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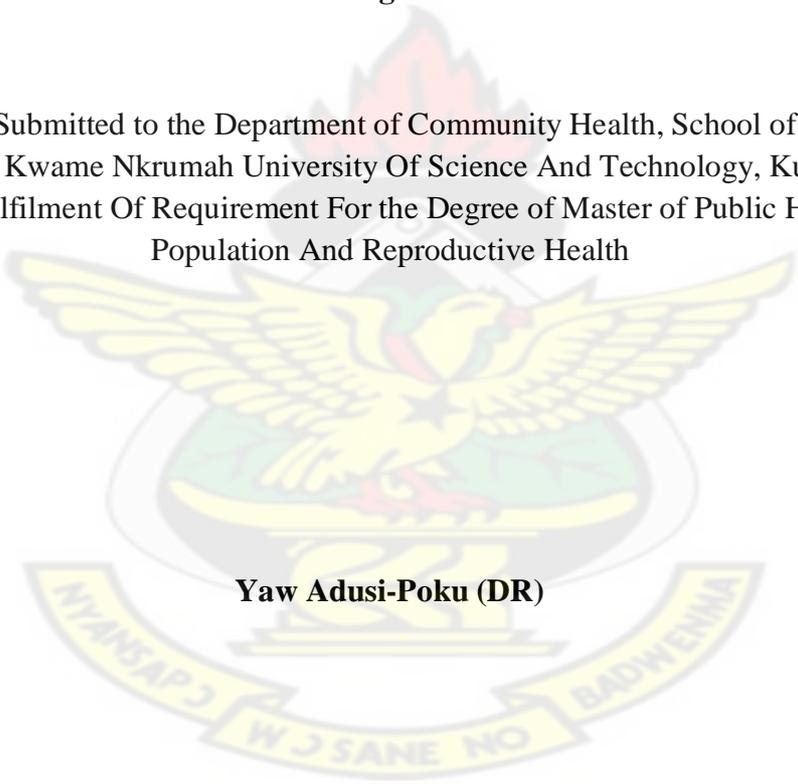
COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF COMMUNITY HEALTH

**Pregnant Women and Alcohol Use in the Bosomtwe District of the Ashanti
Region**

A Thesis Submitted to the Department of Community Health, School of Medical
Sciences, Kwame Nkrumah University Of Science And Technology, Kumasi In
Partial Fulfilment Of Requirement For the Degree of Master of Public Health In
Population And Reproductive Health



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DATE: JUNE 2011

DECLARATION

I hereby declare that this is the original work I did with the help of my supervisor except for references to other people's work which has been duly acknowledged and that this work has neither been presented in whole or in part for the award of any degree elsewhere

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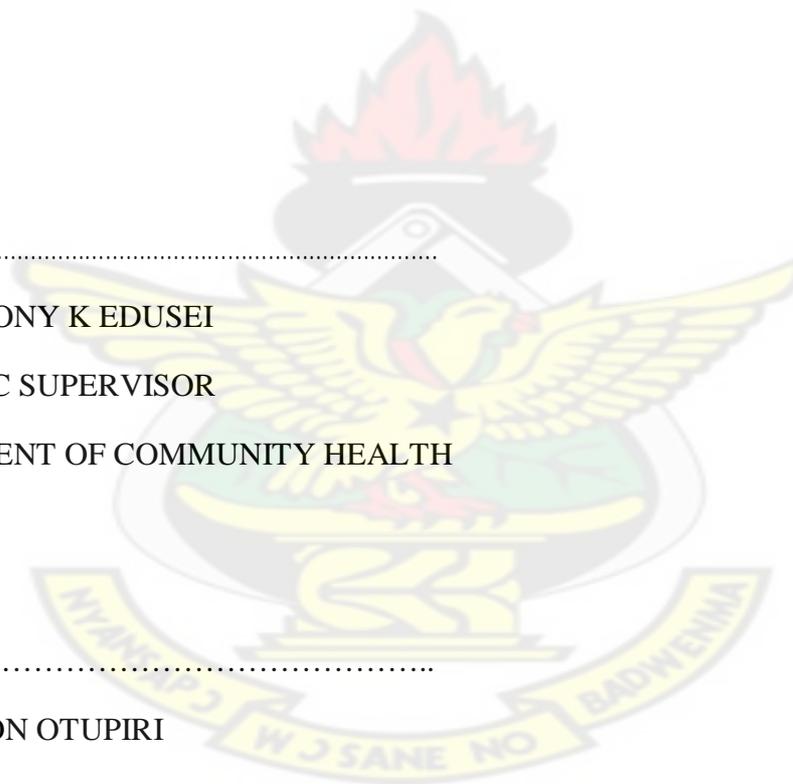
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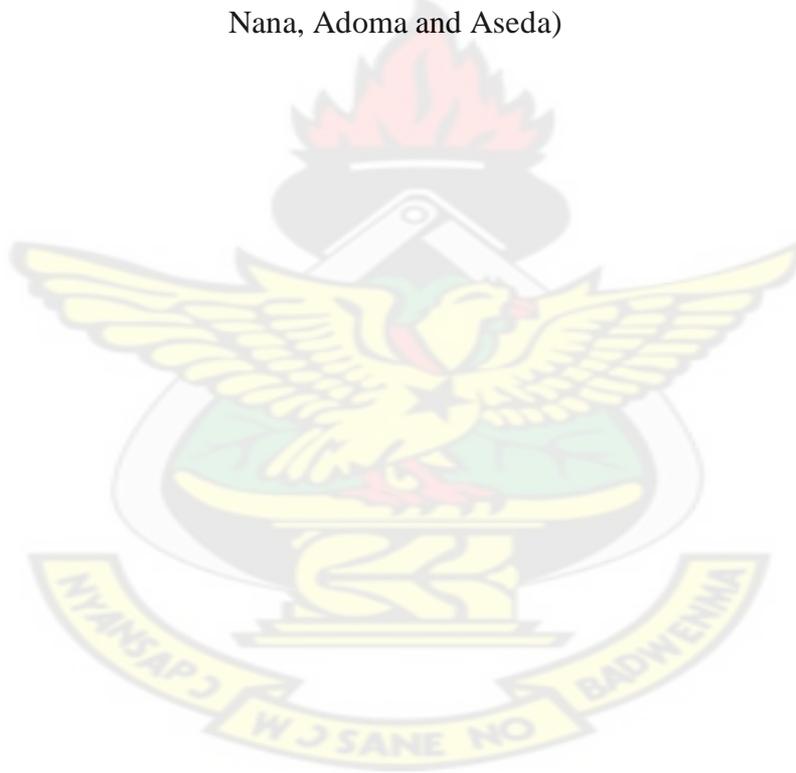
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DEDICATION

I dedicate this work to my lovely wife Hagar Adusi-Poku and my children (Emma, Nana, Adoma and Aseda)



ACKNOWLEDGEMENT

My first thanks goes to the Almighty God for his love, guidance and inspiration given me throughout the study.

My academic supervisor, Dr. Anthony K. Edusei has been of immense help to me. I appreciate all the valuable time allotted me even meeting me at odd times at his very inconveniences. God bless you.

I appreciate very much, the support and patience given me by my field supervisor, Dr. (Mrs) Agatha Akua Bonney, Director of Health Service for Bosomtwe District. Your suggestions helped me to polish up this study. May God richly bless you and replenish all that you gave me. You still guide me as my mentor.

My sincere thanks go to Dr. Harry Tagbor, Dr. Ellis Owusu-Dabo and Dr. Otupiri, who have been my tutors. Time spent with them was a blessing. God richly bless him.

My thanks also go to the staff of the District Health Management Team, Bosomtwe, the Medical Superintendent and staff of all the Reproductive and Child Health of all the ANC clinics at the Bosomtwe District. Without their help, the study would not have been possible. Thank you.

I am also indebted to all the pregnant women who voluntarily contributed to the study; without them the study would not have been possible.

My appreciation goes to Gabby, Mariam, Mr. Addai-Donkor and Dr. (Mrs) Gifty Antwi all of the Department of Community Health and to Mr. Kofi Poku and Alhaji Ibn Ibrahim at the Regional Health Administration.

DEFINITION OF TERMS

The pregnant women: Refers to pregnant women attending antenatal clinic at a reproductive and child health facility in the Bosomtwe district.

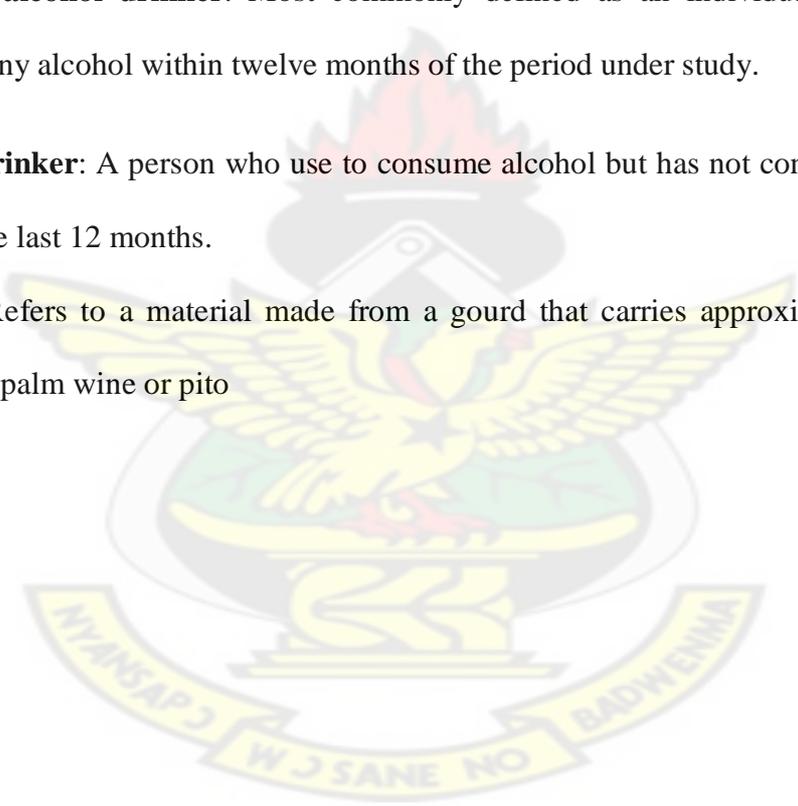
‘Tot’: Refers to a glass measure of an amount of alcohol which is equivalent to 30 milliliters.

Alcohol use: It is the consumption of alcohol. It does not indicate the amount used or the extent of harm from use.

A current alcohol drinker: Most commonly defined as an individual who has consumed any alcohol within twelve months of the period under study.

A former drinker: A person who use to consume alcohol but has not consumed any alcohol in the last 12 months.

Calabash: Refers to a material made from a gourd that carries approximately 750 milliliters of palm wine or pito



LIST OF ABBREVIATIONS OR/ACRONYMS

ANC	-	Antenatal Care
DDHS	-	District Director of Health Service
DHA	-	District Health Administration
DHMT	-	District Health Management Team
GHS	-	Ghana Health Service
MCHFP	-	Maternal and Child Health and Family Planning
WHO	-	World Health Organization
WIFA	-	Women in Fertility Age



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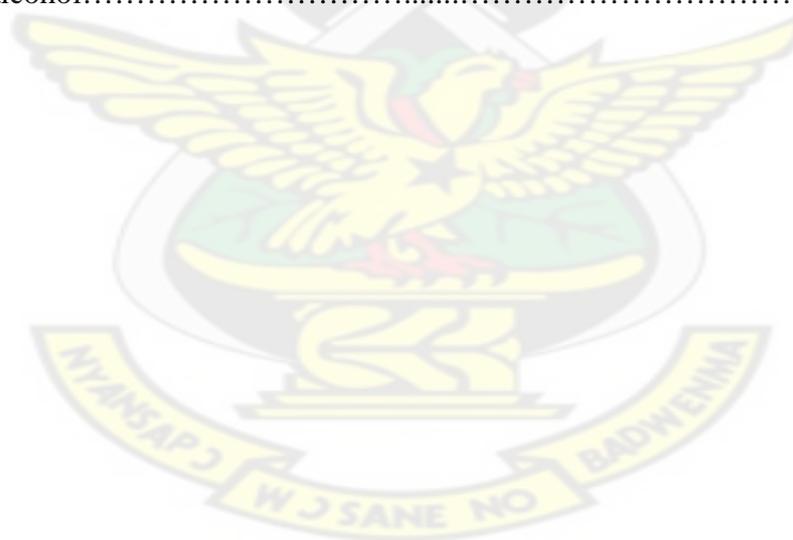
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ABSTRACT

There are anecdotal claims that problem of alcohol ingestion exists among women in the reproductive years in the Bosomtwe district of the Ashanti Region but there is lack of data to support this. The principal objective of this study therefore was to validate these claims by the assessment of alcohol consumption among pregnant women attending antenatal clinics in the Bosomtwe District of the Ashanti Region.

The study, a descriptive cross-sectional, was conducted in ten health facilities providing reproductive health care in the district in the months of July to October, 2010 with a sample size of 397 pregnant women.

The main findings of the study were that 20.4% of pregnant women drank alcohol even though about three-quarters (78.0%) thought that alcohol had harmful effects in pregnancy. Fifty-seven percent (57.0%) of these (78.0%) did not actually know the possible harm that alcohol could cause on pregnancy. The most preferred drink was Akpeteshie, a locally manufactured distilled alcoholic beverage (36.4%), followed by Ginsing/Kasapreko/Pusher (27.3%). Study participants drank an average of 'half-tot' and 'one-tot' per a drinking session respectively. Logistic Regression analysis to identify the effects of some socio-demographic variables on alcohol consumption revealed that, Marital status and Religious affiliation were predictive of alcohol consumption, $p < 0.10$.

It is recommended that the DHMT strengthens health education on alcohol at ANC and through the radio as well as the DHMT collaborating with the Ghana Health Service to embark on education of school pupils and students on the harmful effects of alcohol in pregnancy.

Keywords: Alcohol, Women, Reproductive years, Fetal alcohol syndrome,
Akpateshie

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CHAPTER ONE

1.0 INTRODUCTION

Although the existence of alcohol – induced fatal damage is well established, some 6 to 20 % of women have been reported to drink alcohol ‘heavily’ during pregnancy (Flynn *et al*, 2003). A study conducted by Ho and Jacquemard (2009) revealed that over a quarter of the women drank alcohol throughout pregnancy. A significant minority of women drank relatively heavily during pregnancy and even though women do reduce their alcohol use because of the pregnancy, often only after they become aware of it.

Alcohol has profound effects on an unborn baby by a mother who drinks. It is evident that a mother does not have to be an alcoholic to expose her unborn baby to the harmful effects of alcohol during pregnancy. In other words, no level of alcohol use during pregnancy has been proven safe. It has effects on both the mother and the fetus. The detrimental effect of alcohol is much more pronounced on the fetus. The severest effect of alcohol on the fetus is a constellation of variable physical and cognitive abnormalities called Fetal Alcohol Syndrome (FAS) whilst if it is less severe, it is referred to as Fetal Alcohol Effects (FAE). The unfortunate child basically, can be identified by small stature and a typical set of facial traits including small head (microcephaly), small eyes (microphthalmia), short palpebral fissures, epicanthal folds, a small or flat mid - face, a flat elongated philtrum, a thin upper lip, and a small chin. Abnormal palmar creases, heart defects, and joint contractures may also be evident. After birth, cognitive deficits become apparent. The most serious manifestation is severe intellectual disability, thought to be a teratogenic effect (Kinney, 2000).

Alcohol exposure in the uterus also increases the risk of spontaneous abortion and decreases birth weight (The Merck Manual, 2009)

For the mother, the effects of alcohol is not only on her physiology, socially, it disrupts the family relationship and causes work-related problems such as absences from work and reduces job performance. It is also associated with legal problems such as petty thefts (IAS, 2008).

A survey conducted by Ghana Organization on Foetal Alcohol Syndrome (GOFAS), a Non Governmental Organization estimated that the annual per capita consumption of alcohol was between 1.5 litres and 7 million gallons. The research embarked upon by GOFAS in three regions of Ghana, notably, the Greater Accra, Central and Western revealed that out of 150 women of child bearing age between the ages of 16-35, 86% of the respondents drunk various forms of alcohol beverages during the period of pregnancy (Kunateh, 2007).

There have been a lot of reasons why women drink during pregnancy. The reasons may be that alcohol 'calms nerves' (as a relaxant/ reduces stress). Again, it may be due to the perception that it may improve on the physical health of the woman and furthermore that it may help her to interact effectively with others. Other factors are a family background of heavy drinking, a history of sexual abuse and low self-esteem. Also, traumatic life events and an association with eating disorders are some of the reasons why women drink during pregnancy (Medicinenet, 2010)

A study conducted by the Institute of Alcohol Studies (2009), United Kingdom revealed the following factors influencing women to drink:

Within the last ten years, there have been some fundamental changes in the role of women in society and these have brought about marked changes in attitudes and

behaviour towards alcohol. Women's drinking has become far more socially acceptable. Since the 1980's, there has been a steady rise in the number of women participating in the workforce and the male to female earnings ratio has narrowed. The workplace can be an important influence on drinking habits, and generally the employed drink more on average than the non-employed. Higher disposable income and greater financial independence underlie the increase in women's drinking.

There has been a rise of a class of professional women in their 20s and 30s who typically have high disposable income and few family responsibilities. It is this group which tends to drink the most.

Alcohol has become far more accessible to women through a range of outlets, such as supermarkets, restaurants, and wine bars. Pubs, also popularly called 'drinking spots' in Ghana for instance, have generally ceased to be all-male drinking environments and become more women-friendly however, for pregnant women, they have become hidden drinkers by letting people run errands for the purchase of alcohol because of the view of society on pregnant women who drink (Personal observation). Furthermore, a whole new range of alcohol and designer drinks have come on to the market which appeals particularly to women (IAS, 2008). These days, alcohol advertising is now targeted specifically at women, which normally portrays alcohol as fashionable, glamorous and used by women who are independent, fun-loving and desirable.

Finally, cultural attitudes favouring drinking and heavy drinking are transmitted by the mass media and receive frequent celebrity endorsement.

It is noted that alcohol consumption rate is higher among: young women aged 16-24 years compared with older age groups and also lone parents with children and adult women living with one parent. It is also common among the single, separated and

divorced as well as students and women who live in urban and peri-urban areas rather than rural areas (IAS, 2008).

In 2007, (GOFAS) in Ghana created awareness through the mass media. It further did some sensitization in six more communities in the Greater Accra region on the effect of alcohol. Various advocacy groups have aimed at pushing the regulatory bodies to force the alcohol producing companies to place warning signs on alcohol labels as it is done in the case of cigarettes but this has been in vain. The impact of GOFAS research work and other organizations have been weaning off over the years. One reason is that the Mental Health Bill has still not been passed yet by an act of parliament in Ghana.

1.1 Problem Statement

The Bosomtwe district in the Ashanti Region of Ghana is a peri-urban district which is located south of the Kumasi metropolis. The tribe is largely of the Asantes. The population that is unemployed is high. Alcohol is used as a social beverage and particularly during festive occasions such as funerals, and naming - ceremonies. There are a number of pubs scattered all over the district. Lake Bosomtwe, the only crater-lake is situated in the Amakom sub – district. The district has numerous hotels and rest houses scattered all around. A lot of social activities such as alcohol drinking take place in the sub district. There are anecdotal claims that problem of alcohol ingestion exists among women in the reproductive years but there is lack of data to support this. The perception is that the problem of alcohol ingestion extends into the gestational period of these women, but there are no empirical data to support these claims, hence the research work.

1.2 Justification

There is scanty data on alcohol drinking in a peri-urban district among pregnant women and in view of the problems of alcohol in pregnancy, there was the need for research to obtain empirical evidence as to the prevailing alcohol problems and subsequent campaign intensification with the aim that policy makers would take up this challenge to impress on government and other stake-holders such as association of distillery of alcohols so as to salvage the situation.

Again, the problem of alcohol drinking is made worse by unstandardized locally brewed alcohol popularly called “Akpeteshie”, others are “Pito”, ‘Abemonsuo’ and Palm wine. It is claimed that some of these locally brewed alcoholic beverages are beyond human consumption due to their poor purity and high alcoholic content. Yet there is scanty data to support this, locally and at the national level.



Figure 1.1: A woman brewing Pito in Ghana,

Source: 2004 WHO Global Alcohol Status report

Information that would be gathered from the study would be used by the District Health Management Team (DHMT) to improve upon the alcohol education on pregnant women in the district. It could also be used by other districts which may be found in similar circumstances to help improve upon their program.

1.3 Conceptual Framework

The conceptual framework is a general overview of some of the factors that may contribute to alcohol use among pregnant women in the district and how these factors are linked to each other. It also gives an overview of the consequences of alcohol use. Hence, it seeks to give a framework within which this study was conducted. The conceptual framework is depicted graphically in Figure 1.2.



CONCEPTUAL FRAMEWORK

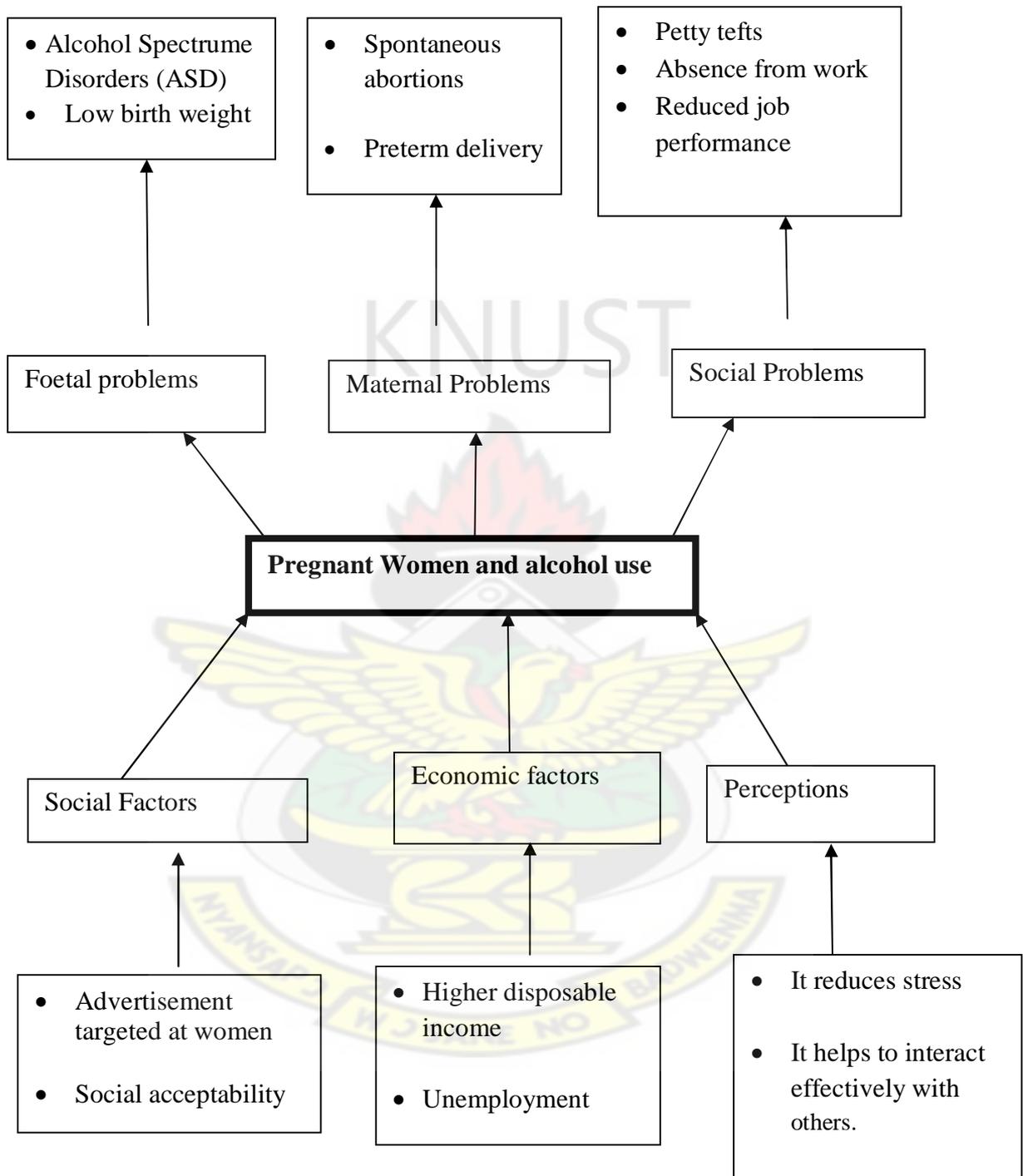


Fig 1.2 Conceptual framework

Source-Author's own construct, 2010

1.4 Research questions

The research questions were:

- What are the demographic characteristics of pregnant women in the study district?
- . What is the level of knowledge of pregnant women attending Antenatal Clinic about the general effects of alcohol on pregnant women in the Bosomtwe district of the Ashanti Region?
- What are the types of alcoholic beverage and average volume consumed among pregnant women attending ANC in the Bosomtwe district of the Ashanti Region?
- What are the socio-demographic factor(s) that influence(s) alcohol consumption?

1.5 General Objective

Assessment of alcohol consumption among pregnant women attending antenatal clinics in the Bosomtwe District of the Ashanti Region.

1.6 Specific objectives were to:

- To assess the level of knowledge of pregnant women attending Antenatal Clinic about the general effects of alcohol on pregnant women in the Bosomtwe district of the Ashanti Region.
- To determine the types of alcoholic beverage and average volume consumed among pregnant women attending ANC in the Bosomtwe district of the Ashanti Region.
- To identify socio-demographic factor(s) that influence(s) alcohol consumption
 - Age
 - Marital Status
 - Educational level
 - Occupation
 - Religious affiliation



1.7 Scope of study

The study covered the whole of the district. It involved all the outreach points for Reproductive and Child Health activities where all antenatal clinics (ANCs) in the district are held.

1.8 Organization of report

Chapter one has presented the background information to the study, the problem statement and the justification for the study the objectives. Chapter two presents a review of related literature on the level of knowledge about the harmful effects of alcohol in pregnancy, the types and amount of alcoholic drinks consumed by pregnant women as well as the socio – demographic factors that influence alcohol consumption;. a brief literature on alcohol types and production. Chapter three describes the profile of the study area, the study type and population chosen and the general procedure that the study followed. Chapter four presents the results, chapter five the discussions and chapter six, the conclusions and recommendations of the study.

CHAPTER TWO

2.0 LITERATURE REVIEW

This chapter deals with the review of relevant literature to the study.

2.1 Introduction

2.1.1 The origin and chemical constituent of alcohol

According to Jean Kinney (2000) in his book, 'Loosening the Grip', the word alcohol is derived from the Arabic word 'alkohl'. It originally referred to a fine powder of antimony used for staining the eyelids. The word has evolved over the centuries to mean 'the essential spirit of the wine'. Chemically, alcohol is loosely used to describe any compound with a chemical structure containing a methyl and a hydroxyl group. Ethanol belongs to this group. It is this class of alcohol that is for human consumption. It has a chemical structure: C_2H_5OH .

Alcohol is considered as a source of "empty calories" because it has no other nutritional value such as minerals and vitamins apart from calories (Kinney, 2000).

2.1.2 Alcohol Production.

There are two main processes of alcohol production. These are fermentation and distillation. Fermentation is a natural process for the production of alcohol which occurs when yeasts combine with plants. The resultant alcoholic strength is not more than 14%.

Distillation is a simple process that can produce an alcohol content of almost 93 % and was discovered by Rhazes, an Arabian physician in the 10th century (Kinney, 2000).

2.1.3 Types of Alcohol and Alcoholic Beverages

According to WHO, (2005) the types of alcoholic beverages are: Wines, Beer, Whisky, Rum, Brandy, Gin, liqueurs and local alcoholic beverages.

2.1.3.1 Wines are made from a variety of fruits, such as grapes, peaches, plums or apricots. The most common wines are produced from grapes. The soil in which the grapes are grown and the weather conditions in the growing season determine the quality and taste of the grapes which in turn affects the taste and quality of wines. When ripe, the grapes are crushed and fermented in large vats to produce wine.

2.1.3.2 Beer is also made by the process of fermentation. A liquid mix, called wort, is prepared by combining yeast and malted cereal, such as corn, rye, wheat or barely. Fermentation of this liquid mix produces alcohol and carbon dioxide. The process of fermentation is stopped before it is completed to limit the alcohol content. The alcohol so produced is called beer. It contains 4 to 8 percent of alcohol.

2.1.3.3 Whisky is made by distilling the fermented juice of cereal grains such as corn, rye or barley. Scotch whisky was originally made in Scotland. The word "Scotch" has become almost synonymous with whisky of good quality.

2.1.3.4 Rum is a distilled beverage made from fermented molasses or sugarcane juice and is aged for at least three years. Caramel is sometimes used for colouring.

2.1.3.5 Brandy is distilled from fermented fruit juices. Brandy is usually aged in oak casks. The colour of brandy comes either from the casks or from caramel that is added

2.1.3.6 Gin is a distilled beverage. It is a combination of alcohol, water and various flavours. Gin does not improve with age, so it is not stored in wooden casks.

2.1.3.7 Liqueurs are made by adding sugar and flavouring such as fruits, herbs or flowers to brandy or to a combination of alcohol and water. Most liqueurs contain 20-65 per cent alcohol. They are usually consumed in small quantities after dinner.

2.1.3.8 Locally Produced Alcohols

2.1.3.8.1 Akpeteshie: Akpeteshie is distilled from fermented palm wine or sugar-cane juice and require a simple apparatus to distil. The standardized alcohol strength of Akpeteshie is between 40 and 50% by volume. Akpeteshie production as conducted by most traditional methods does not meet the required standards set by the Ghana Standards Board. The final product is mostly contaminated by the combined action of various unacceptable levels of component substances like fusel oils resulting from inefficient distillation processes and the presence of some acid and alcohol tolerant species of moulds and bacteria.

2.1.3.8.2 Palm Wines are produced from palm trees. The Juice is obtained by tapping the tree either at the base of an immature male intlorescence or the base of the topmost frond. A white liquid, with a sweetish taste, oozes out of these trees. When consumed fresh, this juice has no or little intoxicating effect. This liquid is collected and allowed to ferment. At times, yeast is added to hasten the process. The fermented juice has an alcohol content of approximately 5-10 per cent.

2.1.3.8.3 Pito (local brew made from millet). The brewing of pito is traditionally associated with the people in the northern part of the country, but migration has led to its production throughout the country. The industry is mostly controlled by women between the ages of 18 and 67 years old. Pito is golden yellow to dark brown in colour with taste varying from slightly sweet to very sour. It contains lactic acid, sugars, amino acids, 2% to 3% alcohol and some vitamins and proteins. There are four types of pito in Ghana – nandom, kokomba, togo and dagarti. The peculiar characteristic of each lies in the differences in their wort extraction and fermentation methods (Zakpaa *et al*, 2009).



2.1.4 Gender Differences in Alcohol Metabolism

There is an enzyme called alcohol dehydrogenase that begins some of the metabolism of alcohol in the stomach (The Merck Manual, 2009). Women have less of this enzyme, so alcohol passes through their guts and into their bloodstream quicker than in men (The Merck Manual, 2009). Once alcohol is absorbed, it spreads rapidly into the body water spaces, so the smaller size and higher body fat content of women increase its levels. Women metabolize about 10% of the alcohol ingested, while men metabolize about 30% (The Merck Manual, 2009).

2.1.5 Uses of Alcohol

Since ancient times, alcohol has been used as a medicine. It was an antiseptic and an anaesthetic and was used in combinations to form salves and tonics. It was used for knee pain and even hiccups. St. Paul in the bible advised Timothy 'No longer drink only water, but use a little wine for the sake of your stomach and your frequent ailments' (Thompson Bible, 2006).

Alcohol is used in communities for social, ritualistic, dietary and mood modification. For social purposes, alcohol is seen as a "social mixer" in which the conscience is dissolved and rigid inhibitions are lowered. For ritual purposes, alcohol is used during marriage ceremonies, cultural, religious as well as for good fortune and during funerals. It is also used as a complement to certain foods and ingredient in special food dishes as well as for mood modification to reduce stress, feel powerful or confident (Kunateh, 2007).

2.2 Level of Knowledge about the General Effects of Alcohol

A cross-sectional national survey was conducted by Peardon and others on women aged, 18 – 45 in their reproductive years in Australia. It revealed that 61.5% had heard about effects of alcohol on the fetus and 55.3% had heard of Foetal Alcohol Syndrome. Although 92.7% agreed alcohol could affect the unborn child, 16.2% did not agree that the disabilities could be life - long. Most women agreed that pregnant women should not drink alcohol (80.2%). Women with higher educational levels were more likely to know the effects of alcohol consumption in pregnancy (adjusted OR 5.62; 95% CI 3.20 to 9.87); (Peardon *et al*, 2010).

In a larger study (national survey) conducted in Canada on women in their reproductive years on the awareness of the effects of alcohol use during pregnancy and fetal alcohol Syndrome; 71.0 % knew alcohol could be harmful in pregnancy but did not really know what the effects really were; 89% of the respondents believed that alcohol could cause life-long disability in the child and also some effects on the mother (EnviroNics Research Group Limited, 2000).

A study by Chang and others in the USA revealed that the pregnant women had good knowledge about the harmful effects of alcohol in pregnancy and healthy habits during pregnancy (Chang *et al*, 2006).

In another study among pregnant women in Oslo, there was a general awareness of the harmful effects of alcohol that led to a 50% reduction of alcohol drinking in pregnancy (Hhlen *et al*, 2006).

2.3 Types of Alcoholic beverage consumed among pregnant women.

A study conducted by Greenfield and Graves (2002) on alcohol preferences among pregnant Native and African - American urban women showed that the Native American women in the study preferred beer which accounted for one – third of their total intake, followed by spirits, which accounted for one-quarter of their intake. The African American women in the study had an equal preference for malt liquor and spirits, each accounting for approximately one-quarter of their intake.

Personal observations show that in Ghana, urbanised women in their reproductive years prefer beer or guinness whereas women in the villages prefer locally brewed alcohol such as palm wine and akpeteshie.

In the report by the World Health Organisation on the global status on alcohol, traditionally made local beverages were very popular, particularly in Africa, as they tended to be cheaper than factory-made drinks thus ensuring their continuing popularity, especially among poorer population groups. In some countries, such as Namibia, home-brewed beverages were the main source of alcohol and contributed to improving the economic livelihood of their producers which were often women (WHO, 2004).

Contrary to preferences in most African countries, Albertsen and others on a study of alcohol consumption during pregnancy and the risk of preterm delivery among some Danish women demonstrated the type of alcoholic beverage drunk during pregnancy as follows: 11.5% drank beer, 71.0% drank wine and 0.9% took spirit whereas 16.7% took mixed (Albertson *et al*, 2004).

2.4 Socio-demographic factors that influence alcohol consumption.

According to Jean Kinney, patterns of alcohol consumption vary according to a number of socio – demographic factors. In the context under study, age, level of education, marital status, occupation and religion were considered (Kinney 2000).

2.4.1 Age: In the study by Pitkänen and others, “Age of onset of drinking and the use of alcohol in adulthood: a follow-up study from age 8–42 for females and males”, four indicators of the adult use of alcohol were used which were: (1) frequency of drinking, (2) binge drinking, (3) Cut-down and (4) Annoyed. Results indicated that age of onset of alcohol drinking was predictive of these four indicators in adult life (Pitkänen *et al*, 2005).

In a longitudinal study conducted by Moore and others in the U.S.A and published in 2005, Age and Period effects were found to be predictors of alcohol consumption. Consistent drinkers consistently drank with the passage of time whilst consistent abstainers consistently abstained (Moore *et al*, 2005).

2.4.2 Education: Alcohol use increases with higher levels of education. Those with more than 12 years of education are virtually twice as likely to be drinkers as those with less. On the other hand, for heavy drinkers, about 6% of those with less than Junior High School education report heavy drinking compared to 2% of college graduates (Ford, 2008), (Kinney, 2000).

According to the World Health Organisation, a study conducted in India on the role of socioeconomic makers in the prediction of alcohol consumption revealed that the odd of drinking was relatively high among illiterate women (WHO, 2005).

2.4.3 Occupation: In the study of “Alcoholism and Occupations”, Mandell and others reviewed and analysed 104 occupations for an association between alcoholism and type of occupation. Results indicated that there was the prevalence of alcohol dependence and abuse in two high risk industries, construction and transportation. Evidence was presented that employment in some occupations may be protective for Alcohol Dependence (Mandell *et al*, 2006).

In another study by Katherine Ford, ‘Understanding of the use of alcohol in pregnancy amongst women in Scotland’; women were more likely to drink during pregnancy if they earned high income (Ford, 2008).

2.4.4 Marital Status: The proportion of drinkers is essentially the same between those who are married, either separated or divorced or never married. However, the picture is different when one looks at heavy drinkers. The highest rate of heavy drinking episodes is found among those never married, 8.7%, closely followed by those who are divorced, 7.9%. This is close to four times the rate of heavy drinking found among those who are married (Kinney, 2000).

However, in a study conducted by Prescott and Kendler (2001), it was found that there was significant association between marital status and decline in consumption prior to age 30. Significant differences in consumption patterns were associated with

marital status; women who later divorced drank more than women who stayed married and divorced women who remarried drank less than divorced women who did not remarry. In conclusions, the results were consistent with a decrease in drinking accompanying the transition from being single to marriage (Prescott and Kendler, 2001).

2.4.5 Religion: Results by Ayers and others in the Journal of Studies on Alcohol and Drugs identified religion and religious messages as one of the mechanisms of social reinforcement by which religious institutions influence drinking behaviours. The conclusion was that messages from congregants had a unique impact beyond the traditional indicators of the effect of religion and that these religious messages provided public health interventionists with religious pathways to improve drinking behaviours (Ayers *et al*, 2009).

Moslems and Protestants conservative religious denominations have the lowest percentage of members who drink alcoholic beverages, 53.6%. The religious groups with the highest proportion of members who use alcohol are the Jews, 92%, followed by Catholics, 79% and Liberal groups. In terms of heavy drinking, the highest levels of heavy drinking are reported by Catholics (Kinney, 2000).

CHAPTER THREE

3.0 Background Information of the District

3.1.1 Political background: Bosomtwe District is in the Ashanti Region of Ghana. It was formerly part of the Bosomtwe-Atwima-Kwanwoma district, but carved out by Legislative Instrument LI 1853 of 29th February, 2008. Kuntense, the district capital is about 28 kilometers from Kumasi, the capital of the Ashanti Region. The district shares common borders with the Ejisu-Juaben district and Kumasi Metropolis on the North; Asante-Akim North district on the East, Atwima Kwanwoma District on the West and Amansie-East district on the South.

3.1.2 Geography: The land size is approximately 500 square kilometers which represents about 2% of the total land area of the Ashanti region. The road network from Kumasi, the regional capital, to Kuntense and Abono at the Lake area is second class. Unfortunately, around the Lake and in most parts of the district the roads are not motorable. There are mountainous areas as well which are generally quite difficult to access. The district has the only Crater Lake in Ghana, Lake Bosomtwe which is being developed as a resort to boost tourism in Ghana.

3.1.3 Population : Politically, there are 3 sub-districts, namely, Kuntense, Jachie-Pramso and Amakom, but for public health activities, the Jachie-Pramso sub-district has been divided into; Jachie and Pramso. There are a total of 63 communities with an estimated 2010 population of 96,677.

3.1.4 Morbidity: Malaria was the leading cause of OPD attendance in 2009 followed by Hypertension, Cough/Cold and Diarrhoea. The DHMT identified malnutrition in children, teenage pregnancy and maternal mortality as major health problems that need to be addressed urgently. Still births and maternal mortality could have been contributed by alcohol in pregnancy and the statistics were as follows:

3.1 Still births and maternal deaths in Bosomtwe district

	2008	2009	2010
Still Births	51	50	44
Maternal deaths	7	5	3

Source: Bosomtwe DHMT Record, 2010

3.2 Study location

The study was conducted in ten health facilities in the Bosomtwe district providing reproductive health care from July to October, 2010. The study was limited to interviewing pregnant women.

3.3 Study Design and Sample size

The study was a descriptive cross-sectional study. A total of 401 pregnant women were calculated to be the sample size based on the need to detect with a 95% confidence interval, a 50% prevalence of pregnant women who drink alcohol and in addition, a non response rate of 5%. The width of the interval was chosen as 10 units, 5 on either sides of the interval. The sample size was determined by the formula:

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

n= Sample size

d= Half of the width of the confidence interval

z = Reliability coefficient

P = Proportion of women in their reproductive ages who drink.

q = 1-P

The proportion of pregnant women who drank alcohol was assumed to be 50 percent.

Hence, using the formula, above

p = 0.5, q = 1 - 0.5

$n = (1.96)^2(0.5)(0.5) \div (0.05)^2 = \approx 385$

Adding a 5 percent non response rate yielded in total, 401 sample size

3.4 Inclusion Criteria

- Alcohol use among pregnant women was assessed with respect to the current pregnancy
- A confirmed pregnancy of any gestation was included.
- Assessment of alcohol use was irrespective of the parity of the woman.
- Consumers of alcoholic beverages of alcoholic content of 14% or more.

3.5 Exclusion Criteria

- Severely ill pregnant women were excluded and those who took alcoholic based tinctures, syrups and any type containing less than 14.0% of alcohol.

3.6 Sampling procedure:

At the facility where the number of registrants for ANC was larger than the quota allotted, Systematic random sampling method was used however, in other facilities where the number was few; all the pregnant women were interviewed.

The Bosomtwe district had 10 health facilities providing reproductive health care. The distribution of the ANC health facilities were as follows under the various sub-districts, Jachie – Pramso, 4; Amakom, 3; and Kuntanase, 3.

Using the expected number of pregnancies for each sub - district, the proportion of pregnant women was calculated for each sub - district. Hence the sample size of 401 was distributed to the health facilities according to the proportion by size of expected pregnancies for 2010. This yielded the following:

Table 3.2 Sample size allocation according to the expected pregnancies

Subdistrict	Expected pregnancies	Proportion by size of expected pregnancies	Sample size allocation
Kuntanase	1342	0.35	141
Jachie- Pramso	1894	0.49	197
Amakom	631	0.163	66

The technique of sampling at each health facility depended on the total number of registrants and the attendance per each ANC session. For example, at St. Michael hospital where the total registrants exceeded the quota for the study, systematic random sampling was used by first determining the sampling interval, $K = N/n$, where:

N =Expected pregnancies for the year,

n = Sample size

K =sampling interval

This implied that every K^{th} person was interviewed. Then the starting point, say, X was determined using simple random sampling by balloting for the registrant between

1 and the K^{th} person inclusive. Pregnant women were then interviewed in the manner as follows: X , $X+K$, $X+2K$ and so on until the required number was achieved.

In the other facilities like Pease, a CHPS compound whose catchment area was small, all the pregnant women attending ANC were interviewed.

3.7 Data Collection and Tools

Prepared questionnaires containing open ended in the form of probing questions and closed - ended questions were used to interview the clients. The research assistants read out the questions and interpreted them to the respondents in their local language (Twi) after which their responses were recorded accordingly. The questions on alcohol included the socio - demographic characteristics such as the educational level, the occupation and the marital status. Again, questions concerning the type of alcohol and estimation of the amount usually taken as well as the knowledge of the effects of alcohol were asked.

3.8 Pre-testing

Before the start of the study, pre-testing of data collection tool was carried out at Foase, a community in the Atwima-Kwanwoma district having similar demographic characteristics to check for consistency, clarity and the acceptability of the study questions to the respondents.

3.9 Data Handling and Storage

Questionnaires were numbered serially to allow for easy identification in the sequence in which they were filled and collected. The identification numbers were kept throughout data coding. Data were entered on EpiData spreadsheet. Stata (version 10) software was used to clean and validate entered data and for performing the main analysis. Data were stored on laptop and a backup on a pen drive and a compact disc as well as in the researcher's electronic mail inbox.

3.10 Ethical considerations

Ethical approval was obtained from the Committee on Human Research Publication and Ethics (CHRPE), School of Medical Sciences, SMS, of the Kwame Nkrumah University of Science and Technology, KNUST and the District Health Management Team (DHMT), Bosomtwe district. Informed consent was sought from the participants before they were included in the study. Participants were assured of their privacy and non-participation if they so wished. Confidentiality of the data and outcome of the study were kept only for the purpose of the study.

3.11 Limitation(s) of the study

Societies in Ghana generally look down on women who drink because of the strong repulsion of drinkers by religious members. Women therefore shy away from questions about alcohol and this might have led to information bias. To overcome this, questionnaires were structured that contained questions such as “Do you know of any pregnant woman who drinks alcoholic beverage?” This question was included to serve two purposes. First to identify those who might not have been captured directly

and secondly for the client to refer to others should she be so shy to refer to herself as the drinker.

3.12 Assumptions:

The assumption was that all information provided by respondents was correct.

3.13 Analysis of Data

Data from the standard questionnaire were entered into EpiData, 3.1 spread-sheet. Data then was exported to Stata Version 10 statistical software for analysis. Data was summarized using frequency tables, means and standard deviations and median and ranges. Chi-square/ Fischer Exact tests were used to test the association between categorical variables of socio-demographic variables and alcohol consumption. The socio-demographic variables considered were: Age, Educational level, Marital Status, Occupational and Religious Affiliation. A p-value of less than 0.05 was taken to be significant.

Also, the logistic regression analysis was used to determine the socio-demographic predictors of alcohol consumption. Likelihood Ratios (LR) were calculated to determine the significance of the contributions of each of the socio-demographic predictors to the fitness of the logistic regression model with alcohol consumption as the outcome variable. 'The purposeful selection algorithm' method was used to build the logistic regression model (Bursac *et al*, 2007). In the univariate analysis of each variable, the p-value cut off point was 0.25 (Bursac *et al*, 2007). However, in the final model, any variable that was significant at the 0.1 alpha level was retained (Bursac *et al*, 2007).

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This chapter is a summary of the findings obtained from the survey under the following topics: Socio-demographic characteristics of pregnant women attending ANC in the Bosomtwe district, the level of knowledge about the general effects of alcohol as well as the types of alcoholic drink consumed and the average volume of alcohol use. It also summarises the findings on socio – demographic factors influencing alcohol consumption in pregnancy.

4.2 1 Socio-demographic characteristics of all respondents.

The calculated sample size for the study was 401; out of this, 4 were non-respondents, remaining 397 participants. Hence three hundred and ninety-seven (397) pregnant women were interviewed during the period of study. The average age of the respondents (pregnant women) was found to be $26.6 \pm (5.9)$ years in the 24-29 age group. The ages ranged from a minimum of 15 to a maximum of 42 years. Those below 20 years formed up to 11.8% of the respondents and 30 years and above formed 31.0%. More than half (54.9%) of the respondents were married and about 74.0% of the respondents had some form of formal education. More than 65.0% were in some form of employment. Christians formed the majority of the respondents (88.4%). The socio-demographic characteristics of all the respondents are summarized in Table 4.1.

Table 4.1: Socio-demographic characteristics of respondents

Variable	Freq	%
Age(yrs)		
15-19	70	18.9
20-24	80	21.6
25-29	111	29.9
30-34	64	17.3
35-39	34	9.2
40-44	12	3.2
Marital status		
Married	218	54.9
Never married	62	15.6
Cohabiting	111	28.0
Single	6	1.5
Highest educational Level		
None	100	25.2
Primary	77	19.4
JHS	173	43.6
Secondary	31	7.8
Tertiary	16	4.0
Occupation		
Unemployed	120	30.2
Artisan	50	12.6
Clerical worker	21	5.3
Farming	87	21.9
Trading	119	30.0
Religious affiliation		
Christianity	351	88.4
Muslim	12	3.0
Pagan	32	8.0
Traditional	2	0.5

Source: Field Survey, 2010

4.2.2 Socio-demographic characteristics of drinkers of alcoholic beverage

A total of 81 pregnant women responded positively that they drank alcohol. Hence the proportion of pregnant women who drink alcohol in the study sample was **20.4%**

The age group with the highest number of drinkers was the **24-29** year group (34.0%). This was followed by the **20-24** year group (21.0%) and the least drinking group was the **40-44** year group.

For marital status, the highest number of drinkers was found among those who were married (61.7%) and the lowest, among those who were single but with respect to the level of education, the highest number of drinkers was those who completed junior high school. There were no drinkers found among those whose highest level of education was secondary school.

In terms of occupation, traders were the highest group of drinkers (34.6%) followed by the unemployed (23.5%) and closely by farmers (22.0%) respectively.

Eighty- five percent (85.0%) of all the religious groups who drank alcohol were Christians. None of the Muslim interviewed drank alcoholic beverage.

4.4 Assessment of level of knowledge of alcohol consumption

All the 397 respondents were assessed of their level of knowledge about the general effects of alcohol on the mother and on the fetus. Thirty (30) of these respondents, representing 7.6% responded that alcohol had beneficial effects during pregnancy. One responded she did not know. Of the thirty that responded that alcohol had beneficial effects, 13 (43.3%) responded that alcohol acted as a relaxant to reduce stress. The others responded that it improved on the physical health of the pregnant woman, “cleaned” the baby in the womb or acted as an appetizer.

Three hundred and sixty-six (366) of the respondents said alcohol could have detrimental effects in pregnancy. An attempt was made to determine how many could give spontaneous correct answer(s) as to the kind of detrimental effect(s) alcohol could have on pregnancy either on the mother or on the fetus. Table 4.5 summarises this results.

Table 4.2 Result on spontaneous answer on the detrimental effects of alcohol

How can alcohol be detrimental to the pregnant woman?	Freq	%
Gave spontaneous correct answer	77	21.0
Gave spontaneous wrong answer	210	57.4
Did not respond at all	79	21.6

Source: Field Survey, 2010

Questions were asked about the possible effects of alcohol on a mother and on a fetus. These questions were in the form of multiple response variables as follows:

Alcohol can have the following effects on the pregnant mother; and the options were:

(1) It disrupts the family relationship (2) It interferes with the normal physiological processes of the mother (3) It causes work-related problems such absence from work and reduced job performance (4) It is associated with legal problems such as petty theft and other crimes (5) It causes preterm delivery (6) Don't know. The result is displayed in Table 4.3

Table 4.3. Effects of alcohol on the pregnant mother

Alcohol can have the following effects on the mother	Freq.	%
Five correct answers	117	29.6
Four correct answers	49	12.4
Three correct answers	92	23.3
Two correct answers	49	12.4
One correct answer	22	5.6
Don't know	66	16.7

Source: Field Survey, 2010

The subsequent question was: 'What are the effect(s) of alcohol on the fetus ?' The options were as follows:

1) It causes structural defects in the unborn child (2) It causes mental impairment in the unborn child (3) It causes spontaneous abortions (4) Don't know. The result is summarized in Table 4.4

Table 4.4 Results of the effects of alcohol on the baby in the womb

Alcohol can have the following effects on the fetus	Freq	%
Three correct answers	160	40.3
Two correct answers	113	28.5
One correct answer	50	12.6
Don't know	74	18.6

Source: Field Survey, 2010

4.5. Previous Education on the effects of alcohol

Respondents were asked if they had ever received education on the effects of alcohol and if so, where they received the education. Table 4.5 gives the results.

Table 4.5. Previous education on the effects of alcohol on either mother or fetus

Have you ever received education on the effects of alcohol on either mother/fetus?	Freq	%
Yes	318	54.9
No	179	45.1
Where did you receive your education?		
ANC clinics	73	33.5
From newspapers	2	0.9
Through television	24	11.0
From radio	28	12.8
Church/mosques	9	4.1
Other sources: Grandma/husband/School	13	6.0
More than one of the above	69	31.7

Source: Field Survey, 2010

4.6 Types of alcoholic beverage and estimated amount consumed

Table 4.6 is a summary of the types of alcohol and the amount drunk per a drinking session. 12.0% of the respondents drank more than one type of alcoholic beverage per drinking session. Of those who preferred one type, 18.0% took Guinness and 71.0% (the highest) belonging to this group had one to two bottles to drink per drinking session.

A lot of the pregnant women (36.4%) preferred to drink Akpteshie, a locally manufactured alcoholic beverage followed by Ginsing/Kasapreko/Pusher (27.3%).

Traditionally, certain beverages such as palm wine and pito are served not in standard measuring cups, but in the form of calabash (made from gourd). A typical calabash size for serving was approximately 750 mls. As indicated in Table 4.6, 4.0% drank Pito and 10.4% drank palm wine as the average consumption per sitting session respectively.

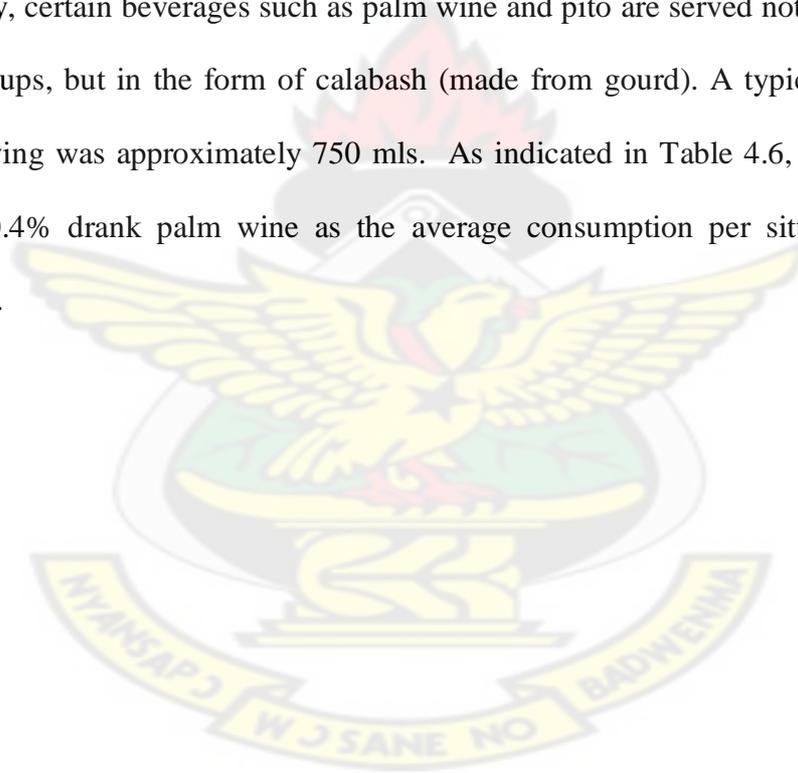
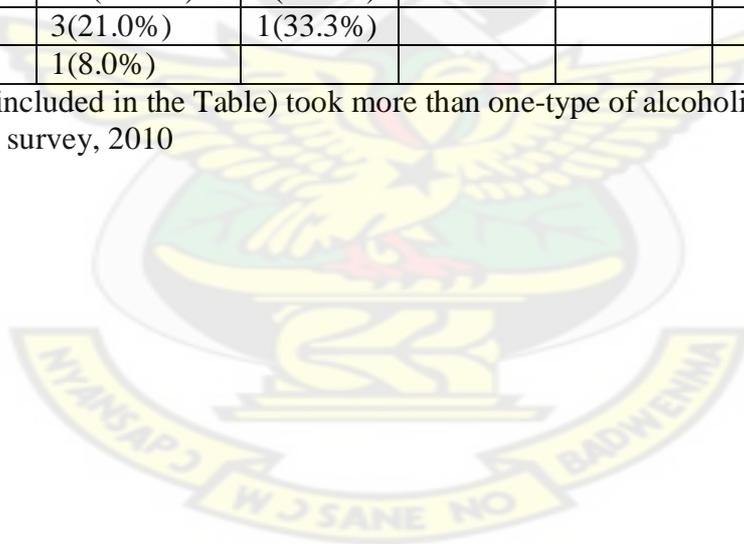


Table 4.6 Frequency and Percentage of pregnant women who drank one- type of alcoholic beverage and the amount consumed at a drinking session.

	Type of alcohol, freq. and % of consumers					
	Guinness	Beer	Akpeteshie	Pito	Palm wine	Ginsin/Kasapreko /Pusher
	14(18.0%)	3(3.9%)	28(36.4%)	3(4%)	8(10.4%)	21(27.3%)
Amount consumed at a drinking session						
Tot						
½			11(39.3%)			1(4.7%)
1			8(28.6%)			12(57.3%)
2			7(25.0%)			4(19.0%)
3			2(7.1%)			4(19.0%)
No. of Calabash						
1				2(67.7%)	4(50.0%)	
2				1(32.3)	3(37.5%)	
3					1(12.5%)	
4						
No. of bottles						
1	10 (71.0%)	2(67.7%)				
2	3(21.0%)	1(33.3%)				
3	1(8.0%)					

* 12.0% (not included in the Table) took more than one-type of alcoholic beverage

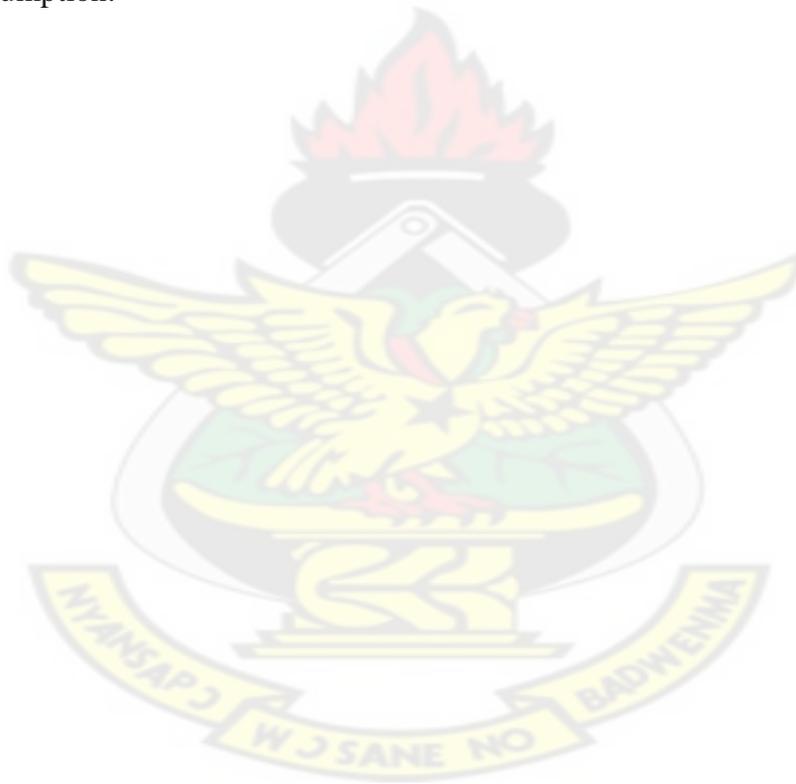
Source: Field survey, 2010



4.7 Socio-demographic Factors Influencing Alcohol Consumption

Using the chi square or the Fischer exact test, depending on which test was suitable, attempt was made to investigate the association between the socio-demographic variables and alcohol consumption. The results are summarised in Table 4.7

It was noted that the association between alcohol consumption and religious affiliation was significant as well as alcohol consumption with educational level. It also indicated that there were significant trends within each of these significant categorical data. The rest of the variables were not significantly associated with alcohol consumption.



Tab 4.7 Association/trend of socio-demographic variables and alcohol consumption

Variable	Drinks alcohol		P-Value
	<u>Yes</u>	<u>No</u>	
Age(yrs)			0.21*
15-19	7(9.2%)	63(21.4%)	
20-24	16(21.0%)	64(21.7%)	
25-29	26(34.2%)	85(28.8%)	
30-34	14(18.4%)	50(17.0%)	
35-39	10(13.2%)	24(8.0%)	
40-44	3(4.0%)	9(3.1%)	
Marital status			0.12**
Married	50(61.7%)	168(53.2%)	
Never married	6(7.4%)	56(17.7)	
Cohabiting	24(29.6%)	87(27.5%)	
Highest educational level			0.05*
None	21(25.9%)	79(25%)	
Primary	20(24.7%)	57(18%)	
JHS	37(45.7%)	136(43.0%)	
Tertiary	3(3.7%)	13(4.1%)	
Occupation			0.45*
Unemployed	19(23.7%)	101(32.0%)	
Artisan	13(16.1%)	37(11.7%)	
clerical worker	3(3.7%)	18(5.7%)	
Farming	18(22.2%)	69(21.8%)	
Trading	28(34.6%)	91(28.80)	
Religious affiliation			0.03**
Christianity	69(85.2%)	282(89%)	
Pagan	11(13.6%)	21(6.7%)	
Traditional	1(1.2%)	1(0.3%)	

*Chi-square

**Fisher exact test

Source: Field Survey, 2010

The effects that socio-demographic factors have on alcohol consumption using the logistic regression model are summarized in Table 4.8.

In the uni-variate analysis, Age, Marital status as well as Occupation and Religious affiliation were the socio-demographic variables found to be predictive of alcohol consumption ($P < 0.25$). Level of education was not found to be predictive of alcohol consumption

The final model included Age, Marital status and Religious affiliation. Even though Age was not statistically significant in the final model ($P > 0.1$) it was still included. Also, even though Marital status was statistically significant, ($P < 0.1$), the odd ratio included a value of 1.00 (Confidence interval - CI 0.13-1.00). Table 4.8 summarised the findings

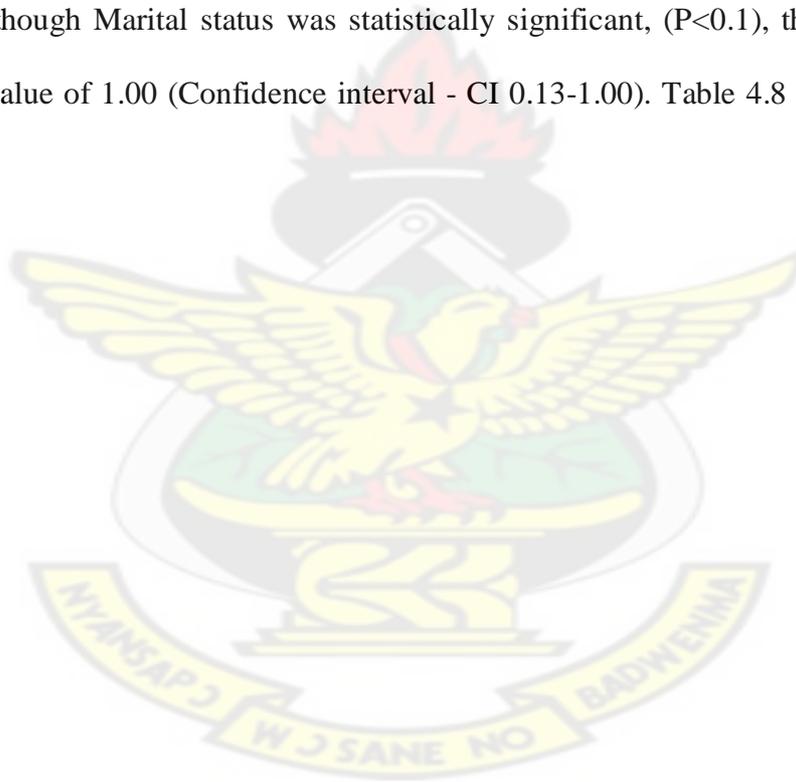


Table 4.8 Effect of socio-demographic factors on pregnant women who drink alcohol.

Variable	Unadjusted odds ratio (95% CI)	p-value	Adjusted odds ratio (95% CI)	P-value	LR
Age (years)			1.6 (1.02-1.5)	0.16	0.02
15-19	1.00				
20-24	2.25 (0.87-5.84)	0.096			
25-29	2.75 (1.12-6.74)	0.027			
30-34	2.50 (0.95-6.72)	0.065			
35-39	3.75 (1.28-11.0)	0.016			
40-44	3.0 (0.65-13.74)	0.16			
Marital status			0.36 (0.13-1.00)	0.05	0.15
married	1.00				
Never married	0.36 (0.15-1.85)	0.026			
Co-habiting	0.93 (0.53-1.61)	0.787			
divorced	1.68 (0.15-18.9)	0.675			
Highest Educational level			1.3 (0.62-2.9)	0.46	0.73
none	1.00				
primary	1.3 (0.65-2.66)	0.44			
JHS	1.02 (0.56-1.87)	0.94			
tertiary	0.86 (0.23-3.33)	0.87			
Occupation			1.5 (0.6-3.6)	0.35	0.44
unemployed	1.00				
artisan	1.87 (0.84-4.16)	0.13			
Clerical worker	0.86 (0.24-3.30)	0.86			
farming	1.39 (0.68-2.83)	0.37			
trading	1.64- (0.86-3.13)	0.14			
Religious affiliation			2.27 (1.05-5.06)	0.04	0.04
christianity	1.00				
pagan	2.14 (0.99-4.65)	0.054			
tradional	4.09 (0.25-66.2)	0.32			

Source: Field Survey, 2010

CHAPTER FIVE

DISCUSSIONS

5.1 Introduction

This chapter seeks to discuss the socio-demographic characteristics of respondents, level of knowledge about the general effects of alcohol in pregnancy among pregnant women in the Bosomtwe district of the Ashanti region and the types of alcoholic beverages as well as the average amount consumed during pregnancy. Also, discussions on the various socio-demographic factors that were identified as associated with alcohol consumption among these pregnant women.

5.2 Socio-demographic characteristics of respondents.

The prevalence of pregnant women consuming alcohol was 20.4% and the age group with the highest number of drinkers was 20-29 year group. This was high compared to the study by the Behavioural Risk Factor Surveillance System (BRFSS), 2005 in the U.S.A as reported by Sullivan, 2009 that found that the prevalence of pregnant women who drank at least once, during pregnancy was 12.0% (Sullivan, 2009). In Canada, the prevalence was 5.8% (Thanh and Jonsson, 2010)

However, the age group with the highest drinkers was consistent with the findings by IAS, 2008 that most alcoholic beverage drinkers were in their 20's and 30's.

The highest numbers of alcoholic beverage drinkers were married (61.7%) but with respect to the level of education, the highest percentage was those with junior high education (41.0%). This result differs from the study in the U.S by BRFSS, 2005 that alcoholic beverage in pregnant women in the U.S.A was highest among college-educated women, and the unmarried (Sullivan, 2009).

5.2 Level of knowledge of alcohol consumption

The findings of the study showed that of the 397 respondents, thirty (30) of these respondents, representing 7.6% said alcohol had beneficial effects during pregnancy. These respondents were of the view that alcohol acted as a relaxant to reduce stress, it 'cleaned' the baby in the womb or acted as an appetizer. This finding was no different from a similar study by Peadon and others, 2010, in which 7.3% of pregnant women did not agree that drinking alcohol during pregnancy could harm the unborn child (Peadon *et al*, 2010)

Furthermore, of those (78.0%) who responded that alcohol had harmful effects in pregnancy, about two-third of them (57.0%) did not actually know the possible harm that alcohol could cause on pregnancy as they gave wrong answers compared to one-third (21.0%) who gave correct answers to open - ended questions. This is consistent with a larger study (national survey) conducted in Canada on women in their reproductive years on the awareness of the effects of alcohol use during pregnancy and fetal alcohol Syndrome, 71.0% knew alcohol could be harmful in pregnancy but did not really know what the effects really were (Environics Research Group Limited, 2000).

The relatively poor correct response about specific harmful effects of alcohol could have stemmed from the non-formal education of some of the respondents. About a quarter of all those interviewed (25.2%) had no formal education. Hence except through radio discussions or through oral education in the local language, education of harmful effects of alcohol through formal education would be difficult.

In the ensuing close-ended multiple response-variable about the effects of alcohol on the mother, 83.3% gave at least one or more answers whilst 16.7% did not know at

all. The result was not quite different from the effects of alcohol on the fetus; 81.4% gave at least one correct answer and 18.6% did not know. This result is consistent with a similar result of the study by the national alcohol survey conducted in Canada that put at least 89.0% of the respondents believing that alcohol could cause life-long disability in the child and also some effects on the mother.

About half (54.9%) of the respondents had received previous education on the detrimental effects of alcohol. 33.5% received this health education during antenatal clinic attendance by healthcare personnel. A similar proportion (31.7%) received this education via radio and or at school or from their husbands. In contrast to a more literate society such as Canada, 72.0% had received previous education about the detrimental effects of alcohol. A similar percentage (33.0%) rather received their education through pamphlets/brochures/ and 33.0% also media programmes/article in newspapers/magazines. Smaller numbers mentioned television advertising (24.0%), a doctor or healthcare professional (20.0%), books (15.0%), a poster (12.0%), magazine advertising (11.0%), infant care - groups/ classes (6.0%), school/special classes such as CPR (6.0%) and personal experience/word of mouth (5.0%) - (Environics Research Group Limited, 2000).

5.3 Types of alcoholic beverage and estimated amount consumed per drinking session

A lot of the 'one-type-alcohol-drinkers' 36.4% of them preferred Akpteshie, a locally manufactured distilled alcoholic beverage followed by those who preferred Ginsing/Kasapreko/Pusher, 27.3%. On the whole, about half of all those who drank one type of alcohol (50.6%) preferred locally manufactured alcohol that included in addition to Akpetshie, Pito and Palm wine. Majority (39.3%) of these who drank Akpetshie took 'half-tot' per drinking session but for the liqueurs, majority (57.3%) took a 'tot' per drinking session. It has been documented that a mother does not have to be an alcoholic to expose her unborn baby to the harmful effects of alcohol during pregnancy. In other words, no level of alcohol use during pregnancy has been proven safe (Kinney, 2000).

The above preference of locally brewed alcohol is consistent with the report by the World Health Organisation (WHO, 2004) on the global status on alcohol, that traditionally made local beverages are very popular, particularly in Africa, as they tend to be cheaper than factory-made drinks thus ensuring their continuing popularity, especially among poorer population groups. In some countries, such as Namibia, home-brewed beverages are the main source of alcohol and contribute to improving the economic livelihood of their producers which are often women. The locally brewed alcohol also serves as a preservative of local culture. However, according to the WHO global report, these traditionally brewed alcohols can cause death, blindness or illness, from methanol, high alcohol content, or the deliberate addition of substances such as car battery acid or formalin. Such cases have been reported in Kenya, Zimbabwe, Bangladesh, India, and Somalia.

Another major preference apart from locally brewed alcohol from the results was liqueurs (27.3%) with brand names such as Gingsing/Pusher/Kasapreko. The WHO report also stipulated that these are gaining popularity on account of the numerous advertisements and prestige attached to these brands.

Contrary to preferences in most African countries, Albertsen and others on a study of alcohol consumption during pregnancy and the risk of preterm delivery among some Danish women demonstrated the type of alcoholic beverage drunk during pregnancy as follows: 11.5% drank beer, 71.0% drank wine and 0.9% took spirit whereas 16.7% took mixed (Albertson *et al*, 2004)

5.4 Socio-demographic Factors Influencing Alcohol Drinking

5.4.1 Age groups and alcohol consumption

Age was not significant in the chi-square test as well as in the final model of the logistic regression analysis and yet it was included in the model. The reason was that, at a certain stage in one's life it is not probable that one would drink. Factors like parental control served as inhibition to drinking but with gainful employment, new family life, new friends etc, there is the tendency towards making drinking choices in life (Wilkins, 2006)

In a longitudinal study conducted by Moore and others in the U.S.A and published in 2005, Age and period effects were found to be predictors of alcohol consumption (Moore *et al*, 2005)

5.4.2 Marital status and alcohol consumption: The result of the Fischer exact test of the association between marital status and drinking was significant. However, with respect to the logistic regression final model, predictiveness of marital status was interpreted with caution because of the presence of the value of 1.00 in the confidence interval (0.36-1.00).

This result of marital status and alcohol consumption was consistent with that conducted by Prescott and Kendler (2001), who found significant association between marital status and proportionately large decline in consumption prior to age 30. The results were consistent with a decrease in drinking accompanying the transition from being single to marriage.

5.4.3 Religious affiliation and alcohol consumption: Religious affiliation was found to be associated and predictive of alcohol consumption in the study. This is consistent with the results by Ayers and others in the Journal of Studies on Alcohol and Drugs (2009). The study identified religion and religious messages as one of the mechanisms of social reinforcement by which religious institutions influence drinking behaviours. The conclusion was that messages from congregants had a unique impact beyond the traditional indicators of the effect of religion and that these religious messages provided public health interventionists with religious pathways to improve drinking behaviours (Ayers *et al*, 2009).

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

Based on the socio-demographic characteristics of drinkers of alcoholic beverages, the level of knowledge of the harmful effects of alcohol, the types of alcohol drank and the factors identified as influencing alcohol consumption, the following conclusions and recommendations were arrived at:

6.1.1 Socio-demographic characteristics of respondents: 20.4% drank alcoholic beverage and the age group with the highest number of drinkers was 20-29 year group. This prevalence was high especially among the 20-29 year age group who might have the tendency to continue reproduction into their thirties.

6.1.2 Level of knowledge of alcohol consumption: There was high illiteracy (35.3%) among pregnant women about the knowledge of the detrimental effects of alcohol on either the pregnant woman or on the baby. Since most of the respondents received their education at antenatal clinics and through the radio, all efforts must be made by the DHMT to strengthen the health education through these channels.

6.1.3 Types of alcoholic beverage consumed per drinking session: It was realized that most of the respondents drank locally brewed alcohol. These locally brewed alcohols should therefore be properly formulated to meet the required standards and their use like other alcohols, be discouraged among pregnant women.

6.1.4 Socio – demographic factors influencing alcohol consumption: Religious and marriage institutions are very important in shaping health during pregnancy. Efforts must be made to strengthen these institutions. Reinforcement through religious messages should be encouraged to perpetuate values about marriage and to discourage drinking during pregnancy.

6.2 Recommendations to:

Health Staff: Majority of the respondents received their education during antenatal clinic attendance. Therefore a comprehensive and vigorous health education campaign must be embarked upon with stringent monitoring and evaluation to reduce this prevalence. The DHMT must also liaise with the churches, mosques and the prayer camps for this health education to be effective. The health workers in the ANCs should have well planned health education schedules for the year and posters including alcohol in pregnancy should be placed in all ANC clinics. Schedules should be followed religiously so that the pregnant women are well educated.

The DHMT: Training and retraining programs should be organized periodically by the DHMT on a regular basis to all the health workers in the ANCs on how to deliver effectively, health education about the harmful effects of alcohol in pregnancy.

Broadcasting on the local FM stations as well as the use of the mobile health service vans will help in further educating the communities

DHMT and Ghana Education Service (GES): The DHMT should collaborate with the Ghana Education Service directorate to embark on education of school pupils and students on the harmful effects of alcohol in pregnancy. During these visits, programs drawn for health education sessions should be inspected for content and quality and if possible listened in to some of the talks given.

The District Administration: The district administration of Bosomtwe should collaborate with the education service to take advantage of the FCUBE (Free Compulsory Universal Basic Education) to increase the girl-child enrolment so as to reduce the percentage of women in the reproductive years without formal education.

It is important for the district administration to gain control over informal production and distribution of alcoholic drinks so as to bring some standards. At the moment, it is the unions and cooperative societies of these distilleries who meet occasionally to determine their prices and less importantly about the quality control of their products

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APPENDICES



APPENDIX A

BOSOMTWE DISTRICT MAP

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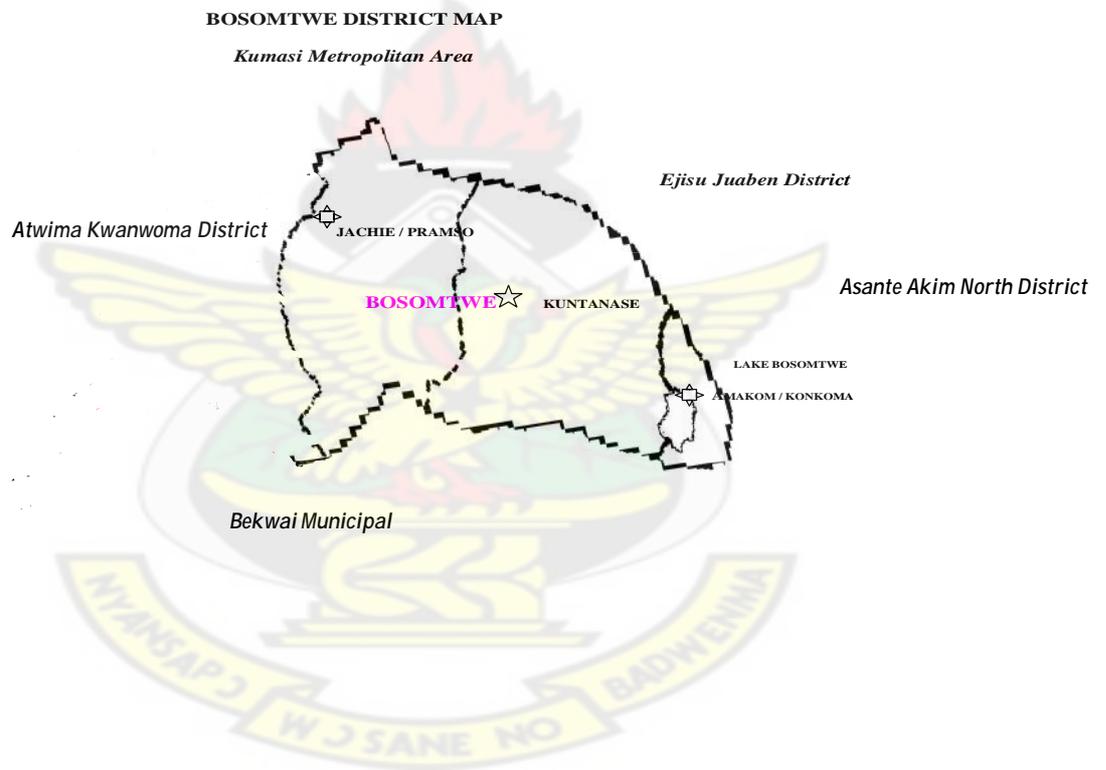


Figure 1.1 Map of Bosomtwe district

APPENDIX B

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

QUESTIONNAIRE

Serial no.

PART A

THESE QUESTIONS ARE FOR WOMEN 15-44 YEARS

(1).Name:

(2). Age [yrs]

(3). Occupation: [tick]: Unemployed[] Artisan[] Clerical Worker[] Farmer[]

(4). Marital Status (tick): Married: [] Never Married [] Cohabiting [] Divorced [] Widowed []

(5). Level of education: [tick]: No Formal Education[] Basic[] SHS/'O'/'A' Level[] Tertiary []

(6) Religious Denomination.....:

(7) Name of Community: [tick]; Zongo [] Ashanti [] Other tribes

(8) Have you ever drunk alcohol? Yes [], No []

(9) Have you had an alcoholic drink in the last twelve months?

1 Yes

2 No

If yes to (9), go to question (10). If no, please go to question 20

(10) In the last twelve months, where have you acquired these drinks?

01 Festive occasions such as Funerals, naming ceremonies etc.

02 Drinking spot

03 Other, please specify.....

(11) What type of Alcoholic beverage do you consume? Please tick as many as applies.

- 01 Guinness
- 02 Beer
- 01 Akpeteshie
- 02 Pito
- 01 Palm wine
- 02 Ginsing/Kasapreko/ Pusher
- 01 Others, please specify.....

(12) When or where do you drink?

- 01 At social gatherings such as funerals, naming ceremonies
- 02 At meal times at home
- 03 At the close of work at home
- 04 When depressed at home
- 05 Others, please specify.....

(13) Please provide an estimate of an amount of each drink during each drinking session. Tick as applied

- 01 Guinness: 1/2-bottle 1 bottle 2 -3 bottles 4-5 bottles 6+ bottles
- 02 Beer: 1/2-bottle 1 bottle 2 -3 bottles 4-5 bottles 6+ bottles
- 03 Akpeteshie: Tot (1 2 3), ¼ ('quarter') , ½ (half) , others size, specify
- 04 Pito: Typical calabash size: 1 2 3 4 , others size, specify
- 05 Palm wine: Typical calabash size: 1 2 3 4 , other size, specify
- 06 Ginsing/Kasapreko/ Pusher Tot (1 2 3), ¼ ('quarter') , ½ (half) , others size, specify
- 07 Other drinks, please specify.....

(14) How often in a day do you drink?

- 01 once
- 02 2-3 times
- 03 4-5 times

(15) How often in a week do you drink?

- 01 once
- 02 2-3 times
- 03 4-5 times
- 04 > 6 times

(16) Do you know if alcohol intake has beneficial or harmful effects on the body?

- 1 Yes
- 2 No

(17) If yes to (16), please mention few of them whether beneficial or harmful

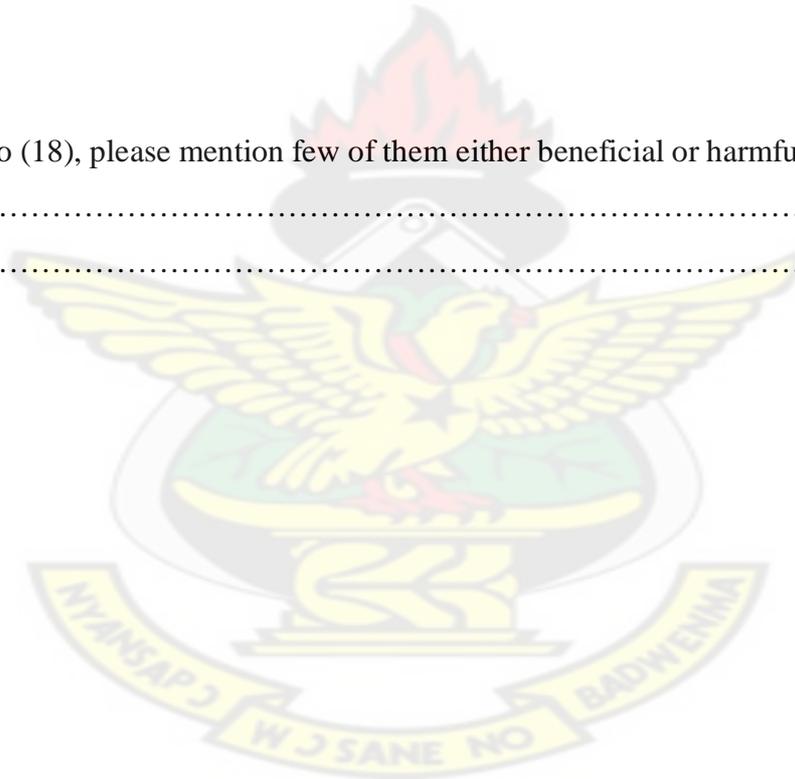
.....
.....

(18) Does alcohol intake has beneficial or harmful effect on others?

- 1 Yes
- 2 No

(19) If yes to (18), please mention few of them either beneficial or harmful

.....
.....



PART B

QUESTIONS 18, 19 - ARE FOR WOMEN 15 - 44 WHO DO NOT DRINK.

(20) Does alcohol intake has effect on the body?

1 Yes

2 No

(21) If yes to (16), please mention few of them whether beneficial or harmful

.....
.....

(22) Does alcohol intake has effect on others?

1 Yes

2 No

(23) If yes to (16), please mention few of them either beneficial or harmful

.....
.....

(24) Do you know of any woman in her child bearing age that drinks?

1 Yes

2 No

(25) How many do you know? Please state.....

(26).Name:

(27). Estimated Age [yrs]

(28). Occupation: [tick]: Unemployed[] Artisan[] Clerical Worker[] Farmer[]

(29). Marital Status (tick): Married: [] Never Married [] Cohabiting [] Divorced [] Widowed []

(30). Level of education: [tick]: No Formal Education[] Basic[] SHS/'O'/ 'A' Level[] Tertiary []

(31) Religious Denomination.....:

(32) Name of Community where she lives: [tick]; Zongo [] Ashanti [] Other tribes

(33) Where does such individual acquire the alcoholic drink (s)?

01 at festive occasions such as funerals, naming ceremonies.etc

02 Drinking spots

03 other, please specify.....

04 Don't know

(34) What type of Alcoholic beverage does she consume? Please tick as many as applies.

01 Guinness

02 Beer

01 Akpeteshie

02 Pito

01 Palm wine

02 Ginsing/Kasapreko/ Pusher

01 Others, please specify.....Don't know.....

(35) Do you know of when or where she drinks the alcohol?

01 At social gatherings such as funerals, naming ceremonies

02 At meal times at home

03 At the close of work at home

04 When depressed at home

05 Others, please specify.....Don't know.....

(36) Please provide an estimate of amount of each drink during each drinking session. Tick as applied

01 Guinness: 1/2-bottle 1 bottle 2 -3 bottles 4-5 bottles 6+ bottles

02 Beer: 1/2-bottle 1 bottle 2 -3 bottles 4-5 bottles 6+ bottles

03 Akpeteshie: Tot (1 2 3), ¼ ('quarter') , ½ (half) , other sizes specify.....

04 Pito: Typical calabash size: 1 2 3 4 , other size, specify.....

05 Palm wine: Typical calabash size: 1 2 3 4 , other size, specify.....

- 06 Ginsing/Kasapreko/ Pusher Tot (1 2 3), ¼ ('quarter') , ½ (half) ,
07 Others size, please specify.....Don't
know.....

(37) How often in a day does she drink?

- 01 once
02 2-3 times
03 4-5 times
04 Don't know

(38) How often in a week does she drink?

- 01 once
02 2-3 times
03 4-5 times
04 > 6 times
05 Don't know

