SOCIO-CULTURAL FACTORS ASSOCIATED WITH BURULI ULCER MANAGEMENT IN THE OBOM SUB-DISTRICT OF THE GA SOUTH MUNICIPALITY OF GHANA

ERIC KOKA
(10361494)

THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF DOCTOR OF PHILOSOPHY (PhD) DEGREE IN PUBLIC HEALTH

MARCH, 2015
DECLARATION

Candidate’s Declaration

I hereby declare that this thesis is a result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

CANDIDATE:

..................................................  ..................................................  DATE

ERIC KOKA  
(10361494)

Supervisors’ Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Ghana.

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

PROF. PHILIP BABA ADONGO  DATE
(PRINCIPAL SUPERVISOR)

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

DR. COLLINS S.K AHORLU  DATE
(SUPERVISOR)

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

PROF. DOROTHY YEBOAH-MANU  DATE
(SUPERVISOR)
ACKNOWLEDGEMENTS

I wish to register my deepest appreciation to my supervisors, Prof. Philip Baba Adongo, Dr. Collins Achorlu and Prof. Dorothy Yeboah-Manu through whose efforts, useful suggestions and constructive criticisms this thesis has been completed. My sincere thanks go to all lecturers at the Social and Behavioural Sciences Department in particular and the School of Public Health in general for bringing me this far. Great thanks go to the staff of the Epidemiology Department and Bacteriology Department of the Noguchi Memorial Institute for Medical Research for their encouragement and support. To Daniel Okyere, my research assistant, I say a big thank you for your support in data entry, analysis and proof reading the entire work. I am particularly indebted to Optimus Foundation (United Bank of Switzerland) for their financial support during my three years in the PhD programme. To Prof. Mark Nichter, the lead Social Scientist on the Stop Buruli Consortium and Ann Marie, the representative of the funders (Optimus Foundation), I say a big thank you to both of you for your care, concern, support and interest in my career development.

My sincere thanks go to Mr. Isaac Lamptey (The Deputy Chief Physician Assistant), Seth Baffoe and all the nurses of the Obom health centre for all the assistance you all gave me during my field work and your role as my resource persons on the field. To the study participants and the Buruli Ulcer patients and former patients, I say thank you. I am particularly grateful to the Yeboah-Manu and Achorlu families for their encouragement, support and motivation for me to work hard and finish on time. My final thanks go to my wife, Nancy Koka and children, Daniel Seyram Atta-Koka and Nanette Selorm Atta-Koka for your support and motivation to finish this thesis on time. To all those who are inadvertently missing from this list, I say thank you all for being there for me.
ABSTRACT

This study was conducted with three specific objectives: to describe community knowledge and perception about Buruli ulcer and wound management; determine health seeking behaviour for Buruli ulcer by community members and determine cultural and local acceptability of wound management at the clinic and community.

The study was conducted in the Obom sub-district of the Ga South Municipality of Ghana. This was a mixed method study employing qualitative and quantitative techniques for data collection. Interviews and Focus Group Discussions were conducted with some selected community elders, traditional healers, Buruli ulcer patients and some patient caretakers in selected communities. Fifty five (55) in-depth interviews were conducted and groups of 8 community elders (Ga, Ewe and Akan) were each selected for focus group discussions in the study area. There were therefore a total of three focus group discussions that were done. Observations were also done on Buruli ulcer patients to document how they integrate local and modern wound management practices in the day to day handling of their wounds. Survey questionnaires were also used to collect data. Content analysis was done after thematic coding of the qualitative data whiles for the quantitative data; Epi-Info 7 was used to perform basic frequencies to measure the level of knowledge, perceptions and treatment seeking behaviour of Buruli ulcer in the endemic communities.

Findings from the study revealed a high level (95.3%) of knowledge about Buruli ulcer in the selected endemic communities. Local names of Buruli ulcer vary by the local languages (Ga, Ewe and Akan) spoken by communities. However, the various local names have common meanings and interpretations for Buruli ulcer disease. Findings revealed varied perceptions of community members about Buruli ulcer and the infected. Some respondents perceived Buruli ulcer patients as people who have been bewitched, people
who are witches/wizards while others perceived them as people who did not take good care of themselves and got infected. It came to light that most respondents (41.0%) would resort to self-medication as their first treatment option when infected with Buruli ulcer disease. However, it was also found that, cultural practices and beliefs significantly affected the patients' wound care and treatment seeking behaviour. It came up that there were two categories of wounds depending on their causes. Those caused by charms or spirits and required the attention of traditional healers, while those not caused by charm should be treated either at home or at the health facility. Various materials were used for such wound dressing and these included urine and concoctions made of charcoal and gun powder.

There is the need for community education to make a strong case for early reporting to avoid ulcers or at least severe ones reporting at the biomedical facilities. It is pertinent for both Buruli ulcer endemic community members and clinicians to be educated to understand each other's expectations regarding wound care, as local beliefs could significantly impact wound care and treatment outcomes.
DEDICATION

This thesis is dedicated to the joy of my wife Nancy Koka and children Daniel Seyram Atta-Koka and Nanette Selorm Atta-Koka.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declaration</td>
<td>i</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>ii</td>
</tr>
<tr>
<td>Abstract</td>
<td>iii</td>
</tr>
<tr>
<td>Dedication</td>
<td>v</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>vi</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>xiii</td>
</tr>
<tr>
<td>List of Abbreviations</td>
<td>xiv</td>
</tr>
</tbody>
</table>

## CHAPTER ONE

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Background to the Study</td>
<td>1</td>
</tr>
<tr>
<td>1.2 The Problem Statement</td>
<td>5</td>
</tr>
<tr>
<td>1.3 Justification/Rationale of the Problem</td>
<td>6</td>
</tr>
<tr>
<td>1.4 Objectives of the Study</td>
<td>8</td>
</tr>
<tr>
<td>1.4.1 Broad/General Objective</td>
<td>8</td>
</tr>
<tr>
<td>1.4.2 Specific Objectives</td>
<td>8</td>
</tr>
<tr>
<td>1.5 Research Questions</td>
<td>8</td>
</tr>
<tr>
<td>1.6 Phenomenology</td>
<td>8</td>
</tr>
<tr>
<td>1.7 Theoretical, Conceptual, and Philosophical Underpinnings</td>
<td>11</td>
</tr>
<tr>
<td>1.7.1 Introduction</td>
<td>11</td>
</tr>
<tr>
<td>1.7.2 Health Belief Model</td>
<td>12</td>
</tr>
<tr>
<td>1.7.3 Wellers’ Four As Model</td>
<td>12</td>
</tr>
<tr>
<td>Section Description</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>1.7.4 The Health Care Utilisation Model</td>
<td>14</td>
</tr>
<tr>
<td>1.7.5 Relevance of the Health Care Utilisation Model to the study</td>
<td>16</td>
</tr>
<tr>
<td>1.8 Significance/Relevance of the Study</td>
<td>18</td>
</tr>
<tr>
<td>1.9 Organisation of the Study</td>
<td>18</td>
</tr>
<tr>
<td><strong>CHAPTER TWO</strong></td>
<td></td>
</tr>
<tr>
<td>2.0 Literature Review</td>
<td>20</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>20</td>
</tr>
<tr>
<td>2.2 Global Buruli Ulcer Situation</td>
<td>20</td>
</tr>
<tr>
<td>2.3 The Epidemiology of Buruli Ulcer</td>
<td>22</td>
</tr>
<tr>
<td>2.4 Buruli Ulcer as a Neglected Tropical Disease (NTD)</td>
<td>24</td>
</tr>
<tr>
<td>2.5 Transmission</td>
<td>25</td>
</tr>
<tr>
<td>2.6 Global Control Efforts for Buruli Ulcer</td>
<td>26</td>
</tr>
<tr>
<td>2.7 Clinical Manifestation of Buruli Ulcers</td>
<td>28</td>
</tr>
<tr>
<td>2.8 Treatment and Management of Buruli Ulcers</td>
<td>34</td>
</tr>
<tr>
<td>2.9 Treatment Options for Buruli Ulcer Patients</td>
<td>38</td>
</tr>
<tr>
<td>2.10 Biomedical Treatment</td>
<td>40</td>
</tr>
<tr>
<td>2.11 Health System and Management of Buruli Ulcers</td>
<td>41</td>
</tr>
<tr>
<td>2.12 Capacity Building in the Health System to Control Buruli Ulcer</td>
<td>45</td>
</tr>
<tr>
<td>2.13 Poverty, Cost of Health Care, Stigmatisation and Coping</td>
<td>46</td>
</tr>
<tr>
<td>2.14 Socio-Cultural Features, Illness Experience, Meaning and Treatment</td>
<td>50</td>
</tr>
<tr>
<td>2.15 Culture, Belief Systems and Wound Care</td>
<td>52</td>
</tr>
</tbody>
</table>
CHAPTER THREE

3.0 Methodology - - - - - - - - 65
3.1 Introduction - - - - - - - - 65
3.2 The Study Area - - - - - - 65
    3.2.1 The Ga South Municipality - - - - - - 65
    3.2.2 The Obom Sub-District - - - - - - 66
3.3 Study Design - - - - - - - - 67
3.4 Study Population - - - - - - 70
3.5 Selecting Participants for the Qualitative Study - - - - 71
3.6 Sampling for the Quantitative Study - - - - - - 73
3.7 Methods of Data Collection - - - - - - - - 73
    3.7.1 In-Depth Interviews - - - - - - - 73
    3.7.2 Focus Group Discussions - - - - - - 75
    3.7.3 Observation - - - - - - - - 76
    3.7.4 Justification for the Use of Observation - - - - - - 77
    3.7.5 Survey Questionnaires - - - - - - - 79
3.8 Triangulation - - - - - - - - 79
3.9 Study Limitations - - - - - - - 80
3.10 Data Quality Control - - - - - - - 80
  3.10.1 Pre-Testing or Pilot Study of Data Collection Instruments - 81
  3.10.2 Validity - - - - - - - 81
3.11 Data Management and Analysis - - - - - - 81
3.12 Ethical Consideration / Issues - - - - - - 82
3.13 Conclusion - - - - - - - 83

CHAPTER FOUR
4.0 Research Findings - - - - - - - 84
4.1 Introduction - - - - - - - 84
4.2 Demographic Profile of Respondents - - - - - - 84
4.3 Knowledge of Buruli Ulcers - - - - - - 85
4.4 Community Ideas about Buruli Ulcer Infection - - - - 87
4.5 Community Perceptions about Buruli Ulcer Wounds - - - 88
4.6 Community Perceptions and Reactions towards Buruli Ulcer Patients - 89
4.7 Common Health Problems, Infrastructure and Treatment Seeking - 91
4.8 Health Seeking Behaviour for Buruli Ulcers - - - - 92
4.9 Community Views on Buruli Ulcer Prevention - - - 96
4.10 Conclusion - - - - - - - 97

CHAPTER FIVE
5.0 Research Findings - - - - - - - 99
5.1 Introduction - - - - - - - 99
5.2 General Wounds and Buruli Ulcers - - - - - - 99
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.3 Community Perceptions on Wounds, Buruli Ulcers and their Management</td>
<td>101</td>
</tr>
<tr>
<td>5.4 Cultural Beliefs on Who Should Dress Wounds</td>
<td>107</td>
</tr>
<tr>
<td>5.5 Other Factors that Influence Treatment Seeking Behaviour</td>
<td>109</td>
</tr>
<tr>
<td>5.6 Conclusion</td>
<td>111</td>
</tr>
<tr>
<td><strong>CHAPTER SIX</strong></td>
<td></td>
</tr>
<tr>
<td>6.0 Discussion of Research Findings</td>
<td>113</td>
</tr>
<tr>
<td>6.1 Introduction</td>
<td>113</td>
</tr>
<tr>
<td>6.2 Community Knowledge about Buruli Ulcers</td>
<td>113</td>
</tr>
<tr>
<td>6.3 Cultural Understanding of Wounds and their Management</td>
<td>124</td>
</tr>
<tr>
<td>6.4 Appraisal of the Health Care Utilisation Model to the findings</td>
<td>130</td>
</tr>
<tr>
<td>6.5 Conclusion</td>
<td>132</td>
</tr>
<tr>
<td><strong>CHAPTER SEVEN</strong></td>
<td></td>
</tr>
<tr>
<td>7.0 Summary, Conclusions and Recommendations</td>
<td>133</td>
</tr>
<tr>
<td>7.1 Introduction</td>
<td>133</td>
</tr>
<tr>
<td>7.2 Summary</td>
<td>133</td>
</tr>
<tr>
<td>7.3 Key Findings of the Study</td>
<td>134</td>
</tr>
<tr>
<td>7.4 Conclusions</td>
<td>135</td>
</tr>
<tr>
<td>7.5 Contributions of the Study to Knowledge</td>
<td>137</td>
</tr>
<tr>
<td>7.6 Implications of the Study for Public Health Policy</td>
<td>138</td>
</tr>
<tr>
<td>7.7 Recommendations</td>
<td>139</td>
</tr>
<tr>
<td>7.8 Suggestions for Further Research</td>
<td>139</td>
</tr>
<tr>
<td>References and bibliography</td>
<td>141</td>
</tr>
<tr>
<td>Appendix 1</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----</td>
</tr>
<tr>
<td>Appendix 2</td>
<td></td>
</tr>
<tr>
<td>Appendix 3</td>
<td></td>
</tr>
<tr>
<td>Appendix 4</td>
<td></td>
</tr>
<tr>
<td>Appendix 5</td>
<td></td>
</tr>
<tr>
<td>Appendix 6</td>
<td></td>
</tr>
<tr>
<td>Appendix 7</td>
<td></td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 1: Health Care Utilisation Model: (adapted from Andersen model) - 16

Figure 2: Global Distribution of *M. Ulcerans* infection - - - - 21

Figure 3: Map Showing Buruli Ulcer Endemic Regions and Districts/

Municipalities in Ghana, 2010 - - - - 23

Figure 4: A papule on the arm of a young man - - - - 28

Figure 5: A nodule on the arm of a young man - - - - 29

Figure 6: A plaque on the elbow of a young man - - - - 30

Figure 7: An oedema on the arm of a young man - - - - 30

Figure 8: Small ulcer on the buttock of a young lady - - - - 31

Figure 9: Large ulcer affecting the wrist and the back-side of a young boy’s palm - - - - - - - - 32

Figure 10: Dressing of BU wound at Obom health centre - - - - 102

Figure 11: Concoction of gun powder and palm wine - - - - 103

Figure 12: A Talisman around a boy’s waist for spiritual protection - - - - 103

Figure 13: Wound covered with ‘Kontomire’ (Cocoyam Leaves) - - - - 103

Figure 14: Dry wound showing signs of healing in accordance with local beliefs 104
LIST OF TABLES

Table 3.1: Methods and Types of Information Collected  - - -  70
Table 4.2:1 Demographic Profile of Respondentsulcers  - - - -  85
Table 4.3.2 Knowledge of Buruli ulcers - - - - -  87
Table 4.7.3 Common Health Problems, Infrastructure and Treatment
  Seeking - - - - - -  92
Table 4.8.4 Relationship between Sex, Age, Education and Respondents
  Who Will Seek Treatment Immediately For Buruli Ulcers -  95
Table 4.8.5 Relationship between Sex, Age, Education and First
  Treatment Option for Buruli Ulcer  - - - -  96
Table 4.9.6 Community Views on Buruli Ulcer Prevention - - -  97
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARI</td>
<td>Acute Respiratory Infections</td>
</tr>
<tr>
<td>BUD</td>
<td>Buruli Ulcer Disease</td>
</tr>
<tr>
<td>BUPaT</td>
<td>Buruli Ulcer Prevention and Treatment</td>
</tr>
<tr>
<td>DALYS</td>
<td>Disability Adjusted Life Years</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly Observed Treatment Strategy</td>
</tr>
<tr>
<td>GBUI</td>
<td>Global Buruli Ulcer Initiative</td>
</tr>
<tr>
<td>GSM</td>
<td>Ga-South Municipality</td>
</tr>
<tr>
<td>GWM</td>
<td>Ga-West Municipality</td>
</tr>
<tr>
<td>CBSV</td>
<td>Community-based Surveillance Volunteers</td>
</tr>
<tr>
<td>CHPS</td>
<td>Community-based Health Planning and Services</td>
</tr>
<tr>
<td>EMIC</td>
<td>Explanatory Model Interview Catalogue</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>HAT</td>
<td>Human African Trypanosomiasis</td>
</tr>
<tr>
<td>IEC</td>
<td>Information Education Communication</td>
</tr>
<tr>
<td>IPA</td>
<td>Interpretative Phenomenological Analysis</td>
</tr>
<tr>
<td>KAP</td>
<td>Knowledge, attitude and practices</td>
</tr>
<tr>
<td>KCCR</td>
<td>Kumasi Centre for Collaborative Research</td>
</tr>
<tr>
<td>KII</td>
<td>Key Informant Interview</td>
</tr>
<tr>
<td>MA</td>
<td>Municipal Assembly</td>
</tr>
<tr>
<td>MCE</td>
<td>Municipal Chief Executive</td>
</tr>
<tr>
<td>MEHO</td>
<td>Municipal Education Health Officer</td>
</tr>
<tr>
<td>MHD</td>
<td>Municipal Health Directorate</td>
</tr>
<tr>
<td>MHMT</td>
<td>Municipal Health Management Team</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NBUCP</td>
<td>National Buruli Ulcer Control Programme</td>
</tr>
<tr>
<td>NMIMR</td>
<td>Noguchi Memorial Institute for Medical Research</td>
</tr>
<tr>
<td>NHIS</td>
<td>National Health Insurance Scheme</td>
</tr>
<tr>
<td>NTD</td>
<td>Neglected Tropical Disease</td>
</tr>
<tr>
<td>NYEP</td>
<td>National Youth Employment Programme</td>
</tr>
<tr>
<td>OHC</td>
<td>Obom Health Centre</td>
</tr>
<tr>
<td>PCR</td>
<td>Polymerase Chain Reaction</td>
</tr>
<tr>
<td>RPSB</td>
<td>Reconstructive Plastic Surgery and Burns</td>
</tr>
<tr>
<td>SHEP</td>
<td>School Health Education Programme</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>UBG</td>
<td>Uganda Buruli Group</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
<tr>
<td>WVG</td>
<td>World Vision Ghana</td>
</tr>
<tr>
<td>WVI</td>
<td>World Vision International</td>
</tr>
</tbody>
</table>
CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Buruli ulcer is a devastating infectious disease caused by Mycobacterium ulcerans. It is named after Buruli County (now called Nakasongola District) located near the Nile River in Uganda, where in 1961 the first large number of cases was reported (Organisation et al., 2009). Mycobacterium ulcerans infection was first described in 1987 by Sir Alfred Cook, a missionary doctor in the Buruli County in Uganda (Organisation et al., 2000). However, there has been no reported incidence of the disease in Nakasongola District since the 1980s. The causative organism is from the family of bacteria which causes tuberculosis and leprosy but Buruli ulcer has received less attention than these diseases (WHO, 2009; Kargbo-labour, 2010). The exact mode of transmission is still under investigation. However, some patients state that lesions develop at the site of antecedent trauma. Research suggests that in Africa, some aquatic insects of the order Hemiptera (Naucoridae and Belostomatidae) can harbour M. ulcerans in their salivary glands and transmit the disease to experimental animals. More recent data from Australia suggest that salt marsh mosquitoes test positive for M. ulcerans DNA, although transmission by this type of mosquito has not been established. Further research is in progress to establish the exact role of insects and other factors in the transmission of the disease to humans. If confirmed; Buruli ulcer will be the only known mycobacterial disease to be transmitted by insects (WHO, 2009; Kargbo-labour, 2010). The natural reservoir and mode of transmission of the infection remain largely obscure and might differ between endemic foci around the world. However, skin injury and insect bites have been proposed as modes of transmission (Nienhuis et al., 2010).
In Australia, in 1948, the first case of the Buruli ulcer disease was published (MacCallum et al., 1948). *M. Ulcerans* infection is generally referred to as Bairnsdale ulcer in Australia after the Bairnsdale where a group of patients were found to have the disease in the late 1930s (Radford, 2009). However, in the Daintree River catchment area in north Queensland, Australia, it is locally referred to as ‘Daintree Ulcer’, named after the river (Steffen et al., 2010).

Buruli ulcer has been reported in 33 countries in Africa, the Americas, Asia and the Western Pacific. Most cases occur in tropical and subtropical regions except in Australia, China and Japan. Fifteen of these countries regularly report data to World Health Organisation. In Africa, about 48% of those affected are children under 15 years, whereas in Australia, 10% are children under 15 years and in Japan, 19% are children under 15 years. There is no important difference between males and females. Some countries in West and Central Africa – Benin, Cameroon, Côte d’Ivoire, Democratic Republic of the Congo and Ghana – report the majority of cases. In Côte d’Ivoire, approximately 24,000 cases were recorded between 1978 and 2006. In Benin, nearly 7000 cases were recorded between 1989 and 2006. Increasing numbers of cases are being reported from Cameroon, Congo, Gabon, Sudan, Togo and Uganda. After 30 years of no official report, an assessment carried out in south-eastern Nigeria in November 2006 confirmed some Buruli ulcer cases (Kargbo-labour, 2010). Some cases were reported from China, but the extent of the disease is not known. Recent reports suggest, for the first time, that Brazil may be endemic in the areas bordering French Guyana. These numbers may only be an indication of the presence of the disease but do not reveal the magnitude of the problem (WHO, 2009). In Australia, more cases of Buruli ulcer are being reported recently – 25 in 2004, 47 in 2005 and 72 in 2006. Most of the recent cases have come from the State of Victoria and the town of Point Lonsdale. A total of 32 cases
were reported from Japan sporadically since 1980. However, none of the cases were related to international travel (WHO, 2009).

In Ghana more than 11,000 cases have been recorded since 1993 (Kargbo-labour, 2010). The first probable case of Buruli ulcer in Ghana was reported in the Greater Accra Region in 1971; the presence of additional cases along the tributaries of the Densu River in the area was considered likely. In 1989, Van der Werf et al., (1989) described 96 cases in the Asante Akim North District of the Ashanti Region. This report was followed by the description of a major endemic focus in Amansie West District in the same region. Since then, isolated cases have been found in scattered communities in many parts of the country, generating much political and media concern and interest. A study by Asiedu and Etuaful (1998), which examined the socioeconomic implications of Buruli ulcer in Ghana showed severe disabilities and high treatment costs. However it was found that costs could be reduced by treatment in an earlier stage of the disease. The study also revealed that factors including geographic access, lack of funds, superstitious beliefs about the illness, and stigma were important determinants for health-seeking behaviour.

Buruli ulcer frequently occurs near water bodies – slow flowing rivers, ponds, swamps and lakes; cases have also occurred following flooding. Activities that take place near water bodies, such as farming, are risk factors, and wearing protective clothing appears to reduce the risk of the disease (WHO, 2009). Buruli ulcer often starts as a painless, mobile swelling in the skin called a nodule. The disease can present as a large area of indurations or a diffuse swelling of the legs and arms (Kargbo-labour, 2010). All ages and sexes are affected, but most cases are among children under 15 years. In general, there is no difference in the infection rate among males and females. The disease can affect any part of the body, but in about 90% of cases the lesions are on the limbs, with nearly 60% of all
lesions on the lower limbs. Unlike tuberculosis (TB), there is no evidence to suggest that infection with the human immunodeficiency virus (HIV) predisposes individuals to Buruli ulcer infection. There is also no evidence that the disease can be transmitted from person to person. There is little seasonal variation in the incidence of the disease (WHO, 2009; Kargbo-labour, 2010).

In 1998, the World Health Organisation (WHO) established the Global Buruli Ulcer Initiative (GBUI) with financial support from the Nippon Foundation in response to the growing spread and impact of the disease. That same year, WHO established an 18-member Advisory Group to guide its activities on Buruli ulcer. Members meet in the month of March every two years in Geneva and represent some of the world’s experts on the disease in the areas of control, management and research. During the past few years, the scope of this meeting has broadened to allow some field health workers from endemic countries, researchers and non-governmental organisations (NGOs) currently involved in Buruli ulcer control activities to attend and present their work. The meeting is an important part of global advocacy and a necessary component of efforts to raise awareness and interest about this poorly known disease, to share and disseminate new information and to coordinate efforts among endemic countries, researchers and NGOs.

Thanks to continued support from the Optimus Foundation (United Bank of Switzerland) Nippon Foundation, Acción Sanitaria Desarrollo Social (ANESVAD) and other NGOs, from dedicated researchers and field health workers and commitment from an increasing number of countries dealing with Buruli ulcer, much progress has been made during the past five years in advocacy, control and research. However, much work remains to be done and many challenges are waiting for finding better ways of diagnosing, treating and preventing this debilitating disease (Johnson et al., 2005; Kargbo-labour, 2010). Some of
the challenges are socio-cultural beliefs associated with the management of Buruli ulcer disease particularly in Ghana and Africa in general (Ahorlu et al., 2013). This research was therefore funded by the Optimus Foundation (United Bank of Switzerland) to help find ways of diagnosis, treating and preventing Buruli ulcer disease and also explore the socio-cultural factors associated with Buruli ulcer management in the Ga South Municipality of the Greater Accra Region of Ghana.

1.2 THE PROBLEM STATEMENT

In developing countries in general and Ghana in particular, socio-cultural beliefs and practices strongly influence the health-seeking behaviour of people infected by Buruli ulcer. The first recourse is often traditional treatment. Due to the disfigurement, stigma is a problem that also prevents people from seeking treatment. As a consequence, most patients seek treatment too late, and both the direct and indirect costs are considerable (WHO, 2009). Factors such as geographic access, lack of funds, local beliefs about the illness, and stigma were important determinants for health-seeking behaviour (Stienstra et al., 2002).

The majority of Buruli ulcer cases in Ghana reported to health facilities after traditional medicine had failed them and complications might have set in (Mensah-Quainoo, 2004). The combined effects of these are surgery and long periods of hospitalisation. Even though a lot of epidemiological studies on the disease have been undertaken in endemic countries, Ghana inclusive, very little has been done on the socio-cultural issues associated with its management (knowledge, local perception of the disease and wound care among others) although it is believed that the disease can have untold implications for the welfare of the individual, the family and the nation as a whole (Asiedu, 1998).

Community perception of the cause and consequently the appropriate measure to remedy an ailment determine whom people turn to for advice, help, information and treatment
when bogged down with a disease. This individual could be a general practitioner, priest, traditional healer or family member (Buchner & Pearson, 1989). The role that cultural factors play in the etiology, explanation, prognosis and treatment seeking behaviour cannot be underscored, because it provides in-depth information on the burden of the disease, the local understanding of the causes of the disease and therefore its management (Fumham, 1994).

The improper management of a disease could contribute immensely to its spread. Disease Control Programmes in developing countries are often unsuccessful or inappropriate because they failed to take into consideration local etiology, perceptions and beliefs which are interwoven into the socio-cultural milieu of people. These factors help in the local prognosis, treatment seeking behaviour and any taboo or stigma associated with the disease (Kargbo-labour, 2010). For Public Health to make a sustainable inroad into disease control and to design meaningful health programmes, a conscious effort should be made to understand the social, economic and cultural aspect of disease and its management. Even though attempts are being made in the Obom sub-district of the Ga South Municipality of Ghana to control Buruli ulcer through social interventions, socio-cultural factors continue to be impediments to early case detection, treatment adherence and completion (Ahorlu et al., 2013). This study was therefore conducted with the aim to investigate socio-cultural factors associated with Buruli ulcer management at the Obom sub-district of the Ga South Municipality of Ghana.

1.3 JUSTIFICATION/RATIONALE OF THE PROBLEM

A number of studies on Buruli ulcer have discussed socio-cultural aspects of the disease, including perceptions on causality, attitudes toward treatment and the economic burden of hospitalised patients (Asiedu et al., 1998; Adamba et al., 2011; Ahorlu et al., 2013).
However, most of these studies tend to focus on Buruli ulcer related beliefs, perceptions and practices of the affected people as well as the socio-economic cost of the disease and how these have affected early case detection/diagnosis and treatment seeking behaviour and other control activities negatively. Most of these studies recommended the need for Information, Education and Communication (IEC) intervention to encourage early case detection and treatment with the assumption that once people gain knowledge they would take the appropriate action to access treatment early. In this direction, Ackumey et al., (2011) stated that intensifying health education and surveillance will create awareness and encourage early treatment. However, it has been argued that “all over the world those who do not comply are those least able to comply”, (Paul, 1999) social science studies therefore, need to go beyond the description of existing problem and believing that health education would improve treatment seeking and adherence for Buruli ulcer treatment.

Studies have shown that, the community perception and knowledge about the disease have a negative impact on the health–seeking behaviour of patients. For this reason, all information on the socio-cultural factors (perception, knowledge and culture of wounds about the disease) are highly relevant for a better understanding of the disease as a whole and to serve as a useful material for future research and reference for policy makers, government and non-governmental institutions, world bodies such as the World Health Organisation (WHO) and the Centre for Disease Control and Prevention.

The issues raised above informed the choice of the study titled; Socio-cultural factors associated with Buruli ulcer management at the Obom sub-district of the Ga South Municipality of the Greater Accra Region of Ghana. This thesis explored the socio-cultural beliefs and practices in the management of Buruli ulcer and also provided a critical and
analytical perspective for understanding the local perception and knowledge of Buruli ulcer in the study area.

1.4 OBJECTIVES OF THE STUDY

1.4.1 Broad/General Objective

The general objective of the study was to investigate socio-cultural factors associated with Buruli ulcer management and wound care in the study area.

1.4.2 Specific Objectives

The specific objectives of the study were to:

1. Describe community knowledge and perception about Buruli ulcer and wound management.
2. Determine health seeking behaviour for Buruli ulcer by affected persons and their families.
3. Determine cultural and local acceptability of wound management at the clinic and community.

1.5 RESEARCH QUESTIONS

1. How do communities perceive Buruli ulcers and wound management at the health facilities?
2. What are the health seeking behaviours for Buruli ulcer by affected persons and their families?
3. Does the wound management at the clinic and communities meet the expectations of patients in terms of culturally and locally accepted wound care practices?

1.6 PHENOMENOLOGY

Phenomenology is the study of experience and how we experience. It studies structures of conscious experience as experienced from a subjective or first-person point of view, along
with its "intentionality" (the way an experience is directed toward a certain object in the world). It then leads to analyses of conditions of the possibility of intentionality, conditions involving motor skills and habits, background social practices and, often, language.

Experience, in a phenomenological sense, includes not only the relatively passive experiences of sensory perception, but also imagination, thought, emotion, desire, volition and action. In short, it includes everything that we live through or perform. Thus, we may observe and engage with other things in the world, but we do not actually experience them in a first-person manner. What makes an experience conscious is a certain awareness one has of the experience while living through or performing it. This field of philosophy is then to be distinguished from, and related to, the other main fields of philosophy: ontology (the study of being or what is), epistemology (the study of knowledge), logic (the study of valid reasoning), ethics (the study of right and wrong action). Whereas narrative study reports the life of a single individual, a phenomenological study describes the meaning for several individuals of their lived experiences of a concept or phenomenon. Phenomenologists focus on describing what all participants have in common as they experience a phenomenon. The purpose is to reduce individual experiences to a universal essence, “the very nature of the thing” (Conrad, 1987).

Phenomenological research is a strategy of inquiry in which the researcher identifies the essence of human experiences about a phenomenon as described by participants. Understanding the lived experiences marks phenomenology as a philosophy as well as a method, and the procedure involves studying a small number of subjects through extensive and prolonged engagement to develop patterns and relationships of meaning (Moustakas, 1994). In this process, the researcher brackets or sets aside his or her own experiences in order to understand those of the participants in the study. According to Christensen, Johnson, and Turner (2010), the primary objective of a phenomenological study is to
explicate the meaning, structure, and essence of the lived experiences of a person, or a group of people, around a specific phenomenon. The phenomenologist attempts to understand human behavior through the eyes of the participants in the study. This has been called *verstehen*, which is German for the interpretive understanding of human interaction. A phenomenologist’s worldview is in line with the belief that all perceptions and constructions are ultimately grounded in a particular perspective in time and space. Phenomenology does not begin with a theory, but, instead, begins with a phenomenon under consideration. Any manner in which participants can describe their lived phenomenal experience can be used to gather data in a phenomenological study. Although the most common means of data collection in a phenomenological study is through in-depth interviews to gather the participants’ detailed descriptions of their experience, participants' written or oral self-reports, or even their aesthetic expressions (e.g. art, narratives, or poetry) can also be evaluated. Moustakas is considered the founder of phenomenological research. Moustakas (1994) posited that research should focus on the wholeness of experience and a search for essences of experiences. Moustakas viewed experience and behaviour as an integrated and inseparable relationship of a phenomenon with the person experiencing the phenomenon.

Interpretative Phenomenological Analysis (IPA): The aim of interpretative phenomenological analysis (IPA) is to explore in detail how participants are making sense of their personal and social world, and the main currency for an IPA study is the meanings particular experiences, events, states hold for participants. The approach is phenomenological in that it involves detailed examination of the participant’s life world; it attempts to explore personal experience and is concerned with an individual’s personal perception or account of an object or event, as opposed to an attempt to produce an objective statement of the object or event itself. At the same time, IPA also emphasizes
that the research exercise is a dynamic process with an active role for the researcher in that process. One is trying to get close to the participant’s personal world, to take, in Conrad’s (1987) words, an ‘insider’s perspective’, but one cannot do this directly or completely. Access depends on, and is complicated by, the researcher’s own conceptions; indeed, these are required in order to make sense of that other personal world through a process of interpretative activity. Thus, a two-stage interpretation process, or a double hermeneutic, is involved. The participants are trying to make sense of their world; the researcher is trying to make sense of the participants trying to make sense of their world. IPA is therefore intellectually connected to hermeneutics and theories of interpretation. Phenomenological research and analysis as explained above was used in this study as a tool and guide for qualitative data collection and analysis for wound management.

1.7 THEORETICAL, CONCEPTUAL, AND PHILOSOPHICAL UNDERPINNINGS

1.7.1 Introduction

Health-seeking behaviour studies acknowledge that health control tools, where they exist, remain greatly under or inadequately used. Understanding human behaviour is prerequisite to behaviour change and improvement of health practices (Sheeran, & Abraham, 1995). On the whole, health-seeking behaviour models as applied to public health mostly serve as catalogues of relevant variables that need to be considered in research design, rather than as behavioural models themselves (Sheeran & Abraham, 1995). The main statistical data obtained using these models permit the evaluation of the relative weights of different factors in health behaviour (use of preventive or therapeutic measures, choice between different health resources, non-compliance with treatment, or the consequences of behaviour for delayed care seeking). The principal objective is to identify problematic areas in order to intervene with specific health system strategies. Health-care-seeking behaviour studies range across many different health care programmes – from malaria...
studies to reproductive health. These studies are important because they provide relevant information on what patients, or caretakers, do when faced with a health problem (Sheeran & Abraham, 1995). The primary question is; to what extent would health-seeking behaviour studies be useful in determining the type of intervention programmes that can be put in place to alleviate the myriad of health problems?

1.7.2 Health Belief Model (HBM)

The Health Belief Model (HBM) is a conceptual framework used to understand health behaviour and possible reasons for non-compliance with recommended health action (Becker & Rosenstock, 1984). It provides guidelines for programme development in order to allow planners to understand and address reasons for non-compliance. The HBM addresses four major components for compliance with recommended health action: perceived barriers of recommended action, perceived benefits of recommended health action, perceived susceptibility of the disease, and perceived severity of the disease. In addition, there are modifying factors that can affect behaviour compliance. Modifying factors include media, health professionals, personal relationships, incentives and self-efficacy of recommended health action. However, this model is limited to health-risk behaviours and as such could not serve as a guide to understand the environmental, social, cultural and personal factors that influence health conditions in this study.

1.7.3 Weller’s Four As Model

The “four As: It has become popular among researchers to use different categories which group key factors for health-seeking behaviour. The best known is the grouping into the “four As”:

Availability: refers to the geographic distribution of health facilities, pharmaceutical products etc.
Accessibility: includes transport, roads, etc.

Affordability: includes treatment costs for the individual, household or family. A distinction is made between direct, indirect and opportunity costs.

Acceptability: relates to cultural and social distance. This mainly refers to the characteristics of the health providers – health workers’ behaviour, gender aspects (non acceptance of being treated by the opposite sex, in particular women who refuse to be seen by male nurses/doctors), excessive bureaucracy etc.

The ‘model’ of the “four As” has been widely used by medical geographers, anthropologists and epidemiologists who mainly emphasized distance (both social and geographical) and economic and cultural aspects as key factors for access to treatment.

The advantage of the “four As” is the easy identification of key potential ‘barriers’ for adequate treatment. The advantage of socio-behavioural models is the variety of the factors which are organised in categories, making interventions on therapeutic actions (or lack of actions) feasible. They permit the establishment of correlations with good predictability, but not specification of how and why the different factors affect therapeutic selection (Weller et al. 1997). However, a major limitation of this model to the study is that it discussed the use of health services at the micro rather than at the macro level, hence could not be suitable for a community study. Based on the weaknesses of the earlier two models to the study, this research adopted the health care utilisation model to explain the identified problematic areas in health seeking by Buruli ulcer patients. The strength of this model lies in its exposition of physical, structural, social, cultural and economic factors as influencing the utilisation of health services by clients, households and communities in every social environment. The following explanations of the model justify its relevance to the study:
1.7.4 The Health Care Utilisation Model

This study adapted the Andersen model. The Andersen model is a conceptual model aimed at demonstrating the factors that lead to the use of health services. According to the model, usage of health services (including inpatient care, physician visits, dental care etc.) is determined by three dynamics: predisposing factors, enabling factors, and need factors. Predisposing factors can be characteristics such as race, age, and health beliefs. For instance, an individual who believes health services constitute an effective source of treatment for an ailment is more likely to use such services. Examples of enabling factors could be family support, access to health insurance, one's community etc. Need factors represent both perceived and actual need for health care service. The model was specifically developed to investigate the use of biomedical health services. Later versions have extended the model to include other health care sectors, i.e. traditional medicine and domestic treatments (Weller et al., 1997).

According to Weller et al., (1997), an individual's access to and use of health services is considered to be a function of four characteristics:

1. **Predisposing Factors**: Representing the socio-cultural characteristics of individuals that exist prior to their illness. These may include: Social Structure - education, occupation, ethnicity, social networks, social interactions, and culture. Health Beliefs - attitudes, values, and knowledge that people have concerning and towards the health care system and Demographic - age and gender. The factors considered in this study are age, Education, beliefs, perceptions experience and expectations.

2. **Enabling Factors**: These comprise the logistical aspects of obtaining care and may include: Personal/Family - The means and know how to access health care services, income, health insurance, a regular source of care, travel time and cost, extent and quality
of social relationships (social capital). Community - availability of health personnel and facilities, and waiting time. Possible additions are genetic factors and psychological characteristics of the individual. The factors used as enabling factors in this study are family support, money, accessibility, geographical location and Health Insurance.

3. **Need Factors**: These determine the most immediate cause of health service use, from functional and health problems that generate the need for health care services. “Perceived need, will better help to understand care-seeking and adherence to a medical regimen, while evaluated need will be more closely related to the kind and amount of treatment that will be provided after a patient has presented to a medical care provider (Andersen, 1995). Perceived need represents "How people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help" Whereas evaluated need represents “Professional judgment about people's health status and their need for medical care" (Andersen, 1995). The need factors used in this study are time, symptoms, pain, worries, evaluated need and professional need.

4. **Treatment actions**: Are all-encompassing variables representing actions considered in the course of illness. These may include home remedies (herbal, pharmaceuticals), pharmacy, over the counter drugs from shops, injectionists, traditional healers, private medical facilities, public health services etc. The treatment actions considered in this study are self-medication, the traditional treatment and the biomedical health treatment.

The model centres specifically on treatment selection. It includes both material and structural factors, which are barely taken into account in the social psychology models, which dominate biomedical practices. Weller et al., (1997) emphasised its particular use.
for working with statistical data on actual cases. The model has also been used for gaining evidence on the weight of different factors for health service use. Andersen’s model has been modified in the International Collaborative Study on Health Care (Kroeger, 1983). In addition to the predisposing factors and enabling factors, this version includes Health Service System factors, referring to the structure of the health care system and its link to a country’s social and political macro-system. This is a valuable extension as it puts emphasis on the link of health-seeking behaviour with structural levels within a macro-political and economic context. The following framework was therefore adapted based on the health care utilisation model to guide the thesis:

**Figure 1: Health Care Utilisation Model: (adapted from Andersen model)**

1. **Predisposing Factors**
   - Age, Education, Beliefs, Perceptions, Experience, Expectations

2. **Enabling Factors**
   - Self-Medication, Traditional Healers, Biomedical
   - Family support, Money, Accessibility, Geolocation, Health Insurance

3. **Need Factors**
   - Time, Symptoms, Pain, Worries, Evaluated Need, Professional Need

### 1.7.5 Relevance of the Health Care Utilisation Model to the study

This model has helped to provide appropriate explanations to the factors that influence treatment seeking behaviour for Buruli ulcer disease. The predisposing factors which comprise of age, education, beliefs, perceptions, experience, expectations gender, religion,
global health assessment, prior experiences with illness, formal education, general attitudes towards health services, knowledge about the illness might be the factors that influenced health seeking behaviour of Buruli ulcer patients to delay treatment or resort to home treatment or consulting traditional healers. For example, patient’s knowledge about the cause of Buruli ulcer illness may influence his/her treatment seeking behaviour.

The enabling factors which identified availability of services, financial resources to purchase services, health insurance, and social network support as factors that determine treatment seeking among patients were also relevant to the study. This model was a guide to further explore some of the factors that influence treatment seeking so that a more appropriate and sustainable social intervention could be put in place to control Buruli ulcer in Ghana.

The need factors that influence health care utilisation such as perception of severity, total number of sick days for a reported illness, total number of days in bed, days missed from work or school, help from outside for caring were very important for this study. For example, the perception of severity of illness and total number of sick days for a reported illness were cited by Buruli ulcer patients for not seeking treatment or delaying treatment (MacCallum et al., 1948). Buruli ulcer starts as a painless nodule and so it is perceived as less severe hence the treatment delay (MacCallum et al., 1948). This model therefore gave a broader insight into the factors that influence health care utilisation by Buruli ulcer patients.

The treatment actions of home remedies (herbal, pharmaceuticals), pharmacy, over the counter drugs from shops, injectionists, traditional healers, private medical facilities, public health services were some of the treatment seeking options available to patients and study participants. This also guided the researcher in the design of survey questionnaire for the community study.
1.8 SIGNIFICANCE/RELEVANCE OF THE STUDY

The study aimed at investigating socio-cultural factors associated with Buruli ulcer management and wound management in the study area. The study sought to contribute to the existing scientific knowledge on Health Care Utilisation Model by understanding health seeking choices that the community and Buruli ulcer infected and affected people are likely to make based on their socio-cultural beliefs and the opportunities available to them.

1.9 ORGANISATION OF THE STUDY

The thesis is divided into seven chapters. Chapter one consists of the general background of the study. This captures the introduction of the study, statement of the problem, justification of the study, the theoretical framework, research questions, and objectives of the study as well as the significance of the study. Theoretically, the health belief model, the Four As model and the health care utilisation model were discussed in relation to Buruli ulcer treatment seeking. Chapter two of the work presented the literature review. The literature review presents the global Buruli ulcer situation, the epidemiology of Buruli ulcer, clinical manifestation and management of Buruli ulcer and treatment of Buruli ulcers. Other areas reviewed are the health systems issues relating to Buruli ulcer, social and cultural aspects of Neglected Tropical Diseases (NTDs) and Buruli ulcer, perceptions about wounds, care for wounds and illness behaviour for wounds. Chapter three explained the study area, study design, study populations, data collection techniques, research instruments, data collection tools, data quality control, data management, analysis and ethical considerations. Interviews, focus group discussions and questionnaire surveys formed the bulk of data collection. Chapter four examined data gathered from the field. The chapter analysed the demographic and socio-economic profile of respondents. It also
analysed the community perceptions and knowledge about Buruli ulcer in the Obom sub-district.

Data was further analysed in relation to the health seeking behaviour of community members at the endemic area for Buruli ulcer disease. Chapter five analysed the culture of wound and its management at the study area. Issues presented were based on the cultural beliefs and practices associated with Buruli ulcer wound care, the relationship between these beliefs and practices on one hand and wound contamination on the other hand. Finally, the study determined whether patients’ perceptions of wound management at health facilities met their expectations in terms of culturally acceptable wound handling in study communities. Chapter six discussed the findings presented in chapters four and five respectively.

Chapter seven presented the summary, conclusion, contribution of the study to knowledge, implications of the study to public health policy, recommendations as well as areas for further research.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

The burden caused by Buruli ulcer is seen as serious skin destruction, disability, amputation, and poor living conditions and in some cases, death (Amofah et al., 2002; Portaels, et al., 2009). At present, there is limited understanding of the impact of Buruli ulcer on infected individuals, households, and communities. This chapter therefore presents a review of literature on the global Buruli ulcer situation, the epidemiology of Buruli ulcer, clinical manifestation and management of Buruli ulcer, and treatment of Buruli ulcers. Other areas reviewed are the health systems issues relating to Buruli ulcer, social and cultural aspects of NTD and Buruli ulcer, perceptions about wounds and care for wounds and illness behaviour for wounds. Literature was reviewed according to the objectives and focus of the study.

2.2 GLOBAL BURULI ULCER SITUATION

It is difficult to establish the prevalence of Buruli ulcer by country and by different locations within a country due to variability in clinical presentations, seasonal variations, insufficient knowledge of the disease among health workers, geographical barriers to access and communication in remote endemic areas (Amofah et al., 2002; Portaels et al., 2009). However, it is estimated that more than 7000 people globally are infected with Buruli ulcer annually and the highest incidence rates are in West Africa as shown in figure 2.0.
Figure 2: Global Distribution of *M. Ulcerans* infection*

Source: (Walsh et al., 2011) *Colours indicate relative endemicity: Red=high; moderate=yellow; green= low; asterisks=countries with suspected cases. Imported Buruli ulcer is occasionally diagnosed in the United States, Canada, and Europe.

Buruli ulcer has been reported from over 30 countries in the Americas, South East Asia, Western Pacific, the Eastern Mediterranean and African regions (WHO, 2008). Buruli ulcer was reported in several sub-Saharan African countries prior to the 1980s including Democratic Republic of Congo, Gabon, Cameroon and Ghana (Smith, 1970; Burchard & Bierther, 1986; Bayley, 1971). Since 1980, there have been dramatic increases in the incidence of Buruli ulcer in West African countries like Benin, Republic of Côte d'Ivoire and Ghana (Debacker et al., 2004; Marston et al., 1995; Amofah et al., 2002).

The first case of Buruli ulcer was reported in Ghana in 1972 in the Ga-district (Bayley, 1971). A national case search in 1998 indicated a national prevalence of 20.7/100,000 and...
a prevalence of 87.7/100,000 for the former Ga-district (now the Ga-West and Ga-South Municipalities), the fifth most endemic in the country, yet with the highest burden in terms of healed and active lesions (Amofah, et al., 2002). Ghana reports an average of 1000 cases annually (WHO, 2008).

2.3 THE EPIDEMIOLOGY OF BURULI ULCER

Since 1980, dramatic increases in the incidence of Buruli ulcer have been reported from the West African countries of Benin, Côte d'Ivoire, and Ghana. New foci were also discovered in Togo and Angola (Amofah et al., 2002; Debacker et al., 2004). A characteristic of Buruli ulcer is its focal distribution even within endemic regions, and obtaining accurate disease burden estimates is difficult (Debacker et al., 2004). However, in some highly endemic districts in Ghana, point prevalence has been estimated to be as high as 150.8/100,000 individuals and in Southern Benin, a study has reported detection rates of 21.5/100,000 per year, higher than for either tuberculosis or leprosy (Amofah et al., 2002; Debacker et al., 2004). In West Africa, about 25% of people affected by the disease, mostly children, are left with permanent disabilities. The disease is also endemic in several other countries outside Africa, including rural areas of Papua New Guinea, Malaysia, French Guiana, and Mexico. In Australia, the disease remains uncommon, but there have been increases in both incidence and the number of endemic areas in the last two decades (Organisation et al., 2003).

The national prevalence rate for Buruli ulcer in Ghana is 20.7/100,000, a prevalence that is higher than that of leprosy and tuberculosis (Amofah et al., 2002). In 1989, 96 cases of Buruli ulcer were detected in the Asante-Akim North District of the Ashanti Region (Van der Graaf, et al., 1989). In 1993, a passive surveillance system for reporting Buruli ulcer was initiated in Ghana, and by the end of 1998, approximately 1,200 cases had been
reported from four regions (Amofah et al., 2002). This surveillance system was fraught with problems of gross under reporting because most cases were known to be in relatively deprived and inaccessible areas. However, at the end of the passive surveillance search, approximately, 6000 cases were identified in all ten regions of the country. The Amansie West, Ashanti region with a prevalence of 150 per 100,000 emerged as the most endemic district. The Ga-West district with a prevalence of 87 per 100,000 was the fifth most endemic district, although it has the highest case-load of people with healed and active lesions (Amofah et al., 2002).

Figure3: Map showing Buruli ulcer endemic regions and districts/municipalities in Ghana, 2010

Source: Ghana National Buruli ulcer control programme.
2.4 BURULI ULCER AS A NEGLECTED TROPICAL DISEASE (NTD)

Buruli ulcer is included among the so-called neglected tropical diseases (NTDs). According to a WHO report (World Health Organisation, 2009), at least one billion people, representing one sixth of the world’s population of over 6 billion people, suffer from one or more Neglected Tropical Diseases. They represent about 17% of the global burden of parasitic and infectious diseases, and are endemic in rural communities of Sub-Saharan Africa and poor urban areas in low-income countries in Asia and Latin America. An estimated 534,000 people worldwide die from a Neglected Tropical Disease each year (WHO, 2009).

In addition to Buruli ulcer, other diseases categorised as NTDs include, leprosy, cholera, Human African Trypanosomiasis (HAT), dracunculiasis (guinea-worm disease) lymphatic filariasis, onchocerciasis and schistosomiasis. For some Neglected Tropical Diseases - such as leprosy, filariasis, onchocerciasis and schistosomiasis—effective interventions for treatment and control are available in the form of chemotherapy, personal hygiene and environmental sanitation. For others including Buruli ulcer, cholera and other diarrheal diseases, and Human African Trypanosomiasis, the only option available is systematic case finding, early detection and management (WHO, 2009). Surprisingly, estimates of disability adjusted life years (DALYs) for Buruli ulcer, like other Neglected Tropical Diseases such as guinea worm, echinococcosis, endemic syphilis, food borne trematode infections (clonorchiasis, fascioliasis, opisthorchiasis) and rabies are not explicitly stated in WHO published data (WHO, 2010).

Buruli ulcer like other NTDs is a serious public health concern because it typically affects impoverished populations in the developing world. Unsafe water, lack of access to health services, malnutrition and poor sanitation all increase vulnerability to infection.
NTDs are considered neglected because they affect the most vulnerable segment of the population - women, children, uneducated and the poor. They are often under reported or unnoticed because the sufferers lack political voice to make their concerns known coupled with insufficient Government budgetary allocations to the health sector. Thus, only the highly prioritised diseases with high mortality rates receive attention and resources. Social, psychological and economic impacts of these diseases include long years of intense suffering, pain, loss of productivity, disrupted education, impaired mental and physical development, stigma and its associated distresses. All these factors widen the poverty gap and make the sufferers even more vulnerable (WHO, 2009).

2.5 TRANSMISSION

Even though the mode of transmission has not been established yet, it has been linked to swimming in a river or pond, residence near swampy and riverine areas especially those enriched with arsenic, bites from or contact with insects inhabiting plant roots in swamps, skin pricks, small breaks or trauma in the skin and person-to-person infection after a human bite (Aiga et al., 2004; Duker, et al., 2004; Portaels et al., 2002; Portaels et al., 2001; Johnson, et al., 1999; Portaels et al., 1999; Asiedu & Etuaful, 1998; Marston et al., 1995; Marston et al., 1995; Muelder & Nourou 1990; Muelder & Nourou, 1990; Oluwasanmi et al., 1976 Barker, 1973). It is important to note that person-to-person transmission through physical contact and through caring for a patient is not considered a major risk even though in some cases patients had relatives who were also infected (Aiga et al., 2004; Muelder & Nourou, 1990). Demographic and socioeconomic risk factors are (i) age under 15 years, (ii) females and (iii) impoverished and remote living circumstances (Amofah et al., 1993; Marston et al., 1995; Asiedu et al., 2000; Hayman & McQueen 1985; Duker et al., 2004). The disease largely occurs in people who live and work close to rivers and stagnant bodies of water (Vincent et al., 2004). Earlier evidence suggests that
aquatic insects (*Naucoris* and *Dyplonychus*) may be involved (Vincent et al., 2004). But the precise role of these water-insects, flies and mosquitoes is not known. Tjip et al., (1999) also suggested that humans become infected through contact with the swampy environment but it is still not clear how this could happen.

### 2.6 GLOBAL CONTROL EFFORTS FOR BURULI ULCER

Until the introduction of antimicrobial therapy in 2005, wide surgical excision, sometimes followed by skin grafting, was the main treatment strategy for all forms of the Buruli ulcer disease (Sizaire et al., 2006; Organisation et al., 2004; Asiedu & Etuaful, 1998). Clinical trials in Ghana using an anti-tuberculosis drug combinations rifampicin and an aminoglycoside (streptomycin or amikacin), showed the efficacy of these drugs to shrink early lesions, such as nodules, and to reduce the diameter of ulcers and thereby avoiding the need for surgery (Chauty et al., 2007; Etuaful et al., 2005; Johnson et al., 2005; Nienhuis et al., 2010). Furthermore, recurrence is minimal after antibiotic therapy (Ackumey et al., 2011; Kibadi et al., 2010; Nienhuis et al., 2010; Etuaful et al., 2005).

Based on this evidence, the WHO recommends antimicrobial treatment for eight weeks with rifampicin and streptomycin, with or without surgery, depending on the nature of the lesion. WHO also recommends follow-up of patients, for at least 10 months after treatment to assess treatment outcomes, complications, and possible recurrence.

Aside from antibiotic treatment and surgery, WHO also recommends various community and clinical management, and control strategies. These include; (1) strengthening the health care capacity in endemic areas by upgrading surgical facilities, and ensuring adequate treatment supplies, (2) improving laboratories and enhancing surgical training to enable other health workers, such as nurses and medical assistants to detect and manage cases and to perform effective minor surgery, (3) training of community-based
surveillance volunteers (CBSVs), school teachers, other health workers and traditional healers (THs) to enhance Buruli ulcer knowledge for early detection, (4) establishing a community-based surveillance system with the help of CBSVs and (5) compiling a database and providing surgical and antibiotic therapy for all Buruli ulcer patients (WHO, 2001).

The Government of Ghana, signed the Yamoussoukro Declaration in 1998, which enjoined Governments of endemic countries to establish national Buruli ulcer control programmes (WHO & GBUI, 2003). Subsequently, the Ghana National Buruli Ulcer Control Programme (NBUCP) was established in 2002 and currently operates under the Ghana Health Services. The main aims of the NBUCP are:

- To create awareness of Buruli ulcer among medical practitioners and the general public
- To collaborate with health centres to train health and community workers to increase awareness of Buruli ulcer, and recognise and screen early cases of Buruli ulcer for referral
- To improve case-management and surgical skills of clinical staff
- To collaborate with research and medical institutions to conduct environmental, clinical, immunological and drug-related studies on Buruli ulcer
- To provide community health services, and increase access to treatment using the directly observed treatment strategy (DOTS) approach.

The NBUCP collaborates closely with several research institutions in early case detection, treatment, research and capacity development, in pursuance of its mandate.
2.7 CLINICAL MANIFESTATION OF BURULI ULCERS

Buruli ulcer disease goes through three stages. The first is pre-ulcerative phase which is characterised by a firm, non-tender nodule and sometimes plaques or oedema. In the second phase skin ulcerates, causing osteomyelitis as a possible complication. In the third phase of the disease, a granulomatous healing response takes place followed by fibrosis, scarring, calcification and contractures, with the possibility of permanent disabilities (Stienstra et al., 2001; Stienstra et al., 2002; Stienstra et al., 2004).

There are two main forms of Buruli ulcer wounds: non-ulcerative and ulcerative. The non-ulcerating form presents in various ways as outlined below:

1. **Papule**: This is usually a painless, raised skin lesion, which is less than one centimetre in diameter. The surrounding skin is reddened and it is commonly seen in Australia and may be confused with an insect bite. (Yeboah-Manu et al., 2013).

![Picture taken by Koka, 2012](Figure 4: A papule on the arm of a young man)
2. **Nodule** is a lesion less than three centimetres in diameter that extends from the skin into the subcutaneous tissue. It is usually firm and painless but may be itchy, and the surrounding skin may be discoloured. Nodules are commonly seen in Africa (Yeboah-Manu et al., 2013).

![](image1.jpg)

*Figure 5: A nodule on the arm of a young man*

3. **Plaque** is a firm, painless, elevated, lesion greater than three centimetres in diameter with ill-defined edges. The skin over the lesion may be reddened or otherwise discoloured (Yeboah-Manu et al., 2013).
Figure 6: A plaque on the elbow of a young man

4. **Oedematous form** is a diffuse, extensive, usually non-pitting swelling. The affected area has ill-defined margins, is firm and painless and involves part or all of a limb or other part of the body. Colour of the skin may change over the affected area. Disease may be accompanied by low-grade fever (Yeboah-Manu et al., 2013).

Figure 7: An oedema on the arm of a young man
All non-ulcerative forms may progress to ulcers after a variable time but mostly within four weeks. Some of the largest ulcers follow from the oedematous form and oedema may also develop around an already formed ulcer, leading to rapid extension.

**Ulcerative forms:** When fully developed, Buruli ulcer is a painless, deep ulcer extending into the subcutaneous fatty tissue. It has undermined edges where the overlying skin may be necrotic. The floor of the ulcer may have a white, cotton wool-like appearance due to necrotic slough. Untreated ulcers are painless, unless there is secondary bacterial infection (Yeboah-Manu et al., 2013). When there is more than one ulcer and the ulcers are close together, they often communicate beneath normal looking skin and could extend over a considerable distance (Yeboah-Manu et al., 2013).

**Fig. 8: Small ulcer on the buttock of a young lady**

*Picture taken by Koka, 2012*
An important complication that affects most severe cases of Buruli ulcer is Osteomyelitis. It usually results from contiguous spread of infection from overlying non-ulcerative or ulcerative disease, especially on the forearm or lower leg of patients.

Buruli ulcer lesions are classified into three categories. These are; Category one, which is a single lesion less than 5 cm in diameter and most of them heal completely during or after antibiotic treatment. Category two is a single lesion measuring 5–15 cm in diameter. Some category II lesions heal completely with antibiotic treatment. It is important to note that some category II cases may be non-ulcerative because they appear in large oedematous and plaque forms. Category three is either a single lesion greater than 15 cm in diameter or multiple lesion(s) at a critical site (eye, breast, and genitalia) and osteomyelitis. Category III ulcers are usually managed, in addition to antibiotics, by surgery (debridement and skin grafting). The category III ulcers are sub-divided into three forms, these are; 3a, which is a single lesion greater than 15 cm in diameter or osteomyelitis, 3b is a lesion at critical site and 3c are small multiple lesions.
Another important area that has been discussed in most Buruli ulcer literature relates to the location of Buruli ulcer lesion. Most of the cases are found on the limbs or trunk (Agbenorku, 2011). For example 85% of Buruli ulcer lesions were found on the extremities with 52% on the lower limb, whereas 25% was detected on the upper limb (Suykerbuyk et al., 2009). Adu et al., (2011) found close to 30% of lesions on the upper limbs of victims and 68.2% on the lower limbs whereas, Agbenorku et al., (2011) reported that close to 67% of lesions were located on the lower limbs of victims compared to 27% on the upper limb. Both the trunk and the perineum constituted 3% each. In Benin, Sopoh et al., (2010) reported that almost 53% of cases were on the lower limb with 33% on the upper limb. In 9% of the cases the lesions were spotted on the trunk whereas 4% and one percent of the lesions were found on multiple sites including the face respectively. Amofa et al., (2002) reported that 25% of Buruli ulcer lesions were located on the arms and hands whereas 65% were on the legs and feet. Patients with lesions on the trunk represented 5% as against four percent on the head and neck region. It was reported that patients above the age of 20 years experienced more lesions on the limbs compared to patients below the age of 20 years.

Strains of *M. ulcerans* isolated from the different clinical forms of the disease in a particular geographical region appear identical, suggesting that host factors may play an important role in determining the different clinical presentations. Because of the local immunosuppressive properties of mycolactone, or perhaps as a result of other unknown mechanisms, the disease progresses with no pain and fever, which may partly explain why those affected often, do not seek prompt treatment. However, without treatment, massive ulcers result, with the classical, undermined borders. Sometimes, bone is affected causing gross deformities. When lesions healed, scarring may occur and cause restricted movement of limbs and other permanent disabilities in about a quarter of patients. Other conditions
that may mimic Buruli ulcer include: tropical phagedenic ulcers, often referred to as tropical ulcers; leishmaniasis, particularly in South America; onchocerciasis nodules; and fungal skin infections (WHO, 2009). *M. ulcerans* infection usually starts as a nodule, papule, plaque, or oedema. When left alone, the lesion breaks open and a typical painless ulcer with undermined edges appears which can progress to a large necrotic lesion. *M. ulcerans* infection can be self-limiting, but scar tissue and contractures in joints leave patients with functional limitations and can result in social stigma (Nienhuis et al., 2010).

The first stage of Buruli ulcer starts as a firm, non-tender nodule. Other possible pre-ulcerative lesions in the first stage are plaques or edema. In the second stage, ulceration of the skin with an undermined edge can be seen. Occasionally, osteomyelitis complicates the course of illness. In stage three, a granulomatous healing response occurs. In stage four, fibrosis, scarring, calcification and contractures with permanent disabilities may result. The average hospital admission time for Buruli ulcer in Ghana is approximately three months. Patients often come to the hospital in an advanced stage of the disease, leading to more extensive disfiguring and costly treatment (Stienstra et al., 2002; Ahorlu et al., 2013).

### 2.8 TREATMENT AND MANAGEMENT OF BURULI ULCERS

Various forms of treatment methods are used to control the prevalence of Buruli ulcers. The main forms of treatment are bio-medical, traditional and recourse to prayers. The biomedical treatment consists mainly of surgery until antibiotics were introduced by WHO in 2005. The traditional management of Buruli ulcer in endemic communities consists of the application of herbs, usually from local herbalists or self-prepared and medicines from drug vendors (Ahorlu et al., 2013). Agbenorku et al., (2011) presented a clear picture of biomedical treatment when they indicated that, patients were given antibiotics (streptomycin and rifampicin) for eight weeks and excision, debridement and skin grafting
depending on the type and nature of the ulcer. Close to seventy seven percent of participants were treated with antibiotics and surgery (Agbenorku et al., 2011).

Comparing functional limitations in former Buruli ulcer patients treated with antibiotics or surgery or both in Benin, Eddyani et al., (2009) observed that lesions treated with surgery alone were bigger than lesions treated with antibiotics with or without surgery. In their study, close to 16% of participants who were treated with antibiotics did not receive surgery at all but had a functional limitation score similar to other participants. However, patients whose lesions were bigger experienced a reduced lesion compared to smaller lesions a year after introducing antibiotics. A different picture emerged by the time of surgery when patients had completed a course of antibiotics (rifampicin and streptomycin). For example participants who had lesions less than 5 centimetres increased from 12% to 16% whilst a reduction from 43% to 34% and from 21% to 15% were observed for lesions in categories 5 cm to 15 cm and lesions greater than 15 cm respectively with most of the lesions occurring in the healing phase. Excision and skin grafting were required for 39% of the ulcerated lesions after which, the lesions were healed by the third week. Treatment failure was observed in 7% of the cases, the wounds were debrided and re-grafted after two weeks and they got healed by the fourth post-operative week. Excision was performed on a few of the cases which were less than 15cm in diameter and healing occurred after four weeks. A few of the ulcers were not healed eight weeks after recourse to antibiotics treatment.

Wound debridement was performed and the wounds were dressed and healing gradually occurred after four weeks. In investigating the efficacy of two regimens of antimicrobial treatment in early stage of Buruli ulcer in Ghana, Nienhuis et al., (2010) randomly assigned participants into two groups. The first group, designated 8 week streptomycin
group received intramuscular streptomycin and oral rifampicin for eight weeks. The second group termed 4 week streptomycin plus 4 week clarithromycin group resorted to the use of streptomycin and rifampicin for 4 weeks followed by rifampicin and clarithromycin. At week 52, ninety six percent of participants in the 8 week streptomycin group and 91% in the 4 week streptomycin plus 4 week clarithromycin group had healed lesions. Adherence to treatment was very high in both groups. Adherence was 98% and 99% in the 8 week streptomycin group and 4 week streptomycin plus 4 week clarithromycin group respectively. The overall treatment failure was 7%, i.e. 2% for the 8 week streptomycin group and 5% for the 4 week streptomycin plus 4 week clarithromycin group. Most of the participants who experienced treatment failures had large ulcers including an HIV positive patient.

Participants with healed ulcers did not experience recurrence at least after 52 weeks. In assessing the frequency of recurrences after surgical treatment of Buruli ulcer in Ghana, Schunk et al., (2009) stated that 82% of victims were given antibiotic treatment in addition to surgery out of which 14% experienced recurrences. Apart from this, the wound of one patient never closed fully 7 weeks after surgery. No difference was found between recurrence and the size, types of lesions, treatment and duration of diseases. Describing the therapeutic itineraries of Buruli ulcer patients in rural DR Congo, Kibadi et al., (2009) conducted an in-depth interview of twelve confirmed Buruli ulcer victims and established that patients waited for an average of two months (wait and see period) after noticing their Buruli ulcer status during which they use their social network to confirm the disease. They resorted to four treatment options namely, self-medication and this was usually with allopathic drugs in the form of non-specific antibiotics and anti-inflammatory medicaments mostly without prescription. These drugs are normally purchased from local markets by people, and they dress the wound with local cloth or bandage. Another option
was the use of the health facility. Other practices relate to the visitation to traditional healer and the church for prayers. It was also reported that half of participants had used traditional therapy in one time or another (Grietens et al., 2012).

The available literature is dominated with cases of late ulcers compared to the pre ulcerative cases (Adu et al., 2011; Ackumey et al., 2011; Renzaho et al., 2007). In a survey to assess the degree of activeness of a previous endemic focus of Buruli ulcer in DR Congo, Suykerbuyk et al., (2009), asserted that 63% of cases had experienced various forms of Buruli ulcer complications. Included in these cases were healed victims with functional disabilities and amputations. While examining the state of Buruli ulcer victims in Benin, Eddyani et al., (2009) found that 94% of the victims had developed ulcer of which 4% covered the entire arm or leg. This is similar to a recent study conducted in Ghana where 92% and 8% of victims had ulcers and pre ulcerative forms respectively. Most of the ulcers were however in the healing phase due to treatment with antibiotics (Adu et al., 2011).

In a national case search in Ghana, Amofa et al., (2002) noted that most (48%) of the cases were found to be ulcers. Participants whose Buruli ulcer had formed scars were 36%; out of these 33% had their scars healed. Lesions associated with other forms of deformities were made up of 2.7%. Agbenorku et al. (2011) reported from Ghana that 77% of all cases studied were ulcers as against 20% and 3% nodules and plaques respectively.

Another common picture in Buruli ulcer studies is that a significant number of victims are usually lost to follow up and this invariably paints a wrong picture with respect to the state of Buruli ulcer in those areas (Amofa et al., 2002; Agbenorku et al., 2011). In assessing the consequence of Buruli ulcer diseases on education and occupation in Benin, Eddyani et al., (2009) found that close to 40% of participants could not be found during follow up. Sixty
seven percent of those who could not be traced were as a result of wrong address, 21% had moved out of the community whilst 12% had died. This is similar to a study conducted in Ghana by Teelken et al., (2003) where 43% of patients were lost to follow up, of which the addresses of 45% of them were found to be incomplete, 24% moved out, 21% not at home 8% death (4% due to Buruli ulcer) and 2% refusal to participate. Similarly, thirty nine percent of cases were lost to follow up during a study to assess the frequency of recurrence after surgical treatment of Buruli ulcer in Ghana (Amofa et al., 2002; Agbenorku et al., 2011). Out of the 39% lost to follow up, 58% gave wrong addresses, 22% had moved from the region whilst six percent and 14% were as a result of death and other reasons respectively (Schunk et al., 2009). However, a recent study on the examination of factors that may enhance the control and holistic treatment of Buruli ulcer in an endemic area in Ghana found that only 3% of participants had travelled outside the community (Agbenorku et al., 2011; Ahorlu et al., 2013).

2.9 TREATMENT OPTIONS FOR BURULI ULCER PATIENTS

According to a study conducted on the role of traditional beliefs in treatment seeking and delay for Buruli ulcer disease in Cameroun, they reported the availability of various treatment options (Grietens et al., 2012). The first treatment option resorted to by almost every patient is home treatment. This treatment mostly consists of one, or a combination, of the following options: (i) applying an inexpensive salve (e.g. ointments as Linus ointment, robb, liniment) to alleviate symptoms attributed to insect bites or common abscesses; (ii) consuming antibiotics and/or painkillers purchased at pharmacies or local health centres; (iii) using traditional herbs and leaves as remedies, either self-prepared or from traditional healers. In their study, they reported that herbal treatments are mostly given by traditional healers and/or former patients. A former patient healer is a non-
specialist healer who has either been a victim of the disease or has observed the healing process closely (Grietens et al., 2012).

Depending on the perceived aetiology of the illness and on the specialisation of the healer him/herself, the traditional healing process can include one or several of the following steps, (i) Divination; divination is used to see into the invisible (magical) world and determine the cause of illness (i.e. natural causes, curses, etc.) and the appropriate course of treatment. (ii) Confession; where applicable, the sufferer is asked to confess the wrongdoings that may have evoked the disease by his ancestors or the gods. He must then voice his regret for his transgressions and express his willingness to cooperate with the healer in order to facilitate the healing. (iii) Lavage du corps; the lavage du corps, or cleansing of the body, represents the purifying phase of healing whereby the sufferer’s body is washed with water and/or the blood of a sacrificial animal (usually a rooster). (iv) Interdictions; interdictions during treatment vary from healer to healer but most commonly calls for the prohibition of eating fresh meat and fish and having sexual relations (these prohibitions apply to the sufferer and the healer as well as to visitors during the treatment period).

On exceptional occasions, the proscriptions include refraining from greeting people (in order not to attract more bad luck in the sufferer’s vulnerable state); avoiding the consumption of salt and oil; and, abstaining from other practices such as touching others’ belongings. It is believed that flouting the imposed interdictions stops and even reverses the healing process. These aspects often lead to the de facto isolation of the sufferers due to the treatment requirements, as illustrated by the quote by Grietens et al., (2012), “Atom or Buruli ulcer really is the illness of isolation”, (v) Treatment of the ulcer: the ulcer itself is usually treated with a combination of herbs, and often with the use of tree bark or other
natural substances in various thermoregulation therapies (applying hot bark to the ulcer or immersing the ulcer and encircling areas in near boiling/scalding water) and (vi) Reintegration: to conclude the healing process, the healer prepares the food forbidden to the sufferer during treatment to signify the end of the illness and to symbolise his reintegration into society. Many of the above mentioned treatment phases are linked to magico-religious beliefs and therefore are more the domain of the traditional healers. ‘Ex-patient healers’ tend to focus primarily on treating the ulcer itself rather than on the magico-religious elements associated with the disease (Grietens et al., 2012; Ahorlu et al., 2013).

2.10 BIOMEDICAL TREATMENT

Since 2004, the medical management of Buruli ulcers has become an active area of research in order to determine the most effective combination and duration of treatment with antimicrobials (Yeboah-Manu et al., 2013; Ahorlu et al., 2013). Through the use of the mouse footpad model developed by Fenner, rifampicin, rifabutin, amikacin and streptomycin have demonstrated bactericidal activity and azithromycin, clarithromycin and moxifloxacin to have bacteriostatic activity. Antibiotics not only destroy or inhibit the causative mycobacteria; they reverse the immunosuppression of the mycolactone (Converse et al., 2011).

Excision was the treatment of choice in the past but recurrence rates after surgery alone are between 6-30%, depending on the extent of the lesion (Converse et al., 2011; Yeboah-Manu et al., 2013). Now surgery serves as an adjunct to antibiotic treatment in patients with extensive disease, although the exact timing of when the surgery should be done has not been established (Converse et al., 2011; Adu et al., 2011). Small subcutaneous nodules or small ulcerations less than 6 months old and less than 10 cm in diameter may be excised
en bloc with primary closure. In conjunction with antibiotics, surgery is used to remove
devitalised tissue, cover open wounds with a skin graft and correct or minimize
deformities (Adu et al., 2011). Antibiotics treatment has been shown to promote healing of
smaller lesions and as an adjunct to surgical management to decrease recurrence. The best
antibiotics treatment outcomes occur when it is initiated in lesions less than 6 months old
and have a diameter less than 10 cm (Walsh et al., 2011).

2.11 HEALTH SYSTEM AND MANAGEMENT OF BURULI ULCERS

The NBUCP works closely with a network of laboratories at various levels in hospitals and
research institutions, such as the Noguchi Memorial Institute for Medical Research
(NMIMR), Accra, the Komfo Anokye Teaching Hospital, Kumasi and the Kumasi Centre
for Collaborative research (KCCR). These laboratories work with clinical staff in endemic
areas of the country to provide accurate laboratory-confirmed incidence and prevalence
data on *M. Ulcerans* infection. They also conduct research in endemic areas and provide
training on appropriate laboratory procedures. The following are the hospitals and research
institutions that NBUCP works closely with:

The St. Martin’s Catholic hospital at Agroyesum in the Ashanti region serves as a
specialist treatment and referral centre for Buruli ulcer in the middle-belt of Ghana. This
hospital was the centre for a multi- institutional and international collaborative study
which demonstrated the efficacy of rifampicin and streptomycin in inhibiting growth of
*M. ulcerans* in early lesions of Buruli ulcer (Etuaful et al., 2005). Based on the evidence
from this study, these drugs were recommended by WHO for the treatment and
management of Buruli ulcer.

The Reconstructive Plastic Surgery and Burns (RPSB) unit of the Korle-Bu Teaching
Hospital in Accra offers reconstructive surgery for Buruli ulcer patients who need it.
Currently, the RPSB collaborates with the Municipal Health Directorate of the Ga-West and South municipalities for surgical treatment of patients.

The Agogo Presbyterian Hospital, located in the Ashanti-Akim North municipality of Ghana is one of the designated training, research and treatment centres by the World Health Organisation and the Ministry of Health (MOH), Ghana. The Agogo hospital has collaborated with other research and medical centres in the country to conduct studies on the Pharmacokinetics of Rifampicin and Clarithromycin in persons treated for *M.ulcerans* infection (Alffenaar et al., 2010) and drug trials for the efficacy of combinations of streptomycin and rifampicin, clarithromycin and rifampicin and streptomycin and clarithromycin (Nienhuis et al., 2010).

The Noguchi Memorial Institute for Medical Research is one of the research institutions collaborating with the Stop Buruli Initiative, a global initiative committed to research and advocacy on Buruli ulcer. A number of researches were conducted by the Noguchi Memorial Institute for Medical Research in the areas of microbiology and social science to control Buruli ulcer in some endemic communities in Ghana.

The ‘stop Buruli Project’ that was implemented at the Noguchi Memorial Institute for Medical Research has put in social intervention programmes aimed at controlling Buruli ulcer at its early stage. Six main interventions were implemented at the Obom sub-district of the Ga South Municipality of Ghana. The interventions were community outreach to enhance early Buruli ulcer case detection and treatment, re-training of community-based volunteers in Buruli ulcer case detection and referral to the clinic and formation of Buruli ulcer former patients clubs to promote early case detection and referral to the clinic. The rest were the provision of transport to convey Buruli ulcer cases to and from the clinic,
provision of breakfast to Buruli ulcer patients after drug administration on daily basis and training and collaboration with traditional healers to refer cases early to the clinic.

All the various interventions were implemented with the aim of improving early case detection/diagnosis, treatment/management and ensure treatment completion through enhanced community involvement and support by increasing access to health care services for Buruli ulcer patients. Interventions also aimed at supporting the health care system (clinics) to respond promptly and appropriately through early laboratory testing and treatment. The following report by Ahorlu et al., 2013 described how the interventions were implemented:

1. **Community outreach to enhance early case detection and treatment**: This intervention involved showing of Buruli ulcer related documentary films and pictures, especially those depicting success stories of biomedical treatments during the early hours of the night usually between 7 and 9 pm. The documentary film was interspersed with questions and answers. This was followed by early morning mass screening for suspected Buruli ulcer cases. This was done by a team from Noguchi Memorial Institute for Medical Research supported by the Deputy Physician Assistant in the sub-district, the Disease Control Officer and community assistants. Samples were taken from all suspected cases for laboratory confirmation in the laboratory at the Noguchi memorial Institute for medical Research (Ahorlu et al., 2013).

2. **Re-training of community-based volunteers in Buruli ulcer case detection and referral to the clinic**: Community-based volunteers were selected and trained by the Ghana Health Service, however it was realised that they were not active in the communities. So, sixteen of them within the study area were retrained and commissioned to be engaged in Buruli ulcer case search and referral to the clinic for sampling and subsequent treatment. As a way of boosting their morale, 12 out of the 16 were given new
bicycles to aid their movement within their catchment areas in search of cases. The remaining four reported having their own bicycles and asked for support to replace the tyres, which was granted. An amount of GH₵10 ($7) was paid to volunteers for every case referred to the clinic and confirmed to be Buruli ulcer. However, when a referred case was not confirmed to be Buruli ulcer at the laboratory then, only the transportation cost for bringing the suspected patient to the clinic was covered. This was done to reduce or avoid the system being abused for monetary gains (Ahorlu et al., 2013).

3. Formation of Buruli ulcer former patients clubs to promote early case detection and referral to the clinic: In order to encourage former patients to serve as biomedical treatment ambassadors in their communities, three former patients clubs were formed in the communities to promote early case finding and referral to the clinic for early diagnosis and treatment while promoting the virtues of early Buruli ulcer treatment at the clinic. As in the case of the volunteers, an amount of GH₵10 ($7) was paid for every case referred to the clinic and confirmed to be Buruli ulcer. Membership into the club was voluntary (Ahorlu et al., 2013).

4. Provision of transportation to convey Buruli Ulcer cases to and from the clinic: Transportation difficulties both in terms of availability and cost were contributing to treatment default and dropout as well as affecting school attendance among those in school. The project at Noguchi therefore provided transportation to convey confirmed cases to and from clinic on daily basis to ensure adherence and made it possible for those in school to return to school early enough not to miss any lesson.

5. Provision of breakfast to Buruli ulcer patients after drug administration on daily basis: During a baseline study, patients complained that they felt hungry after taking the medications but had no money to feed themselves and this was one of the disincentives for clinic attendance. Arrangement was therefore made to provide breakfast to patients some
minutes after taking the drugs, to encourage clinic attendance and adherence to treatment on a daily basis. The breakfast cost GH¢1.00 ($0.70 cents) per person (Ahorlu et al., 2013).

6. **Training and collaboration with traditional healers:** Ten Traditional healers were trained in Buruli ulcer case detection and referral to the clinic. Before the training, meetings were held with the traditional healers in the study area to discuss possible collaborations in Buruli ulcer case detection and referral to the clinic. This was done in a manner that ensured mutual trust and respect in order to enhance Buruli ulcer patients’ access to biomedical treatment, especially those who would have ended-up in the shrines of traditional healers. As in the case of the volunteers and former patients, an amount of GH¢10 ($7) was paid for every case referred to the clinic and confirmed to be Buruli ulcer (Ahorlu et al., 2013).

The KCCR collaborated with several research and health institutions in and outside the country to conduct comparative studies on the sensitivity of different diagnostic methods for Buruli ulcer that are suitable for poorly resourced health facilities. It is on the basis of the evidence from these studies that the WHO recommends dry Polymerase Chain Reaction (PCR) tests for confirmation of Buruli ulcer cases in endemic settings (Siegmund et al., 2005).

2.12 **CAPACITY BUILDING IN THE HEALTH SYSTEM TO CONTROL BURULI ULCER**

Since 2002, the Agogo hospital has trained surgeons and other medical staff from endemic countries in Africa, including Ghana, in recommended Buruli ulcer surgical and wound management procedures. Furthermore, regional, municipal and on-site skill enhancement workshops are conducted regularly to bring medical staff up-to-date with clinical management techniques for Buruli ulcer. Community-based surveillance
volunteers who are largely volunteers for guinea worm, tuberculosis and schistosomiasis programmes and community health personnel were trained to increase awareness on Buruli ulcer, identify all forms of *M. ulcerans* infections and refer them for medical treatment. School teachers were also trained to educate pupils and students about risk factors for *M. ulcerans* infection and also identify cases for referral to medical facilities.

The Global Buruli Ulcer Control Initiative (GBUI) of the WHO has developed information, education and communication (IEC) materials, such as posters; information guides for CBSVs, health workers and teachers; and comics for pupils and students. These materials are used in Ghana and have been distributed in endemic areas.

As a result of these IEC programmes, the number of self-referrals has increased substantially, an indication of successful programme impact. Some hospitals and health centres have physiotherapy units for the rehabilitation of Buruli ulcer patients to minimise deformities. However, these facilities are woefully inadequate. Health workers in municipal health centres and peripheral clinics are trained to keep a data base of all Buruli ulcer patients in appropriate forms recommended by the WHO.

2.13 POVERTY, COST OF HEALTH CARE, STIGMATISATION AND COPING MECHANISMS

Illness is one of the most important factors associated with poverty, particularly in developing countries. Illness diminishes health status, drains incomes and impoverishes households (Adamba et al., 2011). It is widely recognised that serious illness imposes significant adverse effects on the household. The burden of an illness is often categorised into two components: economic and social. Economic burden consists of the direct cost of illness which is always seen in terms of the medical cost of treating a particular illness (cost of drugs, hospitalisation, laboratory tests, surgery, etc.), and the indirect cost which
includes the opportunity cost of time lost to the patient seeking health care and the accompanying caretaker if any, and any cost of change in accommodation or dietary pattern due to the illness (Asante & Asenso-Okyere, 2003; Adamba et al., 2011). In fact, illness largely affects household income generation, food production, labour-time allocation and accumulation of productive assets, and also children’s education (Lucas et al., 2008). Ordinarily, serious illness that involves long periods of hospitalisation requiring an accompanying caregiver would incur huge indirect cost, as these persons will be unavailable for household productivity. In several studies in Ghana, it has been noted that the indirect cost of an illness is more than half of the total cost of that illness (Asiedu & Etuaful, 1998; Asante & Asenso-Okyere, 2003).

The social burden of illness includes reduction in labour force which causes an increase in dependency ratio to households and society at large, overreliance on social networks, and stigmatisation. Stigma is a very important source of social burden that is often less considered. Research has shown many diseases, such as HIV, mental illness, Buruli ulcer and cancer, to be highly stigmatising, resulting in depression, anxiety, decreased quality of life, and disruption of social relationships for the affected (Awusabo-Asare & Anarfi, 1997; Stienstra et al., 2002; Weiss, 2008). Due to superstitious beliefs, afflicted persons are stigmatised in society and largely avoided or neglected. Stienstra et al., (2002) found that Buruli ulcer patients feel stigmatised, ashamed and embarrassed because of their infection and suffer low self-esteem.

Where the burden of illness is huge, a household’s viability as a socioeconomic unit is threatened (Adamba et al., 2011). In order to sustain capability and keep livelihoods afloat, households adopt mechanisms to cope. Coping strategies are actions that aim to manage the costs of an event or process (in this case, illness) that threatens the welfare of one or
more members of the household (Russell, 2004). They are strategies that seek to regain the economic viability and sustainability of the household. The burden of illness requires that households mobilise both material and non-material resources to cope. However different diseases impose different cost burdens, triggering coping strategies of different magnitude and risks to livelihood sustainability (Russell, 2004; Adamba et al., 2011).

McIntyre and Thiede (2003), categorised illness into: mild, recurring, chronic, long term, terminal and deteriorating illnesses. Mild illness, especially the common ones affecting households, affecting young children, could be managed through use of savings, borrowing, and temporary cuts in other spending (Russell, 1996; Sauerborn et al., 1996). For recurring illness such as malaria, a range of strategies to manage the costs have been observed in Africa and Southern Asia with intra-household labour substitution as the most common response (Asante & Asenso-Okyere, 2003; Chima et al., 2003). Chronic and long-term illness conditions such as TB impose high cost over time if regular treatment is required and if the sick are incapacitated, which lead to relatively risky coping strategies.

Terminal and steadily deteriorating illness such as Buruli ulcer causes a process of household impoverishment through loss of income and productive asset sales (Adamba et al., 2011). Different strategies may also be adopted to deal with the direct costs and indirect costs (Russell, 1996; Sauerborn et al., 1996; McIntyre et al., 2006; Chuma et al., 2007; Leive & Xu, 2007). Coping strategies to deal with the direct cost of illness include borrowing, selling assets, and use of savings. Coping with the indirect cost also involves intra-household labour re-arrangements, and reduction in farm sizes, among others (Chuma et al., 2007, Adamba et al., 2011). Stigmatised people and their households also adopt several mechanisms to cope with the sources of stigma. These may either be problem solving (active coping styles) or emotion-focused (passive) strategies (Miller &
Kaiser, 2001; Makoae et al., 2008). Emotion-focused strategies include rationalisation (such as deeming the illness same as any other illness, and saying that after all everybody will die one day), turning to God (for example, relying on prayers), and hoping for a better turn. Problem-solving strategies may include changing lifestyles, joining support groups, and seeking counselling (Ahorlu et al., 2013).

The success or otherwise of a coping strategy that a household adopts depends on the resources available to its members, both tangible and intangible, which also determines their current vulnerability status. The vulnerability level of a household is founded on its asset portfolio that includes tangible assets such as physical and financial capital and less tangible assets such as education (human capital) and social resources (Russell, 2004). Social resources are the social networks on which claims can be made to obtain other resources, particularly information, opportunities, and supports both in kind or cash. These may include family and friendship networks, links to influential contacts, and membership in organisations such as credit associations. The economic and social costs of illness and coping strategies often adopted can impact the socioeconomic status of a household with impoverishment a palpable possibility, sometimes even a breakdown of the household as a socioeconomic unit (Sauerborn et al., 1996; Wilkes et al., 1997).

Prejudice can increase people’s anxiety, which affects the quantity and quality of health care they receive (Allison, 1998; Clark et al., 1999). Disease stigmatisation has an intricate link with health-seeking behaviour, and impacts heavily on the costs out turns and treatment outcomes (Lorig et al., 2001). Due to the social interpretations given to certain diseases, persons affected tend to avoid other people, as they may initially choose home or self-administered treatment strategies mostly involving the use of herbs, self-medication, and purchase of drugs over the counter (Awusabo-Asare & Anarfi, 1997). This tendency
leads to delays in reporting the infection for early attention, thus enlarging the enormity of coping that is required. Hoffman (1996) noted that, the relationships among health status, stigma, and ways of coping for HIV infection was inherently stressful and had a major influence on quality of life. The costs that accompany Buruli ulcer treatment, its disabling outcomes, coupled with its associated stigma are capable of starting a process of household impoverishment. Buruli ulcer disability leads to loss of productive man-hours and loss of income. A household’s capacity to cope with Buruli ulcer can be further undermined because its associated stigma generates social exclusion and results in weakened support networks (Boleira et al., 2010; WHO, 2010). In the light of these, this study sought to investigate the socio-cultural factors associated with Buruli ulcer management at the Obom sub-district in the Ga South Municipality of Ghana.

2.14 SOCIO-CULTURAL FEATURES, ILLNESS EXPERIENCE, MEANING AND TREATMENT SEEKING FOR BURULI ULCER

The current biomedical Buruli ulcer case management strategies emphasise the significance of early reporting, timely and appropriate medical treatment of nodules before they ulcerate and give rise to debilitating disease sequel of osteomyelitis, contractures, deformities and disabilities (WHO, 2001; WHO, 2008). However, there are a wide range of socio-cultural and demographic factors that influence experience, meaning and behaviour for Buruli ulcer case management.

Illness experience refers to various aspects of Buruli ulcer as seen from the vantage point of affected persons. This includes the experiences of physical symptoms, psychological, emotional and social impacts of Buruli ulcer, enacted and anticipated stigma and concerns about anticipated outcomes. The socio-cultural, psychological and emotional stressors of Buruli ulcer, local ideas of disease contagion and attribution of
Buruli ulcer illness to supernatural forces, environmental and hereditary factors, vulnerability, poor sanitation and hygiene are commonly referred to as the experience and meaning of illness (Weiss, 1997). Collectively, illness experiences and meanings are associated with local names for Buruli ulcer, and these experiences and meanings influence treatment-seeking choices, timeliness of medical treatment and have implications for Buruli ulcer management and control strategies.

The ideas of witchcraft as a cause of Buruli ulcer, perceived seriousness of Buruli ulcer infection, perceived effectiveness of medical treatment, fear of recurring infections, surgery and amputation constitute socio-cultural features of Buruli ulcer that affect preferences for herbal treatment and delayed medical treatment (Asiedu & Etuaful, 1998; Aujoulat et al., 2003; Mulder et al., 2008; Renzaho et al., 2007; Stienstra et al., 2002). Aside from cultural factors, socio-economic factors such as high transport costs to health centres, loss of livelihoods and income because of Buruli ulcer infection and hospital admission, absence from work or school to give care at home or in the hospital are some reasons that account for late medical treatment seeking (Ackumey et al., 2011; Asiedu & Etuaful, 1998; Aujoulat et al., 2003; Grietens et al., 2008).

In cultural and legal terms, the welfare of children is the responsibility of parents or care-givers. Therefore in the event of Buruli ulcer infection, the choice and timeliness of treatment for children is determined by parents or care-givers. Social consequences of treatment delay for children include prolonged absence from school and eventual dropout. Buruli ulcer infection therefore poses a serious socio-economic problem to families. Some care-givers are unable to cope with these exigencies and therefore abandon their wards (Grietens et al., 2008).
Another socio-cultural dimension of Buruli ulcer includes the ways in which gender related-roles of care affect work, school and family welfare. Effects on care-givers, particularly women, include long periods of absence from home and the combined pressures of providing care for hospitalised children and wards and securing livelihoods. Young female children too are often absent from school to provide care for family members at home and the hospital. This has serious implications for their future development. Family welfare is further compromised when the infected person is the main income earner. Economic constraints and the desire to continue working to support the family, compel income-earners to choose between other treatment types and medical treatment (Ackumey et al., 2011).

2.15 CULTURE, BELIEF SYSTEMS AND WOUND CARE

Culture includes the customs, beliefs, knowledge, morals and laws of a region and is fundamental to our proper evaluation of a fellow human being in distress (Wessels, 1985). Many individuals, especially in Africa, have integrated both African and Western behaviours into their lives and manage to comfortably combine these viewpoints (Rudick & Polman, 2009). In most rural communities in Ghana, like elsewhere in sub-Sahara Africa, traditional healers are more accessible to the general population than biomedical service providers. It has been stated that there is approximately one traditional healer for about 500 people while the ratio of doctor to population is 1:40,000 (Bannerman et al., 1983). It is estimated that 70–80% of all black patients seen in South Africa by western trained medical staff have consulted the traditional healer first (Karim et al., 2007). Traditional healers in Africa tend to have low level of education, but are consulted by professionals like teachers, nurses, ministers of religion among others (Pretorius, 1991), confirming a long held view that education and/or a profession do not divorce one from one’s cultural orientation (Louw & Pretorius, 1995).
In Africa, wound aetiology is often rooted in cultural practices, such as tooth extraction, female genital mutilation, traditional circumcision, tattooing and scarification, especially in rural areas (Louw & Pretorius, 1995). In many cases, up to 70% of the first step taken in wound care was a traditional remedy. These remedies are a common source of contamination and hence worsen the wounds (Louw & Pretorius, 1995).

The continent of Africa is one of the most diverse areas on the planet, with over 50 countries, more than 3000 languages and a myriad of cultural practices, traditional beliefs and strongly held values. The different practices found in the region, mean that there is also a wide range of wound aetiologies, treatment-seeking behaviours and, significantly, a varied compliance with standard wound care practice. The effectiveness of therapeutic relationships between wound care clinicians and patients is also highly dependent on an understanding of the cultural issues surrounding patients and their wounds. It is evident, therefore, that when attempting to address wound care issues, whether these be preventive measures or on-going clinical treatment, clinicians will not be very effective unless they recognise the importance of cultural issues surrounding wound management and try to address them in a way that will not offend patients’ cultural sensibility.

Following from a clinical suspicion of secondary infection of wounds in the study area, a microbiological study was undertaken and this has confirmed that secondary infection of Buruli ulcer wounds was occurring, which could be a reason for delay in wound healing (Yeboah-Manu et al., 2013). Because of the free availability of native remedies, most patients try native treatments for some time before seeking treatment from medical facilities and even open fractures are sometimes first managed by local bone setters before patients visit hospital. Even when patients do eventually seek treatment, their problems can
be compounded by an unwillingness to reveal details of traditional remedies to clinicians for fear of blame, stigma and segregation (Louw & Pretorius, 1995).

Though it is known that Buruli ulcer is caused by the environmental pathogen *mycobacterium ulcerans*, its mode of transmission has not yet been established by researchers. As a result, it may be very difficult to device effective control measures to block transmission, so it is very important to devise effective curative measures in addition to early case detection to ensure early healing of wounds and prevent wound infections (Ahorlu et al., 2014).

2.16 TRADITIONAL MEDICINE AND PRACTICES ASSOCIATED WITH ILLNESS AND HEALING

All civilisations have always had traditions of using herbs to promote healing. Plants still remain the basis for the development of modern drugs and medical plants have been used for years in daily life to treat diseases all over the world (Ates & Turgay, 2003). According to Ayitey-Smith, (1989), traditional medicine evolved from environmental resources, which the people of a community adapted in desperation for survival from disease. On the African continent, traditional medical practices date as far back as 4000 years (Ates & Turgay, 2003). It was the sole medical system for health care before the advent of orthodox or modern medicine. Even in this present technological era, traditional medicine is still the predominant means in the third world for the preservation of health of the rural majority who constitute over 70% of the total population. According to Gbile and Adesina (1986), the Nigerian flora has made and will continue to make great contributions to health care of Nigerians. In fact the indigenous medicinal plants form an important component of the natural wealth and culture of Nigeria (Gbile & Adesina, 1986).
Traditional medicine is a holistic discipline involving indigenous herbs and African spirituality, typically involving diviners, midwives, and herbalists (Louw & Pretorius, 1995). Practitioners of traditional medicine claim to be able to cure various and diverse conditions such as cancers, psychiatric disorders, high blood pressure, cholera, most venereal diseases, epilepsy, asthma, eczema, fever, anxiety, depression, benign prostatic hyperplasia, urinary tract infections, gout, and healing of wounds including Buruli ulcer and burns. The diagnoses and chosen methods of treatment in traditional medicine rely heavily on spiritual aspects, oftentimes based on the belief that psycho-spiritual aspects should be addressed before medical aspects (Ahorlu et al., 2013). This was the case for Buruli ulcer in the study communities, where Ahorlu et al., (2013) have reported that for early treatment at the clinic, they persuaded traditional healers to drive away the spirits behind the infection as soon as suspected cases were brought to them and then refer patients to the clinic for early initiation of biomedical treatment. However, observations at the Obom health centre have shown that, some Buruli ulcer patients who started traditional medicine before coming for biomedical treatment still visited the traditional healers for fortifications (Ahorlu et al., 2013).

2.17 PERCEPTIONS ABOUT BURULI ULCER MANAGEMENT

Interventions directed at neglected tropical diseases still largely neglect the socio-cultural, ecological, and other contextual factors that allow diseases to persist in specific populations (Stienstra et al., 2002; Mulder et al., 2008; Ahorlu et al., 2013). These factors, however, are key to uncovering the reasons behind delayed arrival at biomedical health facilities and other therapy choices. The last few years have witnessed an increase in awareness of socio-cultural factors influencing delay and access to hospital treatment with various studies focusing on elements guiding treatment choice for Buruli ulcer (Stienstra et al., 2002; Mulder et al., 2008; Ahorlu et al., 2013).
A shared finding from previous research summarised in the WHO factsheet (WHO, 2008), is that “in developing countries, sociocultural beliefs and practices strongly influence the health-seeking behaviours of people affected by Buruli ulcer and the first recourse is often traditional treatment”. As a consequence, “most patients seek treatment too late”. Community perceptions about wounds in general and Buruli ulcers in particular have serious consequences on their management and prevention. According to a study conducted by Grietens et al., (2012) in Cameroun, Buruli ulcer disease is mostly known in the Ayos and Akonolinga region as atom, and more broadly as an incurable wound (plaieingue´rissable). The study showed various perceived origins, which led to it being categorised as either a mystical illness (maladie mystique) or a natural illness (maladie simple).

Mystical infection with Buruli ulcer disease was caused by an infraction against ‘mvoie’ (a traditional concept expressing both social order and health in a local dialect in Cameroun) or by sorcery. First, as an infraction against social order, the disease was frequently linked to theft and trespassing on agricultural plots. Fields were frequently protected by magical charms or ‘bian’ (fetish), in which various diseases, including Buruli ulcer, can be contained. For those unfortunate enough to trespass on, steal from or simply urinate or spit on such protected plots, the fetish will infect them with the illness(es) held within it. However, in cases of baby/infant victims of Buruli ulcer where transgressions against social order are improbable if not impossible, a second mystical aetiology exists based on human causal involvement. In this scenario, the illness was believed to be cast (lance´) on them by means of sorcery.

Sorcery operates through the intervention of an agent or force of the invisible world identified as ‘evou’ or ‘evu’, which can be understood as an anti-social, often malignant
force, which is an active agent in sorcerers (nnem) and can be passively available in others. Sorcerers and certain healers (ngengan) have the capacity to see what is invisible to other people: “we see only during the day, the sorcerer sees at night and therefore has ‘four eyes’ (Grietens et al., 2012). Protection and healing from sorcery attacks also depend on the strength of each individual’s ‘evou’. To gain mastery over the sorcery-related illness, both sorcerer and healer engage in ‘night battles’, the outcome of which determines the patient’s health. Sorcerers are often accused of the so-called ‘eating of human flesh’, referring to the belief that they mystically sacrifice the limbs and even lives of others, often family members, in return for greater power and prosperity. Not coincidentally, the slow progression with which Buruli ulcer spreads is likened to the sorcerer gradually consuming the limbs or lives of his victims (Grietens et al., 2012).

Aside from mystical infection, the disease can also have a so-called ‘natural’ origin without human agency and mystical involvement. The most frequently cited natural causes of Buruli ulcer disease are insect bites, specifically by the horsefly known as ‘ossun’, and sustaining generally minor wounds and/or developing infections of varying degrees. The biomedical association of Buruli ulcer and water and microbes is also generally known and sometimes used to explain the perceived natural infection (Grietens et al., 2012).

Grietens et al., (2012) maintained that the two clearly distinct perceived origins of the disease (natural and mystical aetiologies) are often used interchangeably or linked together. This process is known as double causality and refers to an illness having both natural and mystical derivations. As such, Buruli ulcer disease can be naturally transmitted by insects on one hand and on the other hand it can be ‘sent’ by a sorcerer to harm the victim. In some cases too, these two causes can be present in one disease episode. The double causality is apparent when the ‘natural’ categorisation fails to adequately explain
the aetiology and/or progression of the disease (Grietens et al., 2012). For instance, when biomedical explanations failed to respond to questions such as why some people are infected by Buruli ulcer disease and others are not, despite living in the same community or even household, people tend to seek answers from other sources and the obvious choice is to ascribe causality to the supernatural. Consequently, understanding the biomedical explanations for Buruli ulcer disease, as outlined in health education messages by public health and disease control officials does not and will not necessarily rule out human involvement or the possibility that natural infection is a consequence of infractions of social rules or as a result of sorcery (Grietens et al., 2012).

Moreover, beliefs are dynamic and as such’ previously held beliefs can alter in accordance with the effectiveness of available treatment options, being it biomedical or traditional. The prolonged nature of the illness and delayed healing process associated with advanced stage ulcers naturally lead to the beliefs in the mystical involvement in the causality.

With regards to community attitudes towards Buruli ulcer patients in Ghana, Renzaho et al., (2007) found that, more than a third (39.5%) of study respondents stated explicitly that they would not accept a Buruli ulcer patient as a community leader, 69.5% indicated that they would interact with Buruli ulcer patients, 57.5% would allow their children to play or interact with Buruli ulcer patients, 91.3% would accept a Buruli ulcer patient as a teacher in their community and 72.6% would welcome Buruli ulcer patients in their households.

However, the researchers also reported that despite the positive attitudes reported by most of the study participants, others showed negative attitudes that had social implications for patients and disease control efforts. For instance, while <1% of interviewed heads of households believed that Buruli ulcer sufferers were not suitable for marriage, 6.9% believed that Buruli ulcer patients were plagued with evil and should be locked up in a
room. Additionally, 3% believed that Buruli ulcer patients should be stripped of any social responsibilities and should not be welcomed to social and community functions, 4.4% believed that Buruli ulcer patients should not be allowed to attend school while 2.2% indicated that Buruli ulcer patients should not be allowed to perform household chores. However, discrimination against Buruli ulcer patients was more pronounced among school children under age 16 years (Renzaho et al., 2007).

2.18 ILLNESS BEHAVIOUR

When a person is down with a disease, it does not only involve his or her body but it also affects his or her relationships, self-image, and behaviour. The social aspects of a disease may be related to the pathophysiological changes that have occurred, but may be independent of them as well. The very act of diagnosing a condition as an illness has consequences far beyond the pathology involved (Conrad, 2005). Society establishes both formal and informal guidelines that influence the behaviour of its members. The behaviour of an individual with a chronic condition as Buruli ulcer is shaped by these societal influences as well. The individual who fully recovers from an illness returns to prior behaviours and roles. However, when there is only partial recovery or continuing illness, as with a chronic disease, the individual has to modify or adapt previous behaviour and roles to accommodate societal expectations, their own expectations, and their health status (Conrad, 2005).

2.19 HEALTH SEEKING BEHAVIOUR

Health promotion programmes worldwide have long been premised on the idea that providing knowledge about causes of ill health and choices available will go a long way towards promoting a change in individual behaviour, towards more beneficial health seeking behaviour. However, there is growing recognition, in both developed and
developing countries, that providing education and knowledge at the individual level is not sufficient in itself to promote a change in behaviour (Ackumey et al., 2011). An abundance of descriptive studies on health seeking behaviour have highlighted similar and in some cases unique findings to demonstrate the complexity of factors influencing an individual’s and community’s help seeking behaviour at a given time and place (Renzaho et al., 2007; Ackumey et al., 2011). However, most of these studies focus almost exclusively on the individual as a purposive and decisive agent but there is a growing concern that factors promoting ‘good’ health seeking behaviours are not rooted solely in the individual, they are also more dynamic, collective and interactive in nature (Stienstra et al., 2002; Mulder et al., 2008).

For instance, TB represents a classic public health issue that affects the whole society and therefore has received Governmental attention in its appropriate and effective detection, diagnosis and treatment (Lönnroth, et al., 2001). Nonetheless, studies of health seeking behaviour in relation to TB repeatedly demonstrate that patients do not always choose a public health care facility; they delay diagnosis and often do not complete the lengthy course of treatment necessary for effective healing (Steen & Mazonde, 1999; Yeboah-Manu et al., 2013). Steen and Mazonde (1999) found that 95% of TB patients in Botswana visited a ‘modern’ health facility as a first step. However, after initiating modern treatment, 47% then went on to visit a traditional or faith healer as well. They emphasised the importance of social and cultural factors in contributing to the outcome of TB control. For these patients TB was seen as an ‘European disease’ that would respond well to Western medicine. Nonetheless a traditional healer was also consulted to explain the ‘meaning’ of the disease for that particular person. Steen & Mazonde, (1999) found in their study an increasing tendency to use modern medicine as a ‘quick fix’ solution,
whereas traditional medicine was utilised for providing answers to questions that might be asked about the meaning of the misfortune, and to deal with the ‘real’ causes of the illness.

According to Grietens et al., (2012), although beliefs could influence health seeking behaviours for Buruli ulcers, more compelling factors were identified to determine patients’ treatment paths, indicating that the choice of treatment was not decided upon solely with consideration to disease aetiology. They also reported that factors such as the effectiveness of treatment, place of treatment, difficulties of symptom recognition and acceptability of treatment were all paramount in deciding on the treatment option to adopt.

Grietens et al., (2012) found that the length and complexity of patients’ itineraries pointed to a determined search for effective treatment. To them, some patients faced complete social isolation, the loss of social relations, economic and professional ruin in their search for effective treatment. Moreover, treatment within or outside of the Buruli ulcer patients’ community was one of the decisive factors in determining treatment choice (Grietens et al., 2012). Treatment outside of the community, whether biomedical or traditional, usually placed an overwhelming financial and social burden on the patient and on his/her household as it implied constant travelling to receive such treatments (Adamba et al., 2011). These movements also lead to social isolation for the patient who was required to stay without relatives at the place of treatment to save on travel cost. When looking at the reported time it took patients to act upon the presented symptoms and seek treatment, Grietens et al., (2012) found that 74.0% of all community respondents reportedly started treatment (including home treatment, traditional healing or biomedical treatment) within three weeks of the onset of symptoms while 11% delayed treatment for more than 3 months.
However, in a study conducted by Renzaho et al., (2007) in Ghana, they found that, of the interviewed heads of households, 41.6% believed that Buruli ulcer patients sought treatment immediately after an infection was suspected, 39.8% believed that they sought treatment within a month after detecting an infection, 13.3% believed they sought treatment within 2–6 months, and 5.4% believed they sought treatment after 6 months of infection. Regarding the type of treatment sought, majority of respondents (71.8%) indicated that traditional treatment, mainly herbal remedies, remained the first preferred treatment option. Only 22.8% of respondents thought Buruli ulcer patients sought help at the hospital or with a local doctor/nurse as the first option. Of those who sought traditional treatment first, only 7.7% went to hospital when the situation deteriorated while 48.2% went to the local doctor/nurse (Renzaho et al., 2007).

Renzaho et al., 2007; Ackumey et al., 2011; Renzaho et al., 2011 and Ahorlu et al., 2013 studies have shown that most persons with Buruli ulcer infection do not seek early treatment. Cultural beliefs, financial capacity, access to treatment facilities, prolonged hospitalisation and the fear of surgical outcomes are possible explanations (Mulder et al., 2008; Ye et al., 2009). Studies on help-seeking of infected persons are important because they highlight the influence of social, cultural, economic, and behavioural influences on how and when treatment choices are made. These help-seeking preferences also account for delays in seeking effective medical treatment for pre-ulcer conditions that respond quickly and effectively to biomedical treatment. Sociocultural studies of help-seeking practices for Buruli ulcer feature strongly on the research agenda of the World Health Organization (WHO) as they are considered necessary to guide public health strategies for treatment and control (WHO, 2008).
According to a study conducted by Ackumey et al., (2011) respondents were more likely to treat pre-ulcers (63%) than ulcers (51.9%) by placing herbal dressings on affected body parts. They also used pills, mainly analgesics for pain management, and leftover antibiotics and blood tonics for pre-ulcers and ulcers. Narratives from the study participants suggested that herbs were often obtained from the backyard. Herbal dressings were placed on pre-ulcers so that the skin would open up and expose the odonti (local term for necrotic tissues, meaning cotton wool). Herbal dressings were then directly applied on the exposed wound to speed up healing. When nodules did not burst, herbalists slit them open. Leftover analgesics at home or purchased over the counter from local chemists were often taken to ease the pain, and ointments and balms were used to reduce swellings (Ackumey et al., 2011). Blood tonics were taken to strengthen the blood because respondents often mentioned that they looked pale, felt weak, or were anaemic as a result of their illness. Some respondents attributed oedemas to evil spells because of the swelling of affected body parts and applied ointments to reduce swelling (Ackumey et al., 2011).

With regards to outside help seeking, Ackumey et al., (2011) revealed that Buruli ulcer patients sought help for pre-ulcers and ulcers from traditional and faith healers, private doctors and government health facilities. Generally, most respondents reported that they sought treatment from the herbalist first, both for pre-ulcers (42.5%) and ulcers (47.5%). Although herbalists were frequently consulted for pre-ulcers and ulcers, respondents were more inclined to seek medical help from Government health facilities for ulcers. Furthermore, respondents with ulcers considered medical treatment from Government health facilities as the most helpful among all the treatment sources and were more likely to use medical facilities first for ulcers than pre-ulcers (Ackumey et al., 2011).
In sum, the study findings highlighted the preference for herbal treatment of pre-ulcers and ulcers, and indicated that respondents were more likely to seek medical care for ulcers than pre-ulcers. These findings present a challenge for Buruli ulcer prevention, control and management because a considerable proportion of respondents did not seek biomedical help for pre-ulcers and ulcers, delayed medical treatment, which increased the risk of developing severe ulcerative disease sequelae (Ackumey et al., 2011).

2.20 CONCLUSION

The literature reviewed in this chapter gives insight into social determinants of patients’ treatment seeking behaviour. Despite the progress registered in recent years, major gaps still remain in the area of local wound classifications and managements, and how these affect wound care at the health facilities. This study is an attempt to bridge this gap to enhance wound management at health facilities to meet the cultural expectations of both affected and infected people for a better treatment adherence and outcomes.
CHAPTER THREE

3.0 METHODOLOGY

3.1 INTRODUCTION

This chapter presents the study area, study design, study populations, data collection techniques, research instruments and tools, data quality control, data management and analysis as well as ethical considerations.

3.2 THE STUDY AREA

3.2.1 The Ga South Municipality

The study took place in the Obom sub-district of the Ga South Municipality. The Ga South Municipality was carved from the then Ga West District in November 2007. The Municipality was established by Legislative Instrument 1987 in 2007 with the capital at Mallam. The Ga South (Weija) Municipal Area lies within Latitude 5 degree 48’ North and within Longitudes 0° 8’ East and 0° 3’ west. It has total land coverage of approximately 517.2 sq. km. It shares boundaries with Accra Metropolitan Area to the South-East, Ga West to the East, Akwapim South to the North-East, West Akim to the North, Awutu Senya to the West, Gomoa to the South-West and the Gulf of Guinea to the South (Ghana Statistical Service, 2010).

According to the extract from the 2010 National Population and Housing Census, the total population of the district is approximately 485,643 made up of 237,558 (48.9%) males and 248,085 (51.1%) females. The high population size is due to the Municipality’s closeness to the capital city Accra, making it home for many workers. According to the 2010 census, there are about 362 communities spread in the urban, peri-urban and rural areas of the Municipality. The coastal and the central portion of the Municipality have very
dense population while the communities in the Northern section are sparely populated and scattered (GSS, 2010).

The unpaved roads in the Municipality are in very poor condition. However two major roads are being constructed across the Municipality, one is from Pokuase through Ablekuma to join the Abeka-Mallam Highway and the other is from Ashalaja to Kasoa. The Departments of Feeder and Urban Roads are undertaking the construction of culverts and drains as well as rehabilitating and shaping of some feeder roads.

Several economic activities are performed in the Municipality. The predominant activities are fishing, crop and livestock farming, trading, small scale manufacturing and a booming hospitality industry, sand winning and stone quarrying. There are more than sixty hotels of different sizes spread in the Municipality with many of them located along the coastline. The Municipality can boast of 72 public basic schools and three public senior high schools. Also there are 260 private basic schools and 13 private senior high schools. There are seven private University colleges in the Municipality (GSS, 2011).

The Municipality has a public Municipal Hospital at McCarthy Hill, which serves as the Municipal hospital and therefore the referral centre for the lower level facilities like clinic, health post and CHPS zones in the Municipal Area. There are a few private Hospitals which complement the health delivery services provided by the Municipal Hospital and the health centres (MoH, 2012).

3.2.2 The Obom Sub-district

Obom, a sub-district in the Ga-South municipality is located 15 kilometres to the north-east of Amasaman the district capital of Ga West Municipality. The Eastern part of the sub-district consists of low hills, interspersed with plains in the central parts. The river Densu, the largest water body in the district, runs through the sub-district. Other water
bodies, which are tributaries of the Densu, are Adeiso, Honi and Ponpon rivers. There are also small ponds and seasonal streams. In addition, numerous surface water bodies have sprung up in the wake of extensive sand-winning activities to supply the building industry in the sub-district and the neighbouring Accra metropolis with sand. These water bodies are significant for economic activities such as fishing and farming as well as disease causation. Water-related diseases such as Buruli ulcer, schistosomiasis and malaria are endemic in the sub-district (MoH, 2012).

Apart from the two main health facilities (one in Obom, the sub-district capital and the other in Amasaman, the district capital of Ga West Municipality) that are accessible to residents in the sub-district, there are private clinics and maternity homes in the sub-district, some of which are at Mayra, Kojo Ashong, Domeabra, Oduman and Jei-Krodua. These facilities complement the efforts of the sub-district public health delivery, which could not reach majority of the people due to poor access and coverage. There are other decentralised health facilities (CHPS compounds) at Ashalagya, Balagono, Hobor and Kofikwei providing primary health care services to the populations that they serve. Owing to the poor condition of roads, the scarcity of means of transport and the fact that most communities are quite far from health facilities, access to health care is a major problem in the sub-district. The majority therefore utilise home treatment either home-made herbal treatment or over the counter medications usually bought from shops and itinerary vendors to manage ailments as a first line of action (MoH, 2012).

3.3 STUDY DESIGN

A descriptive study was used for the study. Burns and Grove (2001:248) state that descriptive designs help to identify problems in current practice with a view to improving practice outcomes. The study employed both qualitative and quantitative research designs.
In this study a mixed method approach for data collection was necessary in view of the rather wide range of issues explored: First of all one needed to understand the culture of wound care from the community perspective and healthcare practitioners’ views on the other side, how the beliefs and practices associated with wound care affect healthcare delivery and treatment seeking behaviour of community members. Secondly, there was the need to understand community members’ knowledge, perceptions and reactions to Buruli ulcer infection in relation to seeking health and thirdly the socio-demographic profile of the study population was needed in order to determine how these influenced the key dependent variable, i.e. whether or not one’s perceptions of Buruli ulcer disease affects health seeking.

A mixed method approach has been adopted in several studies. For example, Gyapong et al., (2003), in an in-depth assessment, used both quantitative and qualitative methods of data collection, to assess the trends of the use of Intra-Uterine contraceptive devices in Ghana. Also, Driscoll et al., (2007) advise that: *researchers seeking associations between primarily quantitative biophysical and primarily qualitative data...* should use mixed method research designs. According to them ‘mixed method research’ refers to all procedures of collecting and analysing both quantitative and qualitative data in the context of a single study.

A qualitative component was designed to gain more information about characteristics within the particular field of study with the purpose of providing a picture of situations as they naturally occur (Nancy Burns & Grove, 2010). The research problem as stated in this work did not lend itself to an experimental or quasi-experimental design. This was because human characteristics and behaviours cannot inherently be subjected to experimental manipulation; it would also not be ethical to manipulate the respondents’ knowledge to gain information (Polit & Hungler, 1995).
The use of qualitative methods (In-depth interviews, FGDs and Observation) in this study was informed by the fact that in dealing with individual life experiences, one cannot understand human actions without understanding the meanings that participants attribute to those actions – their thoughts, feelings, beliefs, values and assumptive worlds. The researcher needed to understand the deeper perspectives captured through face-to-face interactions (Marshall & Rossman, 1999). Moreover, the inclusion of qualitative-ethnographic methods was further inspired by the Adongo et al., (1998) study which was conducted in an area with very similar socio-cultural characteristics (as documented by Cardinall, 1920; Rattray & Westermann, 1932) and Fortes & Goody, 1987) as those of the researchers’ study area.

For the quantitative research, survey questionnaires were administered to community members in the Buruli ulcer endemic communities. Also, the survey questionnaire was used to determine the treatment seeking behaviour of the community members for Buruli ulcer disease. There was the need to describe and explain statistically the variability of certain features of the study community. Table 3.1 shows the various qualitative and quantitative methods used and the type of information collected
### Table 3.1: Methods and Types of Information Collected

<table>
<thead>
<tr>
<th>Qualitative methods</th>
<th>Information collected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-depth interviews:</strong></td>
<td>Elderly community members, Buruli ulcer patients (using home care/traditional care), caregivers of patients, former patients and traditional healers.</td>
</tr>
<tr>
<td>Belief systems and wound management, problems with wound dressing, comparison of home/traditional management of wound and biomedical management of wound, Community perception of Buruli ulcer</td>
<td></td>
</tr>
<tr>
<td><strong>Key informants in-depth interviews:</strong></td>
<td>GHS (District Directorate), National Buruli Ulcer Control Programme, Health Staff (Obom Health Centre).</td>
</tr>
<tr>
<td>Health system challenges in Buruli ulcer control efforts</td>
<td></td>
</tr>
<tr>
<td><strong>Focus group discussions:</strong></td>
<td>Community elders</td>
</tr>
<tr>
<td>Belief systems and wound management, problems with wound dressing, comparison of home/traditional management of wound and biomedical management of wound, Community perception of Buruli ulcer in general and how this affect treatment choices.</td>
<td></td>
</tr>
<tr>
<td><strong>Observation</strong></td>
<td></td>
</tr>
<tr>
<td>Dressing of wounds at the health facility and dressing of wounds at home and by traditional healers.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantitative methods</th>
<th>Information collected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Survey questionnaire:</strong></td>
<td>Community members</td>
</tr>
<tr>
<td>Demographic Information: Data by age, gender, education and ethnic group, religion, occupation, marital status and treatment options.</td>
<td></td>
</tr>
<tr>
<td>Basic Information: Most common diseases, Number of health facilities, Number of traditional healing homes, and proximity of health facility/traditional home to household.</td>
<td></td>
</tr>
<tr>
<td>Knowledge of BU signs and symptoms, Community perceptions about BU including its causes and Health seeking behaviour for BU.</td>
<td></td>
</tr>
</tbody>
</table>

### 3.4 STUDY POPULATION

Burns & Grove, (1995) defined a study population as the total set of study individuals or elements. Population is a collection of persons or other elements who share common characteristics (Stomme & Wills, 2004). The study population included Buruli ulcer patients, former patients, selected traditional healers, health personnel, selected elderly community members and patients’ caregivers. The accessible population, as defined by Burns & Grove (1995), comprised the section of the target population to whom the
researcher had reasonable access during the survey. In this study the accessible population comprised all Buruli ulcer endemic community members, during the data collection phase, accessible former patients and traditional healers involved in managing Buruli ulcer at the study community were also accessed (Burns & Grove, 2005; Stommel & Wills, 2004).

3.5 SELECTING PARTICIPANTS FOR THE QUALITATIVE STUDY

The goal of qualitative research is to capture diversity in experiences, rather than achieving a homogeneous sample. Consequently, a heterogeneous sample was targeted using the principles of maximum variation, as one strategy of purposive sampling (Patton, 2002).

Purposive sampling encourages:

“detecting cases within extreme situations as for certain characteristics or cases within a wide range of situations in order to maximise variation, that is, to have all the possible situations” (Seale et al., 2004: p 418).

Maximum variation sampling allowed for the capture of detailed descriptions of all aspects of the social phenomena or cases under study (i.e., experiences with Buruli ulcer by former patients, elderly community members, traditional healers etc.) as a means to document the uniqueness of particular cases and instances; and, also to allow for the capture of important shared or latent patterns that may “cut across cases” in spite of their heterogeneity (Patton, 2002: p 232). Finally, while a specific or ideal sample size is generally not recommended for qualitative analysis (Patton, 2002), a large sample that would increase the determination of variations and allow generalisation was appreciated. According to Patel et al., (2003), recruitment is a dialogue, which takes place between an investigator and a potential participant prior to the initiation of the consent process. It begins with the identification, targeting and enlistment of participants for a research study. It involves
providing information to the potential participants and generating their interest in the proposed study.

A recruitment strategy (plan for identifying and enrolling people to participate in the research) was used. The strategy specified the criteria for screening potential participants, the number of people to be recruited, the location and the approach. In recruiting people for the Focus Group Discussions (FGDs) the inclusion criteria were elderly males and females above age 55 years in the communities were conveniently sampled. With the aid of community volunteers and a disease control officer who all had fair knowledge of the social setting, a Ga, Ewe and Akan community elder each was first approached to introduce the research team and the aims and objectives of the study to them, then asked them to kindly participate in the study. It was further explained that participation was voluntary and that one was at liberty to withdraw from the discussions anytime one deemed it necessary. However a promise to keep the discussions as confidential was also made. When these elders consented to participate, other participants were reached through a kind of snowballing in which the participant with whom the contact had been made used his/her social networks to refer the team to other elders who could potentially participate in the study.

The same strategy was employed for selecting respondents for the in-depth interviews in Ga, Ewe and Akan for the elderly community members. Convenience sampling was used to select the Buruli ulcer patients and their corresponding caretakers who came to the clinic for treatment and those who went to the traditional healers for treatment. Traditional healers in the community were identified through the president of their association.
3.6 SAMPLING FOR THE QUANTITATIVE STUDY

The basic idea in sampling is extrapolation from the part to the whole—from “the sample” to “the population”. The estimated population for the eleven communities was 16600. Using Epi-Info 7 software, (Leslie et al., 1965), with a population size of 16600, the sample size of 242, was generated for the community survey. However, to make up for contingencies, questionnaires were administered to 300 respondents.

In selecting respondents for the community survey, systematic sampling was used to select compounds of potential respondents. The compounds were listed in the eleven most Buruli ulcer endemic communities. Using the procedure for generating compounds systematically, the compounds were selected in all the eleven communities for the survey. In a given compound, two respondents were interviewed. However, in a compound where there were more than two adults, a simple random sampling (where yes or no was written on pieces of paper and tossed for the potential respondents) was used to select two respondents for the survey. The inclusion criteria for the survey was adults who were 18 years and above in a given compound.

3.7 METHODS OF DATA COLLECTION

3.7.1 In-depth Interviews

In-depth interview is a qualitative research technique that involves conducting intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, programme, or situation. Ethnographic interviews are conducted not with ordinary people of the community but rather with key informants, that is, people who have knowledge of the issues and situations in which the researcher is interested (Sarantakos, 1988). Through discussions with such ‘experts’ the researcher gained a valid picture of the structure and processes of the cultures and groups under study. This method was used to
collect data from traditional healers, chiefs and key community elders on cultural beliefs and practices on wound dressing, care and management from their emic (insider) perspective as opposed to the etic (outsider) perspective. The assumption was that, such people have acquired a culture that was unique and characteristic and has certain cultural and social bases that deserve special consideration and attention so as to have a deeper understanding and meaning of why some people would prefer to seek home care or traditional treatment to biomedical care.

In-depth interviews were conducted with selected Buruli ulcer patients, caretakers of patients, some elderly community members, and traditional healers to solicit information on Buruli ulcer treatment, personal/community beliefs about wound care, perceptions of wound care at the biomedical health facilities, and cultural and traditional beliefs on wound management. Additional information was collected through informal interactions with residents.

Fifty five (55) in-depth interviews were conducted (five Buruli ulcer patients, five caretakers of patients; 10 elderly Ewe community members, 10 elderly Ga community members, 10 elderly Akan community members and five traditional healers). With the exception of the traditional healers who were all men, women were equally represented in the remaining groups. Buruli ulcer patients with their family caretakers, and the elderly community members were purposively selected while traditional healers were selected randomly to represent all traditional healers in the endemic communities.

Also 10 key informant interviews were conducted with health providers on the challenges facing the health system especially in relation to Buruli ulcer control efforts. Key-informants in this study were health care managers and providers, the Director of the National Buruli Ulcer Control Programme, the in-charge of the Obom health centre and
nurses in the wound dressing room, the District Director of Health Services. Interviews with key-informants helped contextualise the characterisations of illness and healthcare experiences voiced by patient participants, and linked them to the clinical, organisational and structural backgrounds to which patients were exposed in the healthcare system. Key-informant interviews were also to explore provider’s perspective on wound care at the health facility. They also drew attention to the manner in which policies were applied and the challenges faced during day-to-day operations. Thus, key-informant interviews were critical in bringing a biomedical context into the study.

3.7.2 Focus Group Discussions

A focus group discussion is a research strategy which involves intensive discussion and interviewing of small groups of people, on a given ‘focus’ or issue, usually on a number of occasions over a period of time (Krueger 1988). This method enables the researcher to utilise group dynamics in order to study the breadth of experience of respondents, thereby gaining maximum variation of answers with adequate depth. According to Krueger (1988), the interaction between participants in a group can provide valuable, sometimes unexpected information and understanding; and for base-line information FGDs can indicate the range of a community’s beliefs, ideas, opinions and attitudes. This method assumes that an individual’s attitudes and beliefs do not form in a vacuum: people often need to listen to others’ opinions and understandings in order to form their own. In this direction, Marshall & Rossman, (1999) advise that the interviewer must create ‘a supportive environment, asking focused questions to encourage discussion and expression of differing opinions and points of view’ (Marshall & Rossman, 1999: p. 114).

In a focus group, a small group of people (between 8 and 12) are brought together in a room or secluded place to engage in a guided discussion on a specific topic. Typically,
focus group participants are chosen without using probability sampling methods. Purposive sampling (as used in key informant interviews) or reliance on available subjects is much more common (Marshall & Rossman, 1999). The rationale behind this technique was to gather generalised data that provided the normative patterns of the beliefs and the way of life of communities studied.

Groups of 8 community elders from different ethnic groups (Ga, Ewe and Akan) were each selected for focus group discussions in the study area to solicit information on Buruli ulcer treatment, personal/community beliefs about wound care, perceptions of wound care at the biomedical health facilities, and the ethnic, cultural and traditional beliefs on wound management. There was one discussion session with each of the three ethnic groups comprising of both males and females. There were therefore a total of three focus group discussions.

3.7.3 Observation

Ethnographic research derives its structure and principles from anthropology. It combines observational techniques such as participant and non-participant observation with interview techniques. This method employed an interpretive paradigm which aimed at understanding the dynamics of the socio-cultural system as well as how communities interpret their world (Sarantakos, 1988). With this method, more time was spent in the communities in order to observe the daily activities of the people. Long-term engagement in the field setting or a place where the ethnography takes place is called participant observation. This is perhaps the primary source of ethnographic data. The term represents the dual role of the ethnographer, where he/she is engaged in the activities that he/she is observing. To develop an understanding of what it is like to live in the research setting, the researcher must both become a participant in the life of the setting while maintaining the
stance of an observer, someone who can describe the experience with a measure of what might be called "detachment" (Schwandt, 2001).

Ethnographers generate understandings of culture through representation of what is called an emic perspective, or what might be described as the "insider's point of view." The emphasis in this representation is thus on allowing critical categories and meanings to emerge from the ethnographic encounter rather than imposing these from existing models. An etic perspective, by contrast, refers to a more distant, analytical orientation of others’ experiences (Schwandt, 2001).

Emic data is information supplied by participants in a study. Emic often refers to first-order concepts, such as local language, concepts, and ways of expression used by members in a cultural-sharing group (Schwandt, 2001). Etic data is information representing the ethnographers' interpretation of the participants’ perspectives. Etic typically refers to second-order concepts, such as the language used by the social scientists or educators, to refer to the same phenomena mentioned by the participants (Schwandt, 2001).

**3.7.4 Justification for the Use of Observation**

As a response to the limitations of knowledge, attitudes and practices (KAP) studies and their possible misuse for explaining health behaviour, anthropologists plead for the use of ethnographic studies. Traditional ethnographies carried out by anthropologists had, however, one big limitation, which is time. To describe culture, anthropologists usually spent years in the field, learning the language of the study communities, and living with them for long periods of time. Furthermore, their sophisticated language and their aim to contribute to advances in anthropological theory hardly matched with the expectations of public health specialists and epidemiologists. Already in the 1980s, Foster & Anderson, (1980) noted that one of the problems in behavioural research was the failure “to keep
research simple‖ (p. 713) and criticised the tendency of many social science researchers to be so “keen on conveying an impression of research sophistication that they overlook entirely, the need to address the question of the ends for which the research is carried out” (p. 714).

A compromise was sought to bridge the different disciplines in order to produce a more meaningful comprehension of community perspectives which helps understanding of health behaviour. In a collaborative work of applied anthropologists and public health specialists, study guidelines were designed, which combined anthropological theory and techniques with rapid, focused data collection aimed at yielding clear and comprehensive recommendations apt for implementation. The classical examples of such study guidelines are the focused ethnographic studies (FES) developed for Acute Respiratory Infections (ARI) programmes (Cove & Pelto, 1993) and the rapid assessment manual for malaria (Agyepong et al., 1995).

The primary aim of all the manuals which were developed and used is to identify local illness concepts and categories. The ‘emic’ concept became increasingly central in anthropology and has been applied to public health investigations. In its simplified use, following Harris & Guten (1979), ‘emic’ in public health works became synonymous with ‘the native view’ of illnesses as opposed to the ‘etic’ concepts of biomedicine or ‘health professionals’ view’. In public health, ‘emic’ studies come very close to investigate ‘lay beliefs’, as opposed to biomedical ‘knowledge’. This research therefore drew on the successes and strengths of ethnographic research to identify local illness concepts and categories.
3.7.5 Survey Questionnaires

A survey implies a careful scrutiny or investigation of a demarcated geographical area in order to have a comprehensive view of the nature, conditions and composition of the social groups, institutions or premises within such a defined area (Burns & Grove, 1995). A questionnaire is a form or document containing a number of questions on a particular theme, problem, issue or opinion to be investigated. The questions are intended to be answered by a particular or a specified group or individuals, deemed to have, or to be knowledgeable about or concerned with the answers to questions in the questionnaire (Burns & Grove, 1995). This method was employed to collect data from some community members to assess their knowledge, perceptions and treatment seeking behaviour for Buruli ulcer disease.

This method was adopted so as to gather data from the large group of community members. This was done by way of interviewer administered questionnaire. Epi-Info 7 was used to perform basic frequencies to measure the level of knowledge, perceptions and treatment seeking behaviour of Buruli ulcer in the endemic communities. Basic statistical analyses of variables of interest were done by performing tabulations and cross-tabulations. The relevant tabulations yielded frequencies which were used to describe the basic summaries of the variables. The cross tabulations allowed for comparison between variables and so Chi-squares and P-values were obtained for testing the associations between variables. For this study the significance level was 0.05.

3.8 TRIANGULATION

Triangulation may be defined as the application of different methodologies and techniques to study the same phenomenon, through the use of various methods, data sources or theoretical perspectives (Burns & Grove, 1995). Triangulation may be treated as a tool to
validate data from different sources, and it is critical when seeking a singular truth within certain research arena. The intent of using triangulation is to decrease, negate, or counterbalance the deficiency of a single strategy, thereby increasing the ability to interpret the findings appropriately (Thurmond, 2001). Consequently, it was used in this study as an interpretive tool for validation of the research. In this study, triangulation of data sources (i.e. surveys, interviews, focus group discussions and observations) helped capture a more complete and contextual depiction of patients’ and community members’ experiences with illness and care. Triangulation enriched data interpretations and helped uncover unexpected themes that might not be apparent through one data source. Though the qualitative and quantitative data were analysed separately, findings from both data were triangulated in the interpretation and discussion of the results to achieve coherent conclusions.

3.9 STUDY LIMITATIONS

The study was limited to the Obom sub-district in Ga South Municipality of the Greater Accra Region of Ghana. The study included health care practitioners and traditional healers, Buruli ulcer patients, (both at home and hospitals), family members or caretakers, community members and former Buruli ulcer patients living within the sub-district. Findings from the study could not be generalised beyond the study area, though most of the health system issues may be applicable countrywide, caution needs to be exercised when making inferences from the study in other contexts in and out of Ghana.

3.10 DATA QUALITY CONTROL

The following measures were taken to ensure data quality of the study:
3.10.1 Pre-testing or Pilot Study of Data Collection Instruments

The interview guides and questionnaire were pre-tested at the Kojo Ashong Clinic. A total of 10 Buruli ulcer patients were interviewed (5 females and 5 males). The Deputy Physician Assistant in charge of the Kojo Ashong Clinic, a disease control officer and two nurses were also interviewed as part of the pre-testing. This enabled the researcher to validate the tools prior to the main data collection. The data collection instruments after the pre-test, had to be modified to take care of some inconsistencies and difficulty in translations.

3.10.2 Validity

In order to ensure validity of the data, triangulation was used to corroborate an overall interpretation of the findings (Mays & Pope, 2000). All techniques (interviews, focus group discussion, questionnaire administration and non-participant observation) used for data collection complement one another; therefore the use of triangulation gave more validity to the data (Malterud, 2001).

3.11 DATA MANAGEMENT AND ANALYSIS

Phenomenological analysis was performed on the qualitative data. This method was used because a phenomenon was studied which was wound care. Moreover, in analysing the data, the Moustakas’ (1994) steps of analysis were used. These include bracketing, where preconceived experiences were set aside to understand participants experiences, horizontalisation, where all relevant statements that related to the topic were listed and given equal value and clusters of meaning in which statements were put into themes to remove overlapping and repetition. The final step was the structural or textual description in which how the respondents and participants experienced the phenomenon was addressed.
Qualitative data from in-depth interviews and focus group discussions were categorised in a format that allows for manual coding by interview item for content analysis to be done. Data was analysed to clarify aspects of cultural beliefs of wound care, experiences of traditional treatment of wounds and treatment seeking behaviour of patients. Qualitative variables of interest were categorised and selected into common themes for presentation. This allowed the performance of phenomenological analysis on relevant coded segments for presentation. Representative narratives were presented to show the position of respondents on topics of interest. The two data sets, quantitative and qualitative, were presented to complement each other. Presentations took into account both majority and minority positions.

3.12 ETHICAL CONSIDERATION/ ISSUES

The study did not involve any experimental procedure on patients. However, research and ethical clearance to conduct the study was sought from the College of Health Sciences, University of Ghana, Legon and the Ministry of Health/Ghana Health Service. The following ethical considerations were followed:

Ethical principles of anonymity, confidentiality, and rights of withdrawal were shared and ensured among participants. The research participants were informed of the objectives, methods of the study, and the field researchers clarified their roles in the study. For patients in particular, it was made clear to them that participation in the study was voluntary and refusal to take part would not affect their access to services offered by the health facility. No form of inducement was used to entice participants to partake in the study. However, refreshment and transportation were provided after interviews. To help protect the identity of patients and prevent questioning by community members, both the questionnaire administration and individual interviews were held within an environment
devoid of many people. To ensure participants’ right, informed consent was obtained from them before the conduct of the interview. The Study outcome may be of benefit to the Buruli ulcer patients, community workers, and other agencies within the health care system at various levels. Also, the study result were disseminated and used in increasing community awareness on Buruli ulcer. Results and recommendations were disseminated to the health personnel and other stakeholders for their perusal.

3.13 CONCLUSION
This chapter has presented the methodology that was used in the study including the description of the study area, study design, and study populations, sampling techniques, research instruments, data collection techniques, data collection tools, data quality control and ethical consideration.
CHAPTER FOUR

4.0 RESEARCH FINDINGS: COMMUNITY KNOWLEDGE AND PERCEPTIONS ABOUT BURULI ULCERS AND HEALTH SEEKING BEHAVIOUR FOR BURULI ULCER DISEASE

4.1 INTRODUCTION

Findings on the demographic profile of respondents, community knowledge, perceptions of and reactions to Buruli ulcers, health seeking behaviour for Buruli ulcers and how to prevent Buruli ulcers from respondents’ perspectives are presented in this chapter. The chapter ends with concluding statements drawn from findings presented.

4.2 DEMOGRAPHIC PROFILE OF RESPONDENTS

Table 4.2:1 shows the demographic profile of respondents. Out of the 300 respondents, 54% were females and 46% were males. The age distributions indicated that the majority (35.7%) of the respondents were between 41 to 50 years old. It also became clear that majority (51.7%) of the respondents had no formal education. As was expected, the population was dominated by the Ga ethnic group (55.7%); however it was surprising to find that only 9.3% of the respondents were Akans, given the proximity of the study area to regions surrounded by Akan speaking populations. With regard to religion, the majority (75%) of the respondents said they were Christians. Further analysis of the demographic data revealed that majority (64.3%) of the respondents was engaged in trading/ businesses of all kinds.
### Table 4.2: Demographic profile of survey respondents

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>162</td>
<td>54.0</td>
</tr>
<tr>
<td>Male</td>
<td>138</td>
<td>46.0</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 and Below</td>
<td>6</td>
<td>2.0</td>
</tr>
<tr>
<td>21-30</td>
<td>37</td>
<td>12.3</td>
</tr>
<tr>
<td>31-40</td>
<td>61</td>
<td>20.3</td>
</tr>
<tr>
<td>41-50</td>
<td>107</td>
<td>35.7</td>
</tr>
<tr>
<td>51-60</td>
<td>61</td>
<td>20.3</td>
</tr>
<tr>
<td>61 and Above</td>
<td>28</td>
<td>9.3</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Education</td>
<td>155</td>
<td>51.7</td>
</tr>
<tr>
<td>JHS</td>
<td>35</td>
<td>11.7</td>
</tr>
<tr>
<td>Primary</td>
<td>90</td>
<td>30.0</td>
</tr>
<tr>
<td>SHS</td>
<td>17</td>
<td>5.7</td>
</tr>
<tr>
<td>Tertiary</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>Voc/Tech</td>
<td>1</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Ethnic group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ga</td>
<td>167</td>
<td>55.7</td>
</tr>
<tr>
<td>Ewe</td>
<td>82</td>
<td>27.3</td>
</tr>
<tr>
<td>Akan</td>
<td>28</td>
<td>9.3</td>
</tr>
<tr>
<td>Northner</td>
<td>18</td>
<td>6.0</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>225</td>
<td>75.0</td>
</tr>
<tr>
<td>Islam</td>
<td>51</td>
<td>17.0</td>
</tr>
<tr>
<td>Traditional</td>
<td>20</td>
<td>6.7</td>
</tr>
<tr>
<td>No Religion</td>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade/Business</td>
<td>193</td>
<td>64.3</td>
</tr>
<tr>
<td>Farming</td>
<td>55</td>
<td>18.3</td>
</tr>
<tr>
<td>Casual Labour / Sand Winning</td>
<td>16</td>
<td>5.3</td>
</tr>
<tr>
<td>Fishing</td>
<td>16</td>
<td>5.3</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>3.1</td>
</tr>
<tr>
<td>Farming + Fishing</td>
<td>6</td>
<td>2.1</td>
</tr>
<tr>
<td>Unemployed</td>
<td>4</td>
<td>1.3</td>
</tr>
<tr>
<td>Official Employee</td>
<td>1</td>
<td>0.3</td>
</tr>
</tbody>
</table>

#### 4.3 KNOWLEDGE OF BURULI ULCERS

Findings revealed a high level of knowledge about Buruli ulcer in the selected endemic communities. This revelation came to light when respondents were asked whether they
heard of the disease that causes wounds, nodules, plaque etc. Out of the 300 respondents, 286 (95.3%) said they had heard of Buruli ulcer (Table 4.3.2).

This was confirmed by a key informant during an interview session thus:

.....Buruli ulcer is a chronic skin and soft tissue infection caused by the Mycobacterium ulcerans bacterium. Unlike the wounds, Buruli ulcer often starts as a painless swelling (nodule). It can also initially present as a large painless area of plaque or a diffuse painless swelling of the legs, arms or face (oedema).....it has necrotic tissue (cotton wool-like) at the edges..... (Key informant interviews).

The high level of knowledge about Buruli ulcer by community respondents corroborated an earlier study in Ghana which reported a high prevalence in the study district which was more than four times the national average (Amofah et al., 2002).

The subsequent question about its local name established the fact that local names of the disease vary by the local languages spoken by respondents. The dominant ethnic group (the Ga), has three local names for the disease and these are‘helagbonyo’, ‘abuagbonyo’ and ‘odontihela’. The Ewe call it ‘detsifudor’, ‘abivordi’, ‘abimakumaku’ and the Akans call it ‘abuabone’, ‘asawakuro’ and ‘kisikuro’.

It is important to know that the various local names for Buruli ulcer reported by all the ethnic groups have common meanings and interpretations. For example, the Ga people call the disease ‘Odontihela’, the Ewe call it ‘Detsifudor’ and the Akan call it ‘Asawakuro’, and all these could be translated to mean ‘cotton wool disease’. The Ewe call a chronic wound ‘abimakumaku’ meaning a never healing wound whiles the Akan call it ‘kisikuro’ to mean the same thing while the Ga call it ‘helagbonyo’ meaning a large wound. These local names give credence to the fact that Buruli ulcer is a chronic disease, which takes a long time to heal. This confirms the suggestion by Marx (1989) of the need to consider local languages of communities for the effective control and management of diseases.
To confirm their knowledge about the disease, respondents were asked where they got to know about the disease and its local names, and the majority (60.15%), of the respondents had heard about Buruli ulcer in their communities; 25.9% of the respondents said they either saw some of the Buruli ulcer patients before infection or they had been infected before; another 6.3% said they heard about Buruli ulcer from media reports and discussions while 4.6% said they heard about it from the hospital.

Table 4.3.2 Knowledge of Buruli ulcers

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency (N = 300)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of BU (Nodule, Plaque, Etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>286</td>
<td>95.3</td>
</tr>
<tr>
<td>Local Names</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboagbonyo /OdontiHela (Ga)</td>
<td>200</td>
<td>70.0</td>
</tr>
<tr>
<td>Detsifudor (Ewe)</td>
<td>60</td>
<td>21.0</td>
</tr>
<tr>
<td>Asawa Kuro/ Kisi Kuro (Akan)</td>
<td>26</td>
<td>9.0</td>
</tr>
<tr>
<td>Sources of Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People in the community</td>
<td>172</td>
<td>60.1</td>
</tr>
<tr>
<td>Seen some myself / Victim</td>
<td>74</td>
<td>25.8</td>
</tr>
<tr>
<td>Media</td>
<td>18</td>
<td>6.3</td>
</tr>
<tr>
<td>Hospital</td>
<td>13</td>
<td>4.6</td>
</tr>
<tr>
<td>Rumour</td>
<td>9</td>
<td>3.2</td>
</tr>
<tr>
<td>Reasons for the names</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Because of the Odonti/Asawa (Cotton) in it</td>
<td>151</td>
<td>52.8</td>
</tr>
<tr>
<td>It’s a bad disease</td>
<td>47</td>
<td>16.4</td>
</tr>
<tr>
<td>That is how our people call it</td>
<td>46</td>
<td>16.1</td>
</tr>
<tr>
<td>I don't know</td>
<td>27</td>
<td>9.4</td>
</tr>
<tr>
<td>It doesn't heal quick</td>
<td>15</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Footnote: The following have been re-categorised for chi-square analysis: Age: 10-40 =104(34.67%), 41 and above = 196 (65.33%). Education: No education = 155(51.67%), Primary and above =145(48.33%)

4.4 COMMUNITY IDEAS ABOUT BURULI ULCER INFECTION

Respondents were asked whether they know of any Buruli ulcer infected person in their communities before the data collection for the present study and the majority (85%) responded in the affirmative. With regards to the signs and symptoms of Buruli ulcer
infection, 74.3% of the respondents said painless itchy boils were associated with the early signs and symptoms while 16.7% mentioned rashes as signs of infection.

Two main causes of Buruli ulcer were reported by respondents, these were; natural causes (77.6%) and supernatural causes (60.1%). However, 39.5% of them mentioned both the natural and supernatural causes. There was a significant difference between males (36%) and females (69%) with females more likely to report natural causes of Buruli ulcer than males (p=0.006). In terms of level of education and the attribution of the cause of Buruli ulcer infection, there was a significant difference between respondents with no education and those with at least primary education. Significantly more respondents with at least primary education (45.6%) were more likely to report that Buruli ulcer is caused by both natural and supernatural causes than those with no education (28.85) (p<0.001). Moreover, those with at least primary education (34.7%) were more likely to report only natural causes than those with no education (p=0.034).

4.5 COMMUNITY PERCEPTIONS ABOUT BURULI ULCER WOUNDS

Various causes of wounds were reported by respondents. These were; cuts 59%, accidents-both domestic and motor (55.3%), falling (21.3%) and bites from insects (17.7%) among others. Asked how wounds are categorised in the communities, majority (39.7%) of the respondents said wounds are categorised according to natural (ordinary) and supernatural (bewitched/cursed) causes, 27% said wounds are categorised according to how serious they are, thus more serious or severe wounds that are not healing fast, were attributed to supernatural causes. Also, 17.3% said the categorisation is based on the way the wound looks like, thus, wounds that look horribly bad and smell offensive were attributed to supernatural causes. According to respondents, wound categorisation helps to know how to manage/treat a particular wound.
Respondents were asked to describe the kind of wounds they would call Buruli ulcer in their communities. The Majority, (61%) described Buruli ulcers as wounds that do not heal fast/quickly or at all, while 28% described Buruli ulcers wound as cotton wool wounds. Respondents also gave two main reasons why they thought Buruli ulcer wounds are different from other wounds. While 50% of the respondents said the difference is that Buruli ulcer wounds do not heal fast and smell bad compared to other wounds, 42% said the difference is that Buruli ulcer wounds have cotton wool-like (necrotic tissue) edges which other wounds do not have.

4.6 COMMUNITY PERCEPTIONS AND REACTIONS TOWARDS BURULI ULCER PATIENTS

Buruli ulcer patients were perceived as people who have been bewitched (36.7%). Others (21%) blamed them as people who did not take good care of themselves while another 11.1% saw Buruli ulcer infected people as having normal wounds. Interestingly, while 7% of the respondents saw Buruli ulcer patients as witches and wizards, 6% saw them as ordinary sick people in the community. There was no gender difference in the way Buruli ulcer patients were perceived in the study area. However, respondents in the age group 41 and above years, (60%) were more likely to perceive Buruli ulcer infected people as having been bewitched compare to those aged 10-40 years (p=0.004). On the other hand, respondents aged 10-40 years (10.7%) were more likely to see Buruli ulcer infected persons as witches and wizards than those aged 41 and above years (3.8%). There was no difference between the educated and non-educated in terms of how they perceive Buruli ulcer patients in the study area.

Various reactions towards Buruli ulcer patients were reported by respondents. Findings revealed that Buruli ulcer infection does not evoke sympathy from some members of the University of Ghana http://ugspace.ug.edu.gh
community as; 30.1% of the respondents said they would stay away from a Buruli ulcer infected person, 25.5% said they would react in a normal way towards Buruli ulcer patients but with caution, while 19.2% said they would get closer to Buruli ulcer infected person without hesitations.

Asked whether they would interact with Buruli ulcer infected persons in terms of building relationships, similar proportions of respondents said they would (49%) and they will not (48%). However, when it comes to its infectiousness, 59.7% of the respondents said Buruli ulcer is infectious, thus could be transmitted from one person to the other with 33.7% insisting that it is not infectious, thus could not be transmitted from one person to the other, while 6.6% said they did not know whether Buruli ulcer is infectious or not.

Out of the 300 respondents, 91.3% said Buruli ulcer is a major health problem in the study area. This position was supported by various reasons including the fact that the mode of transmission of Buruli ulcer is not known, there is no definite means of preventing the infection and the disease mostly affects children in the study area. However, a minority (7.7%) of the respondents said Buruli ulcer is no longer a major health problem in the study area with the reason that it is not common these days because of the educational interventions going on in the sub-district.

On the question of whether Buruli ulcer is curable or not, 78.3% said the disease is curable while 16.3% said it is not. For those who said Buruli ulcer was curable, 41% said it can be cured through biomedical treatment, 19.3% said it can be cured by traditional practitioners and 18% said it can be cured using both biomedical and traditional treatments. For the respondents who said Buruli ulcer is not curable, 7.3% of them said it is so because it is a disease brought about by being cursed, 6.7% said it is so because the disease is caused by spiritual means and 2.3% said they did not know why it could not be cured. It is important
to note that there is no relationship between socio-demographic characteristics and community perceptions on the curability of Buruli ulcer.

4.7 COMMON HEALTH PROBLEMS, INFRASTRUCTURE AND TREATMENT SEEKING

Table 4.7.3 presents the common health problems and treatment seeking for Buruli ulcer reported by respondents. Findings showed that malaria (95%) and Buruli ulcer (45.3%) were the two most commonly reported health problems in the study area (Table 4.7.3). It also came to light that the majority, (62.0% out of the 300 respondents) said they would first resort to self-medication/visit the drug store whenever they were not well. There was no difference (p=0.622) between the male and female respondents who would resort to self-medication or visit the drug store when not well. Respondents were also asked to mention the types of general health delivery services available to them in their communities and it came to light that the drug store (76.0%) was the most available facility to the people. It is however encouraging to find that a medical health facility (clinic/hospital) was mentioned by 57.7% of respondents as being available in their communities (Table 4.7.3).

On the question on which of the available sources of health care commonly used, the majority (71.3%) of the respondents mentioned the drug store. It was however important to note that 59.3% of the respondents commonly utilized or preferred the clinic/hospital (Table 4.7.3). The majority (44%) of respondents said the distance from their homes to the nearest clinic/hospital was very far with 23.3% saying it was very near to them. However, the majority (62.3%) of the respondents said they always walk to the clinic/hospital (Table 4.7.3).
Table 4.7.3 Common Health Problems, Infrastructure and treatment seeking

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency N = 300</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most Common health problems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria</td>
<td>285</td>
<td>95.0</td>
</tr>
<tr>
<td>Bu</td>
<td>136</td>
<td>45.3</td>
</tr>
<tr>
<td>Cholera</td>
<td>35</td>
<td>11.7</td>
</tr>
<tr>
<td>TB</td>
<td>25</td>
<td>8.0</td>
</tr>
<tr>
<td>Typhoid fever</td>
<td>10</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>First treatment resort when not well</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-medication / Drug store</td>
<td>186</td>
<td>62.0</td>
</tr>
<tr>
<td>Health facility</td>
<td>67</td>
<td>22.3</td>
</tr>
<tr>
<td>Traditional healer</td>
<td>47</td>
<td>15.7</td>
</tr>
<tr>
<td><strong>Types Of Health delivery services Available</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug shop</td>
<td>228</td>
<td>76.6</td>
</tr>
<tr>
<td>Clinic / Hospital</td>
<td>173</td>
<td>57.7</td>
</tr>
<tr>
<td>Traditional healer</td>
<td>41</td>
<td>13.7</td>
</tr>
<tr>
<td>Prayer camp</td>
<td>12</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Most utilised health facility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug store</td>
<td>214</td>
<td>71.3</td>
</tr>
<tr>
<td>Clinic / hospital</td>
<td>178</td>
<td>60.0</td>
</tr>
<tr>
<td>Traditional healer</td>
<td>36</td>
<td>12.0</td>
</tr>
<tr>
<td>Prayer camp</td>
<td>11</td>
<td>3.7</td>
</tr>
<tr>
<td><strong>How Far Is The Nearest clinic/hospital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very far</td>
<td>132</td>
<td>44.0</td>
</tr>
<tr>
<td>Near</td>
<td>71</td>
<td>23.7</td>
</tr>
<tr>
<td>Very near</td>
<td>70</td>
<td>23.3</td>
</tr>
<tr>
<td>Far</td>
<td>27</td>
<td>9.0</td>
</tr>
<tr>
<td><strong>Means of transportation to nearest clinic/hospital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walk</td>
<td>187</td>
<td>62.3</td>
</tr>
<tr>
<td>Motorbike/Okada</td>
<td>93</td>
<td>31.0</td>
</tr>
<tr>
<td>Car(Private/taxi/trotro)</td>
<td>18</td>
<td>6.0</td>
</tr>
<tr>
<td>Bicycle</td>
<td>2</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**Footnote:** The following have been re-categorised for chi-square analysis: Age: 10-40 =104(34.67%), 41 and above = 196 (65.33%). Education: No education = 155(51.67%), Primary and above =145(48.33%)

**4.8 HEALTH SEEKING BEHAVIOUR FOR BURULI ULCERS**

The following findings summarised the health seeking behaviour for Buruli ulcer in the Obom sub-district of the Ga South Municipality in the Greater Accra Region. Majority (71%) of respondents said they would seek treatment immediately they see the signs and symptoms of Buruli ulcer. On the other hand, 27.7% would not seek treatment
immediately with the reason that they would wait to see how their condition would progress before seeking treatment. There was no gender significant difference in terms of early/late treatment for Buruli ulcer treatment seeking. However, there was a significant difference (p<0.001) between the two age groups that was examined, thus the older age group 41 and above years (72.6%) would reportedly seek early treatment for Buruli ulcer compared to the younger age group – (10 -40 years). Interestingly, those who had never been to school (73.2%) were more likely to seek early treatment for Buruli ulcer (p=0.016) compared to those who have had at least primary school education (Table 4.8.4).

It came to light that most respondents (41.0%) would resort to self-medication as their first treatment option when infected with Buruli ulcer disease. There was an association between age and first choice of treatment option, thus significantly more respondents aged 41 and above years were more likely to take self-medication (P<0.001), visit biomedical health facilities (P=0.005) and consult traditional/spiritual healers (P=0.030) compared to those aged 10 - 40 years (Table 4.8.5).

There was a significant relationship between education and first treatment options reported. Thus, comparatively more (53.5%) respondents with no education said they would seek self-medication as their first treatment option for Buruli ulcer than those who attained primary and above educational level (27.6%) p<0.001. On the other hand, as was expected, significantly more (p<0.001) persons with primary education and above (42.1%) would consult biomedical health facilities as their first treatment option compared to those who had no education (23.2%). Various reasons were given for selecting a particular treatment option and the two most prominently reported ones were that they are the ‘best place to manage the condition’ (38.3%) and ‘convenient to use’ (33%)(Table 4.8.5).
Respondents were asked whether they would combine more than one treatment option when infected with Buruli ulcer disease and the following were their responses; 166 (55.3%) of them said they would not combine more than one treatment regimen for the management of their condition while 128 (42.7%) said they would combine more than one treatment regimen when infected with Buruli ulcer. The remaining 6 (2%) of the respondents said the severity of the illness would inform their decision on whether to use one treatment regimen or more.

The 166 respondents who said they would not combine more than one treatment regimen to manage their condition gave various reasons why they would not do that and these were: ‘to avoid complications’ (31 (18.7%)), ‘to avoid infection’ (39 (23.5%)) and ‘to avoid delay in wound healing’ (96 (57.8%)). The reasons given by the 128 respondents who said they would combine more than one treatment regimen for the management of their infection were to: ‘meet spiritual and physical needs (55 (43.0%)), ‘heal the wound fast’ (54 (42.2%)) and ‘complement each other’ (19 (14.8%)).

This was corroborated by a Buruli ulcer patient during an interview session thus:

.... I will combine both the biomedical and traditional treatment because I believe evil spirits can cause a wound ... The traditional treatment will drive away the evil spirits whiles the hospital treatment will heal me physically ... (in-depth interview 55 year old respondent)

There was no relationship between the sex of respondents and early treatment seeking behaviour. However, there was a significant relationship between age and early treatment seeking behaviour of respondents, where those who were 41 years or more were more likely to seek early treatment compare to those who were aged 10 to 40 years (p<0.001). Also, there was a significant relationship between educational level and early treatment seeking behaviour, where those with no education were more likely to seek for early treatment compared to those who have at least primary education (p=0.016) (Table 4.8.4).
Table 4.8.4 Relationship between sex, age, education and respondents who will seek treatment immediately for Buruli ulcers

<table>
<thead>
<tr>
<th>Seek treatment immediately</th>
<th>Female N=162 (%)</th>
<th>Male N=138 (%)</th>
<th>P-Value</th>
<th>Chi Square</th>
<th>Degree of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>110(67.90)</td>
<td>103(74.64)</td>
<td>0.248535</td>
<td>6.74</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>50(30.86)</td>
<td>33(23.91)</td>
<td>0.225556</td>
<td>6.95</td>
<td>2</td>
</tr>
<tr>
<td>Don't know</td>
<td>2(1.23)</td>
<td>2(1.45)</td>
<td>0.731305</td>
<td>0.21</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Female N=162 (%)</th>
<th>Male N=138 (%)</th>
<th>P-Value</th>
<th>Chi Square</th>
<th>Degree of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-40yrs N=136 (%)</td>
<td>95(69.85)</td>
<td>119(72.56)</td>
<td>0.000000</td>
<td>30.63</td>
<td>2</td>
</tr>
<tr>
<td>41yrs &amp; Above N=164 (%)</td>
<td>38(27.94)</td>
<td>45(27.44)</td>
<td>0.017954</td>
<td>13.80</td>
<td></td>
</tr>
<tr>
<td>Depends on the illness</td>
<td>3(2.21)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Female N=162 (%)</th>
<th>Male N=138 (%)</th>
<th>P-Value</th>
<th>Chi Square</th>
<th>Degree of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Education N=164 (%)</td>
<td>120(73.17)</td>
<td>93(68.38)</td>
<td>0.016124</td>
<td>13.28</td>
<td>2</td>
</tr>
<tr>
<td>Primary – Above N=136 (%)</td>
<td>43(26.22)</td>
<td>40(29.41)</td>
<td>0.921137</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Depends on the illness</td>
<td>1(0.61)</td>
<td>3(2.21)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Footnote:** The following have been re-categorised for chi-square analysis: Age: 10-40 =104(34.67%), 41 and above = 196 (65.33%). Education: No education = 155(51.67%), Primary and above =145(48.33%)
Table 4.8.5 Relationship between sex, age, education and first treatment option for BU

<table>
<thead>
<tr>
<th>1st mode of treatment</th>
<th>Female N=162 (%)</th>
<th>Male N=138 (%)</th>
<th>P-Value</th>
<th>Chi Square</th>
<th>Degree of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-medication</td>
<td>70(43.21)</td>
<td>53(38.41)</td>
<td>0.468187</td>
<td>4.80</td>
<td></td>
</tr>
<tr>
<td>Biomedical</td>
<td>49(30.25)</td>
<td>48(34.78)</td>
<td>0.475689</td>
<td>4.54</td>
<td></td>
</tr>
<tr>
<td>Traditional /Herbal treatment</td>
<td>40(24.69)</td>
<td>37(26.81)</td>
<td>0.774553</td>
<td>21.12</td>
<td></td>
</tr>
<tr>
<td>Depends on the illness</td>
<td>3(1.85)</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10-40yrs N=138 (%)</th>
<th>41yrs &amp; above N=162 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-medication</td>
<td>58(42.03)</td>
</tr>
<tr>
<td>Biomedical</td>
<td>45(32.61)</td>
</tr>
<tr>
<td>Traditional /Herbal treatment</td>
<td>35(25.36)</td>
</tr>
<tr>
<td>Depends on the illness</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No Education N=155 (%)</th>
<th>Primary – Above N=145 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-medication</td>
<td>83(53.55)</td>
</tr>
<tr>
<td>Biomedical</td>
<td>36(23.22)</td>
</tr>
<tr>
<td>Traditional /Herbal treatment</td>
<td>35(22.58)</td>
</tr>
<tr>
<td>Depends on the illness</td>
<td>1(0.65)</td>
</tr>
</tbody>
</table>

Footnote: The following have been re-categorised for chi-square analysis: Age: 10-40 =104(34.67%), 41 and above = 196 (65.33%). Education: No education = 155(51.67%), Primary and above =145(48.33%)

4.9 COMMUNITY VIEWS ON BURULI ULCER PREVENTION

Table 4.9.6, summarised the community views on how to prevent Buruli ulcer in the study area. Respondents’ views on prevention were clearly rooted in their belief on the causes of
Buruli ulcer disease, which could be classified as natural and/or supernatural. In line with these perceived causes, various preventive measures of Buruli ulcer were reported and prominent among them were by ‘good living/eating well’ (108 (36.0%)), ‘clean environment (83 (27.7%)) and not offending evil people and gods (60 (20.0%)) [Table 4.9.6].

Table 4.9.6 Community views on Buruli ulcer prevention

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency N = 300 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Living (eating well)</td>
<td>108 (36.0)</td>
</tr>
<tr>
<td>Clean environment</td>
<td>83 (27.7)</td>
</tr>
<tr>
<td>Not bathing in the river</td>
<td>37 (12.3)</td>
</tr>
<tr>
<td>sand wining</td>
<td>26 (8.7)</td>
</tr>
<tr>
<td>Vaccination</td>
<td>27 (9.0)</td>
</tr>
<tr>
<td>Spiritual protection</td>
<td>10 (3.3)</td>
</tr>
<tr>
<td>Not offending evil people and the gods</td>
<td>60 (20.0)</td>
</tr>
</tbody>
</table>

4.10 CONCLUSION

The first specific objective of the study is to describe community knowledge and perception about Buruli ulcer and how this affects the management of the disease. Findings presented in this chapter therefore addressed that objective. The demographic profile of respondents was analysed, followed by community or local knowledge about Buruli ulcer. Community perceptions of wounds with particular emphasis on its categorisation and differentiation of Buruli ulcer from other wounds were analysed. Finally, community reactions towards Buruli ulcer infected persons were also analysed.

Again, the second objective which was to determine health seeking behaviour for Buruli ulcer by community members in the study area was addressed. Data was analysed to
describe the basic health infrastructure in the study sub-district, health seeking behaviours for Buruli ulcer and local views on how to prevent Buruli ulcer in the communities. Findings have shown that the treatment seeking behaviours of communities were as diverse as the local knowledge and perceptions of the people about Buruli ulcers. The chapter demonstrates the importance of socio-cultural factors, especially local knowledge and perceptions about diseases and how these influence the health choices that people make and how these could play a role in Buruli ulcer management in the study area. Findings presented in this chapter are of significant importance to Buruli ulcer management and control in the study area because socio-cultural factors (local knowledge, perceptions and treatment seeking behaviour) may play quite significant roles in the aetiology, mode of transmission and management of diseases.
CHAPTER FIVE

5.0 RESEARCH FINDINGS: CULTURAL UNDERSTANDING OF WOUNDS, BURULI ULCERS AND THEIR MANAGEMENT

5.1 INTRODUCTION

This chapter presents ethnographic data on wounds and how they are managed or dressed at the health facility and traditionally at home. In-depth interviews and focus group discussions were done on community perceptions of wound and its management in Buruli ulcer endemic communities. It starts with a general description of wounds and their nature, beliefs associated with wounds, who they affect and how they are dealt with and finally how they are managed or dressed coupled with the healing process.

Socio-cultural beliefs were found to influence the perceptions of respondents in the endemic district on their categorisation of wounds. As reported earlier, many of the respondents believed that some wounds were caused by witches, evil spirits and ancestral spirits. It was generally believed that some categories of wounds could only be treated by traditional healers/ spiritualists or herbalists, while others could be treated effectively by biomedical health care providers.

5.2 GENERAL WOUNDS AND BURULI ULCERS

From the medical perspective, a general wound is a type of injury in which the skin is torn, cut, or punctured (an open wound), or where blunt force trauma causes a contusion (a closed wound). Data gathered through key informant interviews and observations at the Obom health centre revealed that wounds are classified into the following categories:

- Clean wound, a wound kept under sterile conditions where there are no organisms present in the wound and the wound is likely to heal without complications.
- Contaminated wound, where the wound is as a result of accidental injury where there are pathogenic organisms and foreign bodies in the wound.
- Infected wound, where the wound has pathogenic organisms present and multiplying showing clinical signs of infection, where it looks yellow, oozing pus, causing pain and redness.
- Colonized wound, where the wound is a chronic one and there are a number of organisms present and very difficult to heal.

Further categorisations of wounds based on the classifications are acute and chronic wounds. Acute wounds are wounds that heal within a short period of time while chronic wounds are difficult to heal or last for a very long period of time.

Based on interactions and key informant interviews with the health workers at the Obom health facility, the following distinction was made between other wounds and Buruli ulcers;

“…..Buruli ulcer is a chronic skin and soft tissue infection caused by the Mycobacterium ulcerans. Unlike other wounds, Buruli ulcer often starts as a painless swelling (nodule). It can also initially present as a large painless area of plaque or a diffuse painless swelling of the legs, arms or face (oedema). Local immunosuppressive properties of the mycolactone toxin enable the disease to progress with no pain and fever. Without treatment or sometimes during antibiotics treatment, the nodule, plaque or oedema will ulcerate within 4 weeks with the classical, undermined borders with the necrotic tissue (cotton wool-like) at the edges. Occasionally, bone is affected causing gross deformities…..” (Key informant interview, male respondents).

He further explained that;

“…..For the natural wounds, the management/dressing depends on the type, cause, and depth of the wound as well as whether or not other structures beyond the skin (dermis) are involved. Treatment of lacerations at the Obom health centre involves examining, cleaning, and closing the wound (Observation). Minor wounds, like bruises, will heal on their own, with skin discoloration usually disappearing in 1–2 weeks. Abrasions, which are wounds with intact skin (non-penetration through dermis to subcutaneous fat); usually require no active treatment except keeping the area clean, initially with soap and water…..” (Key informant interviews).
Wounds in Buruli ulcer endemic communities are categorised into two types - the normal wounds and the abnormal wounds. The normal wounds (Ga-fla, Ewe-Abi, Akan-Akuro) are those that result through cuts, falls, boils, bites and accidents of all kind and heal very fast (within 3 months). The abnormal wounds are those that may come about from the normal sources but take a very long time (more than 3 months) to heal or do not heal at all (Observation). The abnormal wounds (aboabone, akuro bone, abi vordi) are believed to be caused by supernatural forces notably witches, wizards, ancestral spirits, charms/sorcery/Juju and the gods of the community. Community members believed wounds can be caused by natural factors, supernatural factors or both. They also believed that wounds are living beings that sleep and wake up and so there should be times when it should be dressed, wounds are not to be exposed for all to see, wounds are to be dressed by the elderly but not the young ones and chronic wounds are to be managed in the traditional homes but not biomedical health facilities (Observation, traditional healers’ home).

According to some of the traditional healers visited, violations of some beliefs and prohibitions mentioned above could lead to serious consequences as non-healing of wounds, barrenness, and at times death. For some lucky victims, pacification rites in the form of libation are performed by linguist and fetish priest in the communities to avert the calamity or the punishment (Observation, field notes).

5.3 COMMUNITY PERCEPTIONS ON WOUNDS, BURULI ULCERS AND THEIR MANAGEMENT

According to observations made at the Obom health centre, the treatment of Buruli ulcer can be straight forward and less costly if the disease is detected early without complications. However, treatment becomes more costly if found in the advanced stage. The basic treatment consists of combination of antibiotics with 56 days daily injection.
One of the following combinations may be used depending on the patient: a combination of rifampicin (10 mg/kg once daily) and streptomycin (15mg/kg once daily); or a combination of rifampicin (10 mg/kg once daily) and clarithromycin (7.5 mg/kg twice daily) has been used though its effectiveness has not been proven by a randomized trial (Observations). The treatments of Buruli ulcer at the Obom health centre are 56 day daily antibiotics injection, wound dressing/management as shown in Figure 10 and other interventions to minimise or prevent disabilities. The dressing is done by nurses (both male and female) including pregnant women, lactating mothers, and women who may be in their menstrual cycle (Observations).

**Fig. 10 Dressing of Buruli ulcer wound at Obom health centre**

*Picture taken by Koka, 2012*

Community members believed that normal wounds could be managed at home or sent to the biomedical facilities for treatment while abnormal ones should be managed by the traditional healers/spiritualist/herbalist. This was what a community member said;
“...For normal wounds, antibiotics such as ampicillin and amoxicillin are mixed with palm kernel oil and applied on the wound twice daily. Herbs are also applied on the wound by some people.....” (A female community member, field notes).

Many community members believed that Buruli ulcers by their nature, signs and symptoms fall into the category of abnormal wounds and so need to be managed traditionally with spiritual backing for fast healing. The processes of managing Buruli ulcer in a traditional healers’ home as observed in one of the study communities are as follows: evil spirits are driven out through the drinking of a concoction (by patient) mixed with palm wine and gun powder (Fig. 11), a red talisman is put around the waist of the victim as a form of protection (Fig. 12) and cocoyam leaves (kontomire) are applied on the wound for healing (Fig. 13) (Observations).

Unlike the biomedical perspective, the local/community perspective about wound healing is that wound must be dry to show it is healing. This belief was confirmed by a Buruli ulcer patient who dropped out of biomedical treatment and went to a traditional healer. In her narration during an interaction with her, this was what she said:
When I was receiving treatment in the clinic, my wound was not healing because it was always wet/moist... but since I came here, it was becoming dry showing signs of healing... "(Fig. 14)(A 21 year old Buruli ulcer patient, interaction).

This assertion was confirmed by the traditional healer who was managing the wound when he said:

"...When she came to me for treatment, I saw that the wound was wet showing how bad it was but after some weeks I realised that it was becoming dry, an indication that the wound is healing..." (A 73 year old traditional healer, observation).

**Figure 14:** Dry wound showing signs of healing in accordance with local beliefs

Some community members were of the opinion that some categories of wounds could only be managed by traditional healers, spiritualists/ herbalists’ while others could be managed effectively by biomedical health workers. This position was reflected in a statement by a 76 year old female respondent during a focus group discussion session when she said;

"...There are two types of wounds...Clean wounds (Ekro)... they healed within three months and Chronic wounds (Kisikro)... they take long time to heal... years and some can be for life... these are the ulcers... Clean wounds are ordinary wounds which come about as a result of accidents such as a cut, burn, fall, and any other occurrence that inflicts pain and injury on an individual... I know herbs that are used for the treatment of the clean wounds... We use "acheampong" (Chromolaena Odorata) herb and other herbs for the treatment... the herbs are washed and grounded and are smeared on the wound... For the clean wounds, you can go for the herbs at any time and anyone can go for it... Some of the herbs are boiled and used to wash the wounds... Several herbs
can be combined to wash the wounds...”{(An Akan female participant, focus group discussion).

The chronic wound (Kisikro) was also described by a 70 year old female during an in-depth interview session as follows:

“….The chronic wounds (Kisikro) are wounds that last for over three months.....when wounds (Ekro) failed to heal within three months, they are called chronic wounds (kisikro).... at their early stage, they are treated with rotten plantain buds.....it is at this stage that people attribute its cause to the spirits and witchcrafts....People then begin to speculate that witches are cutting/chopping meat on the affected part...”{(An Akan female respondent, in-depth interviews).

To buttress the earlier statements, a 67 year old male participant had this to say:

“...We, the Ga people believe that some wounds are caused by witches, evil spirit, and ancestors... wounds that do not heal after 3 months or more.... People with such wounds can only be treated by the traditional healer-herbalist or spiritualist....”{(A Ga male participant, focus group discussion).

To show that the belief regarding wound causation is similar in Southern Ghana, we present what a 65 year old woman said during an in-depth interview session:

“....I have been managing wounds but not all wounds......I manage ordinary wounds but not those that are perceived to have been caused by witchcraft.... Spirit/bewitched wounds do not heal fast....they last more than 3 months......” {A 65 year old female respondent, in-depth interview).

Local beliefs about the causation of wounds affect the treatment practices of the traditional healers who treat wounds in general and Buruli ulcer wounds in particular in the study communities. This has been expressed by a traditional healer during an in-depth interview session thus:

“....When the case is brought, I take it into prayers and get revelation about the cause of the case the following day to the patient and the family...I tell the patient and the family about what they need to bring in order to cure the disease....The items are used to pacify the people (witches) who visited the disease on the patient...because it is a spiritual cause, once I identify the people (witches), they also come in the night to take the patient away... whatever the witchcraft demands is given to them...the witches direct me to where the things are to be sent...I then go with the patient and the family to the place at times 12 midnight ....that is the time that everyone is asleep...”{(A traditional healer (Spiritualist and herbalist, in-depth interview).
Asked what motivates the witches to inflict wounds on the victims, this was what the respondents said:

‘‘...At times, it is just a sheer hatred for no apparent reason...at times too, rivals also punish each other through bewitching and people who quarrel with others or insult others are punished with the wounds... They derive satisfaction and joy for inflicting pain on such people...’’ (A traditional healer, in-depth interview).

Chronic wounds related beliefs have given many people the cause to perceive such wounds differently and also treat them differently. This belief was stated by a 69 year old male respondent during a focus group discussion session as:

‘‘...We (the Akans) also believe that some wounds are caused by spirits and witchcrafts...once it is believed that the wound is caused by spirits or witchcrafts, then you have to go and see the fetish priest or herbalist/spiritualist/traditional healer....For the chronic wounds (ulcers), some people use fermented urine to clean the wounds... the fermented urine serves as spirit/alcohol used to clean wounds at the biomedical health facilities...’’(A 69 year old male Akan respondent, focus group discussion).

Despite the local perceptions that wounds are caused by spirits or witches, some community members and Buruli ulcer patients have come to realise through community outreach education going on in the communities that these might not be true. This was reflected in a statement made by a 48 year old male Buruli ulcer patient during an in-depth interview when he said:

‘‘....There is the belief in my community that some chronic wounds are caused by witches and spirits... Initially, I believed that my wound was caused by witches but since I started coming for treatment at the clinic I do not believe that anymore....because I now know it is Buruli ulcer and is caused by bacteria instead of witches... We are also being educated at the clinic...’’ (A male Buruli ulcer patient, in-depth interview).

Again, this was what a 72 year old elderly female community member had to say about her perception of chronic wounds and how it has changed overtime:

‘‘....I used to believe that all persons with chronic wounds were witches or their conditions were caused by witches and wizards....My belief really had a serious negative influence on my relationship with people with such conditions....I gossiped about them and called them names....Fortunately or unfortunately, my own daughter
had a wound that failed to heal within 3 months.... We visited almost every traditional healer in and out of my community but to no avail...I became worried because as it is always speculated, people might start pointing accusing fingers at me as being the cause of my daughter’s condition as I also did to others...Luckily for us, we were about visiting another traditional healer when a friend who claimed to be a former patient of such condition referred us to the Obom health centre....My daughter was diagnosed of “Odontihela” (Buruli ulcer). After the daily injections, the wound healed completely and my daughter became healthy again.....In fact, this changed my earlier belief about chronic wounds...” (A 72 year old female focus group discussion participant).

5.4 CULTURAL BELIEFS ON WHO SHOULD DRESS WOUNDS

The socio-cultural beliefs and practices associated with wound care in the study district also had ramifications for patients and their caregivers. Almost all the respondents alluded to the belief that wound care was delicate, complex and mysterious and so was restricted to a particular category of people deemed qualified to attend to the wounds of patients. They maintained that there were people who are not fit to go near someone with a wound let alone to dress it. Also, there are things that a person with a wound is supposed to do or not to do for the wound to heal fast. The following categories of people are considered unfit to dress wounds in the study communities: women who are breastfeeding; women who are in their menstrual period; pregnant women; promiscuous young women and people with ‘evil eyes. It is also belief that more than one person (multiple hands) should not dress a wound.

According to a 68 year old woman, the categories of people mentioned above are believed to be unclean and so the wound would not heal fast when they are involved in its management. She shared her personal experience in the following narratives:

“...I had an experience where my own son was circumcised and I was managing the wound for him....it was not healing till my mother took over and the wound got healed after a short period.... I was later told that it was because I was breastfeeding at the time that was why it was not healing... This made me to believe what our forefathers said...” (A female participant, focus group discussion).

Asked who was therefore qualified to take care of wounds, this was her response:

“....It is better for a very old woman, who has stopped giving birth, having sex and does not breast feed to dress wounds....When such a person is dressing your wound, it
heals fast because they are considered as very clean, pure and experienced to handle the wound...” (A female participant, focus group discussion).

On the other hand, most of the participants believed that people with wounds were not supposed to engage in the following acts if they want their wounds to heal fast: They must not have sex until the wound gets healed; They must not dress the wound in the afternoon; They must not dress the wound outside a room; They must not expose the wound for all to see as some people have evil eyes which could affect the wound. This position was confirmed in the following narratives:

...We (the Ga people) believe that a wound does not heal fast when a lactating woman is dressing it... It was also believed as a taboo for a fetish priest to see wounds....If a fetish priest sees a wound it does not heal fast.... It was because such people had charms/juju that prohibits them from seeing wounds.....However, if a fetish priest sees a wound and decides to have mercy on such a person, he/she would ask you to come for treatment.... By so doing, he/she removes the spirit that would prevent the wound from healing from the wound... Most of the time, they use herbs or spit in the wound with some incantations... (A Ga male, In-depth Interview).

Asked why people had to hide their wounds, their responses were captured in the following narratives:

‘‘...Most people hide their wounds to prevent evil/bad eyes from seeing the wound.... Again that was why some people also did not want to bring their wound to the hospital because they did not want any evil eye to see the wound.... However, they also believed that people whose wounds last for several years were witches/wizards themselves.... They were believed to be using the wound as eating from it or use where the wound is as a chopping board.... Witches also inflict chronic wounds on other people either by eating from it or use it as chopping board in the spirit realm... ’’(A male participants, focus group discussion).

In expressing the same sentiment about who is to dress wounds at the clinic, this was what a 64 year old female patient had to say:

‘‘...Nurses dress my wound at the clinic and these nurses are male and females.... I am happy with the way some take care of me but some do not take good care of me at all... ’’(In-depth interview, 64 year old female patient).

Asked whether she had ever been attended to by a pregnant nurse since she started coming for wound dressing, she replied:
“...Yes there was a day that a pregnant woman (nurse) dressed my wound and I protested because of the belief I have that the wound would not heal fast or at all. Some of us patients did not like that at all. So when the in-charge heard it he talked to us and assured us that the pregnant nurse would not dress our wounds again...”
(In-depth Interview, a 64 year old female respondent)

In stating her state of health and how she was being treated by the nurses at the clinic, this was what the respondent said:

“...The condition in terms of improvement is on and off. There are times when I saw significant improvement and at times it became worst. I think some of the nurses do not talk to us well and are not patient with us. They should be advised to treat us with respect and like their mothers and fathers. Some of them shout on us even when we are in pain...”
(In-depth Interview, a 64 year old female respondent)

Findings revealed a number of cultural practices and beliefs which significantly affected patients’ wound care and help seeking behaviour. These included cultural beliefs that prohibit certain category of people such as pregnant women, lactating mothers and women who menstruate from dressing wounds. Respondents believed that some wounds were caused by charms or spirits and, therefore, required the attention of traditional healers. In instances where patients’ wounds were dressed in the hospital by clinicians and the patients observed that the condition, age or sex of the clinician contradict their belief, the affected often redressed the wounds later at home for fear of the wound not healing. Some of the materials often used for such wound dressing include urine and concoctions made of charcoal and gun powder with the belief of driving out evil spirits from the wounds. These practices may cause secondary infection of wounds considering the conditions under which the mixtures (concoctions) are prepared.

**5.5 OTHER FACTORS THAT INFLUENCE TREATMENT SEEKING BEHAVIOUR**

The kind of relationship that exists between patients and care providers has a great influence on their treatment seeking behaviour and adherence to treatment. The
relationship has psychological effects on patients’ healing process. It is therefore vital to respect the patients who come for treatment taking into consideration their beliefs and practices as much as possible so as to avoid conflict with the biomedical treatment being offered by health practitioners. In view of this, we tried to understand how patients perceived biomedical health practitioners who handle their wounds during treatment at health facilities and the following narratives explained their positions:

‘‘...We (Akans) have the belief that government health workers like nurses and doctors are exempted from some of the taboos of wound care....However; some nurses too have good and bad eyes... ’’(In-depth interview, a 70 year old female respondent).

Asked how she saw the services being provided by the nurses, this was what she said:

‘‘...Hmmm!! My son (referring to the interviewer) I will not say sorry, but some of the nurses at the clinic do not deserve to be nurses because they do not treat patients well at all....Such people do not work with a clean conscience; hence your condition will never improve nor heal.....So as for me, when I get to the clinic and ask of the in-charge called ‘chief’ and they say he is not there, I do not allow anyone to attend to me... ’’(In-depth interview, a 70 year old female respondent).

This was what a 66 year old male respondent had to say about how nurses were to treat patients with wounds:

‘‘.....People who have wounds need to be pampered for the wound to heal fast....So nurses need to pamper patients so that they do not dropout of treatment.... There are nurses who do not take good care of wounds when they are dressing them... They are not time for the patient so such patients’ wounds do not heal fast or they stop coming for treatment at the clinic... ’’(A 66 year old male, focus group discussion).

Some of the patients claimed that they did not have any problem with pregnant nurses who dressed their wounds at the clinic while others were not comfortable with that. This position was represented in the following narratives:

‘‘...In the clinic, there are young nurses who dress my wound for me.... I am happy with the way some of them treat/dress the wound but some are not polite at all.... There was a pregnant nurse who dressed my wound.... But since she is a government worker I am not worried.... However, some of the patients especially the old women were not happy with that..... They were not happy because of the belief that pregnant
women are not allowed in our culture to dress wounds...’” (In-depth Interview, a 48 year old male BU patient)

According to participants, there were some few individuals who neither practiced witchcraft nor juju /charms but they naturally have evil eyes from birth. Such people have ‘bad luck’ so when they see your wound it will not heal fast. According to them this was one of the reasons why many people did not want to come to the clinic for treatment because you could not tell who has good eyes or evil eyes.

A 57 year old Buruli ulcer patient made the following remark:

‘‘...Even at the hospital/clinic, there are good hands and bad hands. Some nurses dress your wound and you will be relieved and not feel any pain until 3 days.....But some nurses also dress your wound and you will have no rest... It will pain you for the whole day or more.... When such people are dressing your wound, it does not heal fast......I would have loved that one nurse dress a wound for a patient till the wound gets healed because since I have been coming here for a long time, I know the nurses who have good hands and bad hands......If I have my way, I would have maintained one nurse to treat my wound till it heals.... This may apply to many patients who come to the clinic for wound dressing because some see some nurses as having painful hands and some having good hands.....Some of the nurses too do not do their work with clear/free conscience so it affects the wound of the patients.... Such nurses do not help the wound to heal fast......But there are some nurses too who have clear/good conscience and are happy about what they do. Such nurses help the wound to heal fast...’’(A 57 year old Buruli ulcer patient, in-depth interview).

Asked what has to be done to improve nurse-patient relationship to enhance effective wound care, this was what a respondent had to say:

‘‘...Since I started coming to the clinic, I have seen significant improvement but I think some of the nurses need to be advised to treat us all well.... A wound is a painful condition so our dear nurses need to be patient with us so that we can remain at the hospital till our wounds heal.....By so doing, some of us will not be tempted to add other things to the wounds in our homes...’’(A 48 year old male BU patient, In-depth Interview,).

5.6 CONCLUSION

The third specific objective of the study is to determine cultural and local acceptability of wound care management at the clinic and community. Findings in this chapter are based
on general description of wounds (both bio medically and locally) and how Buruli ulcers are managed in the biomedical health facilities and homes. Findings were based on responses on wounds in general and Buruli ulcer wounds in particular and the acceptance and management of wounds in the community and the health facilities. These findings are important because, the effectiveness of therapeutic relationships between wound care clinicians, patients and communities is highly dependent on the understanding of what is culturally appropriate in wound management. Findings presented here confirmed what was reported by Wessels, (1985) that culture is a vital aspect of wound care planning and management in most part of Africa.
CHAPTER SIX

6.0 DISCUSSION OF RESEARCH FINDINGS

6.1 INTRODUCTION

This chapter presents the discussion of results outlined in chapters four and five. The results were discussed in line with the objectives of the study. The chapter was organised under the subheadings community knowledge and perceptions about Buruli ulcers, health seeking behaviour for Buruli ulcers and cultural understanding of wounds and their management.

6.2 COMMUNITY KNOWLEDGE ABOUT BURULI ULCERS

Finding of the study revealed that an overwhelming majority of the respondents in Ga South Municipality were knowledgeable about Buruli ulcer disease and its presentations. This is consistent with earlier findings reported from the study area (Amofah et al., 2002; Asiedu, 1998; Kargbo-labour, 2010). The extensive knowledge of respondents is also demonstrated in their awareness of early signs and symptoms of the disease, which was reported as either a painless itch or boils or rashes. These are consistent with biomedical knowledge (Portaels et al., 2009; Elliot, 2010; Nienhuis et al., 2010). These findings could serve as entry points for educational messages targeting early reporting to the health facility for diagnosis and treatment. These findings were however different from earlier work done by Renzaho et al., (2007) in the Ga West district where they reported that community members had very poor understanding of the aetiology of the disease, although the disease itself was well known. However, the change in community members understanding should be seen in light of continuous interactions between formal health systems and communities in terms of case searching and reporting over time. As early case detection, diagnosis
and treatment spread across the endemic communities, the people have become more familiar with the early signs and symptoms of the disease (Ahorlu et al., 2013; Ahorlu et al., 2014).

The local names for the disease revealed the depth of local meanings and interpretations of Buruli ulcer disease in the study communities. For example, the Ga people call the disease ‘Odontihela’, the Ewe call it ‘Detsifudor’ and the Akan call it ‘Asawakuro’, and all these could be translated to mean ‘cotton wool disease’. The Ewe call a chronic wound ‘abimakumaku’ meaning a never healing wound whiles the Akan call it ‘kisikuro’ to mean the same thing. The Ga call it ‘helagbonyo’ meaning a bad wound. This finding is similar to what Winch et al., (1996) found in Tanzania where local names were used to classify routine or mild malaria fevers. They reported that the term most commonly used to translate the word malaria was ‘homaya malaria’ or malaria fever, and for residents of the study area in Tanzania, it was an illness closely associated in people’s minds with formal health services. According to Marx (1989) in social and epidemiological research, social factors remain largely understudied and poorly understood. He postulated that in order to diagnose, treat and control a disease effectively, a wide range of factors such as culture (local languages), behaviour, environment and economics should be taken into consideration. In this direction, the local names for Buruli ulcer disease, as revealed in this study would help to understand public health issues of diagnosis, prevalence, interventions and management/treatment in order to effectively control Buruli ulcer in the Ga South Municipality.

Two main factors identified as influencing the causes of Buruli ulcer disease were natural and supernatural. They could either independently or concurrently cause Buruli ulcers. For instance, a bite from an insect, which is a natural cause, could equally be interpreted as a
supernatural cause because of the belief that, a witch/wizard, spirit and gods could transform themselves into insects and infect an individual with Buruli ulcer. Findings therefore show that although there is a high knowledge of signs and symptoms of Buruli ulcer among community members in the Obom sub-district, their understandings and interpretations of its causative factors varied from those of the biomedical understandings. It has been reported from Benin that treatment-seeking behaviour can be related to a patient’s perception as to the cause of the illness (Aujoulat et al., 2003). Attending hospital is associated with illnesses that are perceived to be caused by natural factors while illnesses that are perceived to have been induced by sorcery need to be addressed by a traditional healer to counteract the sorcery (Aujoulat et al., 2003). The implication of this is that people would delay treatment for the disease in biomedical health facilities by resorting to self and traditional options of treatment. This presents a serious public health concern because when Buruli ulcer advances to a category three stage, it eventually leads to chronic sores and serious deformities leading to disabilities. At category three stage, treatment becomes very costly thereby putting a heavy financial burden on families, health facilities and the nation as a whole. Consequently, the belief that Buruli ulcer is caused by both natural and supernatural factors might be one of the factors influencing the choice of self-medication and traditional treatment. This strongly supports an earlier study conducted in Cameroun where researchers termed this as double causality; implying illness having both natural and mystical derivations (Grietens et al., 2012).

Patients’ therapeutic itineraries cannot be understood without insight into the mechanism of double causality, the interchangeability and frequent compatibility of the two treatment kinds, the dynamic nature of aetiological beliefs, and insight into decisive factors that impact treatment choice. Even though the implications on disease control are rarely taken into account, various studies have stressed the importance of double causality in relation to
other diseases. Hausmann et al., (1998), showed how people in rural Tanzania were well aware that malaria was caused by parasites. However, they also claimed that these parasites could be mystically ‘hidden’ during biomedical diagnosis, leading to possibly fatal delays in finding the appropriate treatment. Likewise, sorcery could produce ‘fake parasites’, once more leading to erroneous diagnosis delayed treatment. Similarly, in the South-African context, Thomas (2008) explained that, while biomedical narratives on HIV provided information on the virus and how it developed, they did not provide people with an explanation of why they became infected in the first place. Thomas (2008) claimed that this double causal layer was essential in understanding people’s perception of the illness and, consequently, their perception and response to HIV-treatment.

Although findings from Grietens et al., (2012), strongly support some earlier studies by Haussmann et al., (1998) and Thomas (2008), it is at variance with Stientra et al., (2002) who attributed the cause of Buruli ulcers to only supernatural factors particularly the working of witchcrafts. This study has reinforced the fact that even though formal education broadens ones’ scope and leads to a change in world view, the socio-cultural background and environment have a great influence on people’s understanding and their interpretations of issues. Thus, respondents who had formal education are more likely to attribute the cause of Buruli ulcer to both natural and supernatural factors. The implication of believing that Buruli ulcer is caused by both natural and supernatural factors may have public health ramifications as it may affect treatment seeking behaviour of the people. This could affect early case detection and treatment, depending on the dominant attributions made regarding perceived causes. It also confirms the assertion that education and/or a profession do not divorce one from one’s cultural orientation (Louw and Pretorius, 1995; Pretorius, 1991; Wessels, 1985; Karim et al., 2007).
In a nutshell, this study shows that the perceived origins of Buruli ulcers often had both natural and mystical causal layers simultaneously. For instance, though respondents often believed that they were infected with Buruli ulcer by an insect bite, many of them also stated that this insect was intentionally sent to them through sorcery. As such, efforts at disseminating biomedical explanations for Buruli ulcer, as outlined in health education messages, can negatively affect treatment seeking and delay treatment; but this is not necessarily the case since additional mystical elements can be present in natural aetiologies (Grietens et al., 2012).

According to Portaels et al., (2001), a combination of various occurrences and experiences, whether natural or spiritual help in shaping the perception of each individual and also define its cultural milieu. Culture, therefore, is the lens through which individuals perceive, relate and react to various phenomena including health (Wessels, 1985). Various concepts of explanations are given by people in different cultures, to describe or explain illness. These explanatory models are congruent with the way people perceive illness, which are derived from concepts, symbols, beliefs and practices that have deep roots in their culture (Bannerman et al., 1983; Portaels et al., 2001). Findings from the study revealed that experiences, occurrences and beliefs rooted in culture lead to the categorisation of wounds in line with perceived causes, natural (naturalistic) and supernatural (personalistic). The position of the people is that wound categorisation helps them to know how to manage/treat or cure a particular wound based on it causes, be it natural or supernatural. As found by Grietens et al., (2012), the prolonged nature of the illness and treatment, the difficulty of the healing process and recidivism can lead to assumptions about possible mystical involvement even for sufferers who were convinced of the natural origin of their illness at the onset of symptoms. These experiences therefore might influence the perceptions of respondents at the Obom sub-district in believing that
Buruli ulcer is caused by supernatural forces. An important distinction that shaped the perceptions of respondents about Buruli ulcers from other wounds was its clinical manifestation and the prolonged period of healing.

Buruli ulcers were distinctively described as having cotton wool (odonti, detsifu and asawa) in it and do not heal fast or at all. These community explanations though local, are synonymous to scientific and microbiological explanations of Buruli ulcer as having necrotic tissue and take a long time to heal if delayed for treatment (Van der Werf et al., 1989; Eddyani et al., 2009; Nienhuis et al., 2010). The necrotic tissue is what the local people refer to as cotton wool. Findings from the study also reveal that there are varied perceptions about Buruli ulcer patients. While a greater proportion of respondents perceive Buruli ulcer patients as people who have been bewitched, an appreciable proportion of them see the patients as people who did not take good care of themselves. These findings contradict the report that Buruli ulcer patients in Ghana were solely perceived in their communities as being witches/wizards or bewitched (Stienstra et al., 2002). This points to the fact that the on-going community education programmes in endemic communities are making some positive impact on the perception of the people and must be continued (Ahorlu et al., 2013).

The study showed that, the condition of the infected persons does not evoke sympathy from some respondents as most of them would stay away from a Buruli ulcer infected person and even those who will interact with the patients said they would do so with caution. These findings are similar to what Renzaho et al., (2007) reported from Ghana, where more than a third of respondents stated explicitly that they would not accept a Buruli ulcer patient as a community leader, though they would interact with them. These kinds of attitude toward the patients may affect treatment seeking behaviour as people with
the disease may be tempted to conceal their condition from the larger community to avoid discrimination against them. This also reinforces the need for continuous health education on Buruli ulcer in endemic communities in Ghana so as to demystify it and reduce negative reactions towards the infected and the affected persons (WHO, 2001; Ackumey et al., 2011).

Findings from the study show that most respondents would resort to self-medication or visit the drug store whenever, they are not well. This is similar to Nsungwa-Sabiiti et al., (2004) findings on malaria in Uganda where self-medication was used as a first treatment option when signs and symptoms of malaria were detected. The majority said the drug store was the most accessible health service delivery point to them. These findings were consistent with similar work done by Grietens et al., (2012) in Cameroun where it was found that many respondents resorted to self-medication or visited the drug store when unwell. Moreover, Kibadi et al., (2009) conducted a study in rural Democratic Republic of Congo on Buruli ulcer patients and also found that patients waited for an average of two months (wait and see period) after noticing their Buruli ulcer status during which they used their social network to confirm the disease. They resorted to self-medication and this was usually with allopathic drugs in the form of non-specific antibiotics and anti-inflammatory medicaments mostly without prescription. These drugs were normally purchased from local markets, and they dressed the wound with local cloth or bandage. Another option was the use of the health facility. Moreover, findings in this study were similar to what Lonnroth et al., (2001), found in their TB research in Vietnam, where patients resorted to self-care and delayed treatment for TB in biomedical health facilities due to the fear of being stigmatised. As with Buruli ulcer, TB represents a classic public health issue that affects the whole society and therefore has received Governmental attention in its appropriate and effective detection, diagnosis and treatment (Lönnroth, et al., 2001).
Nonetheless, studies of health seeking behaviour in relation to TB repeatedly demonstrate that patients do not always choose a public health care facility for the entire duration of treatment; they delay diagnosis and often do not complete the lengthy course of treatment necessary for effective healing (Steen & Mazonde, 1999; Yeboah-Manu et al., 2013).

Steen and Mazonde (1999) found that 95% of TB patients in Botswana visited a ‘modern’ health facility as a first step but went on further to visit a traditional or faith healer as well after initiating modern treatment. The reasons given by most of the respondents were that the herbs to use for treatment and the drug stores are closer to them and therefore very convenient to access. This confirmed the findings of earlier studies that treatment within or outside of the Buruli ulcer patients’ community was one of the decisive factors in determining treatment choice (Adamba et al., 2011; Grietens et al., 2012). In this study, most of the respondents said health facilities available to them are very far. In fact, some of the respondents state that it is less burdensome, socially and financially, to access treatment at the drug store instead of walking long distances for treatment in a health facility. Findings in this study supported the claim made by Ahorlu et al., (2013) and Adamba et al., (2011) that treatment outside of the community, whether biomedical or traditional, usually placed an overwhelming financial and social burden on the patient and his/her household as it either implied constant travelling to receive treatment or social isolation for the patient who was required to stay without relatives at the place of treatment. These movements also lead to social isolation for the patient who is required to stay without relatives at the place of treatment to save money on travel cost (Grietens et al., 2012). Contrary to the reasons cited in this study for treatment choices resorted to by Buruli ulcer patients, Awusabo-Asare and Anarfi (1997), in their HIV study reported that due to the social interpretations given to certain diseases, persons affected tend to avoid other people, as they may initially choose home or self-administered treatment strategies
mostly involving the use of herbs, self-medication, and purchase of drugs over the counter. This tendency leads to delays in reporting the infection for early attention, thus enlarging the enormity of coping that is required. The health implications of self-medication and patronising the drug stores are serious for the individual and the society at large. This might lead to misuse and abuse of drugs, especially antibiotics by the patient, since most of the store attendants are not professionals who could give the right dose to their clients. However, involving drug store attendants, in management, health promotion programmes and training them on pharmaceutical usage by the Ghana Health Service through the control programme could help regulate and promote appropriate use of drug stores by people infected with Buruli ulcer.

Findings from the study revealed that most community members in the Obom sub-district were more likely to seek treatment immediately they see the signs and symptoms of Buruli ulcer. This is consistent with a study conducted by Renzaho et al., (2007) in Ghana, where they found that, most Buruli ulcer patients sought treatment immediately after an infection was suspected. Similar to other studies, this study found however that some would wait for some time before seeking treatment and this is also consistent with findings reported in other studies in Ghana and DR Congo (Renzaho et al., 2007; Ackumey et al., 2011; Kibadi et al., 2009). This finding has serious implications for Buruli ulcer early case detection and treatment at the health facilities and this must be taken into consideration when designing health educational messages to reduce late reporting at health facilities.

This study found that herbalists/spiritualists/traditionalists who are treating Buruli ulcers are not only applying herbs but also driving out evil spirits through exorcism with a mixture of concoctions. This is similar to what Ahorlu et al., (2013), found in the same study area where herbalists/traditionalists were reported to be driving out evil spirits
through exorcism and mixture of concoctions. This is also consistent with a study by Winch et al., (1996) in Tanzania where illnesses having symptoms compatible with severe malaria were seen as distinct from ‘homaya malaria’ and were placed either with severe fevers or with illnesses due to witchcraft or sorcery and so were treated through exorcism to drive out the evil spirits. It is clear from the findings that most community members at the Ga South Municipality seek biomedical treatment only as a last resort, when self-medications and herbal remedies had failed to cure the infection. This supports the report that Buruli ulcers are not considered a ‘hospital disease’ in their early stages (Stienstra et al., 2002). This is a serious public health concern that needs to be addressed through continuous community outreach education programmes that involve the use of success stories of healed wounds from health facilities and testimonials from former patients healed from biomedical treatments at clinics and hospitals as demonstrated by Ahorlu et al., (2013) in a social intervention programme in the study area. It is however, important to note that findings from other studies conducted in Ghana and Benin revealed that same herbalist/traditionalist only applied herbs but did not drive out evil spirits (Aujoulat et al., 2003, Stienstra et al., 2002 and Renzaho et al., 2011).

This study also established the fact that community members and Buruli ulcer patients combined more than one treatment options to manage the disease. This finding is consistent with studies conducted by Ackumey et al., (2011) in Ghana and Steen and Mazonde, (1999) in Botswana where respondents believe that combining more than one treatment regimen complimentarily for their condition addressed both the spiritual and physical needs for the wound to heal fast. This means that, even though, there is a high awareness and knowledge about Buruli ulcers in Ghana, socio-cultural factors continue to influence the treatment seeking behaviour of many people affected by the disease. Contrary to studies conducted in Ga West by Ackumey et al., (2011), and Adamba et al.,
(2011), obstacles to hospital treatment for Buruli ulcers in Ga South was not dominated by cost of transport and poor accessibility but beliefs and perceptions about wound healing and community taboos discourage them from seeking treatment.

Findings of this study about community views on Buruli ulcer prevention fit into what Seijas (1973), described as the personalistic and naturalistic views in disease aetiology. A personalistic system is one in which illness is believed to be caused by the active, purposeful intervention of a sensate agent who may be a supernatural being, a nonhuman being, or a human being. The sick person is a victim, the object of aggression or punishment directed specifically against him/her, for reasons that concern him alone. Thus in this study, those who hold personalistic views about the causes of Buruli ulcer disease give suggestions such as people obeying their gods or not offending other people as a means of preventing Buruli ulcer infection. However, in naturalistic systems illness is explained in impersonal, systemic terms that conform above all to an equilibrium model; health prevails when the insensate elements in the body, the heat, the cold, the humors are in balance appropriately to the age and condition of the individual in his/her natural and social environment (Seijas, 1973). Thus those who hold naturalistic views about the causes of Buruli ulcer also give suggestions such as living in a clean environment or maintaining a good hygiene as a means to prevent Buruli ulcer infection in the community.

Similar to what was reported in this study, Grietens et al., (2012) maintained that the two clearly distinct perceived origins of the disease (natural and mystical aetiologies) are often used interchangeably or linked together. This is also consistent with Steen and Mazonde’s, (1999) found in their TB study in Botswana where natural and mystical views were reported as measures for preventing TB infection. According to Nurge, (1977), in Tzintzuntzan, and many other Latin American communities, “the prudent person doesn’t
stand on a cold floor in bare feet”, “doesn’t wash hands after whitewashing a wall”, “doesn’t go out into the night air immediately after using the eyes”. In theory, at least, a hyper cautious individual should be able to avoid almost all illness by not doing or doing certain things as suggested by the community members in our study.

On the other hand, the supernatural or mystical community views about Buruli ulcer prevention represent the personalistic systems where the basic personal health strategy seems to emphasise the “dos,” and especially the need to make sure that one’s social networks with fellow human beings, with ancestors, and with deities, are maintained in good working order (Seijas, 1973). Although this means avoiding those acts known to arouse resentment-“don’ts”- it particularly means careful attention being paid to the propitiatory rituals that are a god’s due, to positively demonstrate to ancestors that they have not been forgotten, and to friendly acts to neighbours and fellow community members that remind them that their good will is valued. In short, recognising major overlapping, the primary strategies to maintain health in the two systems are significantly different. Both require thought. But in the personalistic structure, time and money are essential ingredients in the maintenance of health. In the other- the naturalistic, knowledge of how the system works, and the will to live according to its dictates, is the essential thing; this costs very little, in either time or money (Seijas, 1973). This analysis by Seijas, (1973) is consistent with the findings of this study on the control and prevention of Buruli ulcer in Ghana.

6.3 CULTURAL UNDERSTANDING OF WOUNDS AND THEIR MANAGEMENT

Consistent with earlier findings, this study revealed that cultural practices and beliefs significantly affected patients’ wound care (Conrad, 2005; Grietens et al., 2012; Ahorlu et al., 2013). This strongly supports the assertion by Fumham (1994) that cultural factors play
a very important role in the aetiology, explanation, prognosis and treatment seeking behaviour of patients because they provide in-depth information on the burden of the disease, the local understanding of the causes of the disease and therefore its management. The management of wounds in the home or formal health facilities is dependent on community ideas of wound categorisations which are ‘normal’ and ‘abnormal’ and these strongly support what Winch et al., (1996) found in their malaria study in Tanzania where such conditions were referred to as ‘‘out-of-the ordinary fevers’’ or ‘‘fevers which do not respond to hospital treatment’’ and so were regarded as best treated by the traditional practitioners. Many individuals integrate both African and Western behaviours into their belief systems and manage to comfortably combine these viewpoints as reported by Rudick, (2009). Findings from this study revealed that due to wound related cultural beliefs and practices, many of the Buruli ulcer wounds were treated either at home or by traditional healers prior to being seen in the hospital and some patients continued with traditional remedies despite receiving wound care from clinicians. It is worthwhile noting that despite the healers’ often low level of education, professionals such as teachers, nurses and ministers of religion were found to use their services (Louw & Pretorius, 1995).

The ideas such as normal and abnormal wounds, perceived seriousness of Buruli ulcer infection, perceived effectiveness of medical treatment, fear of recurring infections, surgery and amputation constitute socio-cultural features of Buruli ulcer that promote preference for traditional/herbal treatment, which then cause delay in seeking medical treatment (Asiedu & Etuaful, 1998; Aujoulat et al., 2003; Mulder et al., 2008; Renzaho et al., 2007; Stienstra et al., 2002). In this regard Kargbo-labour (2010), recommended the need for African countries to consider local aetiology, perceptions and beliefs which are interwoven into the socio-cultural milieu of the African in disease control programmes. Findings from this study revealed that most respondents gave a maximum of three months
for all normal wounds to heal and any wound that did not heal within three months was labelled as being abnormal. These cultural beliefs could continue to be impediments to Buruli ulcer early case detection, treatment adherence and completion in the endemic communities of Ghana and other African countries (Ahorlu et al., 2013). This is a serious health concern and for public health to make a sustainable inroad into disease control and to design meaningful health programmes, a conscious effort should be made to understand the social, economic and cultural aspect of Buruli ulcer disease and its management in local communities.

It is important to know that, most of the patients in this study started self-care or treatment at home when they noticed a nodule, boil, plague or sustain any wound. This finding corroborated the earlier work by Grietens et al., (2012) that the commonest way of dressing wounds at home was the use of hot water to clean the wound and later an application of ampicillin mixed in palm kernel oil. Herbs were used if after one month there was no improvement by way of healing. The self-care by Buruli ulcer patients could be explained with the understanding of the clinical manifestations (signs and symptoms) of Buruli ulcer where it starts as a painless itchy nodule, boil, plague or sustained wound (Stienstra et al., 2001; Yeboah-Manu et al., 2013; Agbenorku, 2011; WHO, 2009). Moreover, this follows medical logic where the signs and symptoms of any disease condition, be it mild or serious is ‘normally’ given what would be medically known as ‘first aid’ at home. This could therefore be termed as a ‘normal folk’ medical practice that is ‘rationally’ attempted by every human being with a physical malaise. Traditional healers become the next point of care if the home treatment seemed not to be working for the person. This confirms what was reported in a study in Ghana where most rural communities like elsewhere in sub-Saharan Africa, traditional healers were more accessible to the general population than biomedical service providers (Stienstra et al., 2001). It has
also been stated that there was approximately one traditional healer for about 500 people while the ratio of doctor to population is 1:40,000 (Bannerman et al., 1983).

The beliefs that some wounds are caused by evil spirits and witches has influenced the mode of treatment in Buruli ulcer endemic communities, which therefore give currency to some of the healing practices devised by traditional healers including the attempt to “‘drive” out the evil spirits from the wounds of patients to aid recovery (Ahorlu et al., 2013; Winch et al., 1996). From respondents’ point of view, chronic wounds regarded as “bewitched wounds” cannot be treated by biomedical health practitioners. These wounds must of necessity be treated by traditional healers (spiritualists or herbalist) and this confirmed the belief reported by Agbenorku et al., (2011) and Winch et al., (1996), that certain types of wounds and fevers are better treated by traditional methods and even made worse by Western medicine. It must be made clear that, in Buruli ulcer endemic communities these mainly include osteomyelitis and chronic leg ulcers. In fact, some patients do not seek any care for chronic ulcers because they are convinced that they will not be healed by seeking help from biomedical practitioners because they were either bewitched or cursed with the wound (Kibadi et al., 2009). This was further explained by a study in Cameroon that although beliefs could influence health seeking behaviours for Buruli ulcers, more compelling factors could also act on patients’ treatment paths, indicating that the choice of treatment was not decided upon solely with consideration to disease aetiology (Grietens et al., 2012). Similar to what was found in this study, Grietens et al., (2012) reported that factors such as the effectiveness of treatment, place of treatment, difficulties of symptom recognition and acceptability of treatment were all paramount in deciding on treatment option to adopt. In addition, the study revealed the fact that predisposing factors are influential elements in treatment seeking (Kroeger, 1983). Predisposing factors such as age, gender, religion, global health assessment, prior
experiences with illness, formal education, general attitudes towards health services and knowledge about the illness among others are known to influence health seeking behaviour of Buruli ulcer patients to either delay treatment or resort to home treatment and/or the use of the services of traditional healers (Kroeger, 1983).

Some of the beliefs associated with wound care are perceived to be so strong that violation could lead to serious consequences such as the non-healing of wounds. These have serious health effects on patients’ treatment seeking behaviour and adherence to biomedical treatments as they fit into the perception that some categories of wounds are not for biomedical treatments. For instance, Buruli ulcer patients who believe that it is bad for a pregnant nurse to dress their wounds are more likely to drop out of treatment if a pregnant woman attends to them at any point in the management of their wounds. This finding corroborates the framework of enabling factors as postulated by Andersen (1995), genetic factors, psychological characteristics of health providers—health workers’ behaviour, gender aspects (non-acceptance of being treated by the opposite sex, in particular women who refuse to be seen by male nurses/doctors), might affect treatment seeking at the biomedical health facilities. As a result of these perceptions some patients may resort to other actions like treating their wounds with all kinds of concoctions including urine which might expose the wound to secondary infections (Yeboah-Manu et al., 2013). There is therefore the need for the intensification of education in the endemic communities to correct some of the strongly held beliefs on wound care for a changed behaviour. In this direction, Ackumey et al., (2011), suggested in their study that providing education and knowledge at the individual level was not sufficient in itself to promote a change in behaviour. Health education programmes should be conducted to integrate the entire community especially traditional leaders, community volunteers, traditional healers and
former patients to serve as change agents to help correct some of the strongly held beliefs associated with wound care (Ahorlu et al., 2013).

This study has also established the relationship that existed between health care providers and their patients at the study area as an important element in treatment outcome (Weiss, 1997). It has been demonstrated that respect for patients is an important step in addressing their health conditions and failure to do that would be a health service delivery in futility (Rudick, 2009). Some patients interviewed felt that they were not being treated well by the health care providers and this must be addressed in order that the patients have the confidence to continue to accept and use the services provided at health facilities, it is often said that the best advertisement for a service provider are satisfied clients. Evidently, follow-ups on dropped out patients revealed that the main reason why they defaulted or dropped out of treatment was disrespect or mistreatment by healthcare providers. Moreover, most clinicians do not listen to the patients well, especially with regard to their social, cultural and religious beliefs (Rudick, 2009). This might result in misunderstanding of some actions of the patients by health providers and also some actions of the health care providers by patients. Contrary to what was found in this study with regard to treatment acceptability, other studies found the fear of surgery, skin grafting or other inconveniences associated with biomedical treatment and the inhospitable hierarchical doctor-patient relationship at hospital settings as impediments to accessing biomedical care (Grietens et al., 2012; Stientra et al., 2002). This brings to the fore the recommendation that sociocultural studies of help-seeking practices for Buruli ulcer disease feature strongly on the research agenda of the World Health Organisation (WHO) as they are considered necessary to guide public health strategies for treatment and control of Buruli ulcer in endemic countries (WHO, 2008).
6.4 APPRAISAL OF THE HEALTH CARE UTILISATION MODEL TO THE FINDINGS

The Health Care Utilisation model discussed the barriers that influence health seeking by individual patients, households and communities. The model generally indicated that financial obstacles, especially in relation to transportation, time constraints, socio-cultural beliefs and practices and availability of health care staff and services influenced treatment seeking. The strength of this model lies in its exposition of physical, structural, social, cultural and economic factors as influencing the utilisation of health services by clients in every social environment. Since this was a community study, the model was relevant to the research findings.

The findings therefore demonstrated the relevance of the health care utilisation model as adapted for the study. The predisposing factors as outlined in the framework as knowledge, perceptions, culture of wound care and treatment seeking behaviour for individuals and communities supported the findings of the study. Cultural beliefs as pregnant women should not dress wounds, lactating mothers should not dress wounds, and women in their menstrual cycle should not manage wounds predisposed the community members to prefer traditional treatment to the biomedical facility. This was found in both the quantitative and qualitative findings. Moreover, the perceptions of the causes of Buruli ulcer as natural and supernatural as found in the community also confirmed the predisposing factor of perceptions as outlined in the conceptual framework. In effect, all those who said Buruli ulcer was caused by supernatural factors were predisposed to utilise the traditional medicine to health facilities.

Furthermore, the adaptation of experience as a predisposing factor in the model corroborated findings of the study. Reports of bad experiences with nurses at clinic and contradiction in wound healing perspectives (of dry and wet wounds) predisposed
community members to either utilise the health facility or visit the traditional/spiritual homes for treatment. Additionally, the expectations of wound healing physically or spiritually as found in the study predisposed some community members to combine both the biomedical and traditional treatment in their regimen. The factors adapted as predisposing factors in the conceptual framework therefore confirmed the findings of the study and predisposed community members to utilise biomedical health care or traditional treatment.

It is however important to note that, predisposing factors did not influence self-medication in the study but rather the items used for treatment. The study established that everyone at a point in time self-medicated irrespective of their belief or perception about Buruli ulcer disease. However, the findings of treatment seeking behaviour for Buruli ulcer did not support the enabling and need factors outlined in the conceptual framework adapted for the study. The findings have shown that the satisfaction of enabling and need factors could not guarantee health care utilisation by clients, household and communities.

In conclusion, the findings of the study as related to the conceptual framework adapted have established that predisposing factors are important determinants of Buruli ulcer treatment seeking in the Ga South Municipality of Ghana. The need and enabling factors are secondary issues when individuals, households and communities sought to utilise health care of any kind.

It is important to note that, better understanding of community and individual perceptions and cultures by health care providers about their disease conditions, the quality of services, and their health needs enable them to improve the efficacy of public health interventions and contribute to increased utilisation and effectiveness of health delivery services. The model failed to address this vital factor in health care utilisation. Again, the model was silent on health providers’ barriers and perceptions like doctors’ availability,
waiting time, fear of infection, inhaling of bad wound odour timing of facility and other supply side issues which should be complemented by client perspective also to ensure treatment seeking by patients. However, in considering the objectives of the study, the health care utilisation model served as a guide to designing tools for data collection and also helped to give clearer insight into socio-cultural factors that influenced treatment seeking by patients and community members in Buruli ulcer endemic areas and so was relevant to the study.

6.5 CONCLUSION

The discussion was based on findings from the study conducted at the Obom sub-district of the Ga South Municipality of the Greater Accra Region of Ghana on socio-cultural factors associated with Buruli ulcer management. The discussion was based on the community knowledge and perceptions about Buruli ulcer and the reactions towards Buruli ulcer patients. Other issues discussed were the health seeking behaviour of the affected persons, the cultural understanding of wounds and their management in the study area. The discussions were supported by relevant literature or earlier works done by others as much as possible.
CHAPTER SEVEN

7.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This chapter provides a summary of key findings from the study and draws relevant conclusions. It presents the contributions of the study to knowledge, implications of the study for public health policy and Buruli ulcer control, and recommendations from the study as well as suggestions for further research. All these were done in line with the general objective of the study, which was to investigate socio-cultural factors associated with Buruli ulcer management and wound care management in the study area.

7.2 SUMMARY

The study investigated the socio-cultural factors associated with Buruli ulcer management at the Obom sub-district of the Ga South Municipality in the Greater Accra Region of Ghana. This was a mixed method study employing qualitative and quantitative techniques for data collection. Two non-probability sampling techniques were employed. These were purposive sampling and the convenient sampling techniques. In-depth interviews, Focus Group Discussions, observation (ethnography), and survey questionnaires were used for the data collection. The theoretical framework of health care utilisation model guided the study. Data were analysed to present community knowledge and perceptions about Buruli ulcer disease and its related health seeking behaviour in the study area. The study also explored the cultural understanding of wounds and their management in Buruli ulcer endemic communities.
7.3 KEY FINDINGS OF THE STUDY

1. Community knowledge about Buruli ulcer was very high (95%) as respondents said they have heard of Buruli ulcer and mentioned some of the signs and symptoms of the disease.

2. Community members generally attributed causes of wounds to both natural (naturalistic systems) and supernatural (personalistic systems) factors. With regards to community perceptions about Buruli ulcer patients, it was found that Buruli ulcer patients were perceived as people that were bewitched by a majority of the respondents’ surveyed.

3. The study revealed that majority of the respondents would not sympathise with people infected with Buruli ulcer and would reportedly not get close to the infected.

4. The study found that cultural practices and beliefs significantly affected patients’ wound care and treatment seeking behaviour, which led to the idea that some types of wounds could only be treated by the traditional healers, spiritualist or herbalist while others, the natural ones, could be treated with biomedicine at the health facilities.

5. Findings in this study revealed that due to wound related cultural beliefs and practices, many of the Buruli ulcer wounds were treated either at home or by traditional healers prior to being seen in the hospital and some patients continued with traditional remedies despite receiving wound care from clinicians.
6. The study found that some of the beliefs held by community members to be so strong that violation could lead to serious consequences such as the non-healing of wounds. For example, some of the prohibitions associated with wound care were that pregnant women were not supposed to dress wounds, young ladies were not supposed to dress wounds, menstruating and lactating women were not supposed to dress wounds, else the wound will not heal.

7. Most Buruli ulcer patients were not satisfied with how health personnel receive them and also dress/ manage their wounds in the health facilities.

8. Community members associated wound healing with its dryness rather than being moist or wet.

7.4 CONCLUSIONS

It is very important to note that there are still difficulties in understanding why the perception of the Buruli ulcer disease does not seem to change rapidly notwithstanding several outreach programmes by the Stop Buruli Team sponsored by Optimus Foundation in Noguchi Memorial Institute for Medical Research and the National Buruli Ulcer Control Programme (NBUCP). People still conceive of the disease in both bio-medical and magico-religious realms (Stienstra, et al., 2002, Ahorlu et al., 2013).

In a community where people have varied ideas about what the cause of the disease is and largely attributed it to supernatural causes, the unorthodox treatment actions taken by the people is expected. However, the health seeking of self-medication or visiting the drug store or herbalist before seeking biomedical treatment was alarming since it leads to delays in reporting. This notwithstanding, perceptions and health seeking behaviour are arguably determined by socio-cultural and socio-structural. No matter the perception that people
held about the disease, self- medications and herbalists seemed to be the first places that people consulted before seeking orthodox care later. These may be due to the prevalent superstitious beliefs about the disease. Moreover, before contacts with colonialists and the subsequent introduction of allopathic medicine, herbal medicines and other forms of medico-religious treatments were the norm for Ghanaians. This has not changed much over the years due to several factors such as remoteness and the far higher cost for allopathic health care. The Stop Buruli Project in Noguchi Memorial Institute for Medical Research is implementing a social intervention programme at the Obom sub-district. This entails information, education and communication campaigns that combine strategies that enable individuals, families and communities to play active roles in achieving, protecting and sustaining their own health with regards to Buruli ulcer infection. This form of intervention is needed in all Buruli ulcer endemic areas in Ghana. The influence of underlying social, cultural, economic and environmental conditions on health must be undertaken with the aim of bringing about behaviour change. The intensification and sustainability of education, particularly in endemic communities must promote and encourage the people to seek early medical treatment. More important in the fight to control and manage Buruli ulcer in endemic areas is the need for early detection of cases. Although early case detection was the focus of the resolution signed in Yamoussoukro Declaration by some endemic African Countries (Perera, 1998), less attention has been given to it nationwide. It is important that we closely examine our current efforts and constraints, as well as the resources required to carry out these activities, and how they could be implemented in various situations to find a way to expand it across the country. This will help in our collective efforts to effectively control and manage Buruli ulcers in Ghana and elsewhere in Africa.
Finally, findings discussed in this study could be used by clinicians to improve upon wound care at biomedical health facilities by incorporating patients’ perspectives into their daily practices. Thus, both endemic community members and clinicians must be educated to understand each other’s expectations regarding wound care, as local beliefs could significantly impact wound care and treatment outcomes. Community education implementers must however make a strong case for early reporting to avoid ulcers or reporting at the clinic late. The effectiveness of therapeutic relationships between wound care clinicians and patients is highly dependent on the understanding of the cultural issues surrounding patients’ wounds and how it is handled. It is evident that when attempting to address wound care issues, whether preventive measures or clinical treatments, clinicians can be more effective if they recognise the expectations of the patients and how they are influenced by their cultural values.

7.5 CONTRIBUTIONS OF THE STUDY TO KNOWLEDGE

This study was an attempt to explore the socio-cultural factors associated with Buruli ulcer management at the Obom sub-district of the Ga South Municipality of Ghana. An important contribution of this study to existing knowledge was the community perspective of a healing wound which was in sharp contrast to the biomedical position. Whereas for the local residents, including traditional healers, wound healing was seen in the dryness of the wound (emic perspective), this was not the case for the biomedical care provider where a wet/moist wound (etic perspective) shows the wound is healing.

Another important finding of this study was the community understanding of wound management. Community members believe that wound must be dressed/managed by only one person. To the communities, a wound would heal fast if only one person dressed it from the beginning to the end of healing. Whereas in biomedical health facilities more than
one clinician/nurse manage wounds based on the shift schedule of work. This community idea is based on a regular caregivers’ knowledge of the patients’ wound aetiology, consistency and experience in handling a particular individual leading to an effective management of the wound. The implication of this is that it might influence Buruli ulcer patients’ attendance to the health facilities since they would not want many hands to manage their wound.

It was found that people in certain physiological (pregnant women, lactating mothers and women in their menses) states were unfit or unqualified to dress or manage wounds in Buruli ulcer endemic communities. Such people were perceived socio-culturally as impure to manage a wound, thus if they do, the wound would never heal. This was a contrast to biomedical management of wounds where a clinician/nurse in any of the physiological states mentioned above can dress the wound of a patient.

7.6 IMPLICATIONS OF THE STUDY FOR PUBLIC HEALTH POLICY

Buruli ulcer is one of the neglected tropical diseases that also affect the poor population in developing countries. This study has demonstrated that socio-cultural beliefs and practices could be impediments to the management and control of Buruli ulcers in endemic communities of Ghana. Findings in this study reinforced the need for sustained community education on Buruli ulcer to ensure early case detection, management and control in the endemic regions of Ghana. Otherwise, delayed treatment could lead to a high cost of treatment and long durations of treatment in some cases. Consequently, this would result in deformities and disabilities among Buruli ulcer patients. The findings of this study implied that practical recommendations that would inform public health policy be made so as to effectively and successfully manage and control Buruli ulcer in all endemic areas in Ghana.
7.7 RECOMMENDATIONS

On the basis of the major findings the following are recommended:

1. There is a need to develop a health care system in the Buruli ulcer endemic areas that takes into account the culture of the people to enhance treatment adherence and completion. By so doing, the local manpower and natural resources would be tapped. The Centre for Scientific Research into Plant Medicine in Ghana could be responsible for testing the efficacy of plant medicine.

2. There is the need to research into the efficacy of traditional medicines that are being used to manage Buruli Ulcer wounds at the Obom sub-district of the Ga South Municipality of Ghana to determine its usefulness in Buruli ulcer management.

3. There is the need for the National Buruli Ulcer Control Programme to educate endemic community members, Buruli ulcer patients and clinicians at the study area on good wound care practices. Thus, both endemic community members and clinicians must be educated to understand each other’s expectations regarding wound care, as local beliefs could significantly influence wound care and treatment outcomes as found in this study.

4. Ghana Health Service and National Buruli Ulcer Control Programme should empower Buruli Ulcer endemic Communities through Educational Programmes for early case detection and referral to hospitals for diagnosis and treatment to reduce category three cases that lead to disabilities and deformities.

7.8 SUGGESTIONS FOR FURTHER RESEARCH

The following areas are identified for further research:
1. It is pertinent to research into the clinician–patient relationship and how it influences treatment adherence at the Obom health centre of the Ga South Municipality of Ghana.

2. There is the need to research into the role of traditional medicine and the management of wounds at the Obom sub-district of the Ga South Municipality of Ghana.

3. Thorough investigation should be conducted to establish the relationship between poverty and Buruli ulcer infection. This is because the study found that people who are infected with Buruli ulcer were relatively poor. It is therefore suggested that a further study be conducted on the relationship between poverty and Buruli ulcer infection.

4. There is the need to research into gender issues and the management of wounds at the Obom sub-district of the Ga South Municipality of Ghana.

The information presented in this thesis is mainly based on the research conducted on Buruli ulcer patients, caretakers, former patients, traditional healers, community members, and health workers in the Buruli ulcer endemic communities and Obom health centre. Though, the study findings have helped to explain the issues of community knowledge, perceptions, reactions, health seeking behaviour for Buruli ulcer and cultural understanding of wounds, gaps still exist for further research especially when the mode of transmission is yet to be established. It is in the light of this that the above areas of study were suggested to help complement the understanding of the issues of socio-cultural factors associated with the management of Buruli ulcer at the Obom sub-district in particular and Ghana in general.
REFERENCES AND BIBLIOGRAPHY


McIntyre, D., & Thiede, M. (2003). A review of studies dealing with economic and social consequences of high medical expenditure with a special focus on the medical poverty trap. *Cape Town, South Africa: Health Economics Unit, University of Cape Town.*


Transactions of the Royal Society of Tropical Medicine and Hygiene, 102(9), 912–920.


Schwandt, The Sage Dictionary of Qual 3rd Ed TP.pdf


Appendix 1

SOCIO-CULTURAL FACTORS ASSOCIATED WITH BURULI ULCER MANAGEMENT IN THE OBOM SUB-DISTRICT OF THE GA SOUTH MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

Health System’s perception of the effective management of Buruli ulcer wounds to prevent secondary infections Key Informant Interviewers’ Guide

Introduction
I am ………………, a research assistant from the Noguchi memorial Institute for Medical research, and a PhD Student at the School of Public Health, University of Ghana, Legon. As you are aware, we have been conducting various researches under the auspices of the Stop Buruli project. One of the key elements of the project is the introduction of social interventions to support case detection and keeping them in treatment. And also how to effectively manage the conditions at the biomedical health facilities to prevent infections and the quick healing of the wounds. At this point, we want to interview some stakeholders to understand their view on these social supports and how the wounds would be managed. Please, you have been selected as one of the key informants to be interviewed because we know that your view will be very valuable to us as we move forward in the implementation of the project.

Thanks, in advance for accepting to speak with us on BU today. All your responses will be kept confidential and unless you permit it, your name will not be linked with anything that you will say in the course of this interview.

Instruction to interviewer: Record the following in the note book before the start of the interview: Name of interviewee (optional); highest level of Education/Training; Job title/position; Name of District and Community where the interview takes place.

1. In your opinion is BU a major problem in this district? Why do you consider it as a major problem?
2. How many BU cases on average are seen in your facility each day? Probe, Can you say that the situation is getting better or worse in the past two years?
3. The cases that come to your facility, how do they come? Probe, Do they come by themselves or are they referred? Who referred them?
4. Does the health system have a programme to actively search for BU cases in the catchment communities? Probe for how is done? Who are responsible for the case search and referrals? How is the case searching done in affected communities? What are the challenges that impede active case searching in communities? How do you think that this could be overcome?
5. Is there any programme like community outreach to educate and create awareness on BU in the affected communities? Probe for who is responsible for it and how it is done? What are the challenges that impede active case searching in communities? How do you think that this could be overcome?
6. Is BU treatment completely free of charge to the patients? Probe for what does the patient have to pay for from his/her pocket? Is the treatment cost covered by the National Health insurance? Who pay for the free component of the treatment if any? Do you always have stock of the free component of the treatment available? What are the challenges that affect BU treatment in general?

7. At what stage do the patients report at the health facility? Probe for all the stages/categories of the disease.

8. Do BU patients who are not on admission attend health facilities regularly for treatment once they start treatment? Probe for dropout rate, non-adherence rate.

9. Is your outfit aware of the any social intervention programme being implemented at the Obom health centre? Probe, could you please tell me what these interventions are?

10. Do you think that these interventions are necessary? How are they helping in terms of case searching and referral to the health centre, treatment dropout and adherence? What do you like about the interventions? What do you not like about it?

11. How is the intervention affecting BU treatment service delivery at the facilities? Probe, do you think that is affecting the facility positively or negatively, explain your position.

12. How are the BU patients treated at the health facility? Probe for the kind of treatment given at every stage.

13. Who dresses the wounds for the patients? Probe for how the ulcers are managed and the required times they are to be dressed a day/a week.

14. Do you think that the health system through the health service is providing the right medicines for the treatment of the conditions? Probe for how patients react to the treatment and the medicines.

15. Do the patients take care of the wounds well after dressing? Probe for the introduction of other herbs in the house after wound dressing.

16. Are you aware of any beliefs associated with the dressing/management of wounds in these communities? Probe for socio-cultural beliefs and dressing of wounds.

17. What other mechanisms do you think could be put in place to ensure early case detection, referral and better management of BU patients’ conditions at health facilities for treatment?

18. What are some of the challenges the health facilities are facing with the treatment/management of Buruli Ulcer in the district?

19. What are some of the challenges associated with BU patients and the management of their ulcers at the health centre? Probe for implications of home treatment, traditional medicine and cultural beliefs of community members.

20. If you were the Director General of Ghana health service, would you advocate for collaboration of biomedical treatment with traditional treatment? Probe for the reasons for and against the collaboration.
Appendix 2

SOCIO-CULTURAL FACTORS ASSOCIATED WITH BURULI ULCER MANAGEMENT IN THE OBOM SUB-DISTRICT OF THE GA SOUTH MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

In-depth interview with some traditional healers

Key Informant Interviewers’ Guide

Introduction
I am ………………., a research assistant from the Noguchi memorial Institute for Medical research, and a PhD Student at the School of Public Health, University of Ghana, Legon. As you are aware, we have been conducting various researches under the auspices of the Stop Buruli project. One of the key elements of the project is the introduction of social interventions to support case detection and keeping them in treatment. And also how to effectively manage the conditions at the biomedical health facilities to prevent infections and the quick healing of the wounds. At this point, we want to interview some stakeholders to understand their view on these social supports and how the wounds would be managed. Please, you have been selected as one of the key informants to be interviewed because we know that your view will be very valuable to us as we move forward in the implementation of the project.

Thanks, in advance for accepting to speak with us on BU today. All your responses will be kept confidential and unless you permit it, your name will not be linked with anything that you will say in the course of this interview.

1. Since when did you start practicing as a traditional healer?

2. How did you acquire the skills and experience?

3. What kind of sicknesses do you treat?

4. Why do you call it the cotton wool disease?

5. How does it look like?

6. How are you able to diagnose a case as Detifudor (BU)?

7. How do you start the treatment of BU?

8. After the revelation what happens next?

9. How do you handle the things brought?

10. How do you deal or bargain with them?

11. How do you give the things to them?

12. So after that what happens?

13. What motivates the witches to visit BU on people?

14. What do the witches achieve from doing that?
15. Do the witches get angry with you for taking their victim from them?

16. How do you get the herbs for treatment?

17. How do you administer the herbs?

18. How long does it take you to treat the wound completely?

19. Is it any wound that is caused by witchcraft?

20. When the person is healed do you see any scar on the affected body?

21. Can you remember the number of people who got healed since you started practicing?

22. What do you think about the scientific assertion that BU is caused by bacteria in water?

23. In this case will you like to work with medical personnel or refer a case to the health facility after you have driven away the spirit from the patient?
Appendix 3

SOCIO-CULTURAL FACTORS ASSOCIATED WITH BURULI ULCER MANAGEMENT IN THE OBOM SUB-DISTRICT OF THE GA SOUTH MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

Interviewers’ Guide for community elders’ and BU patients

Community elders’ perception of wound care and wound management.

Introduction

I am ………………, a research assistant from the Noguchi memorial Institute for Medical research and a PhD Student at the School of Public Health, University of Ghana, Legon. As you are aware, we have been conducting various researches under the auspices of the Stop Buruli project. One of the key elements of the project is the introduction of social interventions to support case detection and keeping them in treatment. And also how to effectively manage the conditions at the biomedical health facilities to prevent infections and the quick healing of the wounds. At this point, we want to interview some stakeholders to understand their view on these social supports and how the wounds would be managed. Please, you have been selected as one of the key informants to be interviewed because we know that your view will be very valuable to us as we move forward in the implementation of the project.

Thanks, in advance for accepting to speak with us on BU today. All your responses will be kept confidential and unless you permit it, your name will not be linked with anything that you will say in the course of this interview.

In-depth Interviewers Guide

1. Name
2. Sex
3. Age
4. Occupation
5. Ethnic background.
6. Have you managed a wound before?
7. Describe how wounds are managed from your community.
8. Do you know any herb which is used to dress wounds?
9. What times does one go to get the herbs?
10. Can anyone go for herbs to dress wounds?
11. Which types of people are qualified to manage/dress wounds?
12. Why should those people qualify to dress wounds?
13. Which people are not supposed to dress/manage wounds?
14. Why should those people not dress wounds?
15. Should those people dress wounds how will it affect the patients?
16. How will it affect them?
17. Has there been any evidence to show that certain people should not be allowed to dress wounds.
18. Have you ever met any of such people dressing wounds at the clinic?
19. What implication would that have on your wound?
20. Do you believe that the healing or non-healing of wounds depend on cultural and religious factors?

In-depth interviewers for BU patients.
1. How did your condition start? Probe for the signs and symptoms.
2. What form of treatment did you resort to?
3. How were you being treated and how did you see the condition?
4. How long did you treat the condition with the form of treatment you were using?
5. What did you do after some periods?
6. How often were you dressing your wound in a day?
7. What kinds of drugs/medicines were used to dress your wounds? (Describe the process)
8. Mentioned the kinds of drugs/herbs used to dress your wound.
9. Was there any improvement in your condition?
10. Do you believe that some wounds are caused by witches/spirits? Prove how the beliefs affect treatment.
11. Do you have any belief that prohibits people from dressing wounds?
12. Who dressed your wound for you in the house?
13. Do you still use the herbs/drugs in addition to what is being given to you at the clinics?
14. Which kinds of people treat/dress your wounds at the clinic? Prove whether they are happy with the treatment.
15. Has any of the people mentioned in the question 11 dressed/treated your wound at the clinic? (if yes, prove whether they were happy with that)
16. Have you seen any improvement since you started coming for treatment at the clinic? Prove what needs to be done to improve wound dressing and treatment seeking among patients)
Appendix 4

Interviewer:
This interview is to help us to better understand the socio-cultural factors associated with Buruli ulcer management in the Obom sub-district. Your participation in the study is completely voluntary. We will also like to assure you that all information collected in the course of the study will remain confidential.

➢ Ask for oral consent
Thank you for your participation. In case you have any questions, please let us know.
Please also ask when you have a problem understanding a question.

<table>
<thead>
<tr>
<th>Q. No</th>
<th>Questions</th>
<th>Response</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Interviewer number:</td>
<td>..........................................................</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Community name</td>
<td>..........................................................</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sub-district</td>
<td>..........................................................</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>District</td>
<td>..........................................................</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sex of respondent</td>
<td>Male.........................................................</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female.......................................................</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Age</td>
<td>20 and below .............................................</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21-30.........................................................</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>31-40.........................................................</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41-50.........................................................</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>51-60.........................................................</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61 and above...............................................</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Education</td>
<td>No formal education ........................................</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary ......................................................</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JHS .........................................................</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SHS .........................................................</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Voc/ Tech ...............................................</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tertiary ..................................................</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>Ethnic Group</td>
<td>Ga………………………………………………………</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ewe………………………………………………………</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Akan………………………………………………………</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other………………………………………………………</td>
<td>96</td>
</tr>
<tr>
<td>9</td>
<td>Religion</td>
<td>Christianity……………………………………………</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Islamic…………………………………………………</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Traditional…………………………………………</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No religion …………………………………………</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other…………………………………………………</td>
<td>96</td>
</tr>
<tr>
<td>10</td>
<td>Main occupation</td>
<td>Trade/Business…………………………………</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Farming………………………………………………</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fishing………………………………………………</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Farming + Fishing…………………………………</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Casual labour/Sand winning………………………..</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Official employee………………………………….</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other specify………………………………………</td>
<td>96</td>
</tr>
<tr>
<td>11</td>
<td>Relationship status</td>
<td>Single………………………………………………</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Married……………………………………………..</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In a relationship but not married………………….</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Divorce/Separated………………………………….</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Widowed/widower…………………………………..</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>The first treatment resort when not well</td>
<td>Self-medication ……………………………………</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Traditional healer/Spiritualist …………………..</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health facility ……………………………………..</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Church…………………………………………….</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other………………………………………………</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>Basic Information</td>
<td>What are the commonest diseases in your community?</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Malaria………………………………………………</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Buruli ulcer ………………………………………..</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typhoid Fever ………………………………………</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>14</td>
<td>How many health facilities do you have in your community?</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>What types of health facilities are available to you</td>
<td>Clinic/hospital</td>
<td>Drug shop</td>
</tr>
<tr>
<td>16</td>
<td>Which of these facilities do you prefer to visit when you are not well</td>
<td>Clinic/hospital</td>
<td>Drug shop</td>
</tr>
<tr>
<td>17</td>
<td>How far is the nearest health facility from your home?</td>
<td>Very Far</td>
<td>Far</td>
</tr>
<tr>
<td>18</td>
<td>How do you get to the nearest health facility when you are not well?</td>
<td>Walk</td>
<td>Bicycle</td>
</tr>
<tr>
<td>19</td>
<td>How do you get to the nearest herbalist/traditional healer when you get sick?</td>
<td>Walk</td>
<td>Bicycle</td>
</tr>
<tr>
<td>Knowledge of BU signs and symptoms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>20</strong> Have you heard of the disease that causes wounds, nodule, plaque etc (Buruli ulcer)</td>
<td>Yes……………………………………………………...</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No……………………………………………………...</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>21</strong> What is its local name?</td>
<td>..........................................................</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>22</strong> If yes, how did you hear of the disease?</td>
<td>..........................................................</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>23</strong> Why do you call it by that name?</td>
<td>..........................................................</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>24</strong> Do you know anybody who has been affected by the disease</td>
<td>Yes……………………………………………………...</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No……………………………………………………...</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>25</strong> What signs and symptoms do you associate with a suspected case?</td>
<td>..........................................................</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>..........................................................</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>26</strong> What in your opinion causes the disease?</td>
<td>Natural………………………………………….......</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supernatural………………………………………..</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Both 01 and 02……………………………………….</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>27</strong> How do you react towards anyone who suffers from the disease?</td>
<td>..........................................................</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Perceptions about BU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>28</strong> Name possible ways in which wounds come about</td>
</tr>
<tr>
<td><strong>29</strong> How are (types of) wounds categorised in your community?</td>
</tr>
<tr>
<td><strong>30</strong> What are the bases for the categorisation of wounds in your community?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td>32</td>
</tr>
<tr>
<td>33</td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>36</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>37</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>38</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>39</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>40. Would you seek treatment immediately you suspect an itching or a boil on any part of your body?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>41. How long would you wait to seek treatment?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>42. Which mode of treatment would you seek first?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>43. Why would you prefer that choice (answer in Q42) as a first option to others?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>44. Which type of treatment would you seek second?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>45. Would you combine one or more types of treating Buruli ulcer?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>46. If yes why would you do that?</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>47</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>48</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>49</td>
</tr>
</tbody>
</table>
Appendix 5: Inform Consent Form

INFORMATION SHEET

SOCIO-CULTURAL FACTORS ASSOCIATED WITH BURULI ULCER
MANAGEMENT IN THE OBOM SUB-DISTRICT OF THE GA SOUTH
MUNICIPALITY IN THE GREATER ACCRA REGION OF GHANA

ERIC KOKA (PHD STUDENT – SCHOOL OF PUBLIC HEALTH, DEPARTMENT OF
SOCIAL AND BEHAVIOURAL SCIENCES, UNIVERSITY OF GHANA, LEGON)

Information and Informed Consent

Information Sheet for individual participants in the research Socio-cultural factors
associated with Buruli ulcer management in the Obom sub-district of the Ga South
Municipality in the Greater Accra Region of Ghana"

This is a PhD research by Eric Koka (PhD Student – School Of Public Health, Department
of Social and Behavioral Sciences, University Of Ghana, Legon)

Purpose of the research

The thesis aimed at understanding the socio-cultural factors associated with Buruli ulcer
management in the Obom sub-district of the Ga South Municipality in Ghana.

This is an invitation to you to participate in a study, which seeks to find out the factors that
affect patient’s adherence to Buruli ulcer treatment regimen. Buruli ulcer causes wounds
and disabilities to sufferers and its prevalence in almost every region in Ghana. It is a
major public health problem in some regions in Ghana and the Greater Accra Region is
one of the worst affected regions. A lot of studies have been conducted in the Social
Sciences on Buruli Ulcer. However, very little is known about the socio-cultural factors
associated with its management and how this influences treatment seeking behavior of
patients. This study is timely to complement many researches that are currently being done in microbiology on Buruli ulcer wound care.

**Procedures involved in the study**

The procedure to be used to elicit responses would not involve any specimen sample collection. Permission would be sought to use patients’ clinic records. Respondents would be interviewed based on a pre-prepared set of questionnaires and structured interviewed schedule. In the course of data collection, you may be called upon to answer a few questions during the study.

**Risks and Discomforts**

In terms of risks, there is none. However, you may feel uncomfortable sharing some personal or confidential information with the research team. Or that you may feel uncomfortable talking about some of the topics raised during interview. However, we do not wish this to happen, and you may refuse to answer any question or refuse to answer questions that you feel are personal or just talking about them makes you feel uncomfortable.

**Benefits:**

There would be no direct benefit to you personally, however, in the near future; the study might inform programmers and the intervention strategies to adopt so that Buruli ulcer would be reduced in the region to the barest minimum.

**Incentives**

You will not be provided any incentive to take part in the research. However refreshment and/or transport fare will be provided anytime you are required to make yourself available to the research team in the course of your participation in the study.
Right to refuse or withdraw
You do not have to take part in this research if you do not wish to do so, and this will not affect you in anyway. Although, this research is going to take place in the health facility, it would not be linked to your medical records and would therefore not affect your future treatment at the health facility in any way should you refuse or withdraw your participation. You would still have all the benefits that you would otherwise have. You may stop participating in the research at any time that you wish to, without losing any of your rights as a member of this community. Your position in this community would not be affected in any way, even if you decide to stop participating in the research.

Confidentiality:
The information that would be collected from this research would be kept confidential. All information about you that would be collected during the study will be stored in a file which will not have your name on it, but a number assigned to it. There would be total discretion in the handling and management of data collected for the purpose of the study. It would not be divulged to anyone except the research team.

Data Handling and Record Keeping
Any information provided by you would be recorded on a paper and other appropriate storage devices. Additionally the data would be kept only by the research team in a safe in appropriate storage device. The information recorded would be deemed confidential, and no one else except the research team will have access to them when working on them.

Who to contact:
If you have questions you may ask them now or later. If you wish to ask questions later, you may contact me on 0243374637; 0204073323; 0244712919
Appendix 6

INFORMED CONSENT

SOCIO-CULTURAL FACTORS ASSOCIATED WITH BURULI ULCER MANAGEMENT IN THE OBOM SUB-DISTRICT OF THE GA SOUTH MUNICIPALITY OF THE GREATER ACCRA REGION OF GHANA

I, ______________________________ of ______________________________, having understood the contents of the attached sheet, after it has been thoroughly explained together with this consent form to me in a language that I have understood, agreed to participate in the Buruli ulcer study at my own free will.

Name of Participant: _______________________________________________________

Sex: ..................... Age: .................. Date: ...............  

Signature/Thumbprint of Participant: __________________________________________

Name of Witness: __________________________________________________________

Signature/Thumbprint of Witness: _____________________________________________

Date: .......................  

Name of Interviewer: _________________________________________________________

Signature/Thumbprint of interviewer: _________________________________________

Date: .......................
**Ethical Consideration/issues**

The study would not involve any experimental procedures on patients. However, research and ethical clearance to conduct the study would be sought from the College of Health Sciences, University of Ghana, Legon and the Ministry of Health/Ghana Health Service.

The following ethical considerations would be followed:

Ethical principles of anonymity, confidentiality, and rights of withdrawal would be shared and ensured among participants (Buruli Ulcer coordinators and patients). The research participants would be informed of the objectives, methods and result of the study, and the field researchers would clarify their roles in the study. For patients in particular, it would be made clear to them that participation in the study is voluntary and refusal to take part would not affect their access to services offered by the health facility. No form of inducement would be used to entice the participants to partake in the study. However, refreshment and transportation would be provided after the interview. To help protect the identity of the patients and prevent questioning by community members, both the questionnaire administration and individual interviews for patients would be held within the hospital premises.

To ensure participants’ right, an informed consent would be obtained from them before the conduct of the interview. Study outcome would be used for the benefit of the Buruli ulcer patients, community workers, and other agencies within the health care system at various levels. Also, the study result would be disseminated used in increasing community awareness on Buruli ulcer. Results and recommendations would also be disseminated to the health personnel and others stakeholders for their perusal.
Appendix 7

ETHICAL CLEARANCE CERTIFICATE

GHANA HEALTH SERVICE ETHICAL REVIEW COMMITTEE

In case of reply the number and date of this letter should be quoted.

My Ref. GHS-ERC: 1007/13
Year Ref. No.

Research & Development Division
Ghana Health Service
P. O. Box MB 190
Accra
Tel: +233-302-681109
Fax: +233-302-685424
Email: namatuesdaykad@yahoo.com

1st October, 2013

Eric Koka
School of Public Health
University of Ghana
Accra

ETHICAL CLEARANCE - ID NO: GHS-ERC: 1007/13

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol titled:

“Socio-cultural factors associated with Buruli Ulcer management in the Obom sub-district of the Ga South municipality”

This approval requires that you submit an Inception and Mid-term reports of the study to the Ethical Review Committee (ERC) for continuous review. The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Please note that any modification of the project must be submitted to the ERC for review and approval before its implementation.

You are also required to report all serious adverse events related to this study to the ERC within seven days verbally and fourteen days in writing.

You are requested to submit a final report on the study to assure the ERC that the project was implemented as per approved protocol. You are also to inform the ERC and your mother organization before any publication of the research findings.

Please always quote the protocol identification number in all future correspondence in relation to this protocol.

SIGNED:

PROFESSOR FRED BINKA
(GHS-ERC - CHAIRMAN)

Cc: The Director, Research & Development Division, Ghana Health Service, Accra