AN EVALUATION OF MENINGITIS HEALTH EDUCATION PROGRAMMES IN
THE NORTHERN REGION

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LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD
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DECLARATION

I declare that except for the materials quoted from various sources which have been duly acknowledged, this study is entirely mine and produced from research under supervision. I further declare that this work, in whole or in part, has not been presented for another degree in this university or elsewhere.

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ABSTRACT

Meningitis health education programmes are prevalent in the meningitis belt of Ghana. This is due to the severity of the disease and its ability to cause permanent deformities and even deaths. The objective of the study was to ascertain the level of knowledge on symptoms, treatment and prevention among the residents of the endemic communities of Tamale and Bole, to assess the effectiveness of the various channels employed by the health education programmes in their effort to create awareness and encourage the adoption of preventive health behaviours. It also sought to ascertain the response of the residents to meningitis health education programmes. A triangulated research design was employed, involving the combination of a survey and in-depth interviews to respond to the different dimensions of the research objectives theoretical perspectives that guided the study. Questionnaires were used to gather information from 120 residents of two districts and semi-structured interview guides were used to elicit responses from two communication directors of the Ghana Health Service. The quantitative data was analysed using SPSS and the qualitative data was analysed based on their themes.

This study found that irrespective of their level of education, there was high knowledge of meningitis in terms of the signs, symptoms, prevention and treatment within both study areas. This level of knowledge was attributed to the health education activities carried out in the districts by the Ghana Health Service. Residents responded positively to meningitis health education programmes as preventive lifestyles were being adopted and meningitis cases were being reported to the hospitals immediately, thereby reducing meningitis related morbidity and mortality rates in the districts.

In terms of channel choice, health practitioners, followed by teachers were the most cited as preferred sources of knowledge on meningitis - rather than the mass media.

The study also found that the risk disposition of the target audience, their language and media preference are some of the factors considered by policy makers before any meningitis health education programme is conducted. Health talks at the OPDs of various hospitals was the frequently used medium of communication because they were found to be cheaper than buying media space.

The study however recommends the inclusion of new media into the health education programmes based on the observed shifting media preference of respondents along with education.
DEDICATION

This study is dedicated to my family; my father, Mr. Isaac Quartey-Papafio (of blessed memory), my mother, Elizabeth Onisha, Jabez Quartey-Papafio, Linda Quartey-Papafio and Kenneth Quartey-Papafio.
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# TABLE OF CONTENT

<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLARATION</td>
<td>i</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>iii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENT</td>
<td>iv</td>
</tr>
<tr>
<td>TABLE OF CONTENT</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>viii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>viii</td>
</tr>
<tr>
<td>CHAPTER ONE</td>
<td>1</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1 BACKGROUND</td>
<td>1</td>
</tr>
<tr>
<td>1.2 HEALTH INTERVENTIONS IN GHANA</td>
<td>2</td>
</tr>
<tr>
<td>1.4 STATEMENT OF THE PROBLEM</td>
<td>5</td>
</tr>
<tr>
<td>1.5 OBJECTIVES</td>
<td>7</td>
</tr>
<tr>
<td>1.6 RESEARCH QUESTIONS</td>
<td>7</td>
</tr>
<tr>
<td>1.7 SIGNIFICANCE OF STUDY</td>
<td>8</td>
</tr>
<tr>
<td>1.8 DEFINITION OF TERMS AND KEY CONCEPTS</td>
<td>9</td>
</tr>
<tr>
<td>1.9 ETHICAL CONSIDERATIONS</td>
<td>9</td>
</tr>
<tr>
<td>2.0 ORGANIZATION OF THE STUDY</td>
<td>10</td>
</tr>
<tr>
<td>CHAPTER TWO</td>
<td>11</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td>11</td>
</tr>
</tbody>
</table>
2.0 INTRODUCTION ......................................................................................................................... 11

2.1 THEORETICAL FRAMEWORK ............................................................................................. 11

2.1.1 Health Belief Model ............................................................................................................. 12

2.1.2 Media Richness Theory ....................................................................................................... 15

2.2 RELATED STUDIES ............................................................................................................... 17

2.2.1 Knowledge and attitude on meningitis and meningitis vaccination ................................. 17

2.2.2 Making health decisions through interpersonal communication ......................................... 19

2.2.3 Creating health awareness through the media ..................................................................... 20

2.2.4 Health authorities and significant others as influencers ..................................................... 23

CHAPTER THREE .......................................................................................................................... 25

METHODOLOGY ........................................................................................................................... 25

3.1 INTRODUCTION ...................................................................................................................... 25

3.2 RESEARCH DESIGN ............................................................................................................... 25

3.3 STUDY AREAS ......................................................................................................................... 26

3.4 POPULATION AND SAMPLING TECHNIQUES .................................................................. 27

3.5 DATA COLLECTION ................................................................................................................ 28

3.6 DATA ANALYSIS .................................................................................................................... 30

CHAPTER FOUR ........................................................................................................................... 31

FINDINGS ......................................................................................................................................... 31

4.0 INTRODUCTION ...................................................................................................................... 31

4.1 DEMOGRAPHIC CHARACTERISTICS ....................................................................................... 31
4.2 LEVEL OF EDUCATION AND KNOWLEDGE ON MENINGITIS .......................... 32

4.3 LEVEL OF KNOWLEDGE ON MENINGITIS ........................................... 33

4.3.1 Knowledge on the seriousness of meningitis ........................................ 34

4.3.2 Knowledge on Meningitis ..................................................................... 36

4.3.4 Knowledge on signs and symptoms of meningitis ................................ 37

4.3.5 Knowledge on preventive methods ....................................................... 39

4.3.6 Meningitis health messages ................................................................. 40

4.3.7 Exposure to meningitis preventive and treatment messages .................. 41

4.3.8 Meningitis Messages .......................................................................... 43

4.5 COMMUNICATION CHANNELS ............................................................... 45

4.5.1 Respondents main media sources of general health information ............ 45

4.5.2 Respondents other media sources of general health information .......... 46

4.5.3 Source of information on meningitis ................................................... 47

4.5.4 Media preferences for receiving messages about meningitis ................. 48

CHAPTER FIVE .............................................................................................. 51

DISCUSSION, CONCLUSION, RECOMMENDATION AND LIMITATION ............ 51

5.1 DISCUSSION ............................................................................................. 51

5.1.1 Level of knowledge on meningitis ....................................................... 51

5.1.2 Communication Channels ................................................................. 53

5.1.3 Response to Meningitis Health Education programmes ....................... 55

5.2 CONCLUSION ........................................................................................... 56
5.3 RECOMMENDATION ................................................................................................. 57

BIBLIOGRAPHY ............................................................................................................. 60

APPENDIX A: QUESTIONAIRE ....................................................................................... 64

APPENDIX B: INTERVIEW GUIDE .................................................................................. 70

LIST OF TABLES
Table 1: Demographic characteristics of respondents (n=120) ........................................ 31
Table 2: Crosstab of level of education and knowledge on meningitis (n=120) ............... 33
Table 3: Knowledge of respondents on meningitis (n=120) ............................................. 33
Table 4: Severity of meningitis ....................................................................................... 35
Table 5: Knowledge of respondents on how meningitis can be contracted (n=274) ........ 36
Table 6: Respondents knowledge on the signs and symptoms of meningitis (n=306) ....... 37
Table 7: Knowledge about how to prevent meningitis (n=224) ....................................... 39
Table 8: Sources of information on meningitis awareness, prevention and treatment (n=614) ................................................................................................................. 47
Table 9: Media preferences for receiving messages about meningitis (n=392) ............... 48

LIST OF FIGURES
Figure 1: Relevance of health messages on meningitis .................................................. 40
Figure 2: Exposure to messages about meningitis prevention and treatment .................. 42
Figure 3: How understandable respondents find meningitis messages ........................ 44
Figure 4: Main media sources of general health information ........................................ 45
Figure 5: Other sources of general health information .................................................. 46
CHAPTER ONE
INTRODUCTION

1.1 BACKGROUND
Public health education programmes are intended to prevent ill health in communities or populations (Rychetnik et al, 2002). These programmes are intended to keep people healthy and out of the hospital through public policy, regulatory initiatives, single-strategy projects and multi-component programmes that can benefit entire populations. Regardless of the presence of policies and programmes, many are not executed in practice and interests in endless ailment aversion stays deficient (Rychetnik et al, 2002). The World Health Organisation (WHO) assesses that, without action, there is potential for 36 million unexpected deaths worldwide over the next decade due to disease outbreaks. Researchers in collaboration with community partners are accordingly adjusting and applying proof-based chronic disease prevention interventions, to contact individuals where they live, work, learn and receive care (Duffany et al, 2011).

Health communication is an integral part of health interventions (Mahmud et al, 2013). Health communication has evolved over the years as an essential and vibrant field of study concerned with the incredible roles performed by human and mediated communication in health care delivery and the promotion of public health (Smith et al, 2006). The centrality of the procedure of communication depends on the inescapable role communication plays in making, collecting and sharing health information (Jackson & Duffy, 1998). Health information is the most vital asset in health care and health promotion because it is fundamental in managing strategic health behaviours, treatments and decisions (Kreps, 1988). Through communication, health promotion specialists can develop persuasive messages to be communicated through salient channels that will target the relevant audience. This can help in communicating health
information that influences the health knowledge, attitude and behaviour of the intended audience.

According to the National Cancer Institute, health communication can build the target groups knowledge and awareness of a health problem or solution; influence perceptions, beliefs and attitudes that may change social standards; prompt action; demonstrate healthy skills, reinforce knowledge, attitude and behaviour; demonstrate the advantages of behaviour change; advocate a position on a health service (Freimuth & Quinn, 2004).

There is a range of health communication strategies employed by various health organisations such as the WHO, CDC and the GHS in their efforts to promote preventive health behaviour. Some of these include entertainment-education, media advocacy and interpersonal communication. Although communication is seen as a powerful tool in health care delivery, the communication channels used play a vital role in determining its success. Health communication explores different channels of communication to suit different contexts. Some of the tools include intrapersonal, interpersonal, group, organizational and societal. Some of the channels include face to face, telephony and mass media.

1.2 HEALTH INTERVENTIONS IN GHANA

Health communication interventions in Ghana are primarily geared towards creating awareness and or influencing behaviour change in specific health areas. The Government of Ghana, the Ghana Health Service/Health Promotion Department (GHS/HPD) and some international organisations such as the World Health Organisation, Centre for Disease Control and USAID have collaborated over the years to create awareness and influence behaviour change in health-related issues such as family planning, nutrition, maternal, new-born and child health; malaria prevention and treatment; water, sanitation and hygiene (WASH); meningitis and HIV/AIDS through various health interventions and campaigns.
In the year 2000 for instance, Ghana’s first national communication programme focusing on HIV and AIDS was launched to shatter the silence surrounding the disease. The aim was to increase awareness about the disease, increase the practice of more safer sex behaviour, to destigmatize HIV/AIDS and to encourage empathy, care and support for individuals living with the illness (Tetteh, 2004).

In 2010, the Good Life, Live it Well campaign was launched to raise awareness on how to imbibe the habit of healthy living. It was the principal health communication brand for the Ghana Health Service to promote positive practices through television, radio, social media and print advertisement. The campaign also served as a national platform for discussing healthy behaviours related to family planning; maternal, new born and child health; malaria prevention and treatment; water sanitation, nutrition, hygiene and other emergency risk communications on diseases such as Ebola and cholera. In 2016, the campaign was relaunched to effectively engage all Ghanaians in a dialogue to improve their health by reaching them with meaningful, impactful and entertaining social and behavioural change communication programmes.

Also, in 2016, Ghana’s Ministry of Health together with WHO, USAID/Global Communities and UNICEF launched the national cholera prevention campaign. The aim was to reach out and sensitize communities at risk, equip them with preventive information and services in order to prevent the occurrence of a fatal outbreak (GNA, 2016).

It can thus be said that health interventions are used to increase knowledge and create awareness about diseases and other health issues, to change behaviour, beliefs and perceptions and to influence social norms. (HAD, 2004). Our behaviour or attitude about health issues determine our health. The achievement of good health relies on embracing healthy practices and avoiding those practices that impede our good health.
Health education thus encourages healthy practices of lifestyle, prevents diseases and promotes the well-being of people. Health education which aims at bringing change in health behaviour must be tailored to the specific type of communication and tools that make utmost sense to the target group (Nkanunye & Obiechina, 2017).

1.3 BACKGROUND ON MENINGITIS

The WHO in a 2012 report identified meningitis as a serious and possibly deadly ailment and a reason for widespread fear in Africa’s purported meningitis belt. The same report said that, over 500 million people were meningitis prone and the disease could cause a debilitating brain damage and kill about one out of every ten patients even if they received antibiotics. Many endure life-long disabilities including hearing loss, seizures and learning difficulties. In 2009, the regular outbreak of meningitis over a substantial swathe of Sub-Saharan Africa infected no less than 88,000 individuals and led to more than 5,000 deaths (WHO Meningitis Report, 2012).

According to the WHO Meningitis Report for 2018, although meningitis is observed worldwide, the meningitis belt of sub-Saharan Africa bears the major brunt of the disease. This stretches from Senegal in the West to Ethiopia in the East and according to the report, about 30,000 cases are reported each year from these areas.

In the past five years, there have been several outbreaks of meningitis across Ghana. Information from Ghana’s Ministry of Health indicates that there were 454 reported cases of meningitis in 2013 and 41 deaths as a result (GHS Health Report, 2013). In 2014, there were 477 reported cases and 39 deaths; 315 cases in 2015 and 33 deaths; 133 reported cases in 2016 and 33 deaths; and 69 reported cases in 2017 and 9 deaths (Kwarteng et al, 2017). The Ministry of Health and Ghana Health Service have employed various interventions to address the situation in the country. Some of the methods employed by the health authorities to tackle the
problem include vaccinations and routine immunization as well as routine health education programmes. Information on symptoms, prevention and treatment options for meningitis is communicated through preventive health communication methods.

In October 2012 for instance, a vast vaccination campaign was organised in the three Northern Regions of Ghana by the Global Alliance for Vaccines and Immunization (GAVI), WHO, UNICEF and the Ministry of Health. The objective was to introduce the meningococcal A conjugate (Men A conjugate) vaccine to help reduce the incidence of meningitis epidemic in the northern sector of Ghana (WHO, 2012). Also, in March 2016, about seven thousand students and pupils from basic schools in the Nadowli-Kaleo district of the Upper West Region were sensitized to symptoms and negative effects of pneumococcal meningitis. The aim of the month-long education campaign was to equip the students with the requisite knowledge on the disease so that they will be able to prevent its occurrence and its spread in the communities. Flyers, brochures and banners were used to give a vivid description of the signs and symptoms of the disease (citifm, 2016).

According to Armstrong (2009), the likelihood of success of health education programmes is substantially increased by the application of multiple interventions and when the target behaviour is one-off or episodic rather than habitual or on-going. This has been done by the Ghana health Service in partnership with other agencies to curb the frequent outbreaks of meningitis. However, there are still recurrent outbreaks resulting in numerous morbidity and mortality rates in the country; hence, the need to assess the health education programmes.

**1.4 STATEMENT OF THE PROBLEM**

Meningitis health education programmes are not new. Preventive measure such as the need to vaccinate and general education about the need for early treatment are not uncommon and
successes as well as failures in getting people to do so have been recorded. However, people may respond differently to health messages depending on several factors. This may include: beliefs, values, clarity of instructions provided by health officials and the ability to afford the necessary or recommended lifestyle. In a study conducted in Monrovia by Kutalek et al (2015) on some of the communication difficulties encountered in the quest to control the Ebola outbreak, lack of sensitivity to local beliefs, norms, and values, poor engagement with affected populations and low levels of trust in authorities and experts were identified as some of the communication related difficulties in the global attempt to control outbreaks in the West African Continent (Kutalek et al, 2015). Although various interventions are organized by health agencies and officials to promote good health behaviours, antecedent factors relating to the target audience must be considered in order to achieve significant results. The beliefs and norms of the audience, as well as their preferred mode of communication are important factors that must be considered.

This study examines the factors considered in conducting meningitis health education programmes, residents’ knowledge on meningitis and how effective they find the channels employed in the health education programmes as well as resident response to the health education programmes on meningitis. With meningitis being a highly fatal disease and the Northern region being highly prone to outbreaks, the assumption is that everybody will respond positively to the messages on the need for vaccination, early treatment. However, recent outbreaks, after the WHO declared that Ghana had successfully carried out its national vaccination campaign in 2012, calls for the need to investigate the meningitis health education programmes run annually by the Ghana Health Service in the Northern Region.
1.5 OBJECTIVES

The following objectives guided the study:

1. To ascertain the knowledge on symptoms, treatment and prevention among residents of the endemic communities of Tamale and Bole.

2. The ascertain the effectiveness of the various channels employed by the health education programmes in their effort to create awareness and encourage the adoption of preventive health behaviours.

3. To ascertain the response of the people of Tamale and Bole to meningitis health education programmes.

4. To ascertain the factors considered in conducting a meningitis health education programme.

1.6 RESEARCH QUESTIONS

The following research questions were explored:

1. What is the knowledge on meningitis symptoms, treatment and prevention among residents of the endemic communities of Tamale and Bole?

2. How effective do respondents find the various channels that the health education programmes employed in the effort to create awareness and encourage the adoption of preventive health behaviours?

3. What is the response of the people of Bole and Tamale to the meningitis health education programmes?

4. What factors are considered when conducting a meningitis health education programme?
1.7 SIGNIFICANCE OF STUDY

Responding to health prevention messages may not only reduce cost in cure but also help reduce the number of fatalities recorded whenever there is an outbreak. With meningitis being a deadly disease, when people are able respond to messages on prevention, understand the symptoms and the need for early treatment, complications such as death, epilepsy, mental retardation, hearing or vision loss, amputation of limbs and sleep disorders, which are some meningitis related diseases, can be reduced. Therefore, this study seeks to find out peoples’ responses to communication interventions on meningitis and also the effectiveness of the various media used in the dissemination of the meningitis health messages as well as the factors considered in organising a meningitis health education programme. The information and instructions given on the causes, symptoms, prevention and treatment are expected to promote the adoption of preventive measures which will help in reducing the number of incidences (mortality and morbidity) recorded as a result of a meningitis outbreak.

This research is significant in that it can serve as a veritable source of information for policy makers within the meningitis belt of Ghana and across Africa on the best ways to educate people on meningitis.

The findings of this study will redound to the benefit of the health sector considering that health education plays an important role in the prevention and control of outbreaks of diseases. The frequent outbreak of diseases in the country calls for the need for more effective and life-changing health education programmes. Thus, health institutions that apply the recommended approach derived from the results of this study to their health education programmes will be able to influence the health behaviours of their intended audience. Policy makers will be guided on what should be emphasised and how information should be disseminated to their audiences to elicit positive response. To the academics with special interest in health communication, this
dissertation is also very significant because it can serve as a good platform of research effort on issues within the confines of health communication.

1.8 DEFINITION OF TERMS AND KEY CONCEPTS

This dissertation relies on a number of key concepts. These concepts will have different meanings in different contexts, hence, the need for the definition of such concepts as used in the study.

**Level of knowledge:** An individual can be said to have a high level of knowledge on meningitis if he or she knows about the causes, signs, symptoms and preventive measures of meningitis. The more causes, signs, symptoms and preventive measures you know about meningitis, the higher your level of knowledge.

**Meningitis Health Education Response:** The response obtained from the intended audience or recipients of meningitis health education programmes; on the measures an individual can take to avoid contracting meningitis. These may include vaccination, practicing good hygiene, living in ventilated places and visiting the hospital immediately one experiences some of the signs and symptoms.

**Treatment Measures:** The measures used to deal with meningitis when one contracts it or the medical care given to an individual who has contracted meningitis.

**Channel Effectiveness:** The ability or the appropriateness of a communication channel to convey information to the intended audience.

1.9 ETHICAL CONSIDERATIONS

According to Yip et al (2016), obtaining informed consent is extremely important in a research study. This is usually achieved by giving out all information such as the purpose, aims, and research questions to prospective participants, in order to enable them decide whether to join
the study or not. All ethical requirements with respect to consent were observed. Anonymity and confidentiality were also assured. Specifically, ethical issues were addressed in the first page of the questionnaire and interview guide and variables on which data was collected were given codes to enhance anonymity. A copy of the questionnaire and interview guide are attached as appendices A & B.

2.0 ORGANIZATION OF THE STUDY

This study is organised into five chapters. Chapter one as outlined above, consists of the background, statement of the problem, research objectives, research questions, significance of the study and ethical considerations. Chapter two is a review of literature relevant to the study. Chapter three presents the methodology employed and chapter four focuses on the data and analysis of the study. The conclusion, recommendations and limitations are covered in chapter five.
CHAPTER TWO
LITERATURE REVIEW

2.0 INTRODUCTION
The aim of undertaking a research work is to produce additional knowledge. According to Rwegoshora (2006), any proper study needs to add more to what is already known and that which could be attained via the identification of the essential knowledge left. Therefore, the knowledge gathered can take care of the missing areas realized in the issue at stake to be addressed. This chapter reviews literature in connection with this study as well as the theoretical framework underpinning the study. This will allow the researcher the opportunity to gain a wider understanding of what pertains to health education programmes in Ghana in general and meningitis health education programmes in Ghana in particular.

2.1 THEORETICAL FRAMEWORK
The theoretical framework of a research serves as a guide on which an individual can build and support his or her study. It also gives one the structure to define how he or she will philosophically and analytically approach the dissertation as a whole. Thus, the researcher’s choice of theory provides a structure to the entire dissertation and also provides a common world view from which one can support his or her thinking on the problem under study (Grant, 2014). This section discusses the theories that underpin this study. These are, the Health Belief Model, which is one of the most commonly used theories in health education and promotion
because it aims at behaviour change as a response to health information, and the Media Richness Theory, which describes how the characteristics of various communication channels affect their ability to convey information. Health theories and models have been highly valued in the field of health promotion through behaviour change. They are important in explaining health risk factors and changing behaviour (Sobhy et al., 2016).

2.1.1 Health Belief Model

The Health Belief Model was first aimed at explaining why people failed to partake in health programmes that could help in diagnosing a disease they have (National Cancer Institute and National Institute of health, 2002). It was developed in the 1950’s by social psychologists Hochbaum, Rosenstock and Kegels in response to the failure of a free tuberculosis health screening programme and has since then been adapted to explore a variety of long-term and short-term health behaviours including sexual risk behaviours and the transmission of HIV and AIDS. More recently, the model has been applied to understand patients’ response to symptoms of diseases and compliance with medical regimen.

The model has over the past few years been modified to include six constructs to help foretell whether people will take action to avoid, control or screen for diseases. The Health Belief Model has also been used to show the relationship between health beliefs and health behaviours.

Core Assumptions of the Health Belief Model

The core assumptions of the health belief model are based on the notion that the milestone for behaviour change can be achieved by changing our health beliefs (Sobhy et al., 2016). The earliest features of the model were that in order for one to take action to avoid contracting a
disease, he would need to believe: that firstly he was personally susceptible to it, secondly that the occurrence of the disease would have at least moderate severity on some component of his life and thirdly that taking a recommended action would be beneficial by reducing his susceptibility to the condition or, if the disease occurred, by reducing its severity and that it would not entail overcoming important psychological barriers such as cost, convenience, pain and embarrassment.

According to the Gale encyclopaedia of public health (2002), the HBM has four basic constructs which relate to how people respond to information they receive on health issues. Firstly, is the perceived susceptibility to a health problem. Susceptibility according to Rosenstock et al (1960), refers to the subjective risks of contracting a condition. This translates into the belief of an individual that he or she can possibly fall sick based on knowledge of certain ailments they know they are at risk of and this will lead a person to respond to behaviour change. For example, although not feeling ill, some people in the Northern Region may take precautionary measures during the dry season because they know their region is prone to the disease or when they hear media announcements persuading people to take precautionary measures especially during the season of meningitis.

Secondly, is the perceived seriousness of a health issue. This makes an individual consider all associated issues of a disease and the negative outcomes it may carry. For instance, the thought of treatment and financing of dialysis as well as the discomfort following renal disease, may alert an individual of the potential seriousness of contracting that disease and hence encourage him or her to take the necessary precautionary measures.
Thirdly is the perceived threat an individual may consider. Most individuals who have hereditary health issues running in the family pay particular attention to their health with the belief that they run a risk of acquiring certain diseases. People with life threatening diseases such as cancer, diabetes, and sickle cell anaemia, knowing that past relations have been critically ill or died as a result, are aware of the risk they carry and may therefore take measures to prevent and or control the disease. This can equally be said for people who live in areas that are highly endemic to meningitis because their chances of contracting the disease are higher than that of those living in areas that are not meningitis prone.

The last construct of the HBM spells out the perceived benefit and barriers of a health topic. This construct explains that a person believes that outcomes following the recommended behaviour supersede cost and discomfort of a health issue and that he or she is capable of achieving the behaviour themselves. This belief leads to an added concept of the HBM termed self-efficacy.

Self-efficacy, one of the additional constructs of the HBM, refers to a person's perception that they will be able to carry out a behaviour. It is the perception of mastery that is relevant here; whether they will be able to carry out the said behaviour is another matter.

The second additional concept to the health belief model is the cues to action. This is the readiness of an individual to activate a decision that will lead to responding on a health issue he or she has heard or read about. The cues to action are basically what prompt the behaviour change process. This could be simply a conversation with a friend or even a television programme.
Being predictive, the Health Belief Model when used as a guide in health education programmes acts as a framework for the way people make decisions on how to prevent or control meningitis health issues when they hear or read about meningitis. Most people in the northern part of Ghana are susceptible to meningitis especially because their regions fall within the meningitis belt of Ghana. The threat of being sick with meningitis coupled with the severity of the disease all contribute to the way people respond to meningitis preventive information.

People who take measures from preventive information benefit from good health whilst those who do not respond to preventive messages run the risk of being infected with meningitis. In other cases, people may be indifferent to the messages they receive but then it all leads to the whole concept of the HBM which allows individuals to make their own decision on health issues based on their personal belief. The decisions taken after being exposed to a communication topic, are derived from the readiness and confidence a person adopts that he or she thinks will lead to a successful and sustainable health outcome.

2.1.2 Media Richness Theory

Media Richness can be described as the ability of information to change understanding within a time interval. Communication transactions that can overcome different frames of reference or clarify ambiguous issues to change understanding in a timely manner are considered rich. Communications that require a long time to enable understanding or that cannot overcome different perspectives are lower in richness. In a sense, richness pertains to the learning capacity of communication. Face-to-face meetings and use of the telephone are considered to have higher levels of media richness than written media, such as an interoffice memo or email. Additionally, use of concurrent media such as telephone and live chat sessions are considered to have higher levels of media richness than non-concurrent media, interoffice memo or email.
Media richness theory was developed and introduced by Daft and Lengel in 1984. It propounds that when senders wish to send complex messages, richer media such as face-to-face should be more viable for recipients than leaner media such as text or e-mails only. Richer media like videos can convey much more information (ability to show visuals of signs and symptoms of meningitis), reduce ambiguity and can be more useful for complicated activities and directions (Perrault et al, 2014).

The theory is a framework that describes different communication media based on their ability to accurately transmit the desired message (Daft & Lengel, 1984). The framework ranks and evaluates the richness of different media and the theory states that richer media are more suited to transmit a more ambiguous message. Media richness theory is based on contingency theory and information processing theory and therefore explains that richer forms of media are generally more effective to use when communicating potential equivocal messages than less rich media (Daft and Lengel, 1986).

According to the media richness theory, all communication media possess different characteristics which make them more or less rich and the purpose of media selection is to reduce the ambiguity of a message (Daft & Lengel, 1986). If in fact a message can be perceived as being ambiguous, it is vague and consequently more difficult for the target audience to interpret. Thus, the more ambiguous a message is, the more data and cues are necessary to be transmitted along the message in order to ensure that message is interpreted and understood by the target audience. Media richness theory also describes that the level of media richness affects the message development and dissemination process. Daft and Lengel (1984) state that in general, richer media is more appropriate when trying to establish a relationship with the target audience since it transmits more data and cues, which makes the message easier to interpret.
This theory is important because the study seeks to find out how effective the channels employed by the Ghana Health Service are at increasing knowledge on meningitis prevention and thus promoting preventive health behaviours among the people.

Both the HBM and MRT demonstrate ways and means by which one may accept or reject preventive health information. An individual’s belief and social influence also affect how they respond to health information. Meningitis health education programmes elaborate on the dangers of the disease; therefore, people who fear going through that uncomfortable process may act according to the information given as a preventive measure. Health education programmes make use of various channels to convey the messages to their intended audience. The question is are the channels effective? Efficient communication should direct people to behave in the intended way. It is however important to note that the channels used to inform people on health issues are as relevant as the message being disseminated and should hence be well considered.

2.2 RELATED STUDIES

2.2.1 Knowledge and attitude on meningitis and meningitis vaccination

A 2014 study conducted to find out the awareness of meningococcal disease among British travellers to the meningitis belt in Africa revealed that knowledge regarding meningitis infection in travellers was low, particularly when compared with their understanding of other travel-related infections such as malaria and yellow fever. Although the global scores in the questionnaire did not correlate with vaccine uptake, knowledge of the meningitis belt and knowledge of certain key symptoms or signs were statistically associated with high vaccine
uptake. The study concluded that improved education of travellers may improve vaccine uptake before travel to the meningitis belt in Africa (Goodman et al, 2014).

In a study conducted in the Kassena-Nankana district of the Upper East region of Ghana to examine the knowledge, attitude and practices of residents within this meningitis endemic area, a lack of knowledge about early symptoms was found to be the major cause of delayed treatment. Given the viability of early mediation in meningitis treatment, the study results suggested that there was a requirement for training about the early signs and manifestations of meningitis to serve as a trigger for individuals within the district to seek for restorative assistance from health facilities sooner. Likewise, in light of the fact that 42.3% of respondents reported going all the while to traditional healers and western clinicians, working with the two groups to recognize meningitis earlier and allude patients suitably could also improve results (Hayden et al, 2013).

Additionally, in a study conducted to find the knowledge, demeanour and behaviour on meningitis among Taiwanese undergraduate students intending to school in the United States and to likewise distinguish factors that may influence their ability to accept meningococcal immunization, it was discovered that regardless of an overall positive attitude toward meningococcal immunization, there was poor knowledge about the disease. The study found that promoting education on the means of transmission, epidemiology and pharmacological administration of the disease could expand inoculation rates. It was thus recommended that both the government and travel medicine specialists should cooperate on building up a training programme for those high-risk groups rather than simply requiring vaccination (Cheng et al, 2013).
Pellulo et al (2018) also conducted a cross sectional investigation with the aim of assessing the knowledge, demeanour and practice about meningitis and preventive measures, perceived risks for contracting meningitis and attitude towards the utility of meningococcal vaccine for teenagers in Italy. It was found that knowledge about meningitis prevention and the benefits of vaccination was altogether high among female respondents, individuals who conversed with guardians about vaccination, those who got information about vaccination from doctors, those who had positive attitude towards the utility of information received on vaccinations. Their findings distinguished the need to improve adolescent knowledge about meningitis and its related vaccination, through correct health education, so as to have a good acceptance of vaccination (Pellulo, 2018).

2.2.2 Making health decisions through interpersonal communication

A study conducted by Prilutski (2010) on effective health communication strategies in Ghana showed that communication strategies based on personal contact and delivered through culturally appropriate media are more effective in Ghana. His findings suggested that interpersonal communication can lead to a much better outcome than using big media in electronic and print media to communicate health issues. Interpersonal communication basically involves one-on-one conversation or interaction with many people within the society. This means of communication aids in understanding how and why individuals communicate and behave in diverse ways to construct and negotiate a social reality. The researcher’s findings and observations led to the conclusion that public response to community-based health education programs that use more interactive personal communication strategies, was more successful than one that depends solely on mass media. This was because the use of
interpersonal communication seemed to have directed individual or group decision making on a health issue especially during a disease outbreak.

A study on malaria prevention and control in the Oromia and Amhara Regional States in Ethiopia was conducted by the Addis Continental Institute of Public Health in 2009. The purpose of the study was to measure the uptake of messages in both malaria prevention and control including antenatal care uptake by pregnant women. The ultimate goal of the study was to gain understanding of the knowledge, attitude and practice of the communities under investigation towards malaria prevention. The researchers wanted to use findings of the study to design effective communication strategies in malaria prevention and control, including communication activities designed to help increase antenatal attendance by pregnant women. Findings of the study stated that people responded more to malaria messages based on their acceptance of information from sources such as health facilities, religious organisations and various radio channels. The risk of malaria in pregnancy directed people to respond to information regarding its prevention and control.

2.2.3 Creating health awareness through the media

A communication intervention was carried out to create awareness of immunization through various media such as radio, newspaper, posters and fliers, SMS and mobile van of Mango Uganda Telecom (Steadman Research services in 2005). At the end of the study, a high percentage of participants said they heard the messages on the health issue and indicated the main source of information as radio. The researchers concluded that radio serves as the most ideal channel of communication and indicated the communication strategy used was successful. Another success factor was that majority of the target audience who heard the
messages responded appropriately by taking their children for immunization after hearing the
messages.

The finding that radio, as a so-called traditional or legacy medium, was favoured for awareness
creation on preventive health messaging is not surprising given the developing country context
of Uganda; and for that matter, Ghana and other African countries. In a study to investigate the
nature of meningitis outbreaks reporting by online news media in Ghana, Smith and Tietaah
(2017) found only a total of 60 items over the four-month period (incidentally the peak outbreak
season) by the online portals of two of the dominant media in the country. Furthermore, the
stories were not given prominent treatment, omitting to leverage the advantage of online media,
of combining multimedia tools like videos, audios and links to enhance their reports. They also
fell short on the surveillance function of reporting trends, alerting on incidences and guiding
audiences on preventive strategies and treatment recommendations.

Between 1972 and 1975, the Stanford University in the United States of America carried out a
heart disease prevention programme which was jointly conducted by the institution’s
Communication Department and School of Medicine. The main purpose or idea of the
programme named the “Three Community study” was to determine whether a media campaign
with or without valuable guidance for high risk individuals could produce measurable risk
reduction in a free-living population. Education of the participants in the programme was on
the three major risk factors in heart disease which are diet, smoking and lack of exercise.

Selecting three towns with similar characteristics to California, the first town was exposed to
media campaign using local radio, television, newspaper, billboards and direct mail lasting
eight months. The second town had the same exposure but selected a group of people who
qualified for high risk heart disease. These people were supported by thorough education in reducing the risk of heart disease in addition to exposure to the eight-month media campaign. Town three was not exposed at all to any of the media campaigning or education on the risk of heart disease and served only as a control group for the first two towns.

At the end of the programme, the second town which received information from the campaign as well as thorough education on the risks of heart disease, showed a higher significant level of a drop in cholesterol level than town one whose cholesterol level was a little lower than town two at the beginning of the study. The third town that had no media exposure at all had a rise in cholesterol level. The Stanford Heart Disease Prevention programme has been used by researchers working in the field of health communication as an approach in group influence based studies.

Keating, Meekers and Adewuyi (2006), in their study assessing the effects of a media campaign on HIV/AIDS awareness and prevention in Nigeria started the Vision Project which was supported by the U.S. Agency for International Development (USAID). The project utilized a mass-media approach that concentrated on reproductive health and HIV/AIDS prevention and the objective was to assess the degree to which programme exposure translated into increased awareness and prevention of HIV/AIDS. The researchers found the project reached a large portion of the population and that effective communication on reproductive health and HIV prevention topics increased HIV/AIDS awareness.
2.2.4 Health authorities and significant others as influencers

Lewis et al (2010) carried out a qualitative study to investigate how obese adults were impacted by public health messages on obesity. The main message used in the campaign was “I don’t eat a hamburger and large chips every day!” The aim of the campaign was to explore participants’ perception of public health risk messages and the way they applied the messages to themselves as well as their social settings. According to the researchers, studies carried out suggested that people did not understand the risk associated with health. However, they recognised or accepted that they were at risk too. The study revealed that the term “being fat” had led many public health agencies to carry out obesity prevention activities as a measure in informing the general public about risks involved in obesity.

The public health agencies discouraged unhealthy behaviour and promoted the benefits of preventive activities like healthy eating and exercising. At the end of the study, the researchers found that personal and contextual factors contributed to how individuals understood and applied public health messages. Individuals felt that health messages centred on the physical more than emotional health and in their context, obesity. They observed that very simple health messages over important and complex health issues might not work but rather stigmatise those whose behaviour they aimed to change. They also found that credible sources of health information, based on trust such as health professional, family and friends all played a role in directing how people interpret and respond to health prevention information.

In another related study, an integrated health control programme was developed by Anglogold Ashanti company as part of its Corporate Social Responsibility to fight malaria. A country Report (2006) stated that the Obuasi Municipal Area, where the programme was initially rolled out, recorded a consistent decline in malaria cases from 6,700 cases per month in 2005 to 1,128
cases per month following the campaign. The campaign was first reported in the company’s Report to Society (2004), with the topic, “A scientific approach to malaria control un Obuasi” and part of the key elements used in the campaign programme was information, education and communication.
CHAPTER THREE
METHODODOLOGY

3.1 INTRODUCTION

This chapter discusses the methods that were used to conduct this research. It gives information about the research design, and the reasons for its preference in determining and selecting the sample; and the steps used in collecting and analysing the data. It also discusses the study area for this research.

3.2 RESEARCH DESIGN

The research approach that was used for this study is triangulation. Triangulation involves the use of different research methods in a study with the aim of addressing a problem. Wimmer and Dominick (2000, pg. 49) define triangulation as “the use of both qualitative and quantitative methods to fully understand the nature of a research problem.” Triangulation is also done to validate findings as well as further the researchers’ comprehension of the phenomenon under study (Nyirongo, 2013).

By combining both methods, the researcher was able to assess the perspectives of both the target population and that of the communication officials of Ghana Health Service. One benefit of triangulation is that it can help to get a more complete image of the object under scrutiny. Thus, it helps obtain divergent results and these divergent results can highlight some points, present new information and also lead to further information (Ammenwerth et al, 2003).

In this study, the specific methods that were combined are survey and interviews. In a survey, respondents are taken from a population and studied to make inferences about the population
(Collins & Hussey, 2013). It is preferable when measuring attitudes of a large population (Babbie, 1992) and allows to collect a large amount of data (Wimmer & Dominick, 2014). The survey was important because it was appropriate for answering research questions 1 and 3 and for responding to the epistemological logic of the study.

A semi-structured interview was also conducted and this allowed ideas to be probed for further and better clarity. This method was also relevant for answering the 2nd research question.

### 3.3 STUDY AREAS

The Northern Region is the largest region in Ghana. According to the Government of Ghana website (www.ghana.gov.gh), Northern Region is divided into 20 districts with Tamale as its capital. Climatically, religiously, linguistically, and culturally, the region differs greatly from the politically and economically dominating regions of central and southern Ghana (Government of Ghana, 2018). It occupies an area of about 70,383 square kilometres and is the largest region in Ghana in terms of land area. Due to the dry weather and high humidity, meningitis is one of the major public health problems in the region (Kaburi et al 2017). Outbreaks of meningitis have been recurring in the Northern Region since the disease first hit the country in 1906 (Greenwood, 2006). The study was conducted in two purposively selected sites of the region: Tamale and Bole.

Tamale is the capital of the Northern Region and can be located at the centre of the region. Poverty, limited access to safe drinking water and poor sanitation have exposed many in the district to numerous health hazards. The prevalence of diseases such as malaria, diarrhoea, anaemia, acute respiratory infections, gynaecological disorders as well as outbreaks of epidemics such as cholera, anthrax and meningitis can be traced to the above factors (Fuseini,
2016). These diseases can be said to contribute to the number of deaths in the district. In the 2016 meningitis outbreak, Tamale recorded 11 deaths out of the 290 cases recorded in the region.

Bole is one of the most deprived districts in the Northern Region. Access to safe sanitation is very low in the district. About 86.6% of households in the district do not have access to safe sanitation and this compels households to choose unorthodox means of human waste disposal, which is seen to be negatively impactful on the environment and health. Diarrhoea and cholera are ranked the third leading cause of out-patient deaths in the district (Asiedu-Bekoe et al, 2016).

3.4 POPULATION AND SAMPLING TECHNIQUES

The population for this research is residents of Tamale and Bole. Tamale was selected because it is the capital of the region and also because it is more cosmopolitan in nature with ethnic, cultural, religious and educational diversities. Bole on the other hand was selected because it recorded the highest number of cases in the region during the 2016 outbreak.

A sample size of 120 participants were selected for this study: 60 participants from each of the selected districts. Participants were selected using the multi-stage sampling technique. Multistage sampling basically involves two or more stages of (often) random sampling on the hierarchical structure of natural clusters or units within the population (Sedgwick, 2015). For this study, there was a consideration of geographic areas and also number of cases during a meningitis outbreak, based on which residents in both Tamale and Bole were selected. This made the primary units for the study. Then six towns were randomly selected from each district; this constituted the secondary units. Tamale had 11 towns out of which six were
selected using the simple random method. Bole on the other hand had exactly six towns and so all were selected for the study. Selection of the individual households from the towns constituted the tertiary stage. This was done using the skip-interval sampling method. Ten households were selected from each of the six towns by entering every forth house (skipping two houses) along the main road in the town. Finally, within each selected household, individual respondents were identified for inclusion based on their availability and willingness to participate in the research.

Purposive sampling was used to select participants for the interviews. Two participants were selected for the individual in-depth interviews, one from each of the selected districts. These participants are the communication directors of the Ghana Health Service for each district. These participants were selected because they are in charge of planning and implementing health education programmes as well as designing and developing public information campaigns within their district. Questions for the interview were not only intended on answering research question two but also to address other areas of interest that were relevant to the survey component of the study.

3.5 DATA COLLECTION

The quantitative data for this research was collected from residents of both Tamale and Bole, both in the Northern region of Ghana as indicated earlier. The study made use of interviewer administered questionnaires to gather information on the survey component of the triangulated research design. According to Bowling (2005), the channel of questionnaire presentation influences the psychological weight placed on respondents. The least burdensome method she identified is the personal face-to-face interview as it requires the respondents to speak the same language in which the questions are being asked; no reading skills are required. Also, a friendly
motivating interviewer can increase response and item response rates, maintain motivation with longer questionnaires, probe for responses, clarify ambiguous questions, use memory jogging techniques for aiding recall of events and behaviours (Bowling, 2005). The questionnaire contained both closed-ended and open-ended questions. The closed-ended questions allowed for standardization of data and the open-ended questions helped gain more insight into the study as it allowed people to express themselves.

The introductory part of the questionnaire was designed in such a way that the purpose of the research was clearly spelt out to the respondents, together with assurances of confidentiality. The first part of the questionnaire focused on the respondent’s knowledge on meningitis in general and meningitis health interventions in his/her district. The second part of the questionnaire focused on the various channels used by the Ghana Health Service in the meningitis health education programmes as well as the respondent’s preferred medium of communication. The final part captured the respondent’s demographic data: their age, gender, educational background and religion. The age range for this study was 18 years and above. The study also found the need to inquire about the religion of respondents because a peer review of how effective HIV and AIDS communication is in Africa by Govender in 2010, attributed the failure of donor funded health education programmes to a lack of consideration of the culture, religion, belief system and socio-economic context (Govender, 2010).

The interviews for this study were conducted with the help of an interview guide, using a set of open-ended questions that explored the views of the communication directors about health education programmes in general and meningitis health education programmes in particular. The interviews were conducted in the English language, audio recorded and transcribed.
3.6 DATA ANALYSIS

For the survey, the responses were number-coded and entered into a computer software. The Statistical Package for Social Sciences (SPSS) was used to expedite the analysis of the data gathered. Descriptive statistics in the form of frequency distribution, percentages, graphs, tables and charts were used to help interpret and analyse the data.

The recorded interviews for the qualitative aspect of the study were transcribed and analysed based on their themes. Thematic analysis is the process of identifying themes or patterns within a qualitative data (Maguire and Delahunt, 2017). Relevant responses were put into codes and these codes were later grouped into relevant themes.
CHAPTER FOUR

FINDINGS

4.0 INTRODUCTION

The chapter presents the findings of the study. The chapter is divided into four main sections as: (1) demographic information about respondents; (2) knowledge of the content of the meningitis health communication intervention; (3) the media through which such contents were communicated and (4) factors considered before conducting a meningitis health education programme. The quantitative data is presented in tables and graphs and the qualitative data is summarized according to common themes. All the 120 questionnaires administered were successfully completed and retrieved, representing a 100% response rate.

4.1 DEMOGRAPHIC CHARACTERISTICS

Table 1 represents the demographic characteristics of the study sample. Majority of the respondents were males (63, 52.5%); aged between 18 and 25 years (32, 26.7%) and had attained senior secondary education (41, 34.2%). Also, 81.7% of the respondent were Muslims.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>63</td>
<td>52.5</td>
</tr>
<tr>
<td>Female</td>
<td>57</td>
<td>47.5</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>32</td>
<td>26.7</td>
</tr>
<tr>
<td>26-29</td>
<td>26</td>
<td>21.7</td>
</tr>
<tr>
<td>30-39</td>
<td>29</td>
<td>24.2</td>
</tr>
<tr>
<td>Level of education</td>
<td>40-49</td>
<td>≤50</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------</td>
<td>-----</td>
</tr>
<tr>
<td>Junior high</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Senior high</td>
<td>41</td>
<td>13.2</td>
</tr>
<tr>
<td>Bachelors</td>
<td>35</td>
<td>29.2</td>
</tr>
<tr>
<td>Masters</td>
<td>12</td>
<td>10.0</td>
</tr>
<tr>
<td>Informal</td>
<td>11</td>
<td>9.2</td>
</tr>
<tr>
<td>HND</td>
<td>20</td>
<td>16.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religion</th>
<th>4.2 LEVEL OF EDUCATION AND KNOWLEDGE ON MENINGITIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christianity</td>
<td>22</td>
</tr>
<tr>
<td>Islam</td>
<td>98</td>
</tr>
</tbody>
</table>

Table 2 represents a cross tabulation of respondent’s level of education and their knowledge on meningitis. Of those who had HND, majority (80.0%) were “somewhat informed” about meningitis whilst a few (10.0%) were “highly informed” and “not so informed” respectively. Majority of those with informal education (72.7%) were “somewhat informed” whereas 27.3% were “not so informed” about the disease. Those with master’s degree had half of their total respondents (50.0%) been “highly informed” about the disease and those with bachelor’s degree had a little over half of the total figure (51.4%) being “somewhat informed” about the disease. Also, respondents who had only attained SHS education had more than half of the total figure (68.3%) been “somewhat informed” and those with JHS education, which was represented by only one respondent, was also “somewhat informed” about meningitis. This
implies that majority of the respondents irrespective of their level of education, are well informed about meningitis.

**Table 2: Crosstab of level of education and knowledge on meningitis (n=120)**

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Highly Informed n (%)</th>
<th>Somewhat Informed n (%)</th>
<th>Not so Informed n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior high school</td>
<td>0 (0.0)</td>
<td>1 (100)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Senior high school</td>
<td>9 (22.0)</td>
<td>28 (68.3)</td>
<td>4 (9.8)</td>
</tr>
<tr>
<td>Bachelors</td>
<td>11 (31.4)</td>
<td>18 (51.4)</td>
<td>6 (17.1)</td>
</tr>
<tr>
<td>Masters</td>
<td>6 (50.0)</td>
<td>4 (33.3)</td>
<td>2 (16.7)</td>
</tr>
<tr>
<td>Informal</td>
<td>0 (0.0)</td>
<td>8 (72.7)</td>
<td>3 (27.3)</td>
</tr>
<tr>
<td>HND</td>
<td>2 (10.0)</td>
<td>16 (80.0)</td>
<td>2 (10.0)</td>
</tr>
</tbody>
</table>

n (%) frequency (percentage) row total and percentage

**4.3 LEVEL OF KNOWLEDGE ON MENINGITIS**

The respondents were asked to indicate how well informed they are about meningitis (Table 3). It was found that majority of the respondents (75, 62.5%) had “some knowledge” about meningitis. About 28 (23.2%) of the respondents were “highly knowledgeable” about the disease.

**Table 3: Knowledge of respondents on meningitis (n=120)**

<table>
<thead>
<tr>
<th>How well informed do you feel you are about meningitis?</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly informed</td>
<td>28 (23.3)</td>
</tr>
<tr>
<td>Somewhat informed</td>
<td>75 (62.5)</td>
</tr>
<tr>
<td>Not so informed</td>
<td>17 (14.2)</td>
</tr>
</tbody>
</table>

Source: Fieldwork (2018) n=frequency %=percentage
The level of knowledge of meningitis among respondents has been made possible due to the consistent awareness on the disease. The head of communication, Ghana Health Service in Tamale confirmed this; she said that:

*We have organized Meningitis health education in schools, on radio programs and at durbars. And most times during the peak season or dry season, we do interpersonal communication at religious centres such as the mosques and churches. We also do health education programmes at the health facilities, especially when it is the dry season; we do talk to the mothers, pregnant women and anybody who come to the health facilities.*

The head of communication, Ghana Health Service at Bole, highlighted the essence of consciously creating awareness to heighten the knowledge of respondents. As she explained:

*We organize radio discussions for the general public, coupled with radio announcements. We also organize durbars in the various communities. We use the public address systems for the community from our catchment area; that is from Bole up to Bamboi. That is our district catchment area and so we use it along the road and so whichever area or community we get to, we talk to them and then continue. We also have what we call district health management team, so we meet with them too, they are our stakeholders. The thing is we have staff at the various health facilities too, and they also do health talks at the various OPDs, CWC, ANC and other venues.*

### 4.3.1 Knowledge on the seriousness of meningitis

The seriousness of meningitis as perceived by respondents is shown in Table 4. Most of the respondents (45, 37.5%) “agreed” that meningitis is a serious disease. Furthermore, majority of the respondents (55, 45.8%) “strongly agreed” that meningitis is a serious disease.
### Table 4: Severity of meningitis

<table>
<thead>
<tr>
<th>Is meningitis a serious disease?</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>45 (37.5)</td>
</tr>
<tr>
<td>Agree</td>
<td>55 (45.8)</td>
</tr>
<tr>
<td>Neutral</td>
<td>20 (16.7)</td>
</tr>
</tbody>
</table>

Source: Fieldwork (2018) n=frequency %=percentage

Notwithstanding this, the head of the GHS communication in Bole believed that not all respondents would adhere to precautionary messages on the severity of meningitis and the need to take preventive measures. The GHS creates continuous awareness. She said:

> We simply want to create awareness of the disease and also sensitize them on the preventive measure to save them from getting the disease. Not all of them will however be able to protect themselves from getting the disease, at least 10% or 20% of them may get the disease so we also stress on early reporting to the health facilities for prompt treatment to prevent death.

On the issue of the severity of the disease and the essence of creating awareness to enable the adoption of precautionary measures, the director of communication in Tamale also said:

> Well you know this place is a meningitis endemic prone zone, that is why we organise the health education programmes when it’s the season to sensitize the community members to know about meningitis and also know how to prevent it. So basically, to create awareness about the seriousness of the disease and what they are to do once they see signs and symptoms and also how to live preventive lifestyles to avoid the spread of the disease to other members of the family as well as friends.

One’s knowledge about the severity of meningitis can influence how he or she embraces meningitis health education programmes and also his or her willingness to adopt a preventive lifestyle.
4.3.2 Knowledge on Meningitis

Table 5: Knowledge of respondents on how meningitis can be contracted (n=274)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How can a person get meningitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through droplets in coughs and sneezes</td>
<td>76 (27.7)</td>
<td>1.65 (0.34)</td>
</tr>
<tr>
<td>Not sleeping under treated nets</td>
<td>6 (2.2)</td>
<td>0.02 (0.001)</td>
</tr>
<tr>
<td>Through saliva or spit</td>
<td>54 (19.7)</td>
<td>1.60 (0.39)</td>
</tr>
<tr>
<td>Eating late at night</td>
<td>12 (4.4)</td>
<td>0.05 (0.010)</td>
</tr>
<tr>
<td>Living in a house with a carrier or someone who has meningitis</td>
<td>82 (29.9)</td>
<td>3.83 (0.013)</td>
</tr>
<tr>
<td>Drinking contaminated water</td>
<td>44 (2.9)</td>
<td>0.60 (0.34)</td>
</tr>
</tbody>
</table>

Source: Field work (2018). n=frequency %=percentage P=probability value Values in bold indicate significance at 5% (p<0.05)

NB: the population is more than 120 because it’s a multiple response question

Respondents’ knowledge on how one can get meningitis is presented in Table 5 above. A large proportion of the respondents (82, 29.9%) were of the view that the disease is highly communicable and hence one can contract it from an infected person. In addition, 76 (27.7%) of the respondents indicated that the disease can be contracted through droplets in coughs and sneezes while 54 (19.7%) also intimated the disease can be contracted through saliva or spittle. From this, it is evident that majority of the respondents have accurate knowledge on the disease as most of them selected the three valid options as mentioned above. Only a handful of respondents showed lack of accurate knowledge by attributing the mode of contracting meningitis to eating late at night, not sleeping under treated mosquito net and drinking contaminated water.
The heads of communication at Bole and Tamale confirmed that respondents are knowledgeable on the signs, symptoms and preventive measures of the disease. The head of communication for Bole said:

*I must say that because of the sensitization and health education programmes, now majority of the population know about the disease and can describe it to you once you mention it by using so many names for it, they also know the signs and symptoms. Through the sensitization too, they know how dangerous it is so most of them try to report at the health facility when they see one or two signs and symptoms of the disease...* (Communication Director, GHS, Bole)

That of Tamale also affirmed by saying that:

*...You would realise that during the very recent outbreak, our district reported a few number of cases as compared to other districts. Then also when people immediately report to the hospital because they experienced one or two of the signs and symptoms as a result of their knowledge of these signs and symptoms. (Communication Director, GHS, Tamale)*

### 4.3.4 Knowledge on signs and symptoms of meningitis

<table>
<thead>
<tr>
<th>Signs and symptoms of meningitis</th>
<th>n (%)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigestion</td>
<td>6 (2.0)</td>
<td>0.24 (0.001)</td>
</tr>
<tr>
<td>Stiff neck</td>
<td>91 (29.7)</td>
<td>3.47 (0.022)</td>
</tr>
<tr>
<td>Headache</td>
<td>94 (30.7)</td>
<td>1.63 (0.046)</td>
</tr>
</tbody>
</table>
The respondent’s knowledge on the signs and symptoms of meningitis is shown in Table 6 above. The result showed that a large proportion of the respondents (94, 30.7%) indicated headache as the most known symptoms of meningitis while 91(29.7%) intimated stiff neck as a sign and symptom of meningitis. The least known symptom among the three valid options was increased sensitivity to light, 21 respondents representing 6.9% knew about it. However, when asked what they should do once they see the signs and symptoms of the disease, majority of the respondents highlighted the need to visit a health facility.

Though both communication directors were not specifically asked to state the signs and symptoms respondents must look out for, they both indicated that respondents are well enlighten on these. The communication director for Tamale said:

\[
\text{We basically create awareness about the seriousness of the disease and what they are to do once they see signs and symptoms and also how to live preventive lifestyle to avoid the spread of the disease to other members of the family as well as friends.} \\
\text{(Communication Director, GHS, Tamale)}
\]

The communication director for Bole also had this to say:

\[
\text{...Through the sensitization, they know how dangerous the disease is so most of them try to report at the health facility when they see one or two signs and symptoms of the disease.} \\
\text{(Communication Director, GHS, Bole)}
\]
4.3.5 Knowledge on preventive methods

Table 7: Knowledge about how to prevent meningitis (n=224)

<table>
<thead>
<tr>
<th>Preventive measures on symptoms of meningitis</th>
<th>n (%)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get vaccinated</td>
<td>54 (24.1)</td>
<td>2.11 (0.021)</td>
</tr>
<tr>
<td>Don’t share personal items [tooth brush, water bottles, lipsticks]</td>
<td>67 (29.9)</td>
<td>3.45 (0.041)</td>
</tr>
<tr>
<td>Sleep under treated nets</td>
<td>6 (2.7)</td>
<td>1.04 (0.310)</td>
</tr>
<tr>
<td>Frequently wash hands with soap under clean running water</td>
<td>89 (39.7)</td>
<td>0.28 (0.106)</td>
</tr>
<tr>
<td>Close all windows when going to bed</td>
<td>8 (3.6)</td>
<td>1.17 (0.889)</td>
</tr>
</tbody>
</table>

Source: Field work (2018). n=frequency %=percentage P=probability value Values in bold indicate significance at 5% (p<0.05)

NB: the population is more than 224 because it’s a multiple response question

The knowledge on how to prevent contracting meningitis is presented in Table 7. A large proportion of the respondents (89, 39.7%) indicated that in order to prevent the disease, frequent hand washing is imperative. Again, 67 (29.9%) of the respondents were of the view that not sharing personal items was key to preventing the disease while 54 (24.1%) of the respondents indicated that getting vaccinated is important to preventing meningitis.

The success of the respondent’s knowledge on the preventive measures recorded was reported by the communicators as a reason for the reduction in the number of cases recorded at the various health centres. The communications director for Tamale said:

*The most significant change I would say is when there are a few number of cases during an outbreak. You would realise that during the very recent outbreak, our district reported a few cases as compared to other districts. Also, when people immediately report to the hospital after they have experienced one or two of the signs and symptoms due to their knowledge of these signs and symptoms, this helps prevent any further complications. The community’s response about the disease, their level of awareness about the signs and symptoms and when someone is being affected or shows signs and
symptoms, what they will do before they come to the facility will show that indeed your efforts in meningitis education has yielded some results. (Communication Director, GHS, Tamale).

The communication director for Bole also had this to say:

*The number of deaths due to meningitis is reducing in the district because most of them know about the disease so most of the times when they get one or two of the signs, they try to seek early treatment by reporting at the health facilities.* (Communication Director, GHS, Bole)

### 4.3.6 Meningitis health messages

The rate at which useful health messages on meningitis get to respondents is shown in Figure 1. A large proportion of the respondents 54 (45%) generally” agreed” that the information they received was useful, while 38 (31.2%) had a “neutral” stance. In addition, 16 (13.3%) “strongly agreed” that the information they received was useful. Only a few respondents “disagreed” (8.3%) and “strongly disagreed” (1.7%) that the messages they received on meningitis was useful.

**Figure 1: Relevance of health messages on meningitis**

Source: Field work (2018)
The communication director at Tamale believed the only way to measure the usefulness of messages on meningitis was to follow up on respondents to assess how much they recall from the education programmes. She said:

*So, with the durbar for example, when you organize it, we go back after some weeks and interview some people on what they have been taught, if they are able to tell you something about it, then you know that the objectives are being achieved.*

She continues by saying that:

*With meningitis in particular, we know our health education programmes have been successful when there are minimal number of cases or no cases at all reported in our district during an outbreak or during the season of meningitis. And also, when you see that the people are aware about the signs and symptoms, preventive measures and treatment options, we can say that indeed our efforts have been successful. Like your earlier question on most significant change, when you see that there has been a change in the people’s level of awareness on the disease then we can say that our health education programme has yielded some positive results.*

A similar approach is used by the communication director in Bole to assess the relevance of meningitis related messages. She said:

*I would say my health education programmes are yielding results based on the number of cases being reported. If they are less, then it means they are understanding your messages and reporting to the health facilities like they ought to and also if the number of deaths is reducing then it also means people are adhering to the preventive measures that is why the death due to meningitis is reducing. So, I can use that one to determine whether my health education activities are yielding results.*

### 4.3.7 Exposure to meningitis preventive and treatment messages

The frequency at which respondents are exposed to meningitis preventive and treatment messages is shown in Figure 2. Some of the respondents (43.3%) agreed that the exposure to the meningitis preventive and treatment messages was “very frequent” during the season of meningitis. Majority of the respondents (51.7%) agreed that the exposure was “quite frequent”
during the season of meningitis. A handful of respondents (5.0%) mentioned that the exposure during the season was “quite infrequent”.

It was also found that just before the season of meningitis, most of the respondents (50.8%) indicated being “quite frequently” exposed to meningitis preventive and treatment messages. Additionally, 34 (28.3%) respondents stated that they were “quite frequently” exposed to meningitis messages just before the season of meningitis. Again, 17 (14.2%) respondents said that they were “never” exposed to meningitis messages just before the season of meningitis. However, 6 (5%) respondents were “very frequently” exposed to the meningitis messages just before its season. Only 2 respondents, representing 1.7%, said the exposure was “very infrequent”.

On whether respondents were exposed to meningitis health messages “anytime”, it was found that majority of the respondents (71.7%) stated they were not exposed to meningitis messages “anytime” aside from the periods indicated earlier.

Figure 2: Exposure to messages about meningitis prevention and treatment

Source: Field work (2018)
It was evident from the responses of the communication directors of both towns that awareness creation on meningitis was a continuous process. They however indicated that awareness on the disease was intensified prior to the dry season. The Tamale communication director said:

_For this district, we normally organize it around the peak season which is usually from November to April. That is when the rains have not yet started and so we do it around this time._

She continues by saying that:

_So, at the health facility level, we do it once every month but at the community level we do it whenever we have enough hands._

The communication director for Bole also said that:

_From January to March is the period we normally get serious cases so from that period, we organise durbars. At the Kip compound, every Kip zone is supposed to organise the durbar once a month. But the health education and other sensitisation is done weekly._

### 4.3.8 Meningitis Messages

Respondent’s view on whether the messages they received on meningitis were easy to understand is shown in Figure 3. Majority of the respondents (57.5%) “agreed” while 3.3% “strongly agreed” that the messages they had received on meningitis was easy to understand. However, fewer than 2% of the respondents “disagreed” and “strongly disagreed” respectively. Nonetheless, 43 (35.8%) remained “neutral”.

43
The communication director in the Bole office of the GHS indicated that the facility is able to measure the effectiveness of its awareness creation when there has been a reduction in the number of reported cases and deaths during the peak periods. She said,

_I would describe it as the number of cases being reported, if there are few cases, then it means they are understanding your messages and reporting to the health facilities like they ought to and also if the number of deaths is reducing then it also means people are adhering to preventive measure that is why the death due to meningitis is reducing._

She further stated that:

_Based on the number of cases that are reported and the number of deaths due to meningitis, we will be able to tell whether our health education is going well and the people are understanding whatever it is we are telling them._
4.5 COMMUNICATION CHANNELS

4.5.1 Respondents main media sources of general health information

The best media sources for transferring information on health-related issues is shown in Figure 4. A greater proportion of the respondents 60 (29.1%) indicated television as the best medium for reaching the masses on health-related matters. Also, the internet was preferred to newspapers and magazines as the best medium to relay health related information (46, 22.3% vs 43, 20.9%). Radio was cited by 17 (8.3%) as the least preferred media for conveying health related information.

Although radio was found to be the least preferred source of information by majority of the people, it seemed to be the major broadcast medium used by the communication directors to convey information on meningitis. The communication director for Tamale explained her choice as: “We use the radio because it reaches a large pool of people”. The communication director for Bole expressed a similar reason “The radio also allows me to reach a large group of people”.

Figure 4:Main media sources of general health information

Source: Field work (2018)
4.5.2 Respondents other media sources of general health information

Figure 5: Other sources of general health information

Source: Field work (2018)

Figure 5 above presents respondents other preferred media for receiving information on general health related issues. A greater proportion of the respondents (31.1%) indicated teachers as the best alternative non-media source for reaching the public on health-related matters. Again, health workers are preferred to religious leaders as the best non-media conduit to relay health related information (28.4% vs 20.4%). Family, friends, neighbours and colleagues were cited by 20.1% as the least preferred non-media platform for conveying health related information.

The important roles played by opinion leaders was cited as reasons for their inclusion during meetings with respondents to enlighten them on meningitis. The communications director for Bole explained that:

You also have to consider the stakeholders or opinion leaders in the community such as the chief, assembly man, our volunteers and the influential people in the community. Because when you want to organise, for instance, durbars and you don’t consider those people, there would be no one there to talk to. So, they in a way help convince more people to attend the durbars. (Communication Officer, GHS, Bole).
4.5.3 Source of information on meningitis

Table 8: Sources of information on meningitis awareness, prevention and treatment (n=614)

<table>
<thead>
<tr>
<th>Where did you hear about the meningitis awareness, prevention or treatment?</th>
<th>n (%)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspapers or magazines</td>
<td>114 (17.8)</td>
<td>0.30 (0.189)</td>
</tr>
<tr>
<td>Television</td>
<td>62 (9.7)</td>
<td>1.06 (0.91)</td>
</tr>
<tr>
<td>Internet</td>
<td>104 (16.2)</td>
<td>0.67 (0.574)</td>
</tr>
<tr>
<td>Brochures, posters and other printed materials</td>
<td>88 (13.7)</td>
<td>1.83 (0.370)</td>
</tr>
<tr>
<td>Family, friends, neighbours and colleagues</td>
<td>66 (10.3)</td>
<td>4.91 (0.001)</td>
</tr>
<tr>
<td>Health workers</td>
<td>82 (12.8)</td>
<td>2.87 (0.048)</td>
</tr>
<tr>
<td>Religious leaders</td>
<td>98 (15.3)</td>
<td>4.10 (0.183)</td>
</tr>
</tbody>
</table>

Source: Field work (2018). n=frequency %=percentage P=probability value Values in bold indicate significance at 5% (p<0.05)

NB: the population is more than 614 because it’s a multiple response question

The data on the sources best used to create awareness, prevention and treatment on meningitis is presented in Table 8 above. A large proportion of the respondents indicated they read on meningitis, its preventive and treatment options from the newspapers compared to the internet (114, 17.8% vs 104, 16.2%). Again, religious leaders were preferred to brochures, posters and other printed materials as the best means of creating awareness on meningitis (98, 15.3% vs 88, 13.7%). Health workers were preferred to family, friends, neighbours and colleagues as the best way of creating awareness on meningitis (82, 12.8% vs 66, 10.3%).

The communication directors of both districts indicated that the Ghana Health Service uses radio, durbar and interpersonal modes of communication to relay information to respondents. The Bole director explained that:
We do radio discussions, announcements in churches and mosques, meeting of opinion leaders in the communities; our stakeholders, to inform them about the disease, then there is also education at the OPDs, Staff welfare clinic, ANC. We also meet our health committee members both at the district and community level. At the district level we have the district health management committee and at the community level we have our community health management committee and our health volunteers. For the radio stations, we have two main stations we use; Dagbon radio and bumpruku fm.

The communication director for Tamale also stated that:

At the facility level, we use interpersonal communication to convey our messages across. We also use durbars at the community level, we do radio discussions and also visit the religious centres to engage with the people.

4.5.4 Media preferences for receiving messages about meningitis

<table>
<thead>
<tr>
<th>What source(s) of information would you prefer for receiving messages about meningitis?</th>
<th>n (%)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newspapers or magazines</td>
<td>30 (7.7)</td>
<td>1.03 (0.780)</td>
</tr>
<tr>
<td>Radio</td>
<td>61 (15.6)</td>
<td>0.86 (0.466)</td>
</tr>
<tr>
<td>Television</td>
<td>46 (11.7)</td>
<td>1.15 (0.559)</td>
</tr>
<tr>
<td>Internet</td>
<td>23 (5.9)</td>
<td>1.41 (0.003)</td>
</tr>
<tr>
<td>Brochures, posters and other printed materials</td>
<td>35 (8.9)</td>
<td>0.98 (0.889)</td>
</tr>
<tr>
<td>Family, friends, neighbours and colleagues</td>
<td>38 (9.7)</td>
<td>0.46 (0.004)</td>
</tr>
<tr>
<td>Health workers</td>
<td>25 (6.4)</td>
<td>0.85 (0.250)</td>
</tr>
<tr>
<td>Religious leaders</td>
<td>54 (13.8)</td>
<td>0.68 (0.118)</td>
</tr>
<tr>
<td>Teachers</td>
<td>80 (20.4)</td>
<td>1.12 (0.709)</td>
</tr>
</tbody>
</table>

Source: Field work (2018). n=frequency % =percentage P=probability value. Values in bold indicate significance at 5% (p<0.05)
NB: the population is more than 392 because it’s a multiple response question

Data on the most preferred media for receiving messages on meningitis is presented in Table 9. A large proportion of the respondents indicated they preferred radio to newspapers or magazines and television for receiving messages about meningitis (15.6% vs 7.7 vs 11.7%). The brochures, posters and other printed materials are preferred to the internet for receiving messages on meningitis (8.9% vs 5.9%). Religious leaders were preferred to family, friends, neighbours and colleagues for receiving information on meningitis (13.8% vs 9.7%). Teachers as preferred to health workers for receiving information on meningitis (20.4% vs 6.4%)

4.6 Factors considered in conducting a meningitis health education programme

Data collected on the various factors considered before conducting and promoting meningitis health education programmes. Both interviewees highlighted various factors, the communications director for Tamale indicated that;

*For a normal health education programme, you first consider your audience, the type of audience you are going to talk to, you must consider them before planning the health education programme. You look at the venue you are using, whether it will be suitable for the audience that you are dealing with. Then you look at the time which is also important. You need to set a time that will be favourable for the audience otherwise they won’t attend the meeting. You also consider the message which you are carrying out to the audience. You then look at the medium or the channels you are using to give the message. We also organise durbars and focus group discussion. If you are using radio, most of the women sometimes don’t have time for radio, so if you don’t carry the message to them and you just send it through radio, nobody will hear. We sometimes*
use information van to carry out the message to those in the market because the noise the van makes will attract them to listen to what you have for them. If they are busy in the market and you decide to use radio, how will they listen to your message? We also use visual aides especially when you are doing health education at durbars and health facilities, the use of flipcharts and posters will help engage the people and also help them remember what they are taught.

You also have to consider the stakeholders or opinion leaders in the community such as the chief, assembly man, our volunteers and the influential people in the community. Because when you want to organise, for instance, durbars and you don’t consider those people, you can get to the venue and there would be no one there to talk to. So they in a way help convince more people to attend the durbars.

Similar factors are considered by the communication director for Bole, she said:

First of all, we consider the target audience and then the language that the people will be able to understand and participate. We also consider the communication channels too, either radio or health talk; one on one or focus group discussion.
CHAPTER FIVE
DISCUSSION, CONCLUSION, RECOMMENDATION AND LIMITATION

5.1 DISCUSSION

The study examined the level of public awareness and knowledge created about meningitis and the effectiveness of the media in enabling that outcome. The study had as its objectives:

1. To ascertain the level of knowledge on symptoms, treatment and prevention that the meningitis health education programmes achieved.

2. To assess the effectiveness of the various channels employed by the health education programmes in their effort to create awareness and encourage the adoption of preventive health behaviours.

3. To ascertain the responds on the people of Tamale and Bole to health education programmes.

This chapter presents a synthesis and discussion of the findings as they respond to each of these objectives

5.1.1 Level of knowledge on meningitis

It was found that majority of the respondents had “some knowledge” or “high knowledge” about the disease. The result is consistent with a study by Pellulo et al (2018) conducted on the knowledge, attitudes and practices of respondents about meningitis and preventive measures in Italy; which found that public knowledge about meningitis prevention and the benefits of vaccination was significantly high among females. The results however contradict a study conducted to find the knowledge, attitudes towards and behaviour surrounding meningitis among Taiwanese college students, which showed that despite an overall positive attitude toward meningococcal vaccination, there was poor knowledge about meningococcal disease
(Cheng et al, 2013). Similarly, the result of the study disagrees with a 2014 study conducted to find out the awareness of meningococcal disease among British travellers to the meningitis belt in Africa and revealed that knowledge regarding meningitis infection in travellers was low (Goodman et al, 2014). This level of knowledge according to both communication directors of the Ghana Health Service, was due to frequent sensitizations conducted by their outlet to reduce meningitis morbidity and mortality rates.

A large proportion of the respondents (29.9%) were of the view that the disease is highly communicable and hence one can contract it from an infected person. In addition, 27.7% of the respondents indicated that the disease can be contracted through droplets in coughs and sneezes, while 19.7% also intimated the disease can be contracted through saliva or spittle.

Residents knowledge on meningitis was confirmed by communication directors of both districts. The communication director for Bole explained that “majority of the population now know about the disease and can describe it to you once you mention it by using so many names for it”. That of Tamale also affirmed this by saying that her district recorded the least number of cases in the entire region in the recent outbreak which meant that the people know about the disease and are taking the necessary precautionary measures. The result of the study is in disagreement with a study conducted in the Kassena-Nankana district of the Upper East region of Ghana on the knowledge, attitude and practices of residents within meningitis endemic area, which found a lack of knowledge about early symptoms of meningitis. Similarly, the study contradicts a study conducted to find the knowledge, attitudes towards and behaviour surrounding meningitis among Taiwanese college students, the results of which suggested poor knowledge about the transmission medium of the meningococcal disease (Cheng et al, 2013).
It was further established that the information received on meningitis was useful in preventing an upsurge in the disease. In addition, it was found that exposure to the meningitis preventive and treatment messages was “very frequent” during the season of meningitis. The result agrees with a study conducted by Prilutski (2010) on effective health communication strategies in Ghana. That study found that communication strategies based on personal contact and delivered through culturally appropriate media are more effective in Ghana. The surge in adhering to meningitis prevention strategies corroborates one assumption of the health belief model which explains perceived susceptibility to a health problem (National Cancer Institute and National Institute of health, 2002). This translates into the belief of an individual that he or she can possibly fall sick based on knowledge of certain ailments they know they are at risk of and this will lead a person to respond to behaviour change. For example, although not feeling ill, some people in the northern region may take precautionary measures during the dry season because they know their region is prone to the disease or when they hear media announcements persuading people to take precautionary measures especially during the season of meningitis.

5.1.2 Communication Channels

The best media sources for reaching the masses on meningitis were television, internet and radio. Although radio was found to be the least preferred source of information by majority of the people, it seemed to be the major broadcast media used by the communication directors to convey information on meningitis. The result is explained by the media richness theory which indicates that when senders wish to send complex messages, richer media such as face-to-face should be more effective for receivers than leaner media such as text or e-mails only. Richer media like videos can carry much more information (ability to show visuals of signs and symptoms of meningitis), reduce ambiguity and can be more useful for complicated directions
and activities (Perrault et al, 2014). In addition, the study agreed with a study carried out to create awareness of immunization through various media such as radio, newspaper, posters and fliers, SMS and mobile and concluded that radio served as the most ideal channel of communication and indicated the communication strategy used was successful. Another success factor was that majority of the target audience who heard the messages responded appropriately by taking their children for immunization after hearing the messages (Steadman Research services, 2005).

A greater proportion of the respondents indicated teachers as the best alternative non-media platform for reaching the masses on health-related matters. Again, health workers are preferred to religious leaders as the best non-media conduit to relay health related information. Family, friends, neighbours and colleagues were also preferred as non-media platform for conveying health related information. The study agrees with a study on malaria prevention and control in the Oromia and Amhara Regional States in Ethiopia, which found that people responded more to malaria messages based on their acceptance of information from sources such as health facilities, religious organisations and various radio channels (Addis Continental Institute of Public Health, 2009). The study further agrees with a study conducted on effective health communication strategies in Ghana, which showed that communication strategies based on personal contact and delivered through culturally appropriate media are more effective in Ghana. It suggested that interpersonal communication can lead to a much better outcome than using big media in electronic and print to communicate health issues (Prilutski, 2010).

A large proportion of the respondents indicated they heard of meningitis, its preventive and treatment options in the newspapers compared to the internet. The results agreed with the study carried out on the effects of media campaign on HIV/AIDS awareness and prevention in
Nigeria which found that the project reached a large portion of the population and that effective communication on reproductive health and HIV prevention topics increased HIV/AIDS awareness (Keating, Meekers & Adewuyi 2006). Again, religious leaders were preferred to brochures, posters and other printed materials as the best means of creating awareness on meningitis. Health workers were preferred to family, friends, neighbours and colleagues as the best way of creating awareness on meningitis. The reason for the inclusion of opinion leaders such as religious leaders in the health education programmes, according to the communication director in Bole, is to enable them convince more people to attend gatherings that are organised to sensitize them on meningitis.

The study agreed with a study which was carried out on how obese adults were impacted by public health messages on obesity. That study found that credible sources of health information, based on trust such as health professional, family and friends all played a role in directing how people interpret and respond to health prevention information (Lewis et al. 2010).

### 5.1.3 Response to Meningitis Health Education Programmes

The resident response to a health education programme can be measured by how they react to messages in the health education programme and whether or not they adopt the preventive lifestyles prescribed in the programme. When it came to how understandable residents found the messages they received on meningitis, majority of the respondents simply agreed that the messages were easily understandable whereas others took a neutral stance. However, refusal to take a preventive health decision does not always indicate that one does not understand the messages or that one does not know the signs and symptoms of the disease. Other factors such as an individual’s beliefs, his religion and his financial capabilities can influence decisions concerning adopting a healthier lifestyle.
5.1.4 Factors Considered when Organising a Meningitis Health Programme

Knowing your audience is very important when organising a health intervention. This is because their response to your intervention will determine whether your set out objectives were achieved or not. Various factors are considered by the Ghana Health Service when organising a health education programme. According to officials of the GHS, their target audience, communication channel, time and the stakeholders involved are some of the basic factors considered. By knowing your target audience, you will be able to communicate in their language(s) so that the messages will be better understood when delivered. Considering the medium of communication is also very vital when planning an education programme because without the right channels, important information might not reach your target audience. Also, the stakeholders are very important people that one cannot do without when organising a health intervention. Chiefs, assembly men, district chief executives, religious leaders, teachers and other opinion leaders cannot be ignored, this is because most of these people have a voice in the community, they know the norms and the beliefs of their people and the people look up to some of them

5.2 CONCLUSION

The prevention of diseases is an important aspect of human lives as it can be used as a determinant of wellbeing as well as life expectancy. In the case of this study, it was found that people have varied reasons on how to respond to preventive health information. When it comes to knowledge on meningitis in the Northern region of Ghana, residents can be said to have high knowledge on the causes, sign, symptoms, prevention and treatment. These are the basic things one needs to know about the disease in order to live a preventable health behaviour.
Also, the use of interpersonal communication channels by policy makers rather than the resort to mass media in sensitizing residents on meningitis was a consequent more of resource constraint than audience profiling.

Incidentally however, the survey findings showed that interpersonal modes were preferred for receiving health information among respondents. This suggests that public health campaign implementers must more directly employ formative research evidence than relying on their preset preferences. Furthermore, the possibilities offered by digital and social media platforms can offer policy makers the opportunities of deploying technologies in interpersonal ways.

While it is envisaged by organisers of health education programmes to have their information accepted by their target audience, sometimes information which is geared towards the set-out objective does not result in behaviour change. However, with the meningitis health education programme, residents were found to have responded positively to meningitis health information. This was evident in the immediacy with which they reported signs and symptoms to the health facilities and also based on the number of people who turned up during a meningitis vaccination programme.

**5.3 RECOMMENDATION**

The key findings of the study established that there is a high level of knowledge on meningitis among the people of the northern region. However, there is more room for improvement on the part of the Ghana Health Service as a significant minority misunderstood the causal factors and symptoms of infection.

Daft and Lengel (1984) propose the richest medium of communication to be face-to-face because it allows for immediate feedback through verbal and non-verbal cues. As demonstrated from the study findings, face-to-face interactions is both the most effective and the most used
medium by the Ghana Health Service to educate the public on meningitis. However, a factor to be considered by the GHS is media preference of their intended audience especially with the advent of technology. Most people, especially the technology savvy ones, are shifting from the use of indigenous means of communication to a more advanced means of communication. Hence, the Ghana Health Service must embrace the use of this new technology in its quest to promote preventive health. This will help save time and resources, which were found to be some of the challenges encountered by the communication directors in implementing the meningitis health education programmes.

The caveat, though, is that online health news reporters would also require some orientation and training, as the study by Smith and Tietaah (2017) found that online news reports on meningitis in Ghana were remiss of their surveillance role of reporting on trends and alerting the public on outbreaks and preventive strategies.

It is also recommended that while the fight against meningitis continues, there is the need to reinforce communication on prevention by dwelling more on perceptions surrounding health issues and increasing the use of persuasive messages that aid recall and aim at highlighting the severity of the disease and encouraging the target audience to be a source of information to other members of their family and the community so that together they can end the menace. It is also recommended that Ghana Health Service should consider other socio-economic factors which prevent individuals from adopting health related lifestyles and strategize around it so that their meningitis health education programmes can be all encompassing.

A final recommendation is for future research to expand the size and sites, combine the survey and in-depth interview methods with content analyses and experiments and employ longitudinal designs.
5.4 Limitations of the study

This study used questionnaires and as such, language was a barrier in the administration of the questionnaires as the researcher had to engage the services of people to interpret the questionnaire into the languages of the participants.

Also, the attitude of respondents towards answering the questionnaire influenced the findings. Respondents were reluctant to partake in the study and did not really take their time to fill the questionnaire.


University of Ghana [http://ugspace.ug.edu.gh](http://ugspace.ug.edu.gh)


University of Ghana http://ugspace.ug.edu.gh


Stanford Prevention Research Centre, http://prevention.stanford.edu/about/history.html


https://www.afro.who.int/news/mass-campaign-vaccinate-nearly-3-million-people-against-meninigitis-starts-today-ghana

http://citifmonline.com/2016/03/students-sensitised-on-pneumococcal-meningitis-in-nadowli-kaleo/
APPENDIX A: QUESTIONNAIRE

Dear respondent,

I am conducting a study to evaluate the Ghana Health Services’ health communication interventions on meningitis.

This questionnaire is intended to collect information that will be used for academic purposes only. It has three main sections covering general information about you, your knowledge of the content of the meningitis health communication interventions as well as the media through which such contents are communicated.

You have been selected because you live in the district within which the survey is been conducted. I humbly request that you respond to all questions truthfully and to the best of your knowledge, in order to enable me draw accurate conclusions on what recipients of meningitis interventions expect before and during outbreak. It should take about 15 minutes to complete.

Please be assured that your participation is voluntary and that the information you share with us will be used confidentially.

Thank you for your cooperation.

Sincerely,

Rachael Quartey-Papafio
Researcher
Department of Communication Studies
PART ONE: KNOWLEDGE OF MENINGITIS AND MENINGITIS HEALTH INTERVENTIONS
This section seeks information on your knowledge of meningitis and some of the interventions organised within your region.

1. How well informed do you feel you are about meningitis?
   1. highly informed
   2. Somewhat informed
   3. Not so informed

2. Meningitis is a serious disease?
   1. Strongly agree
   2. Agree
   3. Neutral
   4. Disagree
   5. Strongly disagree

3. How can a person get meningitis? [please select all that apply]
   1. Through droplets in coughs and sneezes
   2. By not sleeping under treated nets
   3. Through saliva or spit
   4. Eating late at night
   5. Living in a house with a carrier or someone who has meningitis
   6. Drinking contaminated water
   7. Other [please specify] ____________________________

4. What are some of the signs and symptoms of meningitis? [please select all that apply]
   1. Indigestion
   2. Stiff neck
   3. Headache
   4. Cough
   5. Weight loss
   6. Increased sensitivity to light
   7. Other [please specify] ____________________________

5. What should you do if you thought you had any of these symptoms of meningitis?
1. Go to a health facility
2. Go to a pharmacy
3. Go to a traditional healer
4. Pursue other self-treatment options (herbal medicine)
5. Other [please specify]

6. How can a person prevent getting meningitis? [please select all that apply]
   1. Get vaccinated
   2. Don’t share personal items [tooth brush, water bottles, lipsticks etc]
   3. Sleep under treated nets
   4. Frequently wash hands with soap under clean running water
   5. Close all windows when going to bed
   6. Exercise daily

7. I have received useful health messages on meningitis in my region.
   1. Strongly agree
   2. Agree
   3. Neutral
   4. Disagree
   5. Strongly disagree

8. How frequently exposed have you been to the messages about meningitis prevention and treatment?

<table>
<thead>
<tr>
<th></th>
<th>Very Frequent</th>
<th>Quite Frequent</th>
<th>Not at all</th>
<th>Quite Infrequently</th>
<th>Very Infrequently</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the season of meningitis</td>
<td></td>
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<tr>
<td>Just before the season of meningitis</td>
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<td>Anytime</td>
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<tr>
<td>Outside the season of meningitis</td>
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</tbody>
</table>
9. The messages I have received on meningitis are easy to understand?
   1. Strongly agree
   2. Agree
   3. Neutral
   4. Disagree
   5. Strongly disagree

10. Have you ever been the source of information to others about meningitis outbreak prevention and treatment?
   a. Yes
   b. No

11. What messages on meningitis do you remember from the health intervention?

   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

PART TWO: CHANNELS

This section looks at your preferred source of health information and the various media used in the meningitis health interventions.

12. What are your main media sources of general health information? [please rank from 1-6 in order of use]
   
   Newspaper or magazine
   Radio
   Television
   Internet
   Billboards, brochures, posters and other printed materials
   Other [please specify] ______________________________________________________________________

13. What are your other sources of general health information? [please rank from 1 - 5]

   Health workers
   Family, friends, neighbours and colleagues
   Religious leaders
   Teachers
Now on Meningitis Specifically:

14. Where did you hear about the meningitis awareness, prevention or treatment?
   1. Newspapers or magazines
   2. Radio
   3. Television
   4. Internet
   5. Brochures, posters and other printed materials
   6. Family, friends, neighbours and colleagues
   7. Health workers
   8. Religious leaders
   9. Teachers
   10. Other [please state] _________________________________

15. What source(s) of information would you prefer for receiving messages about meningitis? [please rank from 1-10]
   Newspapers or magazines
   Radio
   Television
   Internet
   Brochures, posters and other printed materials
   Family, friends, neighbours and colleagues
   Health workers
   Religious leaders
   Teachers
   Others [Please state] _________________________________

PART THREE: DEMOGRAPHICS
This section requires you to provide information on your background.

16. How old are you?
1. 18-25
2. 26-29
3. 30-39
4. 40 – 49
5. 50 and above

17. Gender
   1. Male
   2. Female

18. What is you level of education?
   1. Junior high school
   2. Senior High school
   3. Bachelors
   4. Masters
   5. Informal
   6. Other [please state] _________________________________

19. What is your religion?
   1. Christianity
   2. Islam
   3. African Traditional Region
   4. Other [please state] _________________________________
APPENDIX B: INTERVIEW GUIDE

1. What factors do you consider when designing a health education programme?

2. What are some of the meningitis health education programmes you have organised over the past five years?

3. When are meningitis health education programmes organised in this region?
   3b. How often are meningitis health education programmes organised in this region?
   3c. Why are meningitis health education programmes organised in this region?

4. What are the key messages in a typical meningitis education programme?

5. What are some of the means by which your unit engages in meningitis education programmes?

6. Why do you use these methods or channels?

7. What examples of most significant change among your targets/subjects would you say are due to your meningitis prevention/treatment efforts?

8. What are some of the challenges encountered in implementing a meningitis health education programme?

9. What specific skills/training have you received that you would say enable you to perform the meningitis education programme?

10. In what ways do you determine if your efforts are proceeding to plan?
   10b. In what ways do you determine if your efforts have been achieved?