

**UNIVERSITY OF GHANA
COLLEGE OF HEALTH SCIENCES
SCHOOL OF PUBLIC HEALTH**

**ASSESSMENT OF KNOWLEDGE, ATTITUDES AND PRACTICES
OF SANITATION AND HEALTH OF MARKET USERS AT THE
AGBOGBLOSHIE MARKET IN ACCRA, GHANA.**

BY

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REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC
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DECLARATION

This is to declare that this proposal is the result of my own research. Published literatures of other researchers which have been cited have been duly acknowledged by means of referencing.

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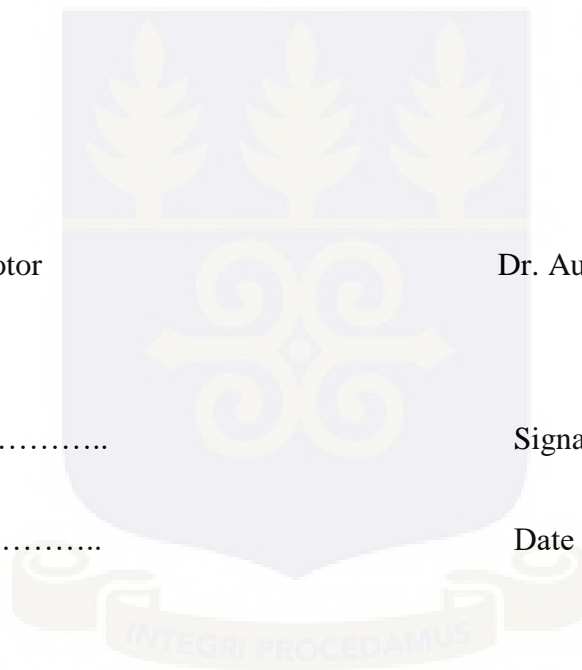
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Dr. Augustine Adomah-Afari
(Supervisor)

Signature:

Date



DEDICATION

I dedicate this work to the Almighty God and my parents Mr. Johannes Kosi Hotor and Mrs. Vinolia Yawa Hotor for their unconditional love and support.



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I have not so far encountered an action packed and event-filled academic life-year like the just ended 2016 / 2017 academic calendar at the School of Public Health, Legon. This academic period has been one that has brought me closer to my God because my own personal strength would have left me just halfway through.

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LIST OF ABBREVIATIONS

AusAID	Australian Agency for International Development
AMA	Accra Metropolitan Assembly
CWSA	Community Water and Sanitation Agency
DALYS	Disability Adjusted Life Years
ESPA	Environmental Service Providers Association
GAMA	Greater Accra Metropolitan Area
GDP	Gross Domestic Product
GOG	Government of Ghana
MDG	Millennium Development Goals
SDG	Sustainability Development Goals
UN	United Nations
UNDESA	United Nations Department for Economic and Social Affairs
UNICEF	United Nations International Children's Emergency Fund
WEF	World Economic Forum
WHO	World Health Organization
USD	U.S. dollars
AMCOW	African Ministers Council on Water

CMB	Cocoa Marketing Board
GNA	Ghana News Agency
MTTU	Motor Transport and Traffic Unit



TABLE OF CONTENTS

DECLARATION	i
DEDICATION	ii
ACKNOWLEDGEMENTS	iii
LIST OF ABBREVIATIONS	iv
TABLE OF CONTENTS	vi
LIST OF TABLES	x
LIST OF FIGURES.....	xi
DEFINITION OF TERMS.....	xii
ABSTRACT.....	xiii
CHAPTER ONE	1
INTRODUCTION.....	1
1.0. Background to the Study	1
1.1. Statement of the Problem	4
1.2. Justification of the Study.....	6
1.3. Objectives of the Study	8
1.3.1. General Objectives	8
1.3.2. Specific Objectives.....	8
1.3.3. Research Questions	8
CHAPTER TWO	10
LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK	10
2.0 Introduction	10
2.1 Sanitation.....	10
2.2 Concept of Health.....	11
2.3 Models of Health.....	12
2.3.1 Medical Model of Health.....	12
2.3.2 Social Model of Health.....	13
2.3.3 Salutogenic Model of Health (1996)	14
2.3.4 Social Ecological Model of Health.....	15
2.3.5 Health Belief Model.....	15
2.3.6 Theory of Reasoned Action (1975)	16
2.4 Health Effects of Sanitation.....	16
2.5 Interventions on sanitation	18
2.6 Conceptual Framework	18
2.7 Knowledge of sanitation and health	19
2.8 Attitudes towards sanitation and health.....	21
2.9 Sanitation and Health Practices	22
2.10 Socio- Demographic Characteristics and KAP on sanitation and Health	23
2.11 Gaps in the literature	25
Chapter Summary.....	25

CHAPTER THREE.....	26
METHODOLOGY.....	26
3.0 Introduction	26
3.2 Research Design	26
3.3 Study location.....	27
3.4 Study Population	28
3.4.1 Inclusion criteria.....	28
3.4.2 Exclusion criteria	28
3.5 Study variables	29
3.6 Sample Size and Sample Size Determination	29
3.6.1 Sampling Technique	30
Simple Random sampling.....	30
Purposive sampling.....	31
3.7 Data collection procedure.....	31
3.7.1 Quantitative Data Collection	31
3.7.2 Qualitative Data Collection	33
3.9 Data Analysis.....	33
3.9.1 Quantitative Data Analysis	34
3.9.2 Qualitative Data Analysis	34
3.9.3 Quality Control.....	35
The following actions were taken to ensure the quality of the data collected.....	35
Pre-Test of Data Collection Instrument.....	35
3.10 Ethical Consideration	36
Chapter Summary.....	38
CHAPTER FOUR.....	39
RESULTS OF THE QUANTITATIVE STUDY	39
4.0 Introduction	39
4.1 Demographic Characteristics of Participants	39
4.2 Knowledge of Sanitation on Health	41
4.2.1. Paper, plastics, wood, Cloth and Glass are all garbage	41
4.2.2. Glass and Plastics do decompose easily	42
4.2.3. Food, vegetables and fruits do decompose naturally	42
4.2.4. Disposal of Plastics by Burning.....	43
4.2.5. Reuse of plastics and Glass.....	43
4.2.6. Waste products choke gutters and lead to flooding	44
4.2.7. The use of Polythene bags is a good idea	44
4.2.8. Have you ever heard of segregation of waste?	45
4.2.9. Open Defecation is a good thing.....	45
4.2.10. Knowledge of Sanitation Laws and Policies	46
4.2.11. Sanitation Laws and Policies	46
4.2.12. Education on Sanitation	47
4.2.14 Overall Knowledge of Sanitation and Health.....	47
4.2.15 Relationship between demographic Characteristics and Knowledge Scores	48

4.3	Attitudes toward Sanitation on Health	49
4.3.1.	Satisfaction with Sanitation at Agboghloshie Market	50
4.3.2	Market Users' Worry toward sanitation	50
4.3.3.	Disposal of Garbage in Gutters.....	50
4.3.4.	Satisfaction with disposal of Waste by other Market Users	51
4.3.5	Attitude towards Sanitation Offenders	51
4.3.6	Responsibility for Sanitation	52
4.3.6	Who Should Pay for Sanitation	52
4.3.7	Comfortability with Public Toilets	53
4.3.8.	Convenience of Open Defecation	54
4.3.9	Overall Attitudes on Sanitation and Health	54
4.3.10	Relationship between Demographic Characteristics and Attitudes Scores	55
4.3.7:	Relationship between demographic Characteristics and Sanitation and Health Practices Scores	57
4.4	Sanitation and Health Practices	57
4.4.1.	Influence of Environment on Purchasing Decisions.....	57
4.4.2.	Sellers' concern about their environment before Operations	58
4.4.3.	Method of Disposing Waste	58
4.4.4	Waste Separation at Source	59
4.4.5.	Reasons for not Separating Waste	59
4.4.6.	Patronage of Public Toilets.....	60
4.4.7.	Practice of Open Defecation	60
4.4.8.	Belief that poor Sanitation causes Diseases.....	61
4.4.9.	Diseases caused by Poor Sanitation.....	61
4.4.10	Overall Sanitation and Health Practices	62
4.4.11	Relationship between demographic Characteristics and Sanitation and Health Practices Scores	62
4.5	Correlations between Knowledge, Attitudes and Practices of Sanitation and Health.....	64
4.6	Chapter summary.....	65
CHAPTER FIVE.....		66
DATA PRESENTATION AND ANALYSIS OF THE QUALITATIVE STUDY		66
5.0	Introduction	66
5.1:	Demographic Characteristics of Participants	66
5.2	Knowledge of Sanitation	67
5.21	Education of market users.....	67
5.2.2	Sanitation Laws and Policies	68
5.3	Attitudes toward Sanitation	70
5.3.1	Responsibility for Sanitation	70
5.3.2	Satisfaction with Sanitation Management	71
5.3.3	Participation in Sanitation Exercises	73
5.4	Sanitation and Health Practices	74
5.4.1	Waste Separation at Source	74

5.4.2 Practice of Open defecation	76
5.4.3 Method of Disposing Waste	77
5.4.4 Enforcement and Implementation of Sanitation Laws and Policies	78
5.4.5 Poor Sanitation and Diseases	80
5.5 Chapter summary.....	81
CHAPTER SIX	82
DISCUSSION OF EMPIRICAL FINDINGS	82
6.0 Introduction	82
6.1 Knowledge of Sanitation on Health	82
5.3 Attitudes toward Sanitation on Health	87
5.4 Sanitation and Health Practices	91
Chapter summary.....	98
CHAPTER SEVEN.....	100
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	100
7.0 Introduction	100
7.1 Summary of the Study	100
7.2 Conclusions of the Study.....	100
7.2.1 Knowledge on sanitation	101
7.2.2 Attitudes towards Sanitation.....	101
7.2.3 Sanitation and Health Practices	101
7.4 Recommendations for Policy and Practice.....	104
Limitations to the Study	104
REFERENCES.....	106
APPENDICES.....	116
Appendix A. Questionnaire for Buyers.....	116
Appendix B. Interview Guide for Market Sellers.....	119
Appendix C. Interview Guide for Assembly Staff.....	121
Appendix D. Participant Consent Form	123

LIST OF TABLES

Table 4.1a: Demographic Characteristics of Participants	39
Table 4.1b: Demographic Characteristics of Participants	40
Table 4. 2: Paper, plastics, wood, Cloth and Glass are all garbage	42
Table 4. 3: Glass and Plastics do decompose easily	42
Table 4. 4: Food, vegetables and fruits do decompose naturally	42
Table 4. 5: Disposal of Plastics by Burning	43
Table 4. 6: Reuse of plastics and Glass	43
Table 4. 7: Waste products choke gutters and lead to flooding	44
Table 4. 8: The use of Polythene bags is a good idea	44
Table 4. 9: Have you ever heard of segregation of waste?	45
Table 4. 10: Open Defecation is a good thing	45
Table 4. 11: Knowledge of Sanitation Laws and Policies	46
Table 4. 12: Sanitation Laws and Policies	46
Table 4. 13: Education on Sanitation	47
Table 4. 14: Relationship between demographic Characteristics and Knowledge Scores	48
Table 4. 15: Satisfaction with Sanitation at Agbogbloshie Market	50
Table 4. 16: Market Users Worriedness towards sanitation	50
Table 4. 17: Disposal of Garbage in Gutters	51
Table 4. 18: Satisfaction with disposal of Waste by other Market Users	51
Table 4. 19: Attitude towards Sanitation Offenders	52
Table 4. 20: Responsibility for Sanitation	52
Table 4. 21: Who Should Pay for Sanitation	53
Table 4. 22: Comfortable with Public Toilets	53
Table 4. 23: Convenience of Open Defecation	54
Table 4. 24: Relationship between Demographic Characteristics and Attitudes Scores	56
Table 4. 25 Influence of Environment on Purchasing Decisions	58
Table 4. 26: Sellers' concern to the Environment before Operating	58
Table 4. 27: Method of Disposing Waste	58
Table 4. 28: Waste Separation at Source	59
Table 4. 29: Reasons for not Separating Waste	59
Table 4. 30: Patronage of Public Toilets	60
Table 4. 31: Practice of Open Defecation	61
Table 4. 32: Belief that poor Sanitation causes Diseases	61
Table 4. 33: Diseases caused by Poor Sanitation	61
Table 4. 34: Relationship between demographic Characteristics and Sanitation and Health Practices Scores	63
Table 4. 35: Correlations between Knowledge, Attitudes and Sanitation and Health Practices Variables	64
Table 5. 1: Demographic Characteristics of Participants - Officials	67

LIST OF FIGURES

Figure 2.1: Knowledge, attitudes and sanitation and health practices	19
Figure 4. 1: Overall Knowledge on Sanitation and Health	47
Figure 4. 2: Overall Attitudes on Sanitation and Health	54
Figure 4. 3: Overall Sanitation and Health Practices	62



DEFINITION OF TERMS

Sanitation – refers to the presence of hygienic conditions in the environment.

Health – a complete state of physical, psychological and social wellbeing as well as the absence of disease.

Market Users - they include market sellers and buyers only.



ABSTRACT

Background: Globally, one major feature of markets is the generation of all manner of waste – animal waste, waste from food products sold, human waste, among others. To prevent negative occurrences as diseases and food poisoning, sanitation at markets must be adequately addressed.

Objectives: The study aimed at assessing the knowledge, attitudes and practices of sanitation and health of market users at the Agbogbloshie market in Accra, Ghana. It explored three objectives as follows: assessing market users' knowledge of sanitation and health; examining attitudes of market users toward sanitation and health; and investigating the sanitation and health practices of market users.

Methods: The research employed the descriptive survey method with questionnaire administration and face to face interviews as the data collection tools using the mixed methods approach. The qualitative study employed the purposive sampling technique to select 5 participants for the in-depth interviews. The quantitative research employed the simple random sampling technique in selecting a sample size of 410 respondents making a total of 415 participants.

Findings: The quantitative findings indicated that, market users at Agbogbloshie market displayed moderate levels of knowledge, attitudes and practices regarding sanitation and health with no significant relationships between knowledge, attitudes and practices. The qualitative findings also depicted poor sanitation management, apathy toward clean-up campaigns and indiscriminate defecation practices by market sellers.

Conclusions: The study contradicted previous ones which claimed that market users had high levels of knowledge regarding sanitation and health, poor attitudes and good

practices. This study therefore recommended that the Accra Metropolitan Authority collaborates with stakeholders to educate the market users on sanitation and health and provide decent places of convenience.



CHAPTER ONE

INTRODUCTION

1.0. Background to the Study

Sanitation is and continuous to be one of the major challenges that many countries around the world encounter (Bukari, 2008). As long as humans live, waste shall be generated. Globally, it is estimated that, the number of people that lack access to proper sanitation stands at 2.6 billion coupled with the fact that, current efforts and strategies are not enough to improve the situation - interestingly, the more educated individuals become, the more waste they generate (WHO, 1992).

The health impact of poor sanitation has been well documented (Norman *et al.*, 2010; Walker *et al.*, 2013; Alagidede & Alagidede, 2015; Chong *et al.*, 2016). Poor sanitation causes a lot of diseases such as cholera, diarrhea (gastroenteritis), schistosomiasis and onchocerciasis, inter alia (Norman *et al.*, 2010; Walker *et al.*, 2013; Alagidede & Alagidede, 2015; Chong *et al.*, 2016). The impact of inadequate and poor sanitation on health is very enormous as the World Health Organization/UNICEF (2010) put forth that, 7% and 8% of the worlds' deaths and global diseases respectively are caused by poor sanitation. Failure by stakeholders to act on sanitation works against the development of any society (Sanna-Leena *et al.*, 2010).

It must be emphasized that, before the industrial revolution, economies in the northern hemisphere lived in poor sanitary conditions that are comparable to what pertains in many developing countries today (Trueman, 2015). Poor sanitation and personal hygiene then, were responsible for diseases such as trachoma, tuberculosis, typhoid fever, malaria, leprosy among others, but while most of these developed countries have improved upon their sanitation with its attendant benefits, developing countries in general and Ghana in

particular continue to grapple with the issue of poor sanitation (Sanna-Leena *et al.*, 2009, Trueman, 2015). McGranaham *et al.* (2001) argued that, the sanitary practices and behaviours implemented in the developed world have contributed greatly to the health and wellbeing of their citizenry. In view of the above, these authors further argued that, developing countries would have to adopt and implement strategies and policies of the advanced nations in their quest to improve upon sanitation so as to enjoy its attendant health benefits.

Various interventions have been implemented with the sole aim of improving sanitation globally. These interventions include inter alia, the 1980-90 International Drinking Water Supply and Sanitation Decade, the promulgation of the Millennium Development Goals, the 2014 Dakar Declaration, the Ngor Declaration on Sanitation and Hygiene and lately, the Sustainable Development Goals (Neto & Tropp, 2000; UN, 2000; UN, 2002; AMCOW, 2014).

In the developing world such as Africa, many of the cities are overcrowded and this phenomenon has consequences for sanitation. Many settlements are unplanned and uncontrolled and this leads to poor management of solid and liquid waste (Strauss *et al.*, 2000). Despite many attempts at development planning and assistance, many settlements in developing countries have very little access to proper sanitation (Hardoy *et al.*, 2001). Moreover, there have also been recorded levels of disparities in urban and rural improved sanitation coverage (Munamati, Nhapi & Misi, 2016).

Investments in sanitation have been reported to yield good returns (Evans *et al.*, 2004; Hutton, 2012). Every 1USD investment in sanitation is reported to yield 5.5 USD in return (Hutton, 2012). Other benefits include but not limited to healthcare savings by both the individual and health agencies (Evans *et al.*, 2004). In 2009, the Government of Ghana (GOG) spent close to 9 million Ghana Cedis on sanitation borne diseases in the Upper

West Region alone (Effah, 2009). Over the same period, close to 250,000 people suffered from sanitation related diseases primarily malaria, diarrhea and respiratory infections out of which 90% of the cases reported were avoidable (Effah, 2009). Furtherance to this, the Government of Ghana (GOG) invested 420 million Ghana Cedis the equivalent to USD290 million in tackling sanitation related issues Enu, (2014). In 2016, the Government of Ghana was again reported to have spent 45 million Ghana Cedis on improving sanitation (Osei, 2016).

Throughout the developing world, urban centers are primarily associated with population increase (Cox, 2016). This phenomenon has had consequences for infrastructural growth which has proceeded mostly unplanned (Bhatta, 2010). This development has had negative consequences for sanitation management for Sub-Saharan Africa in general and Ghana in particular (Fakere & Fadimoro, 2013). The sanitation situation is particularly worse in Accra (Wireko, 2015). Currently, only half of the waste produced daily in Accra is collected by the Authorities coupled with the fact that, the city struggles to treat half of the liquid waste generated (Adank *et al.*, 2011).

In some parts of Accra, infrastructure developments and settlements are unplanned and haphazard (Adjei- Mensah, 2010). These features also characterize most of the markets in the country. The existence and smooth operation of markets is highly necessary as the commercial activities undertaken in such places form the core of many developing countries (Fakere & Fadimoro, 2013). Markets are not just conduits for commodity exchange alone but information and education, among others (Worlanyo, 2013). However, unplanned markets coupled with overcrowding tend to have serious consequences for sanitation. One major feature of markets is the generation of all manner of waste – animal waste, waste from food products sold, human waste, among others (Fakere & Fadimoro, 2013; Worlanyo, 2013). In many developing economies like Ghana,

sanitation at market places is not adequately managed (Quartey-Ankrah, 2011). In order to prevent negative occurrences such as diseases and food poisoning, sanitation at market places must be adequately addressed (Fakere & Fadimoro, 2013; Worlanyo, 2013).

1.1. Statement of the Problem

The fast paced nature of urbanization, rising standard of living and population growth contributes greatly to the amount of waste generated. Unfortunately, this development has not been met with an increased intensity and capacity of deal with the issue which has consequences for environmental sanitation (Banda, 2011).

In Africa alone, the figure stands at 300 million (World Economic Forum, 2015). Across all levels of government, institutional and governance structures concerning planning, budgeting, financing and making decisions relating to the management of sanitation are highly crucial. However, in the developing world, planning and investing decisions regarding sanitation are not strategic and integrative (Chong *et al.*, 2016). Furthermore, prescriptive local budgeting, approval systems, lack of local ownership and policy and funding posed significant barriers to effective sanitation management (World Bank & AusAID, 2013; Chong *et al.*, 2016).

Although there have been considerable research on sanitation in general (Evans *et al.*, 2004; Hutton, 2012; Yolande, 2012; Chong *et al.*, 2016), limited research has been done on sanitation and health in Sub Saharan Africa. These limited studies have also failed to explain the disparities in sanitation success first, between Sub-Saharan countries and second, rural and urban areas within the same countries (Arimah, 2005; Hopewell & Graham, 2014; Pullan *et al.*, 2014, Salami *et al.*, 2014; Munamati, Nhapi, & Misi, 2016). Furthermore, most of these studies on sanitation in Sub Saharan Africa have focused on economic issues (Rudra, 2011; Luh & Bartram, 2016), social factors (Arimah, 2005;

Waly, 2012; Hopewell & Graham, 2014; Adams *et al.*, 2015), and political governance structures (Jenkins, 2010; Onda *et al.*, 2013).

In Ghana, poor sanitation has been a huge challenge for all stakeholders (Bukari, 2008). Selby (2010) concluded that, in Ghana both the national government and private sector have failed to adequately manage waste in the country especially the urban areas. This failure to adequately manage waste has consequences for the environment in general and human health in particular. Due to the very nature of poor access to sanitation, African cities are deemed to have one of the lowest levels of sanitation infrastructure (3). Among all the lower middle income nations in the world, Ghana is the least ranked regarding access to sanitation (Samiwu, 2017). The city of Accra alone generates about 2.5 tonnes of waste daily (Arku, 2013) and because most of the waste generated is not properly managed, these waste end up on the streets and drains of Accra with its attendant environmental health consequences (Adank *et al.*, 2011).

Moreover, 30% of Ghanaians do not have access to any sanitation facility while only 15% of Ghanaians have access to improved sanitation. Open defecation is practiced all over the country (UNICEF, 2015). Over the last 24 years, open defecation has only reduced by 1% and at this rate, the country can achieve an open defecation free status in the next 500 years (Samiwu, 2017). Also, 90% of the 19,000 deaths that occur due to cholera yearly can be attributed to poor sanitation (Agyemang, 2017). Over the last 24 years, open defecation has only reduced by 1% and at this rate, the country can achieve an open defecation free status in the next 500 years (Samiwu, 2017).

Water Aid (2014), reported that, poor management of solid and liquid waste, inadequate and uncoordinated sanitation educational activities, inadequate investments and weak institutional and governance framework are the chief causal factors of poor sanitation in Ghana. Furtherance to the above, weak enforcement of the law, which ultimately results in

poor monitoring of the observance of sanitation standards as well as the absence of a proper linkage between sanitation and health policies, also affect the management of sanitation in Ghana (Fried, 2010).

In view of the above, the research responded to these gaps in literature by assessing the knowledge, attitudes and practices of sanitation and health of market users at the Agbogbloshie market in Accra, Ghana.

1.2. Justification of the Study

The challenge of increasing access to improved sanitation and effective management of waste in Ghana is well established (Adubofour, 2010; Adams *et al.*, 2015). This issue has attracted the attention and efforts of international institutions, national and local governments as well as academia (Effah, 2009; Worlanyo, 2013).

Despite the severity and pervasiveness of the issue in Ghana, little research has focused on sanitation at market places in Ghana (Quartey - Ankrah, 2011; Worlanyo, 2013). These studies have only looked at the knowledge, attitudes and practices of market users towards sanitation.

There have been limited studies focusing on the effects of sanitation on health of individuals (Mahamah, 2009; Adubofour, 2010; Owusu & Adjibolosoo 2016). None of these studies have looked at the impact of these knowledge, attitudes and practices towards sanitation on health which is the focus of this study.

Knowledge

UNICEF (2015) reported that, in the developing world, a sizeable number of individuals are unaware of how their low levels of knowledge towards sanitation contribute towards the effect of sanitation on their health. However, in the Ghanaian context, this issue remains unexplored. Moreover, the knowledge levels of market users at Agbogbloshie

towards sanitation has also been unexplored in previous studies (Quarthey-Ankrah, 2011; Worlanyo, 2013). This study will thus fill this gap in the literature.

Attitudes

The issue of how attitudes towards sanitation give impetus to the effect of sanitation on health has not been the focus of many studies on sanitation (Attuahene, 2010). These studies only focused on attitudes towards sanitation and concluded that, many Ghanaians in both urban and rural areas have poor attitudes towards sanitation. The study aims to fill this gap in literature by exploring the concept of sanitation on health.

Practices

Some studies in the developing countries context concluded that, not only do individuals engage in poor sanitation practices (Akter & Ali, 2013) but are also unaware of how these negative practices towards sanitation fuel the transmission of diseases which affect their health (Vivas *et al.*, 2010). Studies in the Ghanaian market context have not looked at how these poor sanitation practices affect health of individuals (Quarthey-Ankrah, 2011; Worlanyo, 2013). As part of the study, the issue of how poor practices toward sanitation affect the health of market users shall be explored.

The study when completed shall contribute to the scholarly field of sanitation and health and also unearth information as to how sanitation affects human health at the Agboghloshie Market. The study also aims to map out strategies and recommendations that would inform public health policy regarding the implementation of sanitation policies so to improve upon sanitation at Ghana's market places.

1.3. Objectives of the Study

The objectives of the study are divided into both general and specific as explained below.

1.3.1. General Objectives

The general objectives of the study are to assess the knowledge, attitudes and practices of sanitation and health of market users at the Agboglobshie market in Accra, Ghana.

1.3.2. Specific Objectives

The research intends to achieve the following specific objectives:

1. To assess market users' knowledge of sanitation and health at the Agboglobshie market in Accra, Ghana.
2. To examine attitudes of market users towards sanitation and health at the Agboglobshie market in Accra, Ghana.
3. To investigate the sanitation and health practices of market users at the Agboglobshie market in Accra, Ghana.

1.3.3. Research Questions

The following research questions will help find answers to address the specific objectives:

1. What is market users' knowledge of sanitation and health at the Agboglobshie market in Accra, Ghana?
2. What are the attitudes of market users towards sanitation and health at the Agboglobshie market in Accra, Ghana?
3. What are the sanitation and health practices of market users at the Agboglobshie market in Accra, Ghana?

Outline of the Dissertation

This chapter presented the introduction of the study. It began with the background of the study, followed by the statement of the problem. The justification of the study was also presented in this chapter. The chapter ended with the presentation of the research objectives and questions. The chapter two contains the literature review and the conceptual framework. Chapter three presents the methods applied to collect data for analysis. Chapter four presents the results of both the qualitative and quantitative studies. Chapter five presents the discussion of the empirical findings and their relationship with existing literature. Chapter six is where the main summary, conclusions and recommendations have been presented.



CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.0 Introduction

This section presents a review of studies on the key concepts underlying the proposed study. The section begins with the concepts of sanitation and health. Brief descriptions of various models of health related to the study are also presented. The relationship between sanitation and health is also discussed as well as Interventions on sanitation. The conceptual framework that guides the study is also outlined. The section ends by outlining the research gaps in literature.

2.1 Sanitation

According to the Community Water and Sanitation Agency (CWSA, 2004), sanitation, involves the promotion of hygienic conditions as well as the proper disposal of solid waste and fecal matter. The availability of latrines is an important component of sanitation while the promotion of hygienic conditions through outreach and educational activities ensures behavioral change towards improved hygiene.

The WHO/UNICEF(2010), also concluded that, sanitation, simply refers to the presence of hygienic conditions such as proper waste disposal and garbage collection. It also refers to, the safe and proper handling of human waste. Sanitation involves the maintenance of hygienic, clean and safe environment. It also involves a concerted effort to safely dispose of human excreta so as not to cause humans diseases and protect the environment as well (Franceys & Gerlach, 2008).

From the above, it can be concluded that, sanitation encompasses the proper, safe and sustainable management of solid waste and liquid waste so as to create hygienic living conditions and promote healthy living by preventing diseases.

2.2 Concept of Health

Earle (2007) opined that, health is an abstract concept and difficult to define. In spite of this difficulty many different people and institutions have made attempts at defining the concept of health. One of the most appreciated definitions of health was by the World Health Organization (WHO). According to WHO (1948 cited in WHO, 2006) health is “a state of complete physical, mental and social well- being and not merely the absence of disease and infirmity”. This definition is touted as being both holistic and taking a more positive approach towards health. Despite this, Lucas and Lloyd (2005) opined that, the scenario painted by such a definition is unattainable and overly idealistic. According to these authors, such a definition makes it impossible for any individual to achieve a healthy status while other dimensions of health such spiritual, emotional and sexual health are not captured by this definition (Ewles & Simnett, 2003).

Tones and Green (2004) concluded that, there are two broad approaches towards the concept of health – positive and negative. The positive approaches refer to wellness of the individual while the negative approaches focuses on diseases and illness and thus see health as the absence of illness. The definition of health by the WHO falls within the positive approaches towards health. Furtherance to the above, health is also seen to be a right. The International Covenant on Economic, Social and Cultural Rights recognize that, all individuals have a right to health (WHO/UNICEF, 2008).

The definitions of the concept of health outlined above are not exhaustive of all definitions of health but, seek to throw more light on the fact that, there exist varied means of

conceptualizing health. In view of the above, Downie and Macnaughton (2001) argued that, health has not a single identity therefore it becomes problematic in a quest for a single all-encompassing definition of health. Johnson (2007 cited in Warwick – Booth *et al.*, 2012) categorized the definitions of health in to four. The first was dictionary definitions which the author deemed highly unhelpful. The second were the assumptive definitions which are conceptually relative, idealistic and descriptive. The third category deterministic definitions are statistical and functional. The forth category which he termed spiritual definitions are religious, alternative and humanistic.

2.3 Models of Health

2.3.1 Medical Model of Health

The medical model of health is premised on the negative definition of health that, health is the absence of disease or illness (Tones & Green, 2004). The health model is individualistic and sees health as involving only such things as pathology, disease and treatment (Warwick – Booth *et al.*, 2012).

Health is believed to reside only in the body thus the causes of health can only be biological physiological and that the presence of disease is an abnormality. Health is only assumed to be present when a medically defined disease or illness is inexistent in the human body. The medical model of health has had a great impact on the understanding of the health concept and thus, forms the basis of many healthcare provisions (Warwick – Booth *et al.*, 2012).

The medical model of health has not been without some challenges. Earle (2007) argued that, the medical model of health does not give credence to other factors that affect health such as social, psychological and environmental factors. Moreover, the perspective of health assumed by the medical model of health is negative.

Duncan (2007) argued that, the medical view of health postulated by this model leads to misunderstandings. The author further criticized that, the individualistic approach of the medical model of health, makes the individual solely responsible for health and its control. The influence wielded by the medical model of health has also led to more neo-liberal health policies such as the introduction of user fees and commercialization of healthcare (Murray *et al.*, 2003).

2.3.2 Social Model of Health

The social model of health is more broad and holistic relative to the medical model of health. The social model of health draws a connection between individuals, interpersonal relationships, their environment and disease. This model gives a deeper understanding of health distinct from medicine and biology (Dahlgren and Whitehead, 1991). Yuill *et al.* (2010, p. 14) opined that, Health, and what makes people healthy, can only be fully understood by exploring the myriad of interactions and influences that emerge out of the complexities of human experience and the various inter-relationships of the mind, body and society. Central to this model is the fact that, health is a socially constructed phenomenon (Earle, 2007).

Bryant (2011) and Germov (2014) argued that, individuals who dwell in low socio economic environments have poorer health, low quality of life and shorter life expectancy compared to those in higher economic settings thus health is related to and sensitive to the environment both social and natural (Wilkinson & Marmot, 2003).

Bambra *et al.* (2014) opined that, there are a couple of factors that influence health and these factors are labeled the social determinants of health. Such factors include inter alia, gender, food security, income and social status, social exclusion and education.

The social model of health connotes the idea that, individuals and institutions have social responsibilities in making sure that people live healthy lives. Policymakers should not promulgate strategies and policies that operate only at the individual level but also invoke changes at the social, cultural and economic levels (Germov, 2014). Thus, the social model of health advocates for changes in public health policy to the betterment of health.

2.3.3 Salutogenic Model of Health (1996)

This model is credited to Aaron Antonovsky, an Israeli- American Sociologist. This model addresses the concerns of the health promotion school while emphasizing that, previous models of health overly focused on health education. Salutogenesis simply refers to the origins of health. This model lays much emphasis on the health of the individual and diseases.

Antonovsky (1996) emphasized on the symptoms of wellness and argued that, no individual can be diagnosed as either being healthy or disease ridden but all individuals can be located along a continuum.

The Salutogenic model of health is underpinned by two core concepts – coherence and the general resistance resources. General resistance resources refers to all features or resources of an individual, group or environment that can influence the management of stress. These general resistance resources influence an individual's balance, health outcome and ultimately the sense of coherence. The sense of coherence is comprised of optimism and control and has three elements namely: comprehensibility, manageability, and meaningfulness. Comprehensibility refers to the extent to which individuals can reach logical conclusions in an ordered manner while manageability refers to individual believes and feelings that they can cope and manage challenges in life. Meaningfulness refers to a psychological state that, life has a purpose and makes sense (Antonovsky, 1996; Earle, 2007).

2.3.4 Social Ecological Model of Health

This model focuses on interventions at both the individual and environmental levels that affect health and that there is a two way effect between the environment and individuals. The model holds that, behavioral change at the individual level is likely to happen when the environment is supportive enough (Earle, 2007). Activities that occur within the social, economic, religious and healthcare inter alia environments are great influencers of human behavior and health or wellbeing.

Social responsibilities and roles, individual behaviors and contingencies within the environment combine to have an effect on individual and the collective health status. The model holds that, for public health policies to be effective and efficient at changing human behaviours, these social roles, individual behaviours and contingency factors should be the targets.

2.3.5 Health Belief Model

The health belief model is credited to Irvin Rosenstock in 1966. The model was influenced by a research study that sought explanations as to why some individuals declined X-ray examinations for tuberculosis. The model when first developed was underpinned by four concepts – susceptibility, perceived severity, perceived barriers and the perceived costs of adhering. Susceptibility refers to an individual's own subjective evaluation as to the risk of attracting a disease or illness. Perceived severity refers to the gravity of the disease or illness and its consequences. Perceived barriers refers to those factors that limit the adoption of the required behaviours such as time and convenience while the last focuses on the perceived cost of adhering to the health intervention or activity.

The model was later modified to include such elements as how individuals responded to diseases and their symptoms as well as adherence to medical advice. In spite of the above, the health belief model has not been without some criticism. Roden (2004) argued that, the

health belief overly focuses on the negative aspects and ignores the positive approach and that not all choices related to health are rational.

2.3.6 Theory of Reasoned Action (1975)

This theory was developed by Martin Fishbein and Icek Azjen. The underlying concept of this theory is that, individuals are rational thus always think about the outcomes of their actions before engaging in them. The theory comprises of three constructs – behavioral intention, attitude and subjective norms. Behavioral intention is a product of an individual's attitude and subjective norms. Subjective norm refers to the pressures and expectations on an individual to fulfill certain roles and responsibilities. The aim of this theory is to basically predict human behaviour and also understand the underlying motivational constructs underpinning human behaviour. It also aims to influence public policy by indicating where and how health interventions are targeted (Fishbein & Azjen, 1975).

This theory just like others has also been criticized. Earle (2007) opined that, this theory is individualistic in its approach and that not all behaviors are under the ambit of the individual. The theory also fails to give cognizance to economic, environmental and political factors. In spite of the above, the theory is reported to have a strong predictive power.

2.4 Health Effects of Sanitation

Extant literature is clear on the fact that, sanitation and health are not mutually exclusive of each other because sanitation has consequences for health (Barreto *et al.* 2007; Norman *et al.*, 2010; Walker *et al.*, 2013; Alagidede & Alagidede, 2015; Munir, 2015 ;Chong *et al.*, 2016). Despite these established facts, sanitation coverage, especially in developing countries is still inadequate. Between 1990 and 2006, sanitation improved by only 5%

within Sub-Saharan Africa (WHO/UNICEF, 2008), while sanitation improvement in Ghana between 1997 and 2006 stood around 10.8% (Awuah *et al.*, 2008).

One of the major determinants of cholera outbreak has been the quality of sanitation facilities where children under the ages of five were most at risk (Adagbada *et al.*, 2012). Additionally, poor sanitation increases the spread of diseases through food, which was the chief causes of morbidity and mortality (Quartey-Ankrah, 2011).

Extant literature on the health impact of sanitation in the African context has overly focused on diarrhoea (Esrey *et al.* 1991; Curtis & Cairncross, 2003; Fewtrell *et al.* 2005; Clasen *et al.* 2010). Globally, poor sanitation has been reported to have negative effects on human health in addition to diarrhoea (Aiello *et al.*, 2008). Rabie and Curtis (2006) and Black *et al.* (2010) reported that, poor sanitation leads to respiratory and helminth infections. Stephenson *et al.* (2000) reported that, helminth infection was responsible for 39 million Disability Adjusted Life Years (DALYs) which was the equivalent of global morbidity burden of malaria and tuberculosis. However, Ziegelbauer *et al.* (2012) put forth that, improved sanitation through the provision of proper latrines could reduce helminth infections by as much as 50%. Furthermore, poor sanitation is also reported to lead to under nutrition in children which is about 21% of the disease burden for children under the ages of five (Black *et al.*, 2010).

A study in Vietnam concluded that, contamination of drinking water sources as a result of poor sanitation practices led to reported cases of cholera, diarrhoea, scabies, dysentery and trachoma to mention a few (Spencer ,2010). Speich *et al.* (2016) added that poor sanitation was responsible for pathogenic intestinal protozoa infections which in turn lead to high mortality and morbidity. A sanitation survey in Kumasi, Ghana, concluded that, poor sanitation was the chief causal agent of malaria and schistosomiasis (Adubofour, 2010). Furthermore, Mahamah (2009) also added that, health impact of sanitation among students

was enormous. Students were more likely to be affected by diseases such as vaginal candidiasis, dyspepsia, enteritis among others.

2.5 Interventions on sanitation

Over the years, many attempts have been made via varied interventions with the sole aim of changing people's behaviors toward sanitation (UNDESA, 2014). The World Health Organization (WHO, 1992), promulgated the Healthy City concept which was implemented in many developing economies between 1995 and 1999. The main components of the concept were health education and health promotion with the ultimate aim of creating better public health policies, strengthening community actions, creating supportive environments, developing personal skills and reorienting health services. An evaluation of the projects in some developing countries concluded that, the level of knowledge possessed by the citizens and the type of activities affected participation in the programmes (Burton *et al.*, 2000).

From the year 2000 to 2015, the Millennium Development Goals (MDGs) were implemented which had consequences for sanitation and recently the Sustainable Development Goals (SDGs) have also been promulgated (UN, 2015).

2.6 Conceptual Framework

The conceptual framework that guides the study involves both dependent and independent variables as shown in figure 2.1

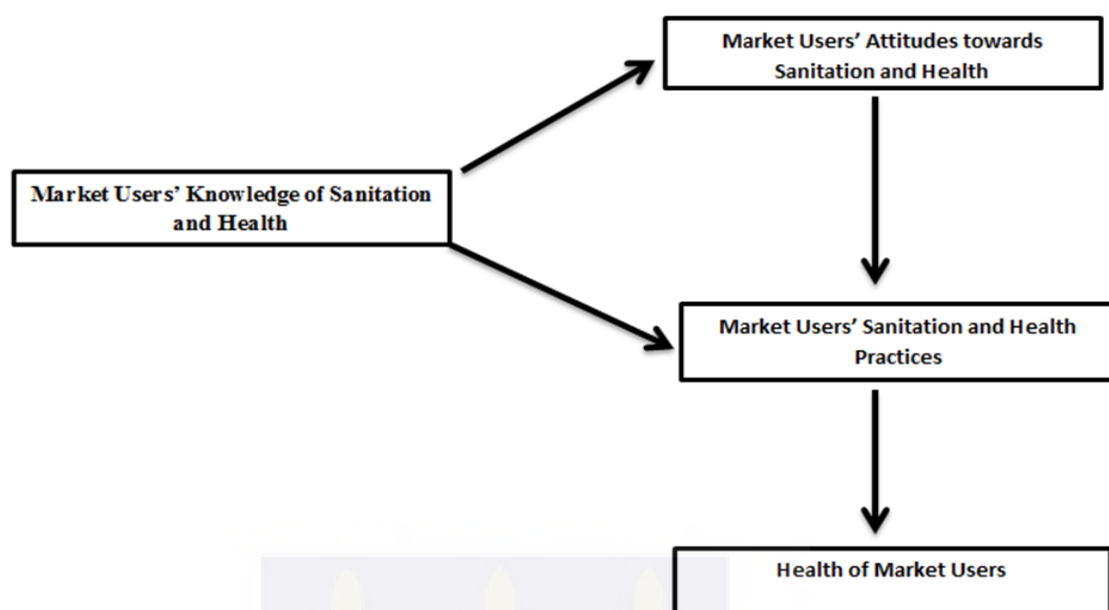


Figure 2.1: Knowledge, attitudes and sanitation and health practices

The conceptual framework that guides the study involves both dependent and independent variables. The independent variables include knowledge, attitudes and practices toward sanitation and how they can affect the health of market users, which is the dependent variable. . Aiken (2002) opined that practices that individuals engage in are a manifestation of first their knowledge and attitudes towards a phenomenon. The conceptual framework holds that, market users' knowledge influences their attitudes and practices toward sanitation which ultimately influences their health. Relevant literature relating to these has been presented below.

2.7 Knowledge of sanitation and health

Worlanyo (2013) concluded that, although market users had considerable amount of general knowledge on sanitation, they were deficient in some areas too. Majority of market users held no knowledge that improper disposal of plastic materials contributed to

poor sanitation in the environment. Some market users reported that plastic materials do not decompose naturally while others claimed disposing of waste in open gutters and drains did not contribute to poor sanitation. The issue is further aggravated by inadequate sanitation promotion activities. Market users have low knowledge levels with respect to sanitation laws and policies implemented at market places (Quartey – Ankrah, 2011). Worlanyo (2013) concluded that, 100% of market users at Dome reported that wood, waste paper and plastics were all garbage. In addition, Raudsepp (2001) concluded that, individuals have high levels of awareness with respect to environmental sanitation. Literature concludes that, individuals who displayed good environmental sanitation attitudes were those that had been exposed to environmental sanitation education (Armstrong and Impara, 1991).

Furthermore, one of the most effective ways of managing solid waste is through reuse of certain materials (Hopewell *et al.*, 2009) and Mukama *et al.* (2016) added that, 74% of low income residents consider the reuse of plastics. The authors further added that, although the burning of plastics had grave human consequences such as cancer, low income residents are more likely to burn plastics as a way of disposing of them (Wang *et al.*, 2004).

Recycling is a major factor that enhances waste management (Ekere *et al.*, 2009). In spite of the above, Banda (2011) concluded that, there was a lack of a culture of waste separation at source. The author added that, low residents in Kampala, Uganda did not engage in waste separation at the source because of predisposition to the practice via public education. Aljaradin *et al.* (2011) added that, individuals possessed very poor knowledge levels regarding source separation although they were enlightened with regards to recycling and reuse of plastics and glass. Gyapomaa (2013) also added that, market users in Ghana regard the patronage and use of polythene as a desirable course of action.

Furthermore, Wasonga *et al.* (2014) and UNICEF (2016) reported that, in the developing world, a sizeable number of individuals are unaware of how their low levels of knowledge towards sanitation contribute towards the effect of sanitation on their health. Kreith (2004) argued that, educating market users was very crucial and that, cleaning exercises offered opportunities for educating market users.

2.8 Attitudes towards sanitation and health

In the developing world, a significant number of individuals have negative or undesired attitudes towards sanitation (Attuahene, 2010). In Ghana, both rural and urban dwellers have poor attitudes towards sanitation (Napari & Cobbinah, 2014; Abbey, 2016). Poor attitudes towards sanitation exhibited by market users have some underlying socio – cultural constructs as male market users are more likely to display a negative attitude relative to females because, it is believed that, cleaning the environment is not the responsibility of men (Worlanyo, 2013).

Addo (2014) concluded that, market users were generally dissatisfied with the manner in which sanitation was managed at markets. However, in spite of this attitude, Worlanyo (2013) found that, market users barely confronted sanitation offenders at market places. More often than not, individuals express worry about poor sanitation but are helpless due to inadequate sanitation facilities (Adeyemo *et al.*, 2009; Kpoor, 2009).

Furthermore, some studies found that market users displayed positive attitudes towards sanitation and health as Worlanyo (2013) concluded that, market users at the Dome market believed that, responsibility for sanitation management was a collective one. Addo (2014) also found negative attitude on the part of market sellers who displayed apathy towards cleaning exercises at market places.

2.9 Sanitation and Health Practices

It is the right of every individual to be in good health and enjoy good sanitation as spelt out by the Sustainable Development Goals (SDGs). Goal 3 of the SDGs states that, “ensure healthy lives and promote well-being for all at all ages”, while goal 6 stipulates that, “ensure availability and sustainable management of water and sanitation for all” (GDI, 2015).

Akter and Ali (2013) concluded that, many individuals do engage in negative practices towards sanitation. Many households with or without latrines still practice open defecation (Attuahene, 2010) while littering and uncollected refuse coupled with disregard for hygiene practices characterize many markets in Ghana (Quartey – Ankrah, 2011). Worlanyo (2013) added that, some market sellers rarely give credence to their immediate environment before deciding on where to cite their wares. In addition, many individuals are unaware of how these negative practices towards sanitation fuel the transmission of diseases which affect their health (Vivas *et al.*, 2010).

Furthermore, Momoh and Oladebeye (2010) and Puopiel (2010) concluded that, open dumping was the most preferred waste disposal option in West Africa especially among low income neighborhoods and slum areas. Quartey - Ankrah (2013) also concluded that, 40% of waste generators resorted to open dumping in and around the Kaneshie market. Although, market authorities at the markets believed in enforcement of the law and the prosecution of offenders as an effective means of improving sanitation, Johannessen and Boyer (1999) concluded that, weak enforcement structures particularly in developing countries contributes greatly to dumping in the open. Also, the lack of or the inadequacy of policies and regulations are detrimental to better sanitation (Mara *et al.*, 2010).

According to Bell and Russell (2002: 12), “most developing countries have long established laws and formal governmental structures to address their serious environmental problems but few have been successful in alleviating those problems.” The authors further added that planners and policymakers more often than not prefer fines and bans among others because these are a better guarantee of outcomes though more often than not these strategies have failed to yield their intended results.

Furtherance to the above, Amo (2013) said that, a good number of people resorted to open defecation or defecating in polythene bags in his study of human excreta management in poor peri – urban settlements while Brian et al (2011) concluded that, majority of residents in Kampala were dissatisfied with the low levels of cleanliness at public toilets. Peprah *et al.* (2015) added that, public toilet expenses constitute a significant portion of poor individuals’ income thus could prove prohibitive and spur on open defecation. In spite of all these, Adu –Boahen (2014) reported that only 45% of 600 respondents in Jukwa, central region of Ghana reported that, poor sanitation has consequences for human health.

2.10 Socio- Demographic Characteristics and KAP on sanitation and Health

Several studies have attempted to investigate the statistical relationships between demographic variables and knowledge, attitudes and awareness on one hand (Raudsepp, 2001; Ekere *et al.*, 2009; Addo, 2010; Jamias and Tatlonghar, 2010; Banga, 2011, Awoyemi *et al.*, 2014; Lidetewold, 2015; Mamady, 2016) and between knowledge, attitudes and practices on the other hand (Mbu, 2015).

Jamias and Tatlongahar (2010) concluded that, although the relationship between age and knowledge was significant, the relationship was inverse. Agwu (2012) concluded that, although respondents aged 25 and below displayed higher knowledge levels regarding environmental sanitation relative to those aged above 25 years, there is no significant

relationship between age and knowledge levels of environmental sanitation. Oladabeye (2010) also concluded that, there is no statistical relationship between age and knowledge of waste management.

In addition, Raudsepp (2001) concluded that, there is a significant relationship between education and awareness of environmental sanitation. Awoyemi (2014) also concluded that, illiteracy and low educational attainment had consequences for individuals' understanding of environmental sanitation issues. However, Banga (2011) found no significant relationship among the two variables. Mamady (2016) also found a significant relationship between marital status of women and their knowledge level of sanitation and hygiene.

Furthermore, Ekere et al. (2009) and Addo (2010) found no significant relationship between age and attitudes towards environmental sanitation while concluded that there is a significant relationship between gender and attitudes towards environmental sanitation thus gender could be a significant factor impacting upon people's attitudes towards environmental sanitation.

With respect to sanitation and health practices, Addo (2015) found that there was a significant relationship between education and waste separation at source. There was a similar relationship between education and participation in cleaning exercises. Similarly, the practice of waste separation at source by residents of Luguna, Philippines highly correlated with their awareness of the practice (Jamias & Tatlonghar, 2010). However, Addo (2015) found no significant relationship between educational level and practices related to environmental sanitation.

In addition, Fobil (2001) and Raudsepp (2001) found that, women are more likely than men to engage in favourable environmental practices. However, with respect to age and

the practice of waste separation at source, Addo (2015) found no significant relationship between although there was a positive correlation between the two variables.

2.11 Gaps in the literature

This section presents a summary of the gaps in literature concerning the issues under study. To begin with, there is limited literature on sanitation in the Sub-Saharan context. These studies have also failed to explain the different levels to success among Sub-Saharan countries and among rural and urban areas with respect to Sanitation (Arimah, 2005; Hopewell & Graham, 2014; Pullan *et al.*, 2014, Salami *et al.*, 2014; Munamati, Nhapi, & Misi, 2016).

Furthermore, markets in Ghana have been the focus of limited sanitation studies (Quartey – Ankrah, 2011; Worlanyo, 2013). These few studies have looked at the knowledge, attitudes and practices of market users towards sanitation. None of the studies on the Ghanaian context have focused on sanitation and health.

Chapter Summary

The chapter two of the study presented the literature review of the work in relation to what has already been researched with respect to the phenomenon under study. The chapter also presented the relevant models and theories. The conceptual framework that guided the study and also established the study's boundary was presented. The chapter ended by enumerating some of the gaps identified in extant literature. The next chapter presents the methodology that guided the study.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section describes the methodology that was employed in the study. It begins with a description of the research design and proceeds to the study variables of the research. The research population, inclusion and exclusion criteria are also discussed. The sample size and techniques, the instrumentation and data collection procedure as well as analysis are also presented. The section ends with the ethical considerations of the study.

3.2 Research Design

To achieve the objectives of the research study, the mixed method approach comprising of the quantitative and qualitative approaches was adopted. According to Brannen (2005, p.4), “Mixed method research means adopting a research strategy employing more than one type of research method. The methods may be a mix of qualitative and quantitative methods, a mix of quantitative methods or a mix of qualitative methods... mixed methods research also means working with different types of data.”

The mixed method approach is believed to deliver rich and unbiased results (Teddlie & Tashakkori, 2009) as well attain high internal and external validity and reliability (Perone & Tucker, 2003).

The mixed methods approach provides strengths that offset the weaknesses inherent in either the quantitative or qualitative approaches. The approach also provides the opportunity for corroboration and triangulation of data (Creswell & Plano - Clark, 2011).

According to Creswell (2014, p. 265), a quantitative study, “is a means for testing objective theories by examining the relationship among variables. These variables can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures”. The goal of quantitative research is to quantify data and generalize. This approach helps detach the researcher from the study thus eliminating bias (Sarantakos, 1998). In this research, variables such as knowledge, attitudes and practices of sanitation and health were measured. This study was a non – experimental approach as there was no manipulation of the independent variables.

Qualitative study on the other hand involves, “a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures; collecting data in the participants' setting; analyzing the data inductively, building from particulars to general themes; and making interpretations of the meaning of the data” (Creswell, 2009; p. 231). The main goal of qualitative studies is to understand by observing and analyzing the actions, words and records of individuals. The patterns of the meanings from the observations are then presented in the participants’ own words. Qualitative studies measure how participants make sense of their lives, describe their involvements and structure their social world (Creswell, 2014). This research was directed to participants’ thought and understanding regarding the impact of sanitation on health.

3.3 Study location

The Ashiedu Keteke sub-metro is bordered on the south by the Gulf of Guinea, the west by the Korle Lagoon, moving northwards to hit the Graphic Road and then turning to the right along the Graphic Road to the Cocoa Marketing Board (CMB) area and further eastwards along the road in front of the Motor Traffic and Transport Unit (MTTU) of the Ghana Police Service, the Kinbu School and then moving southwards along the road in

front of the Rex Cinema through the Kwame Nkrumah Mausoleum to meet the Gulf of Guinea again. The Sub metro has a population of about 88,000 and a floating population of around 200,000. Women, children and youth account for over 60% of the population (GSS, 2010).

Many structures and settlements in the sub metro are either unplanned or unstructured thus there are incidences of poor sanitation, inadequate drainage systems, pollution and inadequate water supply. There are also high levels of poverty (GNA, 28th January, 2017).

3.4 Study Population

According to Twumasi (2001), a study population is the universal set of all respondents or members that contain the characteristics of interest. The population of the study consisted of market users in Agbogbloshie in the Accra Metropolitan Assembly (AMA). Market users involve both buyers and sellers. Buyers refer to those individuals who visit the market to make various purchases while the Sellers refers to the various traders at the market such as foodstuff sellers, restaurant and chop bar operators, butchers, livestock vendors among others. Staff at the Ashiedu Keteke sub metro were included in the study's population.

3.4.1 Inclusion criteria

Only market users who were 18 years and above were part of the study. Market users include only market sellers and buyers. Officials of the Accra Metropolitan Assembly whose duties are related to sanitation and health at the Agbogbloshie were also included.

3.4.2 Exclusion criteria

Individuals who are neither sellers nor buyers such as Drivers of delivery trucks were not part of the study.

3.5 Study variables

The section presents the variables of the study.

Dependent Variable

Sanitation and health Practices - refer to the manner in which participants act toward sanitation and health based on their knowledge and attitudes.

Independent Variables:

- Socio-demographic characteristics – refers to the social and demographic characteristics of the research participants such as age, sex, marital status et cetera.
- Knowledge of sanitation and health – refers to the participants' understanding and awareness of various sanitation and health issues
- Attitudes toward sanitation and health – refers to sanitation and health actions by market users and the belief that these actions can have consequences for their health.

3.6 Sample Size and Sample Size Determination

The sample size for the research was four hundred and fifteen (415) market users at the Agbogloboshie market and officials of the AMA. There were three hundred and eighty four (384) participants for the quantitative study while thirty one (31) for the qualitative study.

The sample size was computed using Cochran formula:

$$n = \frac{z^2 pq}{d^2}$$

Where:

$z = 1.96$ is the critical value at 95% confidence level

P = Proportion of the population experiencing poor sanitation (assumed to be fifty percent)

d = confidence level 95% that is the margin of error allowed around P .

$q = 1 - P$ thus $1 - 0.5 = 0.5$

$$n = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384$$

Green and Thorogood (2009) and Mason (2010) argued that, beyond 20 interviews nothing new comes as saturation would be attained. Moreover, previous studies such as Addo (2014) interviewed 5 market queens and two officials in her study of environmental sanitation at the Takoradi market circle while Quartey – Ankrah (2011) conducted 5 interviews among officials in her study of the kaneshie market. In view of the above, 26 market sellers and 5 officials of the assembly were interviewed. In addition, previous studies such as Quartey - Ankrah, 2011, Worlanyo, 2013 and others have reported no non-response rates thus this study made no allocation for non-responses.

Thus, $384 + 26 + 5 = 415$

3.6.1 Sampling Technique

The study employed two sampling techniques: the simple random technique for the quantitative study while the purposive sampling technique was applied to the qualitative study.

Simple Random sampling

The simple random technique involves selecting participants randomly giving all members of the population an equal chance of being selected. With this sampling technique, 26 market sellers were randomly selected picking every 10th seller to participate in the study while every other market buyer that patronized the market seller at the time of the study were chosen to participate in the study. The 384 buyer respondents were distributed among the 26 seller respondents in the study thus for each seller 15 buyers that patronized that particular seller was drawn into the study.

Purposive sampling

Purposive sampling is a form of non-probability sampling in which decisions concerning the individuals to be included in the sample are taken by the researcher, based upon a variety of criteria which may include specialist knowledge of the research issue, or capacity and willingness to participate in the research (Palys, 2008). Using this technique, thirty one individuals believed to represent the broad spectrum of the phenomenon under study were drawn into the study. In all, twenty six market sellers and five staff of the AMA were interviewed. Two of the staff belonged to the Waste Management Unit, while the other three were all field officers at the Environmental Health Department of the AMA.

3.7 Data collection procedure

The main data collection tools used for the study were questionnaires and face to face interviews.

3.7.1 Quantitative Data Collection

Questionnaires were employed to collect primary quantitative data from respondents of the study. The questionnaire was designed to measure the three objectives in addition to socio – demographic characteristics of the respondents. The questionnaire had four main sections as presented below:

- **Section A: Socio-demographic characteristics**

These included age, sex, educational background etc.

- **Section B: Knowledge of sanitation and health:** The overall knowledge of sanitation on health was measured on 11 questions. The correct response for each question was assigned ‘1’ mark and an incorrect response was assigned ‘0’ mark.

The scores were added up to give the total marks scored by respondents on

knowledge of sanitation on health. Respondents who scored 8 and above, were classified as having high knowledge, while those with moderate knowledge scored between 5 and 7 marks. Those with scores less than 5 were classified as having a low knowledge.

- **Section C: Attitude toward sanitation:** The overall attitudes of sanitation and health were measured on 7 questions. The correct response for each question was assigned '1' mark and an incorrect response was assigned '0' mark. The scores were added up to give the total marks scored by respondents on attitudes toward sanitation and health. Respondents, who scored above 6, were classified as having high attitudes, while those with moderate attitudes scored between 5 and 6 marks. Those with scores less than 5 were classified as having a low attitude.
- **Section D: Sanitation and health practices:** The overall practice of sanitation and health was measured on 5 questions. The correct response for each question was assigned '1' mark and an incorrect response was assigned '0' mark. The scores were added up to give the total marks scored by respondents on practice of sanitation on health. Respondents who scored 4 and above, were classified as engaging in good sanitation and health practices. Those with scores less than 3 were classified as having poor practices while respondents who scored 3 were deemed moderate.

The questionnaires comprised of both open ended and close ended questions. The questionnaires were interviewer administered. Although, this format was costly and time consuming, it offered the researcher the opportunity to clarify any misunderstanding the participants had. Additionally, it enabled the researcher to deal with both literates and illiterates as the recording was done by the researcher and research assistants. The exercise

was conducted with the help of three research assistants who were trained prior to the data collection exercise. The data collection exercise lasted three weeks.

3.7.2 Qualitative Data Collection

The participants for the qualitative study included both market users and officials of the AMA. Five (5) staff members of the AMA were interviewed. Twenty-six (26) market sellers were interviewed.

With respect to the qualitative data collection, face-to-face semi structured interviews were conducted. Interview is a conversation whereby the researcher asks questions and listens to responses from participants (Rubin & Rubin, 2005). Gill *et al.* (2008) contend that, semi structured interviews involve key questions concerning the areas to be explored by the researcher but also allows divergence by either the interviewer or interviewee in order to obtain an emerging idea. This approach encourages discovery and exploration of ideas or themes that may not have been thought of by the researcher. The semi-structured interviews also sought to answer the three research questions hitherto presented. The market sellers were selected with the simple random technique while the purposive sampling technique was applied in the selection of the AMA officials. The interviews were conducted at the interviewees own convenience. For the AMA officials, interviews were conducted at their offices. For the market sellers, interviews were conducted where they sell their wares. The interviews were recorded both in writing and with a voice recorder.

3.9 Data Analysis

The data analysis procedure that was employed in the study is presented below.

3.9.1 Quantitative Data Analysis

The data obtained from the field was checked for consistency and accuracy before real analysis was done. The quantitative data was analyzed using the STATA version 14. The rhetoric of the analysis was descriptive statistics, frequencies and percentages with the sole aim of answering the research questions. Furthermore, statistical analyses of correlation among the variables under study were conducted. A p value ≤ 0.05 (α value) was deemed to be statistically significant using the Pearson correlation method.

3.9.2 Qualitative Data Analysis

The qualitative data gathered from the interviews were first transcribed from the audio recordings with the help of three trained research assistants. The method of analysis for the qualitative data was that of thematic analysis. The framework of the thematic analysis was the approach espoused by Braun and Clarke (2013). The approach involves six procedures

1. **Familiarization with the data** - At the familiarization stage, the researcher immersed himself in the data by listening to the recorded tapes as well as reviewing transcripts. This exercise exposed the researcher to key ideas.
2. **Generating initial codes** - at this stage the researcher identified preliminary codes which are numerous but gave an indication of the context of the data.
3. **Searching for themes** – the researcher combined and split some of the codes under emerging themes.
4. **Reviewing themes** - at this stage, the themes developed were refined further where some themes were further combined and other themes discarded.
5. **Naming and defining themes** – the researcher named the themes that actually represented the meaning of the themes in a concise manner.

6. **producing the report** – the researcher put into writing compelling examples that reflect with the themes and the research questions.

Only themes that answered the research questions were used. The AMA officials were coded with alphabets from letter A to E while the numbers 1 to 26 were used to code seller respondents.

3.9.3 Quality Control

The following actions were taken to ensure the quality of the data collected.

Pre-Test of Data Collection Instrument

In order to guarantee the reliability and validity of the research instrument, the researcher conducted a pre-test of the quantitative instrument on ten (10) market users at the Agboghloshie market.

Review of Questionnaire

The Pre testing of the questionnaire instrument resulted in a review of the data collection instrument employed for the study. Areas that were reviewed included the wording of some of the questions and time preferences. Questions that caused recall problems were also reviewed. Finally, the layout and more importantly the sequencing of the questions were also reviewed.

Training of Research Assistants

Three research assistants were recruited for the study.

The research assistants employed to assist in gathering the data were literates who do similar jobs but were further trained to obtain the expected results. The training of the research assistants involved the handling of human subjects and were trained together.

3.10 Ethical Consideration

Ethical considerations are a vital component of academic research that must be taken seriously. In carrying this research, high ethical standards were adhered to and the ethical protocols that guided the research are presented below.

Ethical Clearance

Although the study was not conducted on a health facility, ethical clearance was still sought from the Ghana Health Service Ethics Review Committee before data was collected from prospective participants.

Introductory Letter

An introductory letter from School of Public Health was sent to the Management of the Agboghloshie market seeking permission to collect data from the market.

Another Letter was delivered to the AMA also seeking permission to collect data from staff of the assembly.

Consenting Process

Each respondent prior to participating in the study was required to give consent by signing a consent form(See Appendix). All necessary and sufficient information about the study was made bare to participants so as to enable them make informed judgment about their participation in the study. No subject was coerced, intimidated or induced financially to participate in the study.

Potential Risk and Benefits of the study

The research posed no risks or harm to the research participants. The study did not harm participants either physically or psychologically. The research has positive consequences towards improved sanitation which would subsequently impact on health.

Privacy, Confidentiality and Anonymity

Throughout the research, all research participants remained anonymous and all information provided shall remain confidential with the respondent's right to privacy guaranteed. The data was analysed in such a manner that anonymizes all respondents.

Voluntary withdrawal

All research participants had the right to decline participation and also withdraw from the study anytime they so wished. These lines of actions from participants in no way affected their activities at the market place.

Data storage and usage

All participants were assured that, all data collected would be kept by only the Principal researcher. The data collected shall kept secured on hard disks and cloud storage for reference and evidence purposes only..

Compensation

All research participants were in no way compensated for their participation in the study.

Chapter Summary

This chapter described the methodology that was employed in the study. It begun with a description of the research design and proceeded to the study variables of the research. The research population, inclusion and exclusion criteria were also discussed. The sample size and techniques were also presented. The instrumentation and data collection procedure as well as analysis were also contained in this chapter. The chapter ended with the ethical considerations of the research. The next chapter presents the findings of the research.



CHAPTER FOUR

RESULTS OF THE QUANTITATIVE STUDY

4.0 Introduction

The chapter presents the results and analysis of the quantitative study. The chapter begins with a presentation of the demographic characteristics of the respondents of the study and progresses with the analysis of knowledge, attitudes and practices toward sanitation and health of market users at the Agbogloboshie market.

4.1 Demographic Characteristics of Participants

The study involved 410 participants (as shown in table 4.1a and 4.1b below) of which 384(94%) were buyers while 26 (6%) were market sellers.

Table 4.1a: Demographic Characteristics of Participants

Sex	Buyers		Sellers		Total	
	N	%	N	%	N	%
Male	184	48%	6	23%	190	46%
Female	200	52%	20	77%	220	54%
Age						
18 - 24	48	13%	1	4%	49	12%
25 -34	194	51%	6	23%	200	49%
35 -44	87	23%	12	54%	99	24%
45 and Above	55	14%	7	19%	62	15%
Educational Background						
Primary	187	49%	14	54%	201	49%
Secondary	150	39%	6	23%	156	38%
Tertiary	24	6%	0	0%	24	6%
No Education	23	6%	6	23%	29	7%

Table 4.1b: Demographic Characteristics of Participants

Employment Status						
	Buyers		Sellers		Total	
	N	%	N	%	N	%
Employed	143	37%	26	100%	169	41%
Unemployed	240	63%	0	0%	240	59%
Pensioner	1	0%	0	0%	1	0.2%
Religious Affiliation						
Christian	228	59%	17	65%	245	60%
Muslim	147	38%	9	35%	156	38%
Traditional	4	1%	0	0%	4	1%
Other	5	1%	0	0%	5	1%
Marital Status						
Single	149	39%	9	35%	158	39%
Married	227	59%	16	62%	243	59%
Divorced	5	1%	1	4%	6	1%
Widowed	3	1%	0	0%	3	1%
Buyers			Sellers			
Yrs Of Patronage	N	%	Years Of Selling	N	%	
< 1 Year	124	32%	1 -3 Years	17	65%	
1 -3 Years	213	55%	> 3 Years	9	35%	
> 3 Years	47	12%	Total	26		

More than half of the respondents, 220 (54%) were females while, 190 (46%) were males.

All the 26 sellers were females. Respondents aged from 25 to 34 were the most represented with 200 (49%) while those within the ages 35 to 44 (99, 24%), 18 to 24(49, 12%) and above 45 years were 62 (15%).The youngest respondent was 18 years old while the oldest was 61 years old.

With respect to educational background, 201 (49%) respondents had primary education while those with secondary education numbered 156 (38%). Those with tertiary education and no education at all were 24 (6%) and 29 (7%) respectively. Majority of the sellers, 14 (54%) had only primary education while those with secondary and no education at all recorded, 6(23%) each. Furthermore, 169 (41%) respondents were employed while 240 (59%) were unemployed with 1(0.2%) respondent being a pensioner. All the Sellers were employed albeit in the informal sector.

Christians were the most represented with 245 (60%) followed by Muslims with 156 (38%) while traditionalists and other religious affiliations accounted for 4(1%) and 5(1%). Approximately, 243 (59%) were married while 158 (39%), 6(1%) and 3(1%) are single, divorced and widowed respectively.

Approximately, 124 (30%) respondents who were buyers had been patronizing the Agbogbloshie market for less than a year while 213 (51%) had been doing so between 1 and 3 years. In addition, 47 (11%) of the buyers had been patronizing the market for over 3 years.

Additionally, 17 (4%) sellers had been doing business at the market between 1 and three years while the remaining 9 (2%) reported trading at the market for over three years.

4.2 Knowledge of Sanitation on Health

This section presents results relating to the indicators/questions used to ascertain respondents' knowledge of the influence of sanitation on health. The questions and corresponding responses are presented in the tables.

4.2.1. Paper, plastics, wood, Cloth and Glass are all garbage

To begin with, respondents were asked whether they considered paper, plastics, wood, cloth and glass as garbage, which therefore, should be disposed. Whereas 270 (70%) of buyer respondents answered 'yes', 17 (65%) of the seller respondents answered 'no' to the question. In all, 287 (70%) market users answered 'yes' to the statement that paper, plastics, wood, cloth and glass were all garbage while 123 (30%) answered otherwise. The results are shown in table 4.2.

Table 4. 2: Paper, plastics, wood, Cloth and Glass are all garbage

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
WASTE	270	70%	17	65%	287	70%
NOT WASTE	114	30%	9	35%	123	30%
TOTAL	384	100%	26	100%	410	100%

4.2.2. Glass and Plastics do decompose easily

An overwhelming majority of buyer respondents, 320 (83%) and 14 (54%) of sellers respondents answered ‘yes’ to the statement that, glass and plastics decompose easily while 64 (17%) of buyers respondents and 12 (46%) of sellers respondents disagreed with that assertion. Overall, 334 (81%) answered yes to the statement while 76 (19%) disagreed. The results are presented in table 4.3.

Table 4. 3: Glass and Plastics do decompose easily

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
DECOMPOSE	320	83%	14	54%	334	81%
DON'T DECOMPOSE	64	17%	12	46%	76	19%
TOTAL	384	100%	26	100%	410	100%

4.2.3. Food, vegetables and fruits do decompose naturally

When respondents were asked whether waste vegetables, fruits and other food stuffs generated in the market decompose naturally, 320 (83%) of buyer respondents and 20(77%) of seller respondents agreed while 64(17%) of buyer respondents and 6(23%) of seller respondents disagreed. Thus, majority of market users, 340 (83%) agreed with the statement while the remaining 70 (17%) disagreed that, vegetables, fruits and other food stuffs decompose naturally. The results are indicated in table 4.4 .

Table 4. 4: Food, vegetables and fruits do decompose naturally

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
DECOMPOSE	320	83%	20	77%	340	83%
DON'T DECOMPOSE	64	17%	6	23%	70	17%
TOTAL	384	100%	26	1	410	1

4.2.4. Disposal of Plastics by Burning

Furthermore, When respondents were asked whether the common practice of burning plastics and glass was the best way of disposing them, 215 (56%) of buyer respondents and 19 (73%) of seller respondents agreed while 169 (44%) of buyer respondents and 7 (27%) of seller respondents disagreed. In all, 234 (57%) market users responded in the affirmative while the remaining 176 (43%) disagreed with the assertion. The results are shown in table 4.5.

Table 4. 5: Disposal of Plastics by Burning

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
BEST WAY	215	56%	19	73%	234	57%
NOT THE BEST	169	44%	7	27%	176	43%
TOTAL	384	100%	26	100%	410	100%

4.2.5. Reuse of plastics and Glass

Market users were also asked to indicate whether the reuse of glass and plastics contributes to improved sanitation. Approximately, 340 (89%) of buyer respondents and 18 (69%) of seller respondents agreed that, the reuse of plastics and glass contributes to improved sanitation while 44 (11%) of buyer respondents and 8 (31%) of seller respondents disagreed. In all, , 334 (87%) answered ‘yes’ to the statement that, the reuse of plastics and glass does lead to improved sanitation at the Agboghloshie market while 52 (13%) did not see how the reuse of glass and plastic contributed to better environmental sanitation. The results are indicated in table 4.6 .

Table 4. 6: Reuse of plastics and Glass

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
CONTRIBUTE	340	89%	18	69%	358	87%
DON'TCONTRIBUTE	44	11%	8	31%	52	13%
TOTAL	384	100%	26	100%	410	100%

4.2.6. Waste products choke gutters and lead to flooding

In relation to this statement, an overwhelming majority of buyer respondents (380, 99%) and seller respondents (26, 100%) agreed that waste does choke gutters and lead to flooding while 4(1%) buyer respondents disagreed. Majority of respondents 406 (99%) agreed that detritus does choke gutters and contribute to flooding while 4 (1%) respondents disagreed with the fact that garbage in the gutters contributes to flooding at the market place. All these 4 respondents who disagreed with the statement were buyers. The results are displayed in table 4.7.

Table 4. 7: Waste products choke gutters and lead to flooding

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
CONTRIBUTE	380	99%	26	100%	406	99%
DON'T CONTRIBUTE	4	1%	0	0%	4	1%
TOTAL	384	1	26	1	410	1

4.2.7. The use of Polythene bags is a good idea

The Agbogbloshie market users were also asked whether the use of polythene bags was a desirable thing. Half of seller respondents 13 (50%) and buyer respondents 209 (54%) agreed with the assertion while 175 (46%) buyer respondents and 13 (50%) of seller respondents disagreed. In all, 222 (54%) respondents agreed that, it was desirable to use polythene bags while the remaining respondents, 188 (46%) disagreed with this assertion. The results are demonstrated in table 4.8.

Table 4. 8: The use of Polythene bags is a good idea

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
DESIRABLE	209	54%	13	50%	222	54%
NOT DESIRABLE	175	46%	13	50%	188	46%
TOTAL	384	100%	26	100%	410	100%

4.2.8. Have you ever heard of segregation of waste?

Respondents were further asked if they had heard of segregation of waste, which is a crucial first step to recycling. Whilst 301 (78%) buyer respondents and 19 (73%) seller respondents reported ‘no’ to have heard of that concept 83 (22%) buyer respondents and 7 (27%) seller respondents claimed to have heard of the idea of segregating waste. In all, 90 (22%) answered ‘yes’ to having heard of the concept of waste segregation while the majority 320 (78%) stated otherwise. The results are shown in table 4.9.

Table 4. 9: Have you ever heard of segregation of waste?

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
HEARD	83	22%	7	27%	90	22%
NEVER	301	78%	19	73%	320	78%
TOTAL	384	100%	26	1	410	1

4.2.9. Open Defecation is a good thing

Respondents were further queried on their thoughts about open defecation. Majority of buyer respondents (375, 98%) and seller respondents (26, 100%) disagreed that open defecation is a good thing while 9 (2%) of buyers respondents disagreed. In all, 401 (98%) respondents reported that, open defecation is never a good thing while 9 (2%) did agree with the assertion that, open defecation in and around the Agboglobshie market is indeed good. The results are depicted in table 4.10.

Table 4. 10: Open Defecation is a good thing

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
GOOD THING	9	2%	0	0%	9	2%
NOT GOOD	375	98%	26	100%	401	98%
TOTAL	384	100%	26	1	410	1

4.2.10. Knowledge of Sanitation Laws and Policies

Respondents were also asked about their knowledge of sanitation policies and bye laws that govern the Agboghloshie market. Approximately, 206 (50.2%) respondents reported that, they had knowledge of the sanitation laws and policies governing the market while 204 (49.8%) respondents claimed to have no knowledge of such laws and policies. All the market sellers that participated in the research reported to have knowledge of the sanitation laws and policies. The results are shown in table 4.11.

Table 4. 11: Knowledge of Sanitation Laws and Policies

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
KNOWLEDGEABLE	180	47%	26	100%	206	50.24%
NOT KNOWLEDGEABLE	204	53%	0	0%	204	49.76%
TOTAL	384	100%	26	100%	410	100%

4.2.11. Sanitation Laws and Policies

Sequel to the above, respondents who claimed to know about the sanitation laws and policies were asked to enumerate some of the laws and policies. Indiscriminate disposal of waste was mentioned on 147 occasions while National Sanitation Day came up 98 times. Other laws and policies provided by the respondents include do not urinate here, no open defecation and post no bill, which were provided on 53, 17 and 11 times respectively. The results are indicated in table 4.12.

Table 4. 12: Sanitation Laws and Policies

RESPONSES	NUMBER	PERCENTAGE
Do not urinate here	53	16%
Indiscriminate disposal of waste	147	45%
No open defecation	17	5%
Post no bill	11	3%
National Sanitation Day	98	30%

4.2.12. Education on Sanitation

Lastly, respondents were asked to indicate whether they had received any form of education with respect to maintaining proper sanitation at the Agbogbloshie market. About 108 (28%) buyer respondents reported to have received some form of education while 276 (72%) received no education regarding sanitation. All Seller respondents reported to have received some form of education with respect to sanitation and health at the Agbogbloshie market. In all 134(33%) received some form of education while the majority 276(67%) received no form of education. The results are displayed in table 4.13

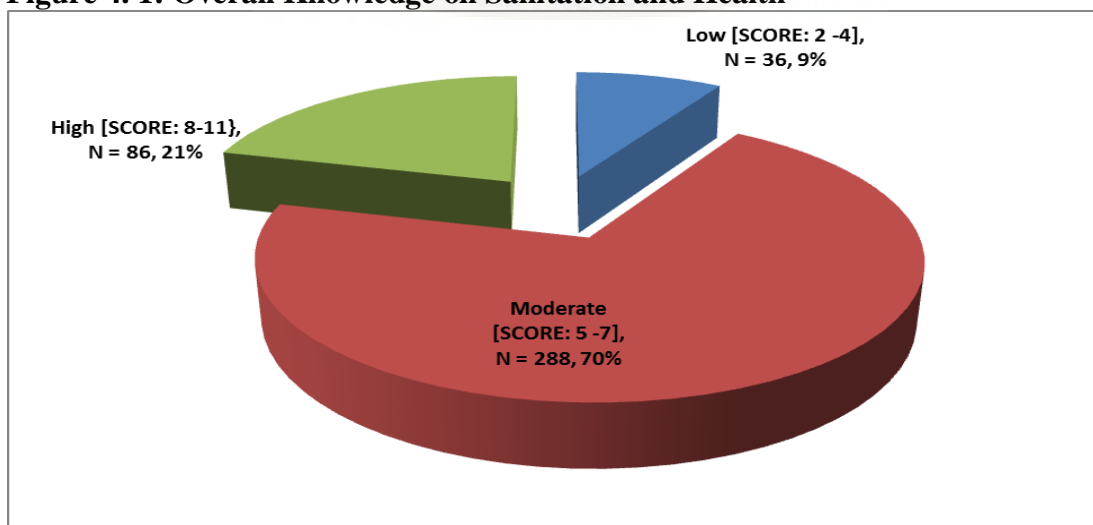
Table 4. 13: Education on Sanitation

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
EDUCATION	108	28%	26	100%	134	33%
NO EDUCATION	276	72%	0	0%	276	67%
TOTAL	384	100%	26	100%	410	100%

4.2.14 Overall Knowledge of Sanitation and Health

The findings revealed that, 36 (9%) market users exhibited low levels of knowledge regarding sanitation and health while 288(70%) displayed moderate levels of knowledge. In Addition, 86 (21%) respondents displayed high levels of knowledge regarding sanitation and health. The results are displayed in Figure 4.1.

Figure 4. 1: Overall Knowledge on Sanitation and Health



4.2.15 Relationship between demographic Characteristics and Knowledge Scores

The results of the above issue have been presented in table 4.14.

Table 4. 14: Relationship between demographic Characteristics and Knowledge Scores

	N	MEAN	SD	P - Value
Type of Respondent				
Buyer	384	6.34	1.49	.215
Seller	26	6.99	1.2	
GENDER				
Male	190	6.33	1.344	.602
Female	220	6.4	1.47	
AGES				
18 – 25	67	5.37	1.358	
26 -35	193	6.83	1.23	0.000
36 – 45	97	6.6	1.178	
Above 45	53	5.45	1.422	
Education				
Primary	201	6.2	1.33	
Secondary	156	6.47	1.287	0.000
Tertiary	24	7.62	1.61	
No Education	29	5.83	1.733	
Occupation				
Employed	169	6.42	1.361	
Unemployed	240	6.32	1.439	.499
Pension	1	5	0	
Marital Status				
Single	158	6.41	1.446	
Married	243	6.39	1.357	0.002
Divorced	6	5	0.894	
Widowed	3	4	1	
Religion				
Christian	245	6.33	1.358	
Muslim	156	6.45	1.456	.462
Traditional	4	5	1.732	
Other	5	6	2	
Length of Selling (Sellers)				
1 -3 Years	16	6.94	1.289	.19
Above 3 Years	10	6.3	0.949	
Length of Patronage (Buyers)				
Less than 1 Year	124	6.5	1.226	
1 - 3 Years	245	6.24	1.507	0.006
Above 3 Years	15	6.67	1.291	

The study findings showed no significant relationship between the respondent type (Buyer or Seller), gender (Male or Female), occupation, religion and the duration of selling at the market with knowledge scores with (**p-value > 0.05**). There were significant relationships between the marital statuses of respondents and knowledge scores as well as how long buyers had been patronizing the Agbogbloshie market and knowledge scores on sanitation and health with (**p-value < 0.05**). In Addition, there was a very strong significant relationship between the age of respondents and knowledge scores on one hand and educational level and knowledge scores on the other hand with (**p-value < 0.001**). The results are displayed in Table 4.15a and 4.15b above.

In conclusion, market users at the Agbogbloshie market demonstrated moderate knowledge regarding sanitation and health with few respondents demonstrating high or low knowledge levels. Furthermore, only a small proportion of market users accurately demonstrated knowledge of any of the sanitation laws and policies governing the Agbogbloshie market. The above is not surprising given the fact that a large proportion of market users reported not receiving any form of education regarding proper sanitation at the market though all sellers reported receiving some form of education. There was a significant relationship between knowledge scores of respondents and marital status, age, educational level and how long buyers had been patronizing the Agbogbloshie market.

4.3 Attitudes toward Sanitation on Health

This section presents results relating to the indicators/questions used to ascertain respondents' attitudes toward sanitation. The questions and their corresponding responses are presented in the tables.

4.3.1. Satisfaction with Sanitation at Agboglobshie Market

To begin with, market users were asked whether they were satisfied with the manner in which sanitation was managed at the Agboglobshie market. All 410 (100%) respondents reported dissatisfaction as to the manner in which sanitation was managed at the Agboglobshie market. The results are displayed in table 4.15

Table 4. 15: Satisfaction with Sanitation at Agboglobshie Market

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
SATISFIED	0	0%	0	0%	0	100%
NOT SATISFIED	384	0%	26	0%	4100	0%
TOTAL	384	100%	26	100%	410	100%

4.3.2 Market Users' Worry toward sanitation

When respondents were asked how worried they were regarding the poor nature of sanitation management at the Agboglobshie market, 384 (100%) of buyer respondents and 26 (100%) of seller respondents said they were worried. The results are displayed in table 4.16

Table 4. 16: Market Users Worriedness towards sanitation

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
WORRIED	384	100%	26	100%	410	100%
NOT WORRIED	0	0%	0	0%	0	0%
TOTAL	384	100%	26	100%	410	100%

4.3.3. Disposal of Garbage in Gutters

Respondents were also asked whether it was normal for garbage to be thrown into gutters and drains when it is raining. Whilst 380 (99%) buyer respondents and 26 (100%) seller respondents reported 'no' / not normal to this assertion, 4 (1%) buyer respondents answered 'yes' / normal. In all, only 4 (1%) respondents claimed that garbage thrown into gutters when raining was a normal practice while the majority 406 (99%) answered in the negative. The results are displayed in table 4.17

Table 4. 17: Disposal of Garbage in Gutters

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
NORMAL	4	1%	0	0%	4	1%
NOT NORMAL	380	99%	26	100%	406	99%
TOTAL	384	100%	26	100%	410	100%

4.3.4. Satisfaction with disposal of Waste by other Market Users

Respondents were also asked whether they were satisfied with the manner in which other market users disposed of the waste they generated. Findings indicate that, 151(39%) buyer respondents were satisfied with the manner in which other market users disposed of their waste. All seller respondents 26 (100%) and 233(61%) buyer respondents were dissatisfied as to how other market users disposed of their waste generated at the Agboglobshie market. In all, 151(37%) respondents reported to be satisfied with the manner in which other market users disposed of their waste while the remaining 233 (63%) were not satisfied with their fellow market users' when it comes to disposing of waste generated. The results are displayed in table 4.18

Table 4. 18: Satisfaction with disposal of Waste by other Market Users

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
SATISFIED	151	39%	0	0%	151	37%
NOT SATISFIED	233	61%	26	100%	259	63%
TOTAL	384	100%	26	100%	410	100%

4.3.5 Attitude towards Sanitation Offenders

Respondents were further asked whether they did confront other market users who engaged in bad sanitation practices. A minority of buyer respondents 50(13%) and seller respondents 8(31%) claimed that, they did confront sanitation offenders while 334(87%) of buyer respondents and 18(69%) of seller respondents reported not to have taken this line of action. In all, the majority of market users 352 (86%) reported that, they never confronted other market users who engaged in bad sanitation practices while only 52

(14%) reported to have approached and tried to correct sanitation offenders. The results are displayed in table 4.19

Table 4. 19: Attitude towards Sanitation Offenders

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
CONFRONT	50	13%	8	31%	58	14%
DON'T CONFRONT	334	87%	18	69%	352	86%
TOTAL	384	100%	26	100%	410	100%

4.3.6 Responsibility for Sanitation

Furthermore, respondents were asked whom they believed was responsible for sanitation at the Agbogbloshie market. Respondents mentioned the central government on 273 (49%) occasions while the Accra Metropolitan Assembly was deemed responsible for sanitation at the Agbogbloshie market on 148 (27%) occasions. Market Officials came up on 107 (19%) times while on 27 (5%) occasions respondents believed that sanitation at the market was a collective responsibility. The results are displayed in table 4.20

Table 4. 20: Responsibility for Sanitation

RESPONSES	FREQUENCY	%
Government	273	49%
Local Assembly (A.M.A)	148	27%
Market Officials	107	19%
Collective Responsibility	27	5%

4.3.6 Who Should Pay for Sanitation

Furtherance to the above, when respondents were asked whom they believed ought to pay for sanitation at the Agbogbloshie market, again the central government was mentioned on 276(54%) occasions followed by the Accra Metropolitan Assembly 194 (38%) and Market Sellers 43(8%). The results are displayed in table 4.21

Table 4. 21: Who Should Pay for Sanitation

RESPONSES	FREQUENCY	%
Government	276	54%
Local Assembly (A.M.A)	194	38%
Market Sellers	43	8%

Additionally, none of the respondents who hitherto reported that, sanitation was a collective responsibility believed that the payment for sanitation services should followed that pattern.

Market sellers believed that they paid for sanitation in the Agboghloshie market since they paid market tolls to the Accra Metropolitan Assembly. This assertion from the market sellers was supported by interview responses from the officials.

4.3.7 Comfortability with Public Toilets

Furthermore, respondents were asked whether they felt comfortable when using the public toilets. Again, a minority of buyers respondents 93 (24%) and seller respondents 1 (4%) reported being comfortable when utilizing the public toilet facilities provided at the Agboghloshie market while the majority of buyer respondents 291 (76%) and seller respondents 25 (96%) were not comfortable using the public toilet. In all, 94 (23%) market users were comfortable using the public toilets at the Agboghloshie market while the majority 316 (77%) reported that, they were not comfortable using the public toilets. The results are displayed in table 4.22

Table 4. 22: Comfortable with Public Toilets

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
COMFORTABLE	93	24%	1	4%	94	23%
NOT COMFORTABLE	291	76%	25	96%	316	77%
TOTAL	384	100%	26	100%	410	100%

4.3.8. Convenience of Open Defecation

Persistence to the above, respondents were asked to indicate whether open defecation was more comfortable and convenient relative to the public toilets provided at the Agbogbloshie market. Majority of buyer respondents 323 (64%) and seller respondents 20 (77%) claimed that open defecation was not more convenient relative to the use of public toilets while 61 (16%) buyer respondents and 6 (23%) seller respondents answered ‘yes’ to this assertion. In all, 343 (84%) market users reported that open defecation was not more convenient and comfortable while 67 respondents 16% responded in the affirmative. The results are displayed in table 4.23

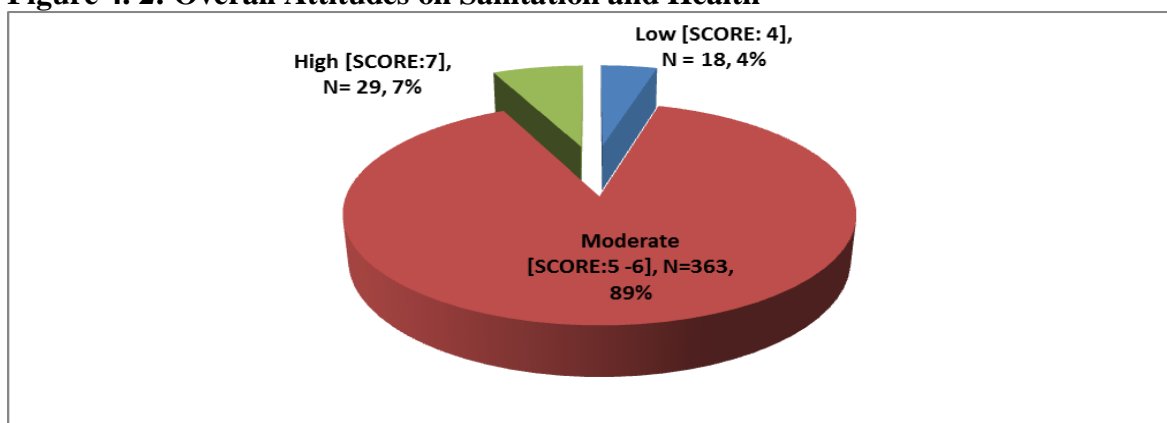
Table 4. 23: Convenience of Open Defecation

RESPONSE	BUYERS	%	SELLERS	%	TOTAL	%
CONVENIENT	61	16%	6	23%	67	16%
NOT CONVENIENT	323	84%	20	77%	343	84%
TOTAL	384	100%	26	100%	410	100%

4.3.9 Overall Attitudes on Sanitation and Health

The findings revealed that, 18 (4%) market users exhibited low levels of attitudes regarding sanitation and health while 363(89%) displayed moderate levels of knowledge. In addition, 29 (7%) respondents displayed high levels of knowledge regarding sanitation and health. The results are displayed in Figure 4.2.

Figure 4. 2: Overall Attitudes on Sanitation and Health



The above objective sought to measure Agboglobshie market users' attitudes toward sanitation and health. Questionnaire responses indicated that Agboglobshie market users did not exhibit proper attitudes towards sanitation. Although, market users indicated that, they were appalled by the manner in which other users disposed of their waste, majority of the market users stopped short of confronting these sanitation offenders to correct them. Furthermore, majority of market users did not believe in the fact that sanitation was a collective responsibility and held the belief that government and the AMA should be responsible for sanitation management. Though many market users were not comfortable using public toilets, they did not believe open defecation was a better option. Moreover, responses from the officials appear to indicate a lax attitude towards the management of sanitation (see interview responses).

4.3.10 Relationship between Demographic Characteristics and Attitudes Scores

The study findings showed no significant relationship between attitude scores and education, occupation, religion, marital status, length of patronizing the market and length of selling at the market with a **p-value ($p > 0.05$)**. Furthermore, there was a significant relationship between attitudes scores and age of respondents with a **p-value ($p < 0.05$)** while there were very strong significant relationship between attitude scores and respondent type and sex with a **p-value ($p < 0.001$)**. The results are presented in Table 4.24

Table 4. 24: Relationship between Demographic Characteristics and Attitudes Scores

	N	MEAN	SD	Significance
Type of Respondent				
Buyer		3.09	0.378	0.000
Seller		2.73	0.452	
SEX				
Male	190	3.03	0.438	.027
Female	220	3.11	0.334	
AGES				
18 - 24	49	3.51	0.54	0.000
25 -34	200	3.08	0.35	
35 - 44	99	2.92		
45 and Above	62	2.92		
Education				
Primary	201	3.05	0.39	0.036
Secondary	156	3.12	0.359	
Tertiary	24	3.12	0.338	
No Education	29	2.9	0.557	
Occupation				
Employed	169	3.09	0.453	.581
Unemployed	240	3.05	0.344	
Pension	1	3	0	
Marital Status				
Single	158	3.15	0.463	0.012
Married	243	3.03	0.333	
Divorced	6	2.83	0.408	
Widowed	3	3	0	
Religion				
Christian	245	3.05	0.364	.613
Muslim	156	3.1	0.443	
Traditional	4	3	0	
Other	5	3	0	
Length of Selling (Sellers)				
1 -3 Years	16	2.75	0.447	.79
Above 3 Years	10	6.1	0.483	
Length of Patronage (Buyers)				
Less than 1 Year	124	3.07	0.365	.159
1 - 3 Years	245	3.11	0.384	
Above 3 Years	15	3	0.378	

4.3.7: Relationship between demographic Characteristics and Sanitation and Health Practices Scores

The above objective sought to investigate market users' attitudes towards sanitation and health. Similar to knowledge scores, a majority of market users displayed moderate attitudes towards sanitation and health with a minority of users displaying better or poor attitudes towards sanitation and health. As much as market users were concerned and worried about the poor nature of sanitation at the Agboghloshie market, open dumping was widely practiced while the majority of market users did not allude to the fact that sanitation is a collective responsibility. Although most market users were not comfortable with the public toilets, they did not believe that open defecation was the answer. In addition, there were significant relationships between attitude scores and respondents' type, age and sex.

4.4 Sanitation and Health Practices

This section presents results relating to the indicators/questions used to investigate respondents' understanding of sanitation and health practices. The questions and corresponding responses are presented in the tables.

4.4.1. Influence of Environment on Purchasing Decisions

Buyers were asked whether they gave credence to their immediate environment before making purchases from sellers. Only 41 (11%) of the buyers claimed that, sanitary conditions influenced their purchasing decisions while the majority, 343 (89%) of buyers reported that their immediate environment had no effect on their purchase decisions. The results are displayed in table 4.25.

Table 4. 25 Influence of Environment on Purchasing Decisions

RESPONSE	FREQUENCY	PERCENTAGE
CREDESCENCE	41	11%
NO CREDESCENCE	343	89%
TOTAL	384	100%

4.4.2. Sellers' concern about their environment before Operations

Market sellers were also asked whether they gave credence to the environment before they start operating their businesses. Additionally, majority of the sellers 18 (69%) claimed that they did not give consideration to the environment before operating while 8 (31%) of the sellers claimed that they considered the environment before they operated. The results are displayed in table 4.26

Table 4. 26: Sellers' concern to the Environment before Operating

RESPONSE	FREQUENCY	PERCENTAGE
CREDESCENCE	8	31%
NO CREDESCENCE	18	69%
TOTAL	26	100%

4.4.3. Method of Disposing Waste

Furtherance to the above, respondents were asked how they disposed of their waste at the Agboglobshie market. Open dumping was the most preferred option with 231(53%) responses followed by designated rubbish containers provided by the waste management companies with 187 (43%) responses. Other respondents reported taking their waste home (8, 2%) while 12 (3%) respondents claimed that they left their wastes at the vicinity of the seller. The results are displayed in table 4.27

Table 4. 27: Method of Disposing Waste

RESPONSES	FREQUENCY	%
Leave at the vicinity of the Seller	12	3%
Take the rubbish home	8	2%
Rubbish Containers	187	43%
Open dumping	231	53%

4.4.4 Waste Separation at Source

Respondents were further asked whether they segregated their waste or not. All respondents 410 (100%) claimed that they did not separate their waste. This practice of not separating waste was a poor one that could be attributed to lack of knowledge as mentioned earlier. The results are displayed in table 4.28

Table 4. 28: Waste Separation at Source

RESPONSE	BUYERS	PERCENTAGE	SELLERS	PERCENTAGE	TOTAL	PERCENTAGE
WASTE	0	0%	0	0%	0	0%
NOT WASTE	384	100%	26	100%	410	100%
TOTAL	384	100%	26	100%	410	100%

4.4.5. Reasons for not Separating Waste

Respondents were asked why they did not separate their waste. Various responses were generated from the respondents. Majority of respondents 320 (55%) claimed that they had no reason while those who claimed that no provision had been made for it recorded the highest, 214 (37%). In addition, 24 (4%) responses indicated that segregation of waste was not important while another 15 (3%) reported that it was the responsibility of the waste management companies to segregate waste. Very few market users 6 (1%) also pointed to the fact that, segregation of waste was a time consuming activity. The results are displayed in table 4.29

Table 4. 29: Reasons for not Separating Waste

RESPONSES	FREQUENCY	%
No provision for it	214	37%
Time Consuming	6	1%
Responsibility of Waste Mgt. Companies	15	3%
Not Important	24	4%
No Knowledge	320	55%

From the findings above, lack of knowledge regarding the separation of waste was a crucial factor as to why market users did not separate their waste. Also, another crucial factor was the fact that, no provision for waste separation existed anywhere at the Agboglobshie market.

The above statements implied that there was no effective collaboration among the waste management companies coupled with the unavailability of dustbins at Agboglobshie market purposely for the separation of waste.

4.4.6. Patronage of Public Toilets

Respondents were also asked whether they used public toilets at the Agboglobshie market. About 187 (49%) of buyer respondents and 14 (54%) of seller respondents reported using the public toilets at the Agboglobshie market while 197 (51%) of buyers respondents and 12 (46%) of seller respondents answered ‘no’ to this assertion. In all, 201 (49%) of market users claimed that they did use the public toilets when they visited the market while 209 (51%) reported otherwise. The results are displayed in table 4.30

Table 4. 30: Patronage of Public Toilets

RESPONSE	BUYERS	PERCENTAGE	SELLERS	PERCENTAGE	TOTAL	PERCENTAGE
USE	187	49%	14	54%	201	49%
DON'T USE	197	51%	12	46%	209	51%
TOTAL	384	100%	26	100%	410	100%

4.4.7. Practice of Open Defecation

Respondents were also asked if they practiced open defecation in and around the market. The majority of buyer respondents 371 (97%) and seller respondents 20 (77%) answered ‘no’ to this assertion while 13 (3%) of buyer respondents and 6 (13%) of seller respondents claimed to have practiced open defecation in and around the Agboglobshie

market. In all, Only 19 (5%) respondents claimed to have practiced open defecation while 391 (95%) respondents reported otherwise. The results are displayed in table 4.31

Table 4. 31: Practice of Open Defecation

RESPONSE	BUYERS	PERCENTAGE	SELLERS	PERCENTAGE	TOTAL	PERCENTAGE
PRACTICE	13	3%	6	23%	19	5%
DON'T PRACTICE	371	97%	20	77%	391	95%
TOTAL	384	100%	26	100%	410	100%

4.4.8. Belief that poor Sanitation causes Diseases

Respondents were asked if they believed that poor sanitation causes illness and diseases. All 410(100%) respondents responded in the affirmative. The results are displayed in table 4.32

Table 4. 32: Belief that poor Sanitation causes Diseases

RESPONSE	BUYER S	PERCENTAGE	SELLER S	PERCENTAGE	TOTAL	PERCENTAGE
CAUSE ILLNESS & DISEASE	384	100%	26	100%	410	100%
NOT CAUSE ILLNESS 7 DISEASE	0	0%	0	0%	0	0%
TOTAL	384	100%	26	100%	410	100%

4.4.9. Diseases caused by Poor Sanitation

When respondents were asked to name diseases and illness caused by poor sanitation, cholera had a frequency of 300 (42%) mentions, followed by malaria 143 (230%), fever 103 (14%) diarrhea 98 (14%), severe cough 49 (7%), as well as fever and chest pains 27 (4%). The results are displayed in table 4.33

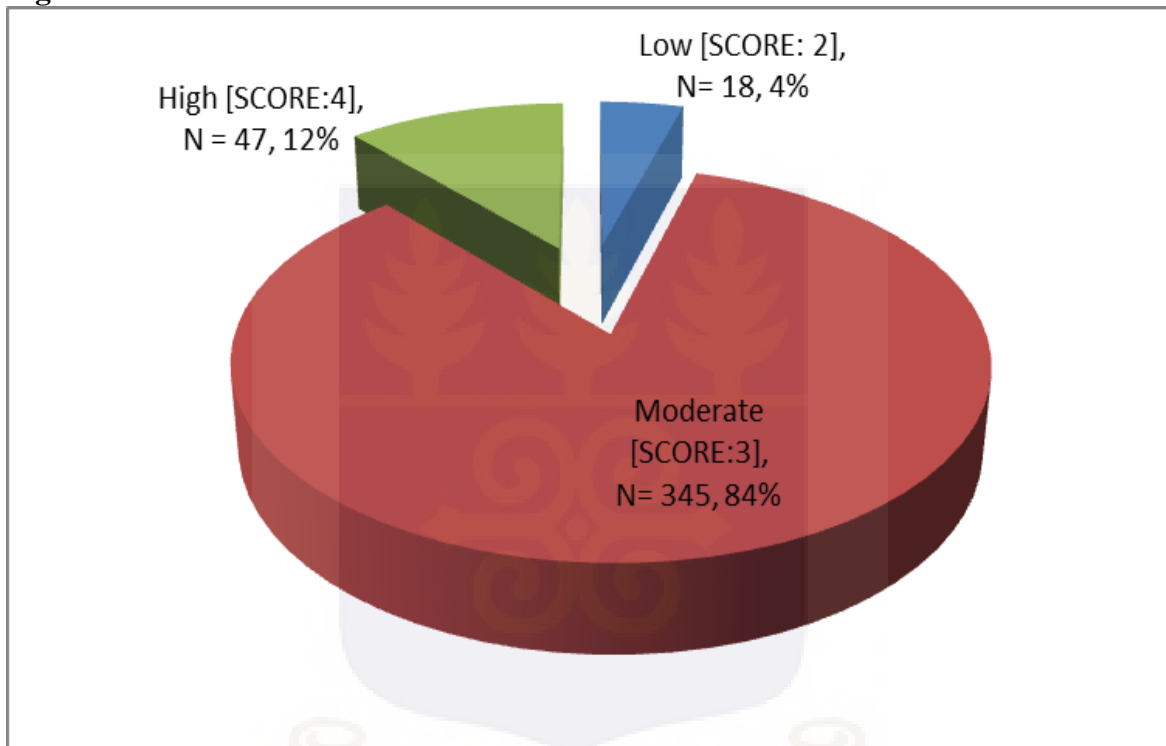
Table 4. 33: Diseases caused by Poor Sanitation

RESPONSES	FREQUENCY	%
Cholera	300	42%
Malaria	143	20%
Diarrhoea	98	14%
Severe Cough	49	7%
Fever	103	14%
Chest Pains	27	4%

4.4.10 Overall Sanitation and Health Practices

The findings revealed that, 18 (4%) market users engaged in poor sanitation and health practices while 345(84%) displayed moderate levels of knowledge. Moreover, 47 (11%) respondents indulged in good sanitation and health practices. The results are displayed in Figure 4.3 below

Figure 4. 3: Overall Sanitation and Health Practices



4.4.11 Relationship between demographic Characteristics and Sanitation and Health Practices Scores

The study findings revealed that, there were no significant relationships between scores on sanitation and health practices and gender, occupation, religion, length of patronizing the market and length of selling at the market with a **p-value** ($p > 0.005$). However, there were significant relationships between scores on sanitation and health practices and educational background and the marital status of respondents. The findings further revealed that, there were very strong significant relationships between scores on sanitation

and health practices and respondent type and ages of respondents with a **p-value** ($p < 0.001$). The results are presented in Table 4:34 below.

Table 4. 34: Relationship between demographic Characteristics and Sanitation and Health Practices Scores

	N	MEAN	SD	Significance
Type of Respondent				
Buyer		3.09	0.378	0.000
Seller		2.73	0.452	
GENDER				
Male	190	3.03	0.438	.027
Female	220	3.11	0.334	
AGES				
18 - 25	67	3.46	0.532	0.000
26 -35	193	3.05	0.327	
36 - 45	97	2.92	0.277	
Above 45	53	2.94	0.233	
Education				
Primary	201	3.05	0.39	0.036
Secondary	156	3.12	0.359	
Tertiary	24	3.12	0.338	
No Education	29	2.9	0.557	
Occupation				
Employed	169	3.09	0.453	.581
Unemployed	240	3.05	0.344	
Pension	1	3	0	
Marital Status				
Single	158	3.15	0.463	0.012
Married	243	3.03	0.333	
Divorced	6	2.83	0.408	
Widowed	3	3	0	
Religion				
Christian	245	3.05	0.364	.613
Muslim	156	3.1	0.443	
Traditional	4	3	0	
Other	5	3	0	
Length of Selling (Sellers)				
1 -3 Years	16	2.75	0.447	.79
Above 3 Years	10	6.1	0.483	
Length of Patronage (Buyers)				
Less than 1 Year	124	3.07	0.365	.159
1 - 3 Years	245	3.11	0.384	
Above 3 Years	15	3	0.378	

4.5 Correlations between Knowledge, Attitudes and Practices of Sanitation and Health

The study findings further revealed that, there exists a weak insignificant negative relationship between the knowledge and attitude scores of respondents (**Pearson R = -0.22, p >0.05**). Furthermore, there exists a weak insignificant negative relationship between the knowledge and sanitation and health practices scores of respondents (**Pearson R = -0.126, p >0.05**). However, there was a strong positive relationship between attitude scores and sanitation and health practices scores though the relationship was insignificant (**Pearson R = 0.60, p >0.05**). The results are displayed in Table 4.35.

Table 4. 35: Correlations between Knowledge, Attitudes and Sanitation and Health Practices Variables

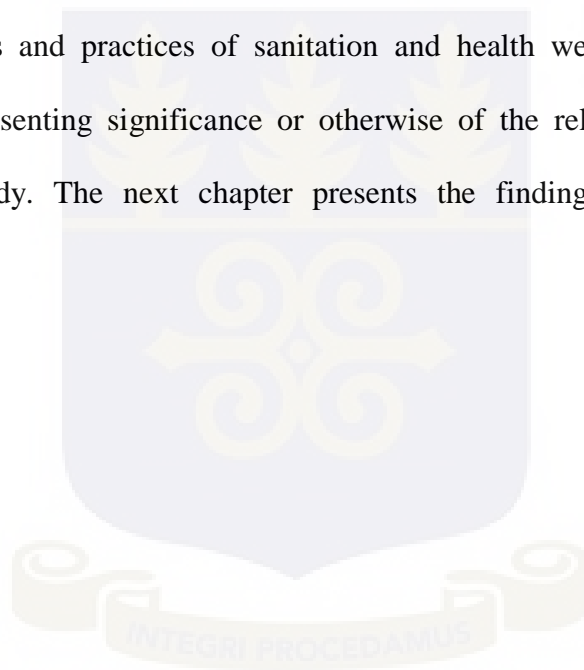
Responses	N	Mean	SD	Pearson R	Significance (Two tailed)
Knowledge Scores	41	6.36	1.40	-0.22	.652
Attitude Scores	41	5.6	0.68		
Knowledge Scores	41	6.36	1.40	-0.126	.11
Sanitation and Health Practices Scores	41	3.07	0.39		
Attitude Scores	41	5.6	0.68	0.60	.226
Sanitation and Health Scores	41	3.07	0.39		

The above objective sought to investigate sanitation and health practices of market users at Agbogbloshie Market. Market users though concerned about the poor nature of sanitation did not give credence to their immediate environment before making purchases (Buyers) or trading (Sellers). Market users almost do not entirely engage in waste separation at source coupled with the fact that the negative practice of dumping of refuse in the open was the most preferred option of waste disposal. More importantly respondents overwhelmingly indicated that poor sanitation had negative consequences for their health.

Cholera and Malaria were the most reported consequences of poor sanitation. Additionally, there were significant relationships between scores on sanitation and health practices and marital status, education, age and type of respondent. There were no significant correlations among the scores on knowledge, attitudes and sanitation and health practices.

4.6 Chapter summary

This chapter presented the findings and analysis of the quantitative study. The chapter began with the demographic characteristics of the study respondents. Market users' knowledge, attitudes and practices of sanitation and health were also presented. The chapter ends by presenting significance or otherwise of the relationships between the variables under study. The next chapter presents the findings and analysis of the qualitative study.



CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS OF THE QUALITATIVE STUDY

5.0 Introduction

The chapter presents the results and analysis of findings of the qualitative study. The qualitative study corroborates the findings of the quantitative study. It also seeks to establish how the actions and inactions of officials contribute to the knowledge, attitudes and practices of market users towards sanitation and health at the Agboglobshie market. The chapter begins with a presentation of the demographic characteristics of the AMA official respondents and progresses with the knowledge, attitudes and practices towards sanitation on health of market users at the Agboglobshie market.

5.1: Demographic Characteristics of Participants

The demographic characteristics of the research participants interviewed are presented in Table 5.1.

All 5 interview respondents were males, married and with formal employment. In addition, all 5 had been employed for more than five years at the Accra Metropolitan Assembly. Furthermore, 2 were within the ages of 36 - 45 years while the other 3 were above the age of 45 years. Lastly, 2 had secondary education while 3 had tertiary education.

Table 5. 1: Demographic Characteristics of Participants - Officials

OFFICIALS	
SEX	N
Male	5
RELIGIOUS AFFILIATION	
Christian	4
Muslim	1
MARITAL STATUS	
Married	5
AGE	
35 - 44	3
45 and Above	2
EDUCATIONAL BACKGROUND	
Secondary	2
Tertiary	3

5.2 Knowledge of Sanitation

This section presents the analysis of the research findings with respect to education about sanitation at the Agboglobloshie market.

5.2.1 Education of market users

A view from the qualitative interviews was that, efforts were being made to educate the market users on existing policies. The strategies included the use of opinion leaders at the market and the National Sanitation Day (i.e a day set aside in every month to clean up the community). The AMA also employed the use of sanitation awareness posters to educate market users.

“...as for education, we try to do our best. We have weekly programmes that we do. We use the various leaders. So education goes through them...we want to use the leaders and market queens as agents of change so that they can preach good sanitation practices in the market so that we can prevent a lot of diseases especially cholera and malaria.” [Interviewee B]

“...We need to do more about educating our people [market users]... sometimes we take advantage of the National Sanitation Day to educate the people. We gather them [market users] and explain to them the right thing that must be done because everybody health is at stake... we also have posters around”.
[Interviewee C]

The submissions above were corroborated by the interview responses from seller respondents as captured that,

“... Our queens have meetings with the officials and afterwards the market queens would also come and tell us what transpired...”[Market Seller 15]

Furthermore, the findings revealed that market users were occasionally educated by other groups and organizations in society as reported:

“ ...we have organizations who come and educate us like church groups among others especially when there was a major cholera outbreak in Accra sometime ago...”[Market Seller 5]

The above submission gave an indication of the educational and awareness creation activities undertaken at the Agbogbloshie market. Interview responses seemed to indicate that, market sellers were the primary focus of educational activities regarding sanitation and health at the Agbogbloshie market.

5.2.2 Sanitation Laws and Policies

The research findings indicated that, there were at least four sanitation related policies and laws governing the Agbogbloshie market. These include the AMA Bye Laws (1995), the National Environmental Sanitation Policy (2010), Section 286 of the Criminal Code Act 279 and the National Sanitation Day. Interview responses also indicated that, these laws and policies were enough to improve upon sanitation at the Agbogbloshie market.

“...For the laws and policies, we have quite enough.... For instance the Criminal Code Act279, section 286. We also have the Environmental Sanitation Policy (2010) and A.M.A bye laws (1995).” [Interviewee A]

“... the National Sanitation Day which although not a law can be considered as a policy and also the National Environmental Sanitation Policy.” [Interviewee B added]

In spite of the promulgation of these laws and policies regarding sanitation, coupled with educational activities embarked upon by officials at the Agbogbloshie market, interview responses indicated that, most market users were not aware of such sanitation related policies and laws,

“...Oh no! Not really. A larger percentage of market users don't know them [Sanitation policies and laws]. It is not only limited to market users, a large percentage of the populace are not aware.” [Interviewee A]

The above submissions indicated that, there were various sanitation related educational and awareness strategies directed toward market users. The strategies involved the use of opinion leaders or market queens as well as sanitation awareness posters. The national sanitation day also provided avenues for market officials to direct sanitation related educational and awareness programmes toward market users. In addition, other groups and organizations organized sensitization activities at the Agbogbloshie market. Despite the above, officials also indicated that their educational activities were not efficient and effective and that most market users were not aware of the sanitation related laws and policies that govern the market. The findings also indicated that, educational activities were mostly directed at market sellers.

5.3 Attitudes toward Sanitation

This section presents the analysis of the research findings with respect to attitudes regarding sanitation and health at the Agboglobloshie market.

5.3.1 Responsibility for Sanitation

The findings from the interview responses indicated that sanitation and its management is a collective responsibility among all stakeholders including market users (both buyers and sellers), waste management companies, local and national government. However market users did not believe or agree to this collective responsibility approach toward sanitation because they lacked the understanding of the concept. The findings further revealed that, market users needed to be educated in this regard to promote an attitudinal change among them. For instance:.,

“As far as sanitation is concerned...it is a shared responsibility. We cannot leave everything to the Assembly [A.M.A] or waste management contractors. What about the citizenry... it boils down to education. The truth is that, market users or majority of the citizenry are not educated enough to think this way [sanitation as a collective responsibility] ... citizens must play their role and actively see themselves as part of the problem and the solution... an all-encompassing and united effort is the magic but like I always say, do a lot of people think this way, no. am talking about both illiterates and the so called literates...” [Interviewee B]

“...if everything is going to be left in the hands of government, it wouldn't work...because government alone cannot do it. We all know government must bring the policy and laws and also implement or enforce it but the people too must be involved...” [Interviewee A]

Furtherance to the above, the findings indicated that, the management of sanitation was paid for by the AMA. Market sellers did not directly pay for these services but part of the tolls they paid was channeled into sanitation management as mentioned below:

“[It] is the AMA who pays for the waste management services. They award it to contractors and pay them...Sellers don't directly pay for waste management because they pay tolls to the A.M.A and part of it goes into waste management.” [Interviewee D]

However, market sellers disagreed with the collective responsibility approach to sanitation and argued that sanitation management should solely be the responsibility of either the local or national government:

“... as for sanitation, it is the sole responsibility of the assembly but the assembly is not capable of dealing with the issue so the government must step in and deal with the situation... last year, the Mayor of Accra came to promise us that, the poor nature of sanitation but nothing happened...” [Market Seller 20]

And then to drive their message home,

“...it is the responsibility of the assembly since we pay market tolls to them..” [Market Seller 4]

5.3.2 Satisfaction with Sanitation Management

The findings from interview responses indicated that sanitation is poorly managed at the Agboghloshie market. Waste contractors were poorly supervised with a current influx of several unaccredited waste collectors operating in and around the Agboghloshie market as is bemoaned here:

“... Waste and sanitation management is a very poor activity. There are a lot of unaccredited waste contractors operating in

the market although this place [Agbogbloshie Market] is under Zoomlion. Waste management is outsourced. They have allocated areas to contractors but we are to monitor them to see if they are working or not... but the truth is that their work is not effective at all...”[Interviewee B]

Interview responses further indicated that, officials at the Agbogbloshie market were highly dissatisfied with the manner in which sanitation was managed particularly the frequency at which waste was lifted as reported below,

“... It is like the Agbogbloshie market has been totally neglected. The refuse would pile and then once a while they come and pick it up.... Our main problem is the frequency of lifting, that is our problem... the stench is unbearable and when it rains you can't breathe... some places you must hold your breath...” [Interviewee D]

The ensuing response further echoed it saying:

“over here the garbage always overflows and it takes a long time for the garbage to be collected by the waste management companies... it worries everybody... we [market sellers] have complained several times...”[Market Sellers 3]

The poor nature of sanitation at the Agbogbloshie market might be so because waste contractors were not held accountable whenever they reneged on the fulfillment of their side of the contract as complained below ,

“as it stands now, there is no punishment for any contractor... per our bye laws, credited and unaccredited waste contractors suffer no punitive measures for not carrying out their mandate but the bye laws rather touches the beneficiaries [market users]... so we the field people is not easy for us” [Interviewee A]

The low fees paid to waste contractors coupled with delays in the payment of such fees also contribute to the poor nature of sanitation at the Agbogbloshie market as claimed that,

...the ESPA [Environmental Service Providers Association] people are always complaining about low payments and delay payments as well that is why they relax in collecting the rubbish piles... they complain that, the fees paid them have not been reviewed for a while now...”[Interviewee B]

5.3.3 Participation in Sanitation Exercises

The findings revealed that, market sellers displayed great levels of apathy towards sanitation exercises such as the national sanitation day activities. Market users especially sellers do not patronize cleaning exercises such as the national sanitation day as complained below that,

“...the market queens are also problematic... during national sanitation days, you see some of them unconcerned and they will be selling while some people are cleaning and then other traders shall feel insulted and also go and sell...”[Interviewee D]

“...Shop owners and the sellers operate without fear while the exercise is ongoing [National Sanitation Day exercise] which is highly disheartening and demotivating... more education, awareness creation and sensitization must be championed... the media too must play their part... sanitation is very important....”[Interviewee A]

“... as for me, I am ready to take part if everybody does same... sometimes you participate in sanitation exercises and you see some market sellers doing their business... so you also stop to do your business. Thats all...[Market Seller 14]”

In addition, participation in cleaning exercises on the part of market sellers is hindered by the fact that, the basic cleaning tools such as shovels, wheel barrows were not provided during the national sanitation day activities as a respondent prompted:

“... it is not that, we do not want to clean the market or that we are dirty people... some times, we are not provided with the necessary tools during the national sanitation days...[Market Seller 18]

The findings revealed that, market sellers believed that sanitation was the responsibility of both the local and national government while officials believed that sanitation ought to be a collective responsibility. The officials also felt that market users were not educated enough to have such an understanding. Moreover, market users and officials were both highly dissatisfied with the nature in which sanitation was managed at the Agboglobshie market. Market sellers displayed worrying levels of apathy towards cleaning exercises at the Agboglobshie market such as the national sanitation day activities.

5.4 Sanitation and Health Practices

This section presents the analysis of the research findings with respect to sanitation and health practices of market users at the Agboglobshie market.

5.4.1 Waste Separation at Source

Interview responses indicated that, waste separation was not on the agenda of officials at the Agboglobshie market as no provision had been made for it. The absence of waste bins at the market also contributed to this negative practice.

“...so if segregation can start... at least every shop or group of sellers must get at least three (3) dust bins... so that, this is for paper, that for plastic and the other for glass”
[Interviewee E]

“... Look around, we all don't have waste bins. Even some of the shops don't have waste bins. If government can provide us with waste bins it would help a lot... I do not have a single bin how much more two or three. I cannot afford it” [Market Seller 12]

The findings imply that there was lack of effective collaboration among the waste management companies coupled with the absence of dustbins at the Agbogbloshie market purposely for the separation of waste.

“Waste is a resource. So what is actually happening is that, we have companies around that deal with recycling. These are the people who need the rubbish... the private companies into waste management... they should come so we know this person wants this or that... also, there are no dustbins for the practice” [Interviewee B]

The absence of waste bins implied that, market officials did not educate market users about waste separation as no provision had been made for that activity. Additionally:

“...Nawabin [National Waste Bin Distribution Programme] came here to collect data but nobody has seen their waste bin anywhere. They had a meeting with us, briefed us how the whole thing is going to be handled and we never saw them again...if containers are there then we the officers can tell the people [Market users] put this here and this there” [Interviewee B]

The absence of a waste separation policy or law further discourages the practice of separating waste at the source as remarked below:

“ in Ghana or Africa per say that is how we manage our waste, we don't segregate like the Europeans do and also those people who buy the waste plastics offer very little in return. Also, there is no waste separation policy that can force people to do it” [Interviewee A]

In addition to the above, firms that are into recycling offer very little for recyclable waste as intimated here:

“...those who buy the sachet water rubber offer very little monetary returns for such activities thus only few people collect the waste rubber to sell..” [Market Seller 9)]

5.4.2 Practice of Open defecation

Findings from interview responses indicated that, open defecation was practiced in and around the market. In addition to the insanitary conditions at public toilets, economic, cultural and social factors also contributed to the practice of open defecation in and around the Agboglobshie market. The practice of flying toilets across boundaries also goes on at the Agboglobshie market as stated below:

“...The [public] toilets we have here [Agboglobshie market] are not good. People complain of the stench when they are inside... it is this reason that make a lot of people do open defecation. It is a big problem especially where we have the water. You see them always women, children, I mean all of them...most times too especially the Kayayei [Head Potters] people, you see them doing it [defecating] inside polythene bags and throwing it away [Interviewee B]”

“The [Public] toilets here are not good at all. Everything from the toilets goes straight into the drains and then the water” [Interviewee C]

“this is something I am not happy about this GAMA [Greater Accra Metropolitan Area Sanitation and Water Project] thing... this area does not have the [sanitation] facilities...it is like they are neglected...they don't have access so at least they should build a decent toilet for them because their health is a concern” [Interviewee B]

In addition, open defecation was practiced due to social and financial factors as added below:

“...some people too because they see others doing it they also do it because they tell us they are not comfortable with the public toilets... the other one too is money problem. They say they don't have money to pay for the public toilet... [Interviewee E]

The practice of open defecation has cultural underpinnings too:

“... Can you believe that, we apprehended some people for engaging in open defecation last year. They told us that, where they come from faeces must not mix but separated so they don't use the public toilet...”[Interviewee C]

5.4.3 Method of Disposing Waste

The study findings indicated that, the conspicuous absence of waste bins coupled with inadequate waste receptacles provided by the waste management companies contributed greatly to the menace of indiscriminate disposal of waste at the Agbogbloshie market:

“... You see we have just two waste containers in this big place... so it gets full faster and then the position too is an issue because some people have to walk some distance just to throw rubbish away...”[Interviewee B]

“This Nawabin [National Waste Bin Distribution Programme] people are causing problem for us and the people [Market users] insult us. You go to the field and they tell us, your people promised us dustbins and up till now you have not given us anything but you expect to properly dispose of waste, how am I going to do that.” [Interviewee B]

In conclusion, it was revealed that the waste management challenges at the market are caused by human behaviour and other context-specific factors

5.4.4 Enforcement and Implementation of Sanitation Laws and Policies

Another major reason for this poor sanitation practice on the part of market users stems from the inability of officials to implement and enforce the sanitation policies and laws that govern the Agbogbloshie market. Findings indicate that, the interference on the part of powerful and influential people in society stalls the implementation and enforcement of sanitation related laws and policies.

“...The enforcement of the policies is one major headache. It is the responsibility of the public health department [of the AMA] to implement the policy but is a problem... the AMA is also aware that, there are connections and connections to power. You send someone to court and the following day you receive a phone call that, this person you took here is my this, please get him out.”
[Interviewee E]

“The laws and policies are not effective... you know, it is the implementation. It is a national issue. Where these policies are implemented it is not up to the letter.”
[Interviewee A]

“...enforcement is a problem... we the officers, we do our best but the big men make things difficult...even unit committee members interfere in our work. These interferences make it difficult for the AMA to put its feet down...”[Interviewee C]

The above submissions further gave impetus to the degree of apathy displayed towards the national sanitation day activities at the Agbogbloshie market as claimed below:

“...on national sanitation days, those who do not participate are not punished. The officials come and put out announcements that all shops and selling activities cease until after the exercise but all to no avail..”
[Market Seller 19]

Implementation and enforcement of these sanitation laws and policies had been less effective because some of the punitive measures had been non deterrent.

“as for the punishment measures we have fines... but the fines are very low because the laws do not employ penalty units as they were promulgated in 1995... so the rates in force now were sanctioned in 1995 which are very low so it cannot deter would be offenders”
[Interviewee A]

Other factors that worked against implementation and enforcement of policies and bye laws were inadequate resources and the lack of collaboration of other agencies particularly the law enforcement agencies. :

“...the police must understand that, we [Field Officers] and them are both law enforcement agents. So if I bring a warrant for you to arrest someone, you should not demand anything from me. But when we initiate such action and police people demand money from us then there is a problem. So if I know I don't have money then I shall not go to them and the case shall be hanging and nuisance will still be there...”[Interviewee E]

“Sometimes we prosecute people at the sanitation courts and sometimes the cases are adjourned... we don't have any vehicle here to take us there [Courts] and we cannot use our pocket money to charter taxis... so the case would just be there and the offenders shall be free” [Interviewee C]

5.4.5 Poor Sanitation and Diseases

The findings from interview responses indicated that poor sanitation has negative consequences for human health. Cholera is the most palpable disease borne out of poor sanitation. In addition, market users at Agboghloshie market had been affected with cholera in the past .

“...the last time that there was a cholera outbreak in Accra, I know lot traders who were admitted at the Korle Bu main hospital and the clinic. During that time, some traders complained of low patronage because Agboghloshie was in the news that here is one of the dirtiest markets in Accra... anytime there is a cholera outbreak in Accra some of my people [Market Sellers] are affected” [Interviewee C]

“... it is only here [Agboghloshie market] where you find mosquitoes in the afternoon. The surroundings are conducive for mosquitoes... this year alone I have been twice affected by malaria...”[Market Seller 7]

“... for me I always tell people that, there is only one way getting cholera. You only get cholera by eating human excreta... either contaminated food or by drinking contaminated water... over here as open defecation is the order of the day and you have houseflies moving around from the rubbish dumps to the meat sellers and chop bars... so this is clear, sanitation have impact on our health...”[Interviewee D]

“Cholera, dysentery and diarrhoea, they don't know boundaries of markets or houses. Houseflies can move from Agboghloshie here to Makola, kaneshie or even East Legon.” [Interviewee B]

The above findings indicate that, waste separation at source was scarcely practiced at the Agbogbloshie market mainly due to the absence of waste bins. Moreover, there was the absence of collaborative activities among the firms that deal in recycling at the Agbogbloshie market. Moreover these firms offered little monetary rewards for recyclable waste thus discouraging the practice. Open defecation was also widely practiced while open dumping of refuse was also a concern for the officials who bemoaned the absence of adequate waste receptacles at the market. In spite of the above, respondents agreed that poor sanitation had precarious consequences for market users' health with cholera and malaria being widely attributed to the poor nature of sanitation at the Agbogbloshie market.

5.5 Chapter summary

This chapter presented the analysis of the qualitative findings of the study. It presented the demographic characteristics of the respondents. The analysis of the variables under the study namely: knowledge, attitudes and practices toward sanitation and health at the Agbogbloshie market were also presented. The next chapter presents the discussion of both the qualitative and quantitative studies concurrently in the light of the literature of the phenomena under study.

CHAPTER SIX

DISCUSSION OF EMPIRICAL FINDINGS

6.0 Introduction

This chapter discusses the findings of both the quantitative and qualitative studies concurrently in light of the literature relating to the phenomena under study. The chapter also presents the findings and how they are explained on the basis of the theoretical perspectives of health belief model, social ecological model of health, planned behaviour, and social health model. The chapter is organized into three sections with each corresponding with one of the three research objectives namely: knowledge of sanitation and health, attitudes toward sanitation and health and sanitation and health practices and chapter summary.

6.1 Knowledge of Sanitation on Health

The health belief model is underpinned by four concepts – susceptibility, perceived severity, perceived barriers and the perceived costs of adhering. Susceptibility refers to an individual's own subjective evaluation as to the risk of attracting a disease or illness. Perceived severity refers to the gravity of the disease or illness and its consequences. Perceived barriers refers to those factors that limit the adoption of the required behaviours such as time and convenience while the last focuses on the perceived cost of adhering to the health intervention or activity.

This study found that majority of market users (70%) believed that wood, paper, plastics and glass were all garbage which is in congruence with the conclusions of Worlanyo (2013) that, 100% of market users at Dome reported that wood, waste paper and plastics

were all garbage. However, Raudsepp (2001) concluded that, individuals have high levels of awareness with respect to environmental sanitation.

Furthermore, a significant proportion (87%) of market users did believe that, the reuse of plastics and glass contribute to improved sanitation at the Agboghloshie market. The above supports the findings of Mukama *et al.* (2016) that, 74% of low income residents considered the reuse of plastics. Hopewell *et al.* (2009) concluded that one of the most effective ways of managing solid waste was through reuse. Additionally, this finding supports the conclusion of Worlanyo (2013) that market users believed in the reuse of plastic as the first step to waste management and proper sanitation.

Although the reuse of plastics was highly recommendable as it leads to improved sanitation, the burning of plastics as reported by a significant proportion (57%) of respondents was problematic. The above lends support to the conclusions of Mukama *et al.* (2016) that low income residents were more likely to engage in the burning of plastics. This method of burning plastics should be discouraged as it has grave consequences for human health such as damaging the nervous system and causing cancer (Wang *et al.*, 2004).

A good majority of study respondents (54%) agreed that, the use of polythene bags for carrying various items bought and sold at the Agboghloshie market was desirable. This is in congruence with Gyapomaa (2013) who concluded that the use of polythene bags was highly desirable and sought after by market users as it provided a convenient means of carrying items sold and purchased at market places.

In addition to the above, a good proportion (90%) of market users displayed a lack of awareness regarding segregation of waste at source. This finding contradicts the findings of previous studies (Banga, 2011). For instance, Banga (2011) reported that 60% of low

income residents were aware of waste segregation while Worlanyo (2013) also found that about 72% of market users at the Dome market had heard about waste separation. Recycling is a major factor that enhances waste management (Ekere *et al.*, 2009). The absence of a culture of waste separation is the only challenge but inadequate knowledge and awareness is also a grave concern (Banga, 2011).

The study also found that, 98% of market users at the Agbogbloshie market reported that, open defecation was not a good sanitation activity. Amo (2013) argues that open defecation is usually a private matter thus people shy away from discussing such issues. Thus, the high positive response rate on open defecation as presented above might be due to social desirability bias.

Furthermore, analysis of interview responses from the qualitative study indicated that market users' knowledge of sanitation policies and laws that govern the Agbogbloshie market were poor. This supports the conclusions of Quartey – Ankrah (2011) that market users at the Kaneshie market had very poor knowledge of the policies and laws regarding sanitation. It is worth pointing out that though the majority of market users failed to particularly mention the specific policies and bye-laws governing the Agbogbloshie market, they did know some of the contents of these policies and bye- laws such as the indiscriminate disposal of waste and those concerning open defecation.

Furthermore, the focus of education programmes was skewed towards the sellers with no provision made for the buyers thus it was not surprising that all market sellers reported having received some form of education regarding sanitation at the Agbogbloshie market while 72% of buyer respondents reported not receiving any form of education. Additionally, the sanitation related educational and awareness strategies included the use of opinion leaders and sanitation awareness posters. Clean up exercises also presented

opportunities to market officials to further educate market users. Clean up exercises are very important as these offer opportunity for market users to receive non – formal education (Kreith, 1994).

These are indicative of the fact that, educational programmes embarked upon by market officials were skewed towards market sellers. In addition, the qualitative findings did indicate that, the education and awareness programmes embarked upon by officials at the Agboglobshie market were inadequate and ineffective.

The study found that, majority of market users (70%) at the Agboglobshie market displayed moderate levels of knowledge of sanitation and health. This differs from that of Worlanyo (2013) where about 72% of market users at the Dome market displayed high levels of knowledge of sanitation.

The study further found a very strong significant relationship between age and knowledge of sanitation and health ($p < 0.001$). Jamias and Tatlongahar (2010) concluded that, although the relationship between age and knowledge was significant ($p < 0.01$), the relationship was inverse. However, the finding of this study is in contrast with other previous findings (Agwu, 2012). For example, Agwu (2012) concluded that, though respondents aged 25years and below displayed higher knowledge levels relative to those aged above 25 years, there was no significant relationship between age and knowledge levels of environmental sanitation. Oladabeye (2010) also concluded that, there was no statistical relationship between age and knowledge of waste management.

Furthermore, the study also found a very strong significant relationship between educational attainment and knowledge scores on sanitation and health ($p < 0.001$). Raudsepp (2001) concluded that, there was a significant relationship between education and awareness of environmental sanitation. Awoyemi (2014) also concluded that,

illiteracy and low educational attainment had consequences for individuals' understanding of environmental sanitation issues. However, Banga (2011) found no significant relationship between the two variables.

The study also established a significant relationship between the marital status of respondents and knowledge scores on sanitation and health ($p < 0.05$). This finding lends credence to that of Mamady (2016) who found significant relationships between marital status of women and their knowledge level of sanitation and hygiene. There was also a significant relationship between knowledge scores and the length at which buyer respondents had been patronizing the Agboghloshie market ($p < 0.005$).

The health belief model is widely applied to health related education and knowledge. Market users demonstrated their perceived awareness of sanitation and health issues. These knowledge levels indicated that market users were aware of the health consequences of poor environmental sanitation. In addition, market users demonstrated that the reuse of plastics could lead to improved sanitation which supports the conclusions of the health belief model that perceived benefits of action on health results in the practice of the action. In addition, the study findings indicated that, there existed significant relationships between demographic variables such as age, education, marital status and buyer respondents' length of patronizing the market and knowledge scores on sanitation and health. Again, these findings support the health belief model that modifying factors such as education affect perceptions of threat. Thus, for this study, higher levels of education should have consequences for the perceptions of threat based on the scientific knowledge of sanitation and health as educational attainment had a very strong significant relationship with knowledge scores.

5.3 Attitudes toward Sanitation on Health

It would be recalled that the theory of planned behaviour holds that, an individual's belief about phenomena has consequences for that individual's behavioral intention towards those phenomena. On the other hand, the social health model advocates for a collective action approach to dealing with human health. The model holds that, individuals and institutions must work together in improving the environment, which ultimately impacts on human health (Germov, 2014). These models have been used as the basis for explaining the finding on the above objective.

The study findings revealed that all respondents (100%) were not satisfied with the manner in which sanitation was managed at the Agbogbloshie market. The same proportion of respondents were also worried about the poor nature of sanitation at the market. The qualitative study findings corroborated that of the quantitative study. The study revealed that both the officials and market users were overwhelmingly disappointed with the nature of sanitation management. Respondents described the management of sanitation as a poor activity shrouded with difficulties and inefficiencies. These findings are in congruence with the findings of Addo (2014) who concluded that the market sellers at the Takoradi market circle were highly dissatisfied with the management of sanitation.

Furthermore, 99% of market users reported that, throwing debris into gutters and drains when the rain comes down was a negative sanitation and health attitude as it could have consequences for their health. Furthermore, the above finding supports the conclusions of Addo (2014) that market users at the Takoradi market circle reported that, debris in the gutters could lead to flooding thus the practice of dumping refuse into open gutters ought to be clamped down by authorities as it becomes breeding grounds for disease causing agents. These proper sanitation attitudes reported by participants is consistent with the high level of awareness displayed on the issue hitherto presented where 99% of

respondents reported that, debris does choke gutters which in turn contributes to flooding. These findings support literature that, there is a relationship between knowledge levels and attitude (Armstrong & Impara, 1991). For instance, Armstrong and Impara (1991) concluded that, individuals who displayed good environmental sanitation attitudes were those that had been exposed to environmental sanitation education.

Although respondents were not satisfied with the manner in which waste was managed coupled with the fact that, poor sanitation in and around the market was a worry for them, they still exhibited the “*mind your own business*” attitude towards others who engaged in bad sanitation practices. About, 63% of market users at the Agboghloshie market reported they did not confront other sanitation offenders. Similarly, Worlanyo (2013) also concluded that, market users were reluctant in confronting and or teaching sanitation offenders. More often than not, individuals express worry about poor sanitation but are helpless due to inadequate sanitation facilities (Adeyemo *et al.*, 2009; Kpoor, 2009).

The qualitative study found that, unavailability of waste bins at the Agboghloshie market was a palpable concern among market users. This finding is no different from the conclusions of Quartey - Ankrah (2011) that, 89% of sellers interviewed at the Kaneshie market reported that they had no waste bins at their disposal. Worlanyo (2013) in his study of market users at Dome made similar conclusions that, the unavailability of waste bins was a conspicuous phenomenon.

Furthermore, users at the Agboghloshie market (49%) reported that sanitation management should be the sole responsibility of the national government suggesting that market users believed that the national government should bear the financial consequences of sanitation management. Thus, though market users were concerned about the poor nature of sanitation at the Agboghloshie market, they tended to absolve themselves of any responsibility. Interview responses from the officials were in contrast to those of the

market users as officials believed that the issue of sanitation management was a responsibility for all. The qualitative findings also indicated that, Social responsibility attitudes toward waste management among market users were poor and that, majority of market users did not either know or understand their roles with respect to waste management and the maintenance of proper sanitation. Worlanyo (2013) concluded that, majority of market users at the Dome market believed that waste management and sanitation was a collective responsibility whereby each individual had a role to play.

The study findings indicated that, though only a minority of users (23%) claimed that they were comfortable with the public toilets at the Agboghloshie market, the majority(84%) disagreed with the fact that open defecation was more comfortable and convenient relative to the public toilet thus, be practiced.

The study findings further indicated that sellers at the Agboghloshie market displayed worrying levels of apathy toward cleaning exercises such as the national sanitation day. This was not surprising giving the fact that, market users believed that the management of sanitation was the responsibility of government thus absolving themselves of any responsibility. This finding supports that of Addo (2014) who reported that market sellers at the Takoradi market circle showed reluctance in their participation in cleaning activities.

The study found that, majority of market users (89%) displayed moderate levels of sanitation and health related attitudes. Only 4% of market users reported good attitudes towards sanitation and health while 7% reported poor sanitation and health attitudes. Quartey - Ankrah (2011) concluded that users at the Kaneshie market exhibited very poor attitudes towards sanitation. In addition, Addo (2014) concluded that market sellers more often than not engaged in negative attitudes towards sanitation and health. However,

Worlanyo (2013) found that, about 76% users at the Dome market reported engaging in good attitudes towards sanitation and health.

The study also found that, there existed a very strong significant relationship between scores on attitudes toward sanitation and health and respondent type ($p < 0.001$). In addition, there were very strong significant relationships between scores on attitudes towards sanitation and health and age of respondent ($p < 0.001$). This finding is not congruent with that of previous studies as Ekere *et al.* (2009) and Addo (2014) found no significant relationship between age and attitudes toward environmental sanitation.

The study also found a significant relationship between sex and attitude scores ($p < 0.05$) which supports that of Lidetewold (2015) who concluded that there was a significant relationship between sex and attitudes toward environmental sanitation thus gender could be a significant factor impacting upon people's attitudes toward environmental sanitation.

The findings of the study lend credence to the conclusions of the theory of planned behaviour. Although users were highly dissatisfied with the poor nature of sanitation at the Agbogbloshie market, they also displayed apathy towards cleaning exercises because more often than not they believed it was the responsibility of either local or national government to manage sanitation thus absolving themselves of any responsibility. Furthermore, interview responses from officials indicated that, they believed in the fact that, sanitation ought to be a collective responsibility. This finding supports some assertions of the social health model. The social health model advocates for a collective action approach to dealing with human health. The model holds that, individuals and institutions must work together in improving the environment which ultimately impacts on human health (Germov, 2014).

5.4 Sanitation and Health Practices

The Social Ecological Model of Health focuses on interventions at both the individual and environmental levels that affect health and that there is a two way effect between the environment and individuals. The model holds that, behavioral change at the individual level is likely to happen when the environment is supportive enough (Earle, 2007). Activities that occur within the social, economic, religious and healthcare inter alia environments are great influencers of human behavior and health or wellbeing.

The study results revealed that, most buyer respondents (89%) and seller respondents (69%) did not give credence to the immediate environment. The above might be so probably because market users had no other option as the situation might be same everywhere or they might have become accustomed to the poor nature of sanitation at the Agboglobshie market. It is also possible that, if purchasing decisions are based on how clean or filthy the sellers' environment is, it might induce an attitude change on the part of sellers to clean their immediate surroundings before operating.

Furthermore, the study findings indicated that, open dumping was the most preferred method of disposing of waste at the Agboglobshie market. The above finding supports that of Momoh and Oladebeye (2010) and Puopiel (2010) that, open dumping was the most preferred waste disposal option in West Africa especially among low income neighborhoods and slum areas. Quartey - Ankrah (2013) also concluded that, 40% of waste generators resorted to open dumping in and around the Kaneshie market. It is not surprising that 86% of respondents reported that they did not have to confront sanitation offenders so as to correct and educate them as they themselves were engaged in poor sanitation practices such as open dumping.

The above finding is indicative of the fact that users at the Agbogbloshie market did not dispose of their waste properly. One major reason for this poor sanitation practice was the visible absence of waste bins at the Agbogbloshie market. It was also possible that, the inadequate waste containers provided by the waste management companies were also a causal factor as well as their proximity. The practice of open dumping has negative consequences for the environment together with its attendant health impact. Open dumping contributes greatly to the multiplication of vermin and the generation of anaerobic gases as documented (Mensah et al., 2005).

The results of the qualitative study pointed to the fact that, the implementation of sanitation bye-laws and policies were not effective primarily, due to external influences from people in political positions in society. The market officials reported that, there had been instances where they had had to discontinue court prosecution of sanitation offenders due to interference from powerful people. These findings lend support to the conclusions reached by Johannessen and Boyer (1999) who concluded that, weak enforcement structures particularly in developing countries contribute greatly to dumping in the open. In addition, the punitive measures especially fines are not effective enough at deterring would be sanitation offenders

The research finding further gives evidence that, the implementation and enforcement of the sanitation bye-laws and policies as well as punitive measures were the most preferred actions employed by authorities at the Agbogbloshie market to get the problem of sanitation solved. The finding supports the conclusions of Quartey – Ankrah (2011) that, 100% of market authorities at the Kaneshie market believed in enforcement of the law and the prosecution of offenders. However, qualitative responses from officials at the Agbogbloshie market give credibility to the observations of Bell and Russell (2002: 12) that, “most developing countries have long established laws and formal governmental

structures to address their serious environmental problems but few have been successful in alleviating those problems.” The authors further added that, planners and policymakers prefer fines and bans among others because these are a better guarantee of outcomes though more often than not these strategies have failed to yield their intended results.

The findings indicated that, waste separation at source was never practiced at the Agbogbloshie market primarily due to poor knowledge and awareness levels. This finding supports the conclusions by Fobil (2001) that, waste separation at source was never practiced at market places in Ghana and that much concerted efforts be made towards education and enlightenment. Aljaradin *et al.* (2011) added that, individuals possessed very poor knowledge levels regarding source separation although they were enlightened with regards to recycling and reuse of plastics and glass. The findings also support those of Worlanyo (2013) that, over 48% of users at the Dome market reported never to have separated their waste. Quartey – Ankrah (2011) also confirmed that, not only market users but waste management companies did not engage in the all-important practice of waste separation.

The above findings supports the conclusion of Banda (2011) that, the biggest threat to sanitation and waste management in Africa is the absence of a culture of sorting waste at the source. The Author also added that, waste separation at source was also dependent on the perceived costs and benefits of doing so. Some users at Agbogbloshie market deemed that waste separation was a waste of time while those companies involved in recycling plastics offer very little monetary rewards thus further killing the motivation to separate waste at source. In addition, findings revealed that, the lack of national policy that borders on separation of waste also exacerbates the problem. This finding supports the conclusions of Mara *et al.* (2010) that, the lack of policies and regulations concerning sanitation in developing countries is a major stumbling block.

Furthermore, waste separation at source was not practiced by users (100%) at the Agbogbloshie market because no provision had been made for it. Additionally, this assertion supports the conclusions of Banda (2011) that, individuals decided against separating their waste because they had no access to separate bins and would separate waste if only provisions were made for it. Addo (2014) made similar observations by concluding that, 97% of market sellers did not separate their waste primarily due to the fact that, no provision had been made for such an activity. The author further bemoaned the lack of a national policy on waste segregation at source.

The qualitative responses indicated that, the Agbogbloshie market authorities did not factor in waste separation in their educational programmes as no provision was made for that activity. This explains why many respondents reported that they did not know about separation of waste. Banga (2011) revealed that, 60% of Kampala residents of Uganda did engage in waste separation primarily because they had been predisposed to the activity through education.

The findings indicated that about 49% of respondents claimed not to have been patronizing in the public toilets at the Agbogbloshie market as they were not comfortable. Similarly, Brian et al (2011) concluded that, majority of residents in Kampala, Uganda, were dissatisfied with the low levels of cleanliness at public toilets. Peprah *et al.* (2015) also concluded that, public toilets in Accra were generally inconvenient. These findings point to the extent to which these sanitation facilities fail to meet the needs of users at the Agbogbloshie market.

The insanitary conditions of public toilets at the Agbogbloshie market further gives evidence about how weak sanitation bye-laws and policies are implemented. These sanitation facilities are directly under the supervision of AMA's Environmental Health

Department that is mandated to ensure that these public toilets are periodically renovated and operate under proper hygienic conditions. The interview responses tended to indicate that, the poor sanitation at the Agboghloshie market had been accepted as normal which is a very dangerous stance considering the enormous health implications. It is the right of every individual to be in good health and enjoy good sanitation as spelt out by the Sustainable Development Goals (SDGs) (GDI, 2015). Goal 3 of the SDGs states that, “ensure healthy lives and promote well-being for all at all ages”, while goal 6 stipulates that, “ensure availability and sustainable management of water and sanitation for all” (GDI, 2015).

Furthermore, 95% of market users claimed that they did not practice open defecation. However, the qualitative responses gave a strong indication that, open defecation was widely practiced at the Agboghloshie market. In Addition, there were various reasons why market users practice open defecation. First, a good number of market users (49%) reported that, the public toilets were not comfortable thus they did not use them. This implies that, market users either resorted to open defecation or practiced “flying toilets” (defecating in black polythene bags). This finding supports the conclusions of Amo (2013) that, a good number of people resorted to open defecation or defecating in polythene bags in his study of human excreta management in poor peri – urban settlements. Furthermore, the interview responses indicated that, open defecation had social, economic and cultural underpinnings. The finding supports that of Peprah *et al.* (2015) that, public toilet expenses constituted a significant portion of poor individuals’ income thus could prove prohibitive.

In addition, fecal matter from the public toilets at the Agboghloshie market was not properly managed as raw sewerage was emptied into the gutters or drains. This submission

supports the conclusions of Peprah et al. (2015) that, most public toilets in sub-Saharan Africa discharge liquid effluents into storm drains or directly into the ocean.

The research indicated that, though market users engaged in negative sanitation and health practices, they were highly aware of how these bad practices could affect their health. The findings support earlier propositions that, poor sanitation had negative consequences for people's health. Poor sanitation had been found to be chief causal agents of malaria, helminth infections, chest pains, cholera, and diarrhea among others (Esrey *et al.* 1991; Curtis & Cairncross, 2003; Fewtrell *et al.* 2005; Clasen *et al.* 2010; Quartey – Ankrah, 2011; Ziegelbauer *et al.*, 2012).

Poor sanitation does indeed affect the health of users at the Agboghloshie market. Cholera (42%) and Malaria (20%) were the most common diseases respondents deemed to have been the consequences of poor sanitation. The above supports the conclusions of Mara *et al.* (2010) that, diseases that are caused by poor sanitation are underpinned by poverty. Poor sanitation contributes to about 10% of the total burden of disease in Africa. More often than not persons in Africa have diseases associated with poor sanitation. However, Adu – Boahen (2014) reported that only 45% of 600 respondents in Jukwa, central region of Ghana reported that, poor sanitation could have consequences for human health.

The findings revealed that, consistent with knowledge and attitude scores, majority of market users' (84%) sanitation and health practices could be said to be moderate. Only 4% of users engaged in poor practices while 18% engaged in good sanitation and health practices at the Agboghloshie market. However, Worlanyo (2013) concluded that, most users at the Dome market indulged in poor sanitation practices while Addo (2014) added that, sellers at the Takoradi circle market engaged in more bad practices than good ones with respect to environmental sanitation.

The study indicated that, there was a significant relationship between sanitation and health practices and education (**p-value, $p < 0.05$**). Addo (2014) found that there was a significant relationship between education and waste separation at source. There was a similar relationship between education and participation in cleaning up exercises. Similarly, the practice of waste separation at source by residents of Luguna, the Philippines highly correlated with their awareness of the practice (Jamias & Tatlonghar, 2010). However, Addo (2014) found no significant relationship between educational level and practices related to environmental sanitation.

The results also indicated that there existed were significant relationship between sanitation and health practices and sex on one hand and between marital status and sanitation and health practices (**$p < 0.05$**). Fobil (2001) and Raudsepp (2001) found that, women were more likely than men to engage in favourable environmental practices.

The study also found a very strong significant relationship between age and sanitation and health practices (**$p < 0.001$**). However, Addo (2014) found no significant relationship between age and the practice of waste separation at source although there was a positive correlation between the two variables.

The above submissions support the conclusions of the health belief model. The model holds that, perceived risk or susceptibility is a key factor that motivates individuals to engage in behaviours that impact positively on their health. The research findings concluded that, users at the Agbogbloshie market reported that, the poor sanitation in and around the market made them highly susceptible to various diseases and illnesses.

In addition, the health belief model also postulates that, there are certain barriers to change which are based on the individual's own ability to evaluate the limiting factors in adopting positive behaviours that enhance better environmental sanitation thereby impacting

positively on their health. The findings revealed a host of barriers reported by participants as inhibiting their adoption of improved and better environmental sanitation initiatives that improve their health. With respect to the separation of waste at source, the findings concluded that, time, convenience and the cost of acquiring multiple waste bins were the main prohibitive factors that worked against the practice of separating waste at source. In addition, the qualitative study also revealed that, the lack of a policy was a barrier to the adoption of such course of actions.

The above findings tend to support the postulations of the social ecological model of health. The model holds that, there is a two effect between the individual and the environment (social, economic, legal) that ultimately affects the health of the individual (Earle, 2007). The absence of sanitation facilities, poor knowledge of market users coupled with a very weak policy implementation and enforcement regime contributes to the poor nature of sanitation at the Agbogbloshie market. The model holds that, for public health policies to be effective and efficient at changing human behaviours, these social roles, individual behaviours and contingency factors should be the targets (Earle, 2007).

Furthermore, the health belief model holds that, time, convenience and the cost of adherence are the main factors that inhibit the adoption of proper sanitation practices that have consequences for human health. This is in congruence with the study findings that, time, convenience and the cost of acquiring separate waste bins worked against the practice of waste separation at source.

Chapter summary

This chapter presented the discussion of the quantitative and qualitative findings concurrently. Overall, the majority of market users demonstrated moderate levels of knowledge of sanitation and health. The same could be said of their attitudes towards

sanitation and health. Consistent with knowledge and attitudes, majority of users' practices regarding sanitation and health at the Agbogbloshie market could be classified as moderate. Only few respondents displayed either poor or high levels of knowledge attitudes and practices. In addition, the relationships between demographic variables and knowledge, attitudes and practices are contained in this chapter. The next chapter which is the last of this study presents the conclusions of the study. The implications of the study for policy, practice and research are also contained in the chapter.



CHAPTER SEVEN

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.0 Introduction

This chapter is a summary of the research. The conclusions and recommendations of the research are also contained in this chapter. The chapter has been organized into four main themes namely: the summary, conclusions, contributions (to knowledge, policy, theory, methodology) and then recommendations.. The chapter ends with the limitations of the study and suggestions for future research.

7.1 Summary of the Study

The research sought to assess the knowledge, attitudes and practices of sanitation and health of users at Agbogloboshie Market in Accra. The researcher drew on scientific models and theories such as: the social model of health, the social ecological model of health, the health belief model and the theory of planned behaviour, to guide the study. To help answer the research questions, the mixed methods approach was employed. Three research objectives were pursued – Knowledge, attitudes and practices towards sanitation. The next section presents a summary of the main findings under conclusion.

7.2 Conclusions of the Study

The conclusions provided are based on the findings from data collected. This includes the three main components with each dedicated to the three research objectives of the study i.e: knowledge of sanitation; attitudes towards sanitation; and sanitation and health practices.

7.2.1 Knowledge on sanitation

This study concludes that, market users at the Agboglobshie market have an appreciable knowledge with respect to sanitation and health. Knowledge scores indicate that, market users' knowledge regarding sanitation and health at the Agboglobshie market can be deemed to be moderate. The study indicated that, market users at the Agboglobshie market know that, open defecation as well as dumping refuse in to gutters had implications for their health. The study also demonstrated that, knowledge scores on sanitation and health relates significantly with demographic variables such as age, educational level and marital status. The above conclusions differed from those of literature that, majority of Market users displayed high levels of knowledge regarding sanitation.

7.2.2 Attitudes towards Sanitation

The study concludes that, majority of market users at the Agboglobshie market displayed moderate levels of attitudes towards sanitation and health. The study demonstrated that, although market users were not comfortable with the public toilets at the Agboglobshie market, they did not consider open defecation as a more convenient alternative. The study also found that, market users and officials of the market were highly dissatisfied with the poor nature of sanitation management. In spite of the above market users did not see sanitation management as a collective responsibility. The study also established significant relationship between attitudes towards sanitation and health and demographic variables such as age and sex while literature concluded that, there was no significant relationship between age and attitudes.

7.2.3 Sanitation and Health Practices

Consistent with knowledge and attitudes, the study concludes that, markets users' sanitation and health practices at the Agboglobshie market are moderate. The study found that, open dumping was widely practiced while waste separation at source was never

practiced. Although the quantitative study indicated that, open defecation was not practiced, the qualitative study found otherwise. In addition, findings revealed that, there exist a very weak enforcement and punitive regime regarding sanitation that makes practically impossible for an attitudinal change towards the adoption of proper sanitation practices. More, importantly respondents overwhelmingly indicated that, poor sanitation had negative consequences for their health. Cholera and Malaria were the most reported consequences of poor sanitation. Findings from interview responses indicated that, market sellers are mostly affected during cholera outbreaks. The study also found a significant relationship between practices and demographic variables such as sex and age contrary to that of literature.

7.3 Contribution to knowledge

The study makes contributions to policy and practice, methodology and theory.

7.3.1 Contribution to policy and practice

Current policies on Sanitation in market places need an impetus in the line of effective and responsible enforcement. This involves the adequate supply of resources like wastebins prompt dispatch of waste etc by outsourced personnel; provision of relevant facilities like washrooms or toilets; continuous education of market sellers and users on good hygiene, proper waste disposal etc and the enforcement of deterrent punitive measures for sanitation law defaulters. Then and only then can we begin to see the light of improved sanitation in our market environments just as this study has pointed out.

7.3.2 Contribution to theory

The study makes significant contribution to theoretical applications in explaining the findings of a study of this nature on sanitation at market places. The study applied multiple

theories that border on human behaviour and their relationship to taking certain actions. This ensured theoretical triangulation (Bekhet & Zauszniewski, 2012,).

The health belief model helped to explain how users at the Agbogbloshie market perceived the benefits and barriers to undertaking actions that would ensure proper and improved sanitation.

The social behaviour model of health also helped to explain the collective action that ensued between policy makers and users of the market in complying with the sanitation regulations and bye-laws. This explained how officials of AMA expected that users would see the need to comply with sanitation laws at the market while the users perceived that it was rather the responsibility of the government.

The application of the social model of health helped to understand the broad and holistic issues relative to the medical model of health where it draws on the connection between individuals, interpersonal relationships, their environment and disease (Dahlgren & Whitehead, 1991).

The application of the social ecological model of health helped to focus on interventions at both the individual and environmental levels that affect health – this is a two way effect between the environment and individuals (Earle, 2007).

Generally, the elements that emerged from the study could be extended to the theoretical propositions of these theories.

7.3.3 Contribution to methodology

The study makes contribution to research methodology. Studies have either applied qualitative methods or quantitative methods separately to achieve varied results on sanitation and health (Attuahene, 2010; Quartey-Ankrah, 2011; Worlanyo, 2013). The

application of a mixed methods approach (both qualitative and quantitative) in the collection of empirical data helped to assuage the deficiencies that would have resulted if one particular method was applied separately. While the quantitative method assisted in quantifying the results of the study relating to how participants appreciated the effect of knowledge, attitude and practices of sanitation on health, the qualitative method also assisted in explaining some of the reasons underlying the responses provided in the quantitative study. These ensured that methodological triangulation was achieved (Bekhet & zauszniowski, 2012,).

7.4 Recommendations for Policy and Practice

Based entirely on the findings and the conclusions hitherto presented, the research makes the following recommendations.

- I. The Accra Metropolitan Assembly (AMA) should collaborate with media houses and adult education institutions to embark on a public education and awareness campaigns that hinge on sanitation and health.
- II. In addition, the AMA should make available more waste receptacles at the Agboghloshie market and ensure periodic and timely lifting of waste at the markets.
- III. The AMA should also ensure that, more decent and convenient public toilets are provided at the Agboghloshie market under the Greater Accra Metropolitan Area Water and Sanitation Programme (World Bank, 2017).

Limitations to the Study

The study just like other studies had some limitations. First, due to time and resource constraints the study could not be extended to cover other markets in the entire region or Ghana. Secondly, the researcher could not interview all the targeted ten (10) officials of

the AMA like the Head of Public Health. It is believed that, inputs from such individuals could have further enriched the study.

Future Research

The study recommends that, future studies should focus on sanitation marketing and how it could contribute to sustainable access to proper sanitation. The phenomena under study should be expanded to cover other markets in Ghana. Future studies should focus on how Container Based Sanitation could contribute to improved sanitation. In addition, future studies can also consider factors that could lead to poor sanitation. Additionally, subsequent studies may consider challenges that could confront sanitation management in Ghana.



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APPENDICES

Appendix A. Questionnaire for Buyers

University of Ghana

College of Humanities

School of Public Health

This questionnaire seeks to assess the Knowledge, Attitudes and Practices of sanitation and health of market users at Agbogbloshie market in Accra. I wish to assure you that this is an academic study and all information provided shall strictly be used for academic purposes. You are also assured of absolute confidentiality and anonymity. There is thus no right or wrong answer.

Part 1 Socio – Demographic Characteristics

Please respond to the questions by ticking [] the answer that reflects your opinion.

Participant Number.....

1. Gender. Male [] Female []
2. Age.Years Months
3. Marital Status. Married [] Single [] Divorced [] Widowed []
4. Level of Education. Primary [] Secondary [] Tertiary [] No formal education []
5. Occupation. Employed [] Unemployed [] Pensioner []
6. How long have you been patronizing this market?

7. Religious Affiliation. Christian [] Muslim [] Traditional [] Other []

Part 2. Knowledge about market sanitation

1. Waste paper, plastics, glass, cloth and wood are all garbage. Yes / No
2. Plastics and glass do decompose easily. Yes/ No
3. Reusing plastics and bottles leads to improved sanitation. Yes / No
4. Burning of plastics is the best way of disposing of them. Yes / No
5. Waste products in gutters choke the gutters which lead to flooding. Yes / No
6. Food, vegetables and fruits do decompose naturally. Yes / No
7. Have you ever heard of segregation of waste? Yes / No
8. Is open defecation in and around the Market good? Yes / No
9. Do know of any sanitation bye – laws? Yes / No
10. If yes which of them do you know about?
11. Is the use of polythene bags (take away) a good thing? Yes / No
12. Have you received any education on how to improve upon sanitation in the market? Yes / No

Part3. Attitudes about market sanitation

1. Are you satisfied with the manner in which sanitation is managed in the market?
Yes /No
2. Who do you think is responsible for sanitation in the market?
3. Who should pay for sanitation management?
4. When it's raining, it is normal to put waste materials in the gutter? Yes/ No
5. How do you feel about the poor nature of sanitation in this market? Worried, somewhat worried, not worried
6. Are you satisfied with the way other market users dispose of their waste? Yes/ No
7. Do you always feel comfortable when using the public toilets? Yes/ No
8. Do you think open defecation is more comfortable and convenient? Yes/ No
9. Do you confront other market users who engage bad sanitation practices? Yes/ No

Part 4. Sanitation and health practices

1. Do you consider the environment before you make purchases? Yes/ No
2. Do you separate the waste that you generate in the Market? Yes/ No

3. If no why don't you separate your waste?
4. How do you dispose of your waste when in the market?
5. Do you practice open defecation when you visit the market? Yes/ No
6. Do you use the public latrines when come to the market? Yes / No
7. Do you believe that, poor sanitation causes illnesses or diseases? Yes / No
8. If yes, can you name some of them ?.....

Thank You for your participation.



Appendix B. Interview Guide for Market Sellers

University of Ghana

College of Humanities

School of Public Health

This interview seeks to assess the Knowledge, Attitudes and Practices of sanitation and health of market users at Agboghloshie market in Accra. I wish to assure you that this is an academic study and all information provided shall strictly be used for academic purposes. You are also assured of absolute confidentiality and anonymity. There is thus no right or wrong answer.

Part 1 Socio – Demographic Characteristics

Please respond to the questions by ticking [] the answer that reflects your opinion.

Participant Number.....

1. Gender. Male [] Female []
2. Age.YearsMonths
3. Marital Status. Married [] Single [] Divorced [] Widowed []
4. Level of Education. Primary [] Secondary [] Tertiary [] No formal education []
5. What items do you deal in at the market?
6. How long have you been selling at this market?
7. Religious Affiliation. Christian [] Muslim [] Traditional [] Other []

Part 2. Knowledge about market sanitation

1. Waste paper, plastics, glass, cloth and wood are all garbage. Yes / No
2. Plastics and glass do decompose easily. Yes/ No
3. Reusing plastics and bottles leads to improved sanitation. Yes / No
4. Burning of plastics is the best way of disposing of them. Yes / No
5. Waste products in gutters choke the gutters which lead to flooding. Yes / No
6. Food, vegetables and fruits do decompose naturally. Yes / No

7. Have you ever heard of segregation of waste? Yes / No
8. Is open defecation good? Yes / No
9. Do know of any sanitation bye – laws? Yes / No
10. If yes which of them do you know about?
11. Is the use of polythene bags (take away) a good idea? Yes / No
12. Have you received any education on how to improve upon sanitation in the market? Yes / No

Part3. Attitudes about market sanitation

1. Are you satisfied with the manner in which sanitation is managed in the market?
Yes /No
2. Who do you think is responsible for sanitation in the market?
3. Who should pay for sanitation management?
4. When it's raining, it is normal to put waste materials in the gutter? Yes/ No
5. How do you feel about the poor nature of sanitation in this market? Worried, somewhat worried, not worried
6. Are you satisfied with the way other market users dispose of their waste? Yes/ No
7. Do you always feel comfortable when using the public toilets? Yes/ No
8. Do you think open defecation is more comfortable and convenient? Yes/ No
9. Do you confront other market users who engage bad sanitation practices? Yes/ No
10. Are you willing to participate in the maintenance of proper sanitation? Yes/ No

Part 4. Sanitation and health practices

1. Do you consider the environment before you start operating? Yes/ No
2. Do you separate the waste that you generate? Yes/ No
3. If no why don't you separate your waste?
4. How do you dispose of your waste when in the market?
5. Do you have a waste bin?
6. Do you practice open defecation? Yes/ No
7. Do you use the public latrines when come to the market? Yes / No
8. Do you believe that, poor sanitation causes illnesses or diseases? Yes / No
9. If yes, can you name some of them ?.....

Thank You for your participation.

Appendix C. Interview Guide for Assembly Staff

University of Ghana

College of Humanities

School of Public Health

This interview seeks your response in order to assess the Knowledge, Attitudes and Practices of sanitation and health of market users at Agboglobshie market in Accra. I wish to assure you that this is an academic study and all information provided shall strictly be used for academic purposes. You are also assured of absolute confidentiality and anonymity. There is thus no right or wrong answer.

Part 1 Socio – Demographic Characteristics

Please respond to the questions by ticking [] the answer that reflects your opinion.

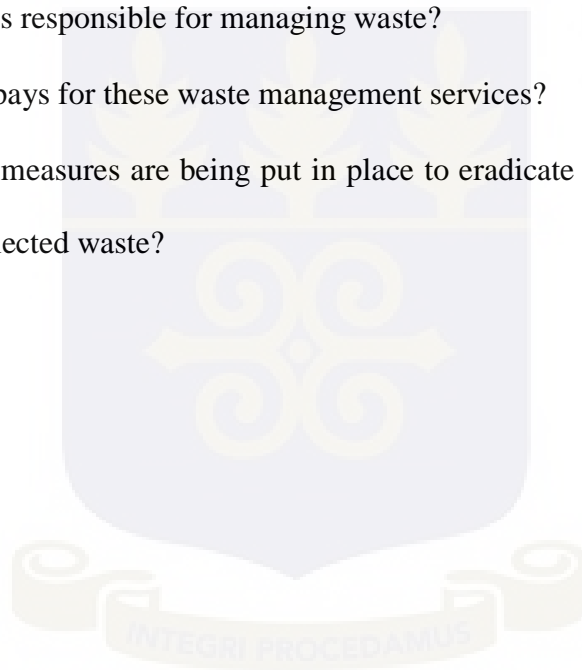
Participant Number.....

1. Gender. Male [] Female []
2. Age.Years.....Months
3. Marital Status. Married [] Single [] Divorced [] Widowed []
4. Religious Affiliation. Christian [] Muslim [] Traditional [] Other []
5. Level of Education. Primary [] Secondary [] Tertiary [] No formal education []
6. How long have you been employed by the Assembly?

Part 2 Knowledge, attitudes and practices towards sanitation

1. What are some of the sanitation laws and policies currently in place at the Agboglobshie market?
 - Are they enough?
 - Who develops these policies?

2. Are these laws and policies effective?
 - Are all market users aware of these policies?
 - Who enforces them?
3. What are the punitive measures for breaking such sanitation laws and policies?
 - Are these punitive measures enough?
4. What measures are been taken to educate market users on sanitation?
5. How is waste managed in this Market?
 - What kinds of waste are generated in this Market?
 - Who is responsible for managing waste?
 - Who pays for these waste management services?
 - What measures are being put in place to eradicate the rubbish piles and or uncollected waste?



Appendix D. Participant Consent Form

Informed Consent Form

Project Title: Assessment of Knowledge, Attitudes and Practices of Sanitation and Health of Market Users at the Agboghloshie Market in Accra, Ghana.

.Background

My name is Sebastian Hotor, a student from the School of Public Health, University of Ghana, Legon. I am conducting a study to assess the Knowledge, Attitudes and Practices of sanitation and health of market users in Agboghloshie market in Accra, Ghana.

Procedures

The study will involve answering questions from a closed ended questionnaire. You are under no obligations to participate in the study. It will be appreciated if you could participate in this study. This is purely academic research which forms part of my work for the award of a Master's Degree in Public Health.

Confidentiality and Anonymity

This study is anonymous. We will not be collecting or retaining any information about your identity. The records of this study will be kept strictly confidential. We will not include any information in any report we may publish that would make it possible to identify you.

Risks and Benefits

The study when completed would inform market managers and health policy makers about the nature of sanitation in Ghana's markets and the necessary actions that ought to be taken to invoke a behavioral change towards improved sanitation thus the study would act as a feedback mechanism to health authorities. There are no risks associated with this study.

Right to Refuse

Participation in this study is voluntary and you can choose not to answer any individual question or all questions. You are at liberty to withdraw from the study at any time. However, I will encourage you to fully participate in the study since your answers are much needed.

Before taking consent

Do you have any questions you wish to ask about the study? Yes/No

If yes, please, indicate the questions below.....

.....
.....

Voluntary Consent

I have read the information given above, or the information above has been read to me and I understand. I have been given a chance to ask questions concerning this study; questions have been answered to my satisfaction. I now voluntarily agree to participate in this study knowing that I have the right to withdraw this study at any time without affecting future health care services.

.....

Name of Respondent	Date	Thumbprint	Signature
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.....

Name of Researcher	Date	Thumbprint	Signature
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Researcher's Statement

I, the undersigned, have explained this consent to the subject in English language/ Twi/ Ewe/Ga, and that she/he understands the purpose of the study, procedures to be followed, as well as the risks and benefits of the study.

The participant has fully agreed to participate in the study.

Signature of Interviewer

Date

Address

If you have any questions later please, contact

Researcher: Sebastian Mawuli Hotor (0244579520).

Administrator of the GHS-ERC:

