding educational qualifications, 35.8% of the sampled respondents had no formal education; 11.0% had education up to JHS level with 45.8% with education up to SHS and A level. Only 7.4% of the sampled pregnant women had up to tertiary level in education. From these sampled pregnant women, 61.6% were married; 17.4% were single; 1% of the respondents were divorced while the remaining 20% were cohabitating. In terms of employment status, 11% of the sampled respondents were salaried employees, 31% were self-employed, 19% were students while 37.4% were unemployed. The remaining 1.6%

was retired from work. These descriptions represent details of the sampled pregnant women who took part in this study.

Table 5.1: Profile of respondents

Profile	Measurements	Frequency	Percent
<i>Age of respondents</i>	18-24	86	27.7
	25-30	110	35.5
	31-40	111	35.8
	Above 40	3	1.0
	Total	310	100.0
<i>Educational Qualification</i>	No formal education	111	35.8
	JHS	34	11.0
	SHS/A 'Level	142	45.8
	Tertiary	23	7.4
	Total	310	100.0
<i>Marital Status</i>	Married	191	61.6
	Single	54	17.4
	Divorced	3	1.0
	Cohabitation	62	20.0
	Total	310	100.0
<i>Employment Status</i>	Employed	34	11.0
	Self Employed	96	31.0
	Student	59	19.0
	Unemployed	116	37.4
	Retired	5	1.6
	Total	310	100.0

Source: Field Work, 2015

In line with the objective of examining the usage of Insecticide Treated Nets (ITNs) in malaria prevention among pregnant women in Ghana, the study explored the nature of current usage levels among the sampled respondents. Regarding the consideration in using ITNs, 90% of the sampled women indicated an affirmative response with 6.5% indicating a negative response while 2.9% of the respondents were not sure. From this same sample, 91.9% have used ITNs before while 7.7% haven't. Only 0.3% indicated that they were not

sure whether they had ever used ITNs or not. In terms of the frequency of ITN usage, 78.1% of the sampled respondents claim they use it seasonally whereas 21.9% use ITNs throughout the entire year. Details of these are presented in table 5.2 below.

Table 5.2: Usage of insecticide treated nets

Profile	Measurements	Frequenc y	Percen t
<i>Have you ever considered using an ITN?</i>	Yes	281	90.6
	No	20	6.5
	Not Sure	9	2.9
	Total	310	100.0
<i>Have you ever used an ITN?</i>	Yes	285	91.9
	No	24	7.7
	Not Sure	1	.3
	Total	310	100.0
<i>How often do you use an ITN?</i>	Seasonal	242	78.1
	Throughout the year	68	21.9
	Total	310	100.0

Source: Field Work, 2015

5.2 Descriptive Statistics

Table 5.3 displays the descriptive statistics of the variables used in survey instrument particularly based on mean results of the scale variables. Since the questionnaire was scaled 1-5 (from strongly disagree to strongly agree with 3 being neutral), the mean values here indicate the extent to which the respondents disagreed or agreed with the statements in the questionnaire. From the table, the highest mean was 4.2323 (Using an ITN protects me from malaria infection) while the lowest was 1.9194 (I do not intend to use an ITN). Researchers such as Hair et al. (2010) and Pallant (2011), advocate that for studies involving human participants, data obtained must first be subjected to such preliminary descriptive analysis before any further data validation and analysis could be made. These

descriptive statistics include measures of central tendency such as the mean, standard deviation, among others. Such measures enable the researcher to have a preview of nature of responses obtained from the statements in the survey data. The 25 variables displayed in Table 5.3 below represents the components of the constructs depicted in the conceptual framework for the study.

Table 5.3: descriptive statistics

Scale Variables	Code	Mean	Std. Deviation
I have the intention to use an ITN	INTENT1	3.9806	1.20125
I do not intend to use an ITN	INTENT2	1.9194	1.26310
I will use an ITN sometime in the future	INTENT3	3.2774	1.49664
I will not use an ITN sometime in the future	INTENT4	2.1129	1.35466
My using an ITN regularly during sleep is good	ATT1	4.0323	1.04847
My using an ITN regularly during sleep is unpleasant	ATT2	2.3129	1.24720
Using an ITN protects me from malaria infection	ATT3	4.2323	1.12529
I can have skin irritations when I use an ITN	ATT4	2.6226	1.22652
Being protected from malaria infection by using ITN is desirable	ATT5	3.9516	1.07377
Having skin irritation by using ITN is desirable	ATT6	2.6677	1.35673
My partner thinks it is a good idea to use ITN anytime I sleep	NORM1	4.0032	1.01923
My friends think it is a good idea that I should use an ITN every time I sleep	NORM2	3.8774	.98095
My partner would be disappointed in me if I did not use an ITN	NORM3	3.3677	1.40281
My friends expect me to use an ITN every time I sleep.	NORM4	3.5065	1.17620
Pleasing my partner by using an ITN matters a lot to me	NORM5	3.3806	1.37132
When it comes to using an ITN, I do what my friends want me to do	NORM6	2.8290	1.32677
I am confident that I can use an ITN even if is uncomfortable to use.	EFF1	3.2323	1.39030
I have no doubt about my ability to use an ITN even under very warm condition	EFF2	3.4290	1.18777
It is difficult for me to use an ITN because of its skin irritations	EFF3	2.5548	1.17494
I am able to use the ITN even under very warm condition.	EFF4	3.1677	1.24021
Where I live is very warm so I am unable to use an ITN	ENV1	2.5968	1.20758
I can easily have access to an ITN whenever I want to buy one	ENV2	3.5968	1.23671
The cost of ITNs is too high	SKILL1	3.0097	1.26820
ITN is not being provided to me freely by the government	SKILL2	3.4161	1.46515
I have the skill (ability) to properly fix the ITN and use it	SKILL3	3.8161	1.21815

Source: Field Work, 2015

5.3 Factor Analysis

The 25 items used for the scales for the constructs were factor analyzed and subjected to principal components analysis (PCA) using SPSS version 20. Prior to performing PCA, the suitability of data for factor analysis was assessed. The Kaiser-Meyer-Olkin (KMO) value was .810, exceeding the recommended value of 0.6 (Kaiser, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance (Approx.: Chi-square= 2666.338, df. 300, sig. 0.000), supporting the factorability of the scale variables. The principal components analysis also revealed the presence of six components with eigenvalues exceeding 1. The six-component solution altogether explained a total of 57.95% of the variance, with the highest component contributing 24.78% and the lowest component contributing 4.32%.

5.4 Rotation and reliability of the exploration

To aid in the interpretation of these six components, an Orthogonal (Varimax) approach used as the method of rotation was performed on the 32 variables to examine the number of strong loadings and ascertain the specific variables which loaded substantially onto the various components. The variable loadings for exploratory factor analysis are considered high if they are all 0.5 or greater to be retained for analysis, especially for social (consumer-based) research (Velicer & Fava, 1998; Hair, Black, Babin, & Anderson, 2010). On the basis of this, variables which failed to meet the 0.5 loadings were dropped from further analysis. Pallant (2011) postulates that the scales used for analysis should be checked for reliability to ensure that the items that make the scale "hang together" (i.e. internal consistency). The most commonly used indicator of internal consistency, Cronbach's alpha coefficient, was employed to check the reliability of the scales used for this survey. Researchers such as Pallant (2011), Hair and Lukas (2014) admonish that

ideally this value should be greater than 0.7 for managerial decisions although a threshold level of 0.6 could be used in exploratory research. As a result, the internal reliabilities of the remaining 19 construct variables were assessed using Cronbach's coefficient alpha. Only factors that met the minimum value of 0.6 as postulated by Hair et al. (2010) were accepted. Also, in order to test the value of the variables that loaded onto the factors, item-to-total correlation was set above 0.3 (Parasuraman, Zeithaml, & Berry, 1988; Tabachnick & Fidell, 2007). On the basis of these rules, Factor 1 had two items and were related to intention; factor 2 had five items all relating to attitude; factor 3 had four elements all related to normative beliefs; factor 4 had three items all relating to efficacy; factor 5 had two elements all related to environment while factor 6 had three items all relating to skill/ability. The table 5.4 below presents a comparison of the Principal Component extraction of the various rotation methods as well as the internal consistency measures on the final retained variables of the various constructs.

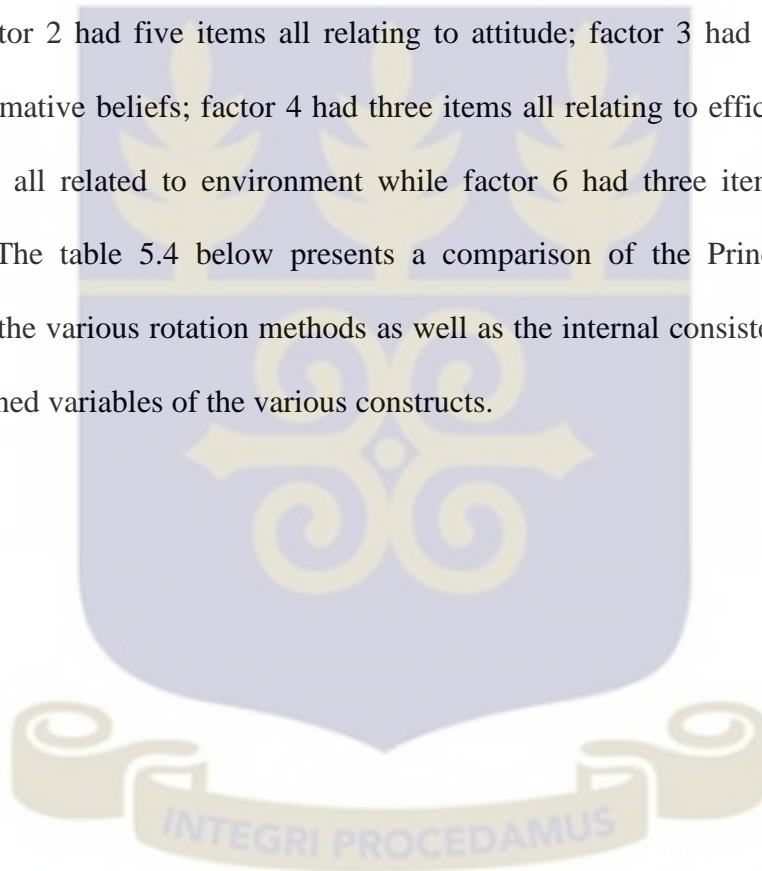


Table 5.4: Rotated Component Matrix and Internal Consistencies

Items	Variables	Principal Component Loadings		Internal Consistencies		
		Orthogonal (Varimax)	Variance Explained	Cronbach's Alpha	Item-total Correlation	Alpha if item is deleted
Factor 1	INTENT1	.707	66.261	.749	.325	-
	INTENT3	.787			.325	-
Factor 2	ATT1	.717	55.876	.801	.456	.771
	ATT3	.607			.532	.730
	ATT4	.587			.601	.658
	ATT5	.609			.590	.617
	ATT6	.694			.457	.781
Factor 3	NORM1	.720	60.875	.779	.566	.736
	NORM2	.800			.572	.735
	NORM4	.730			.640	.695
	NORM5	.650			.589	.733
Factor 4	EFF1	.671	54.478	.714	.578	.662
	EFF2	.618			.489	.708
	EFF3	.740			.601	.710
Factor 5	ENV1	.767	51.777	.723	.445	-
	ENV2	.514			.445	-
Factor 6	SKILL1	.668	78.731	.768	.534	.698
	SKILL2	.664			.501	.703
	SKILL3	.688			.489	.745

Extraction Method: Principal Component Analysis. **Rotation Method:** Varimax

The above table indicates the final retained variables which emerged out of the preliminary exploration of the measuring items for the constructs. The rationale for reducing an initial pool of 25 measurement items included in the questionnaire for the testing the conceptual framework has been explained in the factor analysis above. Following from this, 19 items out of the original 25 items remained for further analysis. The final scales used to measure Intention, Attitude, Norms, Efficacy, Environment, and Skills are assessed thoroughly alongside their measurement properties. Internal consistencies have also been checked using the Cronbach's Alpha and item-to-total correlation values.

5.5 Multiple Regression Analysis

In order to assess the propositions made earlier in this research, a series of multiple regression analyses were performed. These were done to test and validate the stated hypotheses of the study. Results from the multiple regressions were used to analyze the relationship between the elements in the behaviour prediction model. This was done to extract the independent variables that can better explain the dependent variables. In the first regression, the elements of behaviour prediction were used as the independent variables whilst intention was the dependent variable. However in the second regression, behaviour was the dependent variable whilst intention was the independent variable. Table 5.5 provides the graphical presentations of the regression analysis.

Table 5.5: Multiple Regression analysis results

		S. E	β	t	Sig.
Model 1	(Constant) ^a	.364		1.623	.001
	Attitude	.105	.343	5.941	.000
	Norms	.071	.165	2.855	.005
	Efficacy	.088	.023	.382	.702
	R	.547		S. E of estimate	.57510
R-Square	.476		F-statistics	24.180	
Adj. R-Square	.438		Prob. (F-stats.)	.000	
Model 2	(Constant) ^b	.121		20.500	.000
	Intention	.032	.615	13.696	.000
	R	.615		S.E of estimate	.61713
	R-Square	.379		F-statistics	187.579
	Adj. R-Square	.376		Prob. (F-stats.)	.000

^aDependent variable: Intention

^bDependent variable: Behaviour

The results from the regression indicate that there is a strong and significant reliability between variables used for the constructs. The first model had (F = 24.180, Prob.F-stats

<0.05) whereas the second had ($F = 187.579$, Prob.F-stats <0.05), all confirming significant reliabilities of constructs (see Costello & Osborn, 2005; Field, 2005). The R-Square value in the model summary depicts the degree of variance in the dependent variable which is explained by the independent variables. From the first regression model, the R-squared of .476 gives an indication that the independent variables (Attitudes, Norms, and Efficacy) explain 47.6% of the variance in Intention. In the second regression model, Intention explained 37.9% of the variance in behaviour.

Results in model 1 indicate that from the individual elements, Attitude was found to be the highest contributor of Intention to use ITNs for malaria prevention ($\beta=0.343$, $t=5.941$, $P=0.000 < 0.05$); the second was Norms ($\beta=0.165$, $t=2.855$, $P=0.005 < 0.05$). Although Efficacy was positively related to Intention, it was statistically insignificant ($\beta=0.023$, $t=0.382$, $P=0.702 > 0.05$). This reveals that in the present study, Self-Efficacy was not a significant contributor to pregnant women's intention to use ITNs. The second model looked at the regression between Intention as an independent variable and ITN usage Behaviour as a dependent variable. The statistical results revealed a very strong positive and significant relationship between the two factors ($\beta=0.615$, $t=13.696$, $P=0.000 < 0.05$). Thus, from the sampled pregnant women in Ghana, there is a strong association between their intention to use ITNs and their actual usage exhibited in their positive behaviour.

5.6 Moderation Test

As depicted in the conceptual framework of the study, there is a proposed hypothesis on the fact that skills (abilities) of pregnant women, as well as the environment within which they find themselves may have an impact on their intention towards ITNs usage in the prevention of malaria in Ghana. In view of this, moderation tests were carried out in that

regard (see table 5.6 below). Model 1 of the moderation table represents the moderating effect of Skill (abilities) on the relationship between pregnant women's intention to use ITNs and their actual usage of ITNs; Model 2 represents the moderating effect of Environment on the relationship between pregnant women's intention to use ITNs and their actual usage of ITNs.

Table 5.6: The Moderating Effects of Skill and Environment on Intention

Model	Relationships	B	t	Sig.	R ²	Adj. R ²	F
1	Intent	.635	14.436	.000	.412	.409	107.711
	Skill_x_Intent	.185	4.205	.000			
2	Intent	.595	13.086	.000	.390	.386	97.963
	Env_x_Intent	.107	2.359	.019			

Source: Field Work, 2015

Following the guidelines of Baron and Kenny (1986), it was evident from the beta (β) values, t-values, and R² values, that both factors moderated the relationship between Intention and Behaviour. Specifically the increase in R² values in both cases (R² = .412 and R² = .390) as compared to that of the original relationship in table 5.5 (R² = .379) suggest that both skill and environment do strongly and positively moderate the relationship between pregnant women's intention to use ITNs and their actual usage behaviour of ITNs in Ghana. The results from the regressions as well as the moderation tests reveal some findings to be discussed in relation to extant empirical works.

5.7 Discussion of Findings

This study examined the possibility of predicting ITN usage behaviour amongst pregnant women in Accra, from the constructs of the integrative model of behaviour prediction (IMBP) (Fishbein, 2000). The purpose of the IMBP is to explain specific behaviour. In this study, by adapting and applying a questionnaire based on the IMBP, the whole model

was used to predict ITN usage behaviour. If one understands in what way factors contribute to the decision-making process concerning ITN usage behaviour, malaria prevention programmes can be adapted to account for these factors and in the process, reduce the increasing number of malaria cases. The adapted questionnaire was found to be reliable and could therefore be used to verify the relations between the constructs of the IMBP. Findings from the study reveal that the three main constructs in the model (attitude, subjective norms, and self-efficacy) were potent predictors of intention to use ITNs. This result is consistent with many previous studies (Ajzen, Albarricin, & Hornik, 2007; Hale, Householder & Greene, 2002; Dillard, 2011). It is novel only insofar as it demonstrates the utility of the model in yet another health domain. However, as demonstrated later, the results are consequential for shaping future efforts to encourage ITNs usage.

The main objective of this study was to examine the global perceptions (attitude, norms and self-efficacy) of pregnant women on their ITNs usage intention. In addition, the study also investigated skills and environmental factors as moderators between pregnant women ITNs usage intention and their actual usage behaviour. The findings of the study are discussed in accordance with the pattern followed in the presentation of results.

Relationship between attitude and intention to use ITNs.

The results in this study showed a significant and positive correlation between pregnant women's attitude and their intention to use ITNs. This implies that, the beliefs of pregnant women about the likely consequences of their behaviour and the evaluation of these outcomes are important in predicting their intention to use ITNs. Consistent with this study are the works of the following scholars (Robbins & Niederdeppe, 2015; Dillard, 2011; Ajzen et al.; 2007; Bleakley, Hennessy, Fishbein & Jordan, 2011). For instance, in a study with the IMBP to identify promising message strategies to promote healthy sleep

behavior among college students in New York, Robbins and Niederdeppe (2015) reported both direct and indirect measures of attitude to be important in understanding sleep-related intentions and behaviour. Yet again, similar to this study's findings is that of Dillard (2011) who investigated the relationship between women's attitude and their intention to be vaccinated against Human papillomavirus (HPV) and found a significant path relationship between these variables.

On the contrary, the finding of this study is in discord with Diteweg et al. (2013) who found an insignificant relationship between attitude and intention to undergo HIV testing among a sample of 92 sports team members from Limpopo and concluded that attitude did not influence participants' intent to undergo HIV testing in South Africa.

Relationship between perceived norms and intention to use ITNs.

It can be observed that the results of the findings were consistent with this expectation. Results showed a significant positive relation between normative beliefs and intention. Thus, thoughts and beliefs about the expectations other people have is an immediate predictor of the intention to use ITNs, hence these thoughts and beliefs lead to social pressure (subjective norm). These results show striking similarities with the results from Giles, Liddell and Bydawell, (2005). Their study indicated that perceived norm influenced condom use intention among young South African (Zulu) adults, and that the subjective norm of parents was the most critical underlying belief.

Relationship between Self-efficacy and Intention to use ITNs

The third hypothesis was that there will be a significant positive relationship between self-efficacy and intention to use ITNs. Results did not support this hypothesis. Although

Efficacy was positively related to Intention, it was statistically insignificant ($\beta=0.023$, $t=0.382$, $P=0.702 > 0.05$). This reveals that in the present study, Self-Efficacy was not a significant contributor to pregnant women's intention to use ITNs. This finding supports existing body of knowledge. Swanepoel, Burger, Loohuis and Jansen (2008) found that students at the University of Pretoria did not feel confident that they would be able to cope with the emotional stress of a positive test result. Furthermore, they were afraid of the physical consequences of having HIV, as well as of the possibility of being stigmatised and discriminated against. Surprisingly, students from the University of Limpopo were, on average, relatively optimistic about their self-confidence in dealing with the consequences of testing HIV-positive (Broersma, Jansen, & Makalela, 2010). This is not only in contrast with research by Swanepoel et al. (2008), but also with the findings and assumptions in several other scientific articles (e.g. Van Dykb & Van Dyk, 2003; Swanepoel, 2005).

Relationship between behavioural intention and ITN usage behaviour

The fourth hypothesis stated that intention will have a positive relationship with behaviour, because intention is supposed to be an antecedent of behaviour (Hewstone, De Wit, Schut, Stroebe, & Van Den Bos, 2007). The statistical results revealed a very strong positive and significant relationship between the two factors ($\beta=0.615$, $t=13.696$, $P=0.000 < 0.05$). Thus, from the sampled pregnant women in Ghana, there is a strong association between their intention to use ITNs and their actual usage exhibited in their positive behaviour. Therefore, this hypothesis must be accepted. This finding supports an existing body of knowledge. A study on IMBP tailored condom use, VonHaeften, Fishbein, Kasprzyk and Montano (1999) present intention and behaviour data from commercial sex workers (CSWs) in Seattle, Washington. Over 95% of female CSWs intend to use condoms for vaginal sex with their clients and almost 75% report carrying out these

intentions. In contrast, only 30% intend to use condoms for vaginal sex with their main partners, and of those, only 40% are able to act on their intentions. Clearly if people have formed the desired intention but are not acting on it, a successful intervention will be directed either at skills building or will involve social engineering to remove (or to help people overcome) environmental constraints (Fishbein, 2000).

Moderation Effect

Aside from the positive nexus between ITN usage intention and the actual usage behaviour, skills and environmental factors were anticipated to moderate the relation between ITN usage intent and actual usage behaviour. A moderator variable is considered when the relationship between the predictor and the criterion variable is strong, but most often it is considered when there is an unexpectedly weak or inconsistent relationship between the predictor and the dependent variable (Baron & Kenny, 1986).

Results of the hierarchical moderated regression analysis proved that both factors moderated the relationship between Intention and Behaviour. Specifically, the increase in R^2 values in both cases ($R^2 = .412$ and $R^2 = .390$) as compared to that of the original relationship in table V ($R^2 = .379$) suggests that both skill and environment do strongly and positively moderate the relationship between pregnant women's intention to use ITNs and their actual usage behaviour of ITNs in Ghana.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This chapter summarizes the study and its main findings, discusses the research implications, and makes appropriate recommendations based on the study. In addition, the chapter focuses on direction for future research and limitations of the research.

6.1 Summary of Study

The first chapter introduces the study and provides a general overview. The chapter specifically discussed the rationale of the study, the background of the study, research aim and objectives and the structure of the thesis.

On the contextual background information, the study highlights the profile of the health sector of Ghana, and discusses the malaria situation and the main approaches for preventing the disease in the country. Some information on the institutions involved in the fight against malaria in Ghana such as the Ministry of Health, Ghana Health Service (GHS), National Malaria Control Programme (NMCP), Net Mark, and Ghana Social Marketing Foundation (GSMF) was also provided.

Literature related to the subject area was also reviewed. These included the concept of social marketing, its origin, definitions, the benchmark criteria consisting of behaviour change, consumer research, segmentation and targeting, social marketing mix, exchange, competition and theory. The main theoretical model adopted in the study was the integrative behavioural prediction model (Fishbein, 2000). In order to develop an effective behaviour change intervention, the social marketer should have an understanding of all

personal and contextual variables that could underlie decisions (Fishbein, 2000). When the social marketer has this information, he can design social marketing interventions in such a way that it targets these beliefs. To this end, this research adopts an integrative behavioural prediction model (IBPM), by Fishbein (2000) to determine pregnant women current ITNs usage and design effective interventions on malaria prevention in Ghana.

Methodologically, the study was a cross-sectional survey that involved the use of self-administered structured questionnaire to collect primary data from pregnant women in the selected health institutions in Accra. Of the 400 questionnaire sent for data collection, 310 questionnaire were returned, representing a 77.5% response rate. Data was processed and analysed using the SPSS version 20.0.

6.2 Summary of Key Findings

From the survey, the following major findings were obvious and thus, have been outlined in accordance with the research objectives.

1. The study revealed that there is a significant positive relationship between pregnant women's attitude and their intention to use ITNs.
2. Also, the study showed a significant positive relation between pregnant women's perceived norms and their intentions to use ITNs.
3. Consistent with the literature, the results of the study demonstrated a statistically insignificant relationship between pregnant women's self-efficacy and their intention to use ITNs.
4. A positive significant relation was found between pregnant women's intention and their ITNs usage behaviour.

5. Both skill and environment do strongly and positively moderate the relationship between pregnant women's intention to use ITNs and their actual usage behaviour in Ghana.

6.3 Research Implications.

This study applied the integrative behavioural prediction model (IBPM) to social marketing interventions on malaria prevention among pregnant women in Ghana. The primary objective of the study was to investigate how the variables of the integrative behavioural prediction model, namely attitudes, perceived norms and self-efficacy, would predict participants' intentions to use ITNs. The findings of the study indicated that the IBPM as a conceptual framework was very helpful in determining pregnant women's ITNs usage behaviour leading to a better understanding of malaria prevention in Ghana. The variable which explained most of the variance in ITNs usage intention was attitude. This means that participants with positive attitudes towards ITNs use had higher intentions to use ITNs. Perceived norm was the next variable after attitude to predict intention to use ITNs. However, self-efficacy did not contribute significantly to the variance in ITNs usage intentions.

The results of this study highlighted the importance of attitude in shaping intentions, as found by other African authors (for example, Molla, Nordrehaug Astrom & Brehane, 2007; Skinner, 2000). The implication of this finding is that social marketing for malaria prevention programmes must place more emphasis on attitude-changing interventions in order to influence malaria related preventive behaviour. A useful method in training interventions would be to design a persuasive health messaging framework aimed at increasing positive attitudes towards ITNs use. Persuasive communication has been found

to be effective as a method of increasing people's favourable attitudes and intentions towards condom use in the future (Albarracin, McNatt, Klein, Ho, Mitchell, & Kumkale, 2003). The same persuasive communication techniques to build health-promoting attitudes can be used in respect of malaria preventive behaviours.

The most effective use of communication strategies to change behaviour is suggested by Fishbein & Yzer (2003). Fishbein and Yzer (2003) recommend that communications targeting beliefs in behaviour change interventions should first determine whether the target behaviour is subject to attitudinal, normative or efficacy (control) considerations or combinations thereof. This should lead to the identification of a number of behavioural, normative or control beliefs that distinguish between people who do or do not engage in the behaviour of interest, so that it is known which beliefs are highly correlated with the intention or behaviour. It will then become clearer which of these beliefs should be targeted by the communication messages. This method ensures that practitioners do not waste time and resources in changing beliefs that are not salient in the target population.

The foregoing discussion shows that although self-efficacy did not predict health behaviour intentions in the Ghanaian context, the integrative behavioural prediction model (IMBP) was very successful in explaining health behaviour intentions in a sample of pregnant women who participated in the study.

6.4 Conclusions

For the first time, this study has applied a tried and tested theory to ITN usage intentions among pregnant women in the Ghanaian context. The integrative behavioural prediction model used as the conceptual framework of the study has generally been helpful in

predicting and understanding the ITN usage intentions of Ghanaians. Altogether, the study gave new insights into the way important predictors are related to intention and ITN usage behaviour and may be used to adjust social marketing strategies for malaria prevention. The study concludes that, collectively the IMBP predicts overall ITNs usage behaviour among pregnant women in Ghana, and that the two most important potent predictors of ITNs usage intentions are attitudes and perceived norms.

6.5 Recommendations

This study recommends that social marketing intervention programmes must be adapted for the important predictors of intention to use ITNs by the target audience (Andreasen, 1995). To be effective, interventions should focus upon specific behaviours and perhaps not surprisingly, the most effective interventions will be those directed at a single behaviour rather than at multiple behaviours (Fishbein, 2000). Social marketing professionals should see their roles as working at a particular level of intention or employing a specific type behavioural change strategy.

Based on the key findings drawn from the study, the following recommendations are made:

First, this study revealed that attitude and its underlying beliefs are important determinants for intention to use ITNs in Ghana. Consequently, the scarce resources available for health education should, first and foremost, be allocated toward changing attitudes to ITN usage and, by extension, the beliefs that underlie them.

Another variable that might be kept in mind is perceived norm (especially of partners). Social marketing interventions should also be targeted to people who are perceived to be

very important to pregnant women, since these peoples' influence may impact greatly on pregnant women to use ITNs.

To influence pregnant women to move from intention to actual usage of ITNs, social marketing campaign programmes should be introduced to inform them about the consequences of not using ITN for malaria prevention.

Social marketing interventions should also be directed at skills building and involve social engineering to remove (or to help people overcome) environmental constraints (Fishbein, 2000).

Social marketers who seek to influence pregnant women to use ITNs in Ghana should target pregnant women with tertiary education to move them from intention to actual usage of ITNs.

Finally, social marketing organisations should use social approval to encourage those above average to continue their behaviour. That is, social marketing interventions should be geared towards encouraging pregnant women with JHS education.

6.6 Limitations and Direction for Future Research

The findings of this study have given certain indications as to the possible directions for future research. First, the conceptual framework and hypotheses developed for the study can be expanded or modified to include the possible influence of potential moderators such as the main determinants of intention (attitudes, perceived norms and self-efficacy) and their underlying beliefs. It could also be expanded to include the distal variables since

this study only focused on the proximal variables. The study is limited to the extent that it collected data from only pregnant women in Ghana and may limit generalizing the findings to the Ghanaian population. It is therefore recommended that future research be extended to cover a wider section of the Ghanaian population especially care givers of children under five years since these children are also vulnerable to malaria infections. Finally, the study applied the IMBP to social marketing interventions on malaria prevention. The researcher recommends the application of the IMBP to other equally important areas such as food consumption, blood donation and finance.



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APPENDICES

Appendix A: Questionnaire

UNIVERSITY OF GHANA BUSINESS SCHOOL
DEPARTMENT OF MARKETING AND CUSTOMER MANAGEMENT
QUESTIONNAIRE

Dear Respondent,

Thank you in advance for completing the following questionnaire and contributing invaluable to my research on the topic “The role of theory in social marketing interventions on malaria prevention in Ghana”. This research is being conducted as part of the requirements for award of an MPhil degree in MARKETING. The questionnaire consists of two parts and it will not take more than 15 minutes of your time to complete it. Please be assured that your response will remain completely confidential and anonymous and used only for academic purposes.

Section A

Socio-demographic data

Please choose [√] the category for each question that best describes you.

1. Age: A) 18-24 years [] B) 25- 30 years []
 C) 31-40 years [] D) 41-50 years [] E) 51 years and above
2. Level of Education: A) No formal Education [] B) JHS [] C) SHS/A' Level []
 D) First Degree [] E) Postgraduate []
3. Marital Status: A) Married [] B) Single [] C) Separated/Divorced []
 D) Cohabitation []
4. Employment status : A) Employed [] B) Self Employed [] C) Student []
 D) Unemployed [] E) Retired []

5. Do you know about malaria? Yes [] No [] Not Sure []

6. Does malaria kill?

Yes [] No [] Not Sure []

7. Can malaria be prevented?

Yes [] No [] Not Sure []

8. If yes, in what way can it be prevented?

A) Sleeping under Insecticide Treated Nets (ITNs) [] B) Non usage of insecticides []

C) Leaving stagnant water around the surrounding [] D) All the above []

Current ITN usage

9. Have you ever considered using an ITN? Yes [] No [] Not Sure []

10. Have you ever used an ITN? Yes [] No [] Not Sure []

11. How often do you use an ITN?

Seasonal [] Throughout the year []

Section B

In this section you will be asked for your opinion about using insecticide-treated nets.

Please read the statements carefully and indicate to what extent you agree or disagree with

them. Tick [√] the appropriate box from Strongly Disagree (SD); Disagree (D); Neutral

(N); Agree (A) to Strongly Agree (SA)

	Items	SD	D	N	A	SA
	Behavioural intention to use ITN					
12	I intend to use an ITN within the next three months					
13	I do not intend to use an ITN within the next three months					
14	I will use an ITN sometime in the future					
15	I will not use an ITN sometime in the future					
	Attitude towards ITN usage					
16	My using an ITN regularly during sleep is good					

17	My using an ITN regularly during sleep is unpleasant					
	Behavioural beliefs					
18	Using an ITN protects me from malaria infection					
19	I can have skin irritations when I use an ITN					
	Outcome evaluation					
20	Being protected from malaria infection by using ITN is desirable					
21	Having skin irritations by using ITN is desirable					
	Perceived norms					
22	My partner thinks it is a good idea to use ITN anytime I sleep					
23	My friends think it is a good idea that I should use an ITN every time I sleep.					
	Normative beliefs					
24	My partner would be disappointed in me if I did not use an ITN					
25	My friends expect me to use an ITN every time I sleep.					
	Motivation to comply					
26	Pleasing my partner by using an ITN matters a lot to me					
27	When it comes to using an ITN, I do what my friends want me to do					
	Self-efficacy					
28	I am confident that I can use an ITN even if it is uncomfortable to use.					
29	I have no doubt about my ability to use an ITN even under very warm condition.					
	Efficacy beliefs					
30	It is difficult for me to use an ITN because of its skin irritations.					
31	I am able to use the ITN even under very warm condition.					
	Environmental constraints					
32	Where I live is very warm so I am unable to use an ITN					

33	I can easily have access to an ITN whenever I want to buy one					
	Skill (Ability) towards ITN usage					
34	The cost of ITNs is too high					
35	ITN is not being provided to me freely by the government					
36	I have the skill (ability) to properly fix the ITN and use it					

THANK YOU

