

**DETERMINANTS OF ALCOHOL USE AMONG PREGNANT WOMEN AT GEORGE
HEALTH CENTRE IN LUSAKA DISTRICT, ZAMBIA**

By

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DECLARATION

I Virginia Simasiku, declare that the work in this dissertation titled “*Determinants of alcohol use among pregnant women at George Health Centre in Lusaka District Zambia*” has been carried out by me in the Department of Mental Health and Psychiatric Nursing. The information derived from literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation has been previously presented for another degree or diploma at this or any other institution.

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I, **Dr. Caroline Zulu**, having supervised and read this dissertation is satisfied that this is the original work of the author under whose name it is being presented. I confirm that the work has been completed satisfactorily and approve it for submission.

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ABSTRACT

Background: Alcohol is a recognized teratogen in utero because of its potential to cause damage to the brain resulting in developmental, cognitive and behavioral problems including Fetal alcohol spectrum disorders (FASDs) and mental health problems such as anxiety, depression, attention deficit hyperactivity disorders.

Main objective: To explore the determinants of alcohol use among pregnant women at George Health Centre

Method: The study adopted a mixed convergent method approach. An analytical cross-sectional design recruited 255 pregnant women from which 24 participated in a descriptive qualitative design collected through four focus group discussions with women who gave a history of drinking alcohol. Descriptive and inferential analyses were drawn from quantitative data, and thematic analysis was used for qualitative data. Data was integrated and interpreted at the discussion for convergence and divergence of results.

Results: The results showed that 40.4% of pregnant women consumed alcohol prior to pregnancy recognition and during pregnancy. Significant factors associated with alcohol use included smoking which increased the odds of drinking alcohol 11.24 more times among smokers. Pregnant women's likelihood to drink alcohol was 63% lower among those of high socioeconomic status (SES) compared to the lower classes. The results also found a behavioral gap between high levels of awareness of harmful effects of alcohol found to 68.6% compared to the high prevalence rate recorded.

Conclusion: The prevalence rate of alcohol use is higher than previously recorded for the country. There is a need for assessment, identification, and management of pregnant women attending antenatal care in health facilities. There is greater need for intensifying and contextualizing public health interventions to address alcohol effects on pregnancy among women of reproductive age especially those of low SES residents.

Key words: Alcohol use, prenatal, FASD, culture, pregnant women, perceptions.

DEDICATION

To my lovely husband Lieutenant Colonel Nchimunya Colyn Hamoonga, for being there for me throughout these years and supporting me to keep pushing even when I could no longer keep up with all the pressures of life.

To my late elder sister Priscilla Matondo Simasiku, who sacrificed all she had for me to attain my education and for the immense love you instilled in me throughout those difficult moments in my childhood.

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ACRONYMS

ARBD	Alcohol-Related Birth defects
ARND	Alcohol-Related Neurodevelopmental disorder
AUD	Alcohol Use Disorder
CDC	Centers for Disease Control and Prevention
DALYs	Daily Adjusted Living Years
DSM-5	Diagnostic and Statistical Manual of Mental Disorders- 5 th Edition
FAS	Fetal Alcohol Syndrome
FASD	Fetal Alcohol Spectrum Disorder
NMCZ	Nursing and Midwifery Council of Zambia
MCH	Maternal Child Health
MoH	Ministry of Health
PAE	Prenatal Alcohol Exposure
pFAS	partial Fetal Alcohol Syndrome
SES	Socioeconomic Status
TPB	Theory of Planned Behaviour
UNZABREC	University of Zambia Biomedical Research Ethical Committee
WHO	World Health Organization

CHAPTER ONE

1.0.Introduction

The study focused on determinants of alcohol use among pregnant women in Zambia particularly those that were attending antenatal care services at George Health Centre in Lusaka. This explained the importance of ensuring that women avoid alcohol consumption during pregnancy in order to give birth to a healthy baby.

Even at low to moderate levels of alcohol consumption, maternal alcohol consumption during pregnancy has been linked to child FASD and mental health issues. Anxiety/depression, emotional problems, total internalizing disorders, and behavior disorder are just a few of the issues that might arise based on the extent of exposure. Studies have found a connection between prenatal alcohol consumption and mental health issues in children (Easey *et.al*, 2019).

Alcohol use during pregnancy has been linked to a number of factors, such as socioeconomic level, social connections, ignorance, attitude, and cultural differences (Mpelo *et al.*, 2018). The study was identifying determinants of alcohol use among pregnant women

This chapter discussed background information, the statement of the problem, study justification, research objectives, research questions, conceptual and operational definitions, variables, and cut-off points.

1.1. Background

The fact that alcohol crosses the placenta effortlessly and the foetus' blood alcohol concentration equals that of the mother in one to two hours is one of the highlights of maternal alcohol use. Because the baby has a limited ability to metabolize alcohol, it is reliant on the maternal processes as well as the ability of the amniotic fluid to store alcohol, resulting in a longer fetal exposure time (Foundation for alcohol research & education, 2016).

According to studies, 73 percent of pregnant women have drunk an alcoholic beverage at some point during their pregnancy, with 48 percent doing so despite knowing the risks. This demonstrates that there is a significant rate of prenatal alcohol consumption and exposure on the developing fetus. (Da Pilma Lekettey *et al.*, 2017).

Similarly, studies indicate that around two-thirds of women report drinking more than the recommended two units per week prior to and during pregnancy. In comparison to non-drinkers,

both non-pregnant and pregnant women in the first and second trimesters who consumed recommended amounts of alcohol and those who consumed more than Fourteen units per week were found to be significantly more at risk of having babies with lower birth weight, lower birth percentile, and preterm births than non-drinkers, implying that the first trimester is a more sensitive period for the effects of alcohol on the fetus, hence the need for women to avoid alcohol during this (Nykjaer *et al.*, 2014).

A global status report on alcohol and health, also indicates that the increased alcohol consumption increases risk of fetal exposure to alcohol due to women not being aware when pregnant, thereby leading to high chances of poor birth outcomes such as still birth and even a more severe condition called fetal alcohol spectrum disorder (FASD) (World Health Organization, 2018).

The teratogenic effects of alcohol have been widely studied leading to a single conclusion that no amount of alcohol is safe during pregnancy hence the need for pregnant women to abstain as soon as they discover they have conceived (Sarman, 2018). These teratogenic effects of alcohol on the fetus have been known to lead to neuronal destruction culminating in a condition called fetal alcohol spectrum disorder (FASD) which are known preventable causes of mental retardation (Luis *et.al*, 2013).

FASD is a broad term that describes a range of disabilities related to physical, psychological, behavioral and to extremes such as growth deficits, facial malformations, brain and central nervous system disorders (Health promotion agency, 2014). This condition includes a spectrum of disorders such as fetal alcohol syndrome (FAS), partial Fetal Alcohol Syndrome (pFAS), Alcohol-Related Birth defects (ARBD) and Alcohol-Related Neurodevelopmental disorder (ARND)(Nash and Davies, 2017).

Additionally, FASD causes serious problems on the affected, family as well as society as a whole. This can be supported by a systematic literature review which explored prenatal alcohol exposure and offspring mental health and found that prenatal alcohol consumption was associated with mental health outcomes such as anxiety/depression, emotional problems, total internalizing problems, total problem score, and conduct disorder. The review concluded that maternal alcohol use during pregnancy is associated with offspring mental health problems, even at low to moderate levels of alcohol use (Easey *et al.*, 2019).

Furthermore, the effects on family observed in caregivers' needs and stress in caring for individuals with FASD, concluded that caregivers reported high levels of stress with more needs and concerns especially for those living in lower income, and those caring for adolescents and adults (Bobbitt et al., 2016). Therefore, screening for and diagnosing FASD as soon as possible after one year of age increases the chances that a child with FASD will receive appropriate care and stimulation to minimize developmental delays, as well as that the mother will be supported so that she does not have another child affected by alcohol (UNICEF, 2008).

Foetal alcohol syndrome and other alcohol related problems account for approximately 146,000 deaths, or 0.3 percent of all deaths, and 18.5 million (0.7 percent) of daily adjusted living years (DALYs) according to global estimates (World Health Organization, 2018). It is further confirmed that the high consumption of alcohol among women has led to an increase in alcohol use disorder (AUD) up to 84% as compared to an increase in men of 36%, despite their exposure to health-related consequences in reference to men (Peltier et al., 2019).

Tobacco usage, number of pregnancies, unemployment, and age above 18 years old have all been identified as contributors to prenatal alcohol use. Meanwhile, being married and a full time housewife status acted as protective factors to drinking alcohol (Leonardson, Loudenburg and Struck, 2007).

Some pregnant women seem to be lacking in information on the potentially harmful effects of alcohol during pregnancy, with the majority of them obtaining it through social media and acquaintances. According to studies, there is no link between knowledge and information because pregnant women's behavior does not appear to be influenced by such elements (Kesmodel and Kesmodel, 2002).

This lack of information possesses a need for accurate information on the dangers of fetal alcohol exposure from trusted and reliable sources. According to studies, some women have never heard of FASD and are thus unaware of the specific impacts of fetal exposure, such as preterm birth and mental impairment hence contributing to the continued consumption in this cohort (Watt *et.al*, 2016).

Behaviour is sometimes prescribed by the communities in which people live by following the models laid out by significant others or relations. Studies have ported that Social norms and

awareness about drinking and drinking during pregnancy are two social variables that encourage drinking during pregnancy among underprivileged communities in South Africa (Jong et al., 2021)

It is a general observation that women of any socioeconomic position (SES) can give birth to children with FASD, however the more severe forms of Fetal alcohol syndrome (FAS) and partial foetal alcohol syndrome (pFAS) have been observed most commonly in lower SES groups in various nations (May et al., 2011). This association of SES with alcohol consumption among pregnant women has indicated that the amount of alcohol drunk prior to pregnancy recognition, when paired with SES was more closely linked to having a child diagnosed with a FASD than the amount of alcohol ingested (Lewis, Shipman and May, 2011).

Furthermore, programs aimed at changing knowledge, perception, and cultural norms among pregnant women regarding prenatal alcohol use have shown potential to increase knowledge and change behaviour thereby promoting better outcomes for both maternal and foetal health (Crawford-Williams et al., 2016).

Screening pregnant women during pregnancy should be an integral part of routine family assessment as it has potential to help identify at risk unborn children for fetal alcohol spectrum disorders. This can further be continued as developmental surveillance in order to recognize the problems early enough to intervene and improve the child's outcome over lifetime (American Academy of pediatrics, 2020). There is great need to examine determinants among women towards alcohol consumption as it is likely to aid in the creation of interventions while specifying the areas of unmet needs; as supported by studies that have indicated a discrepancy between knowledge and attitudes emphasizing the importance of implementing good interventions and programs (Corrales-Gutierrez et al., 2019; Gautam et al., 2017)

This study proposes to identify the determinants of alcohol use among pregnant women in George township, in order to inform on the current situation and aid in the designing of necessary interventions to ensure that pregnant women abstain from alcohol prior and during pregnancy.

1.2. Statement of the problem

No amount or type of alcohol is safe during pregnancy and hence prenatal consumption of alcohol can be detrimental to the health of the unborn child exposing them to conditions such as Fetal

Alcohol Spectrum Disorders (FASDs) which include behavioural disorders, impaired physical and intellectual development (Centers for Disease Control and Prevention, 2016).

WHO estimates that 1 in 10 women globally consume alcohol during pregnancy with a 20% of them being binge drinkers (consuming 4 or more alcoholic drinks on one occasion) which is a direct cause of FASD, and is associated to unplanned pregnancies due to lack of awareness (WHO, 2019). In the African region, an estimated prevalence of alcohol consumption during pregnancy ranges from 2.2% for Equatorial Guinea, 5.7% Botswana, 14.2% Namibia with highest being recorded at 14.8% in Sierra Leone which indicates the need for some African countries to call for educational campaigns, screening and target interventions for women of childbearing age (Popova et al., 2016)

Regionally, several factors have been associated with prenatal alcohol use including poor knowledge, low socioeconomic status, unemployment, cultural norms, perceptions and attitude. Similarly, it has been found that unmarried women consumed more alcohol during pregnancy with a prevalence of 7.3% compared to the married ones leading to a conclusion that early identification of pregnant women who are susceptible to prenatal alcohol consumption can be an effective public health strategy (Baptista et al., 2017).

In Zambia, 24.8% of women in the reproductive age are categorized as heavy episodic drinkers; having consumed more than an acceptable standard of 14 units of alcohol per week (World Health Organization, 2018). This is further confirmed by another study suggesting 55.6% of binge drinking in Lusaka are female drinkers (Likashi et al., 2019).

Alcohol use during pre-conception period and pregnancy among Zambian women is common accounting for a 21.2% of At-risk problem drinking and 12.7% binge drinking (Moise, 2019). Table 1.1: Number of women diagnosed with Alcohol Induced Disorders from year 2017-2019 showing an increase in cases.

Year	No. of women attended	Percentage
2017	91	28%
2018	101	32%
2019	128	40%

Source: Chainama Hills Hospital Health Information Management System 2017-2019

Table 1.1. shows an upward increase in the numbers of women from the age of 18 to 49 being diagnosed with alcohol induced disorders from 28% to 40% cases. This increase in admitted cases,

coupled with literature indicating an increase in alcohol consumption among women of reproductive age, is a concern as it has the potential to expose pregnancies to several problems, including behavioral, psychological, and cognitive disorders, which lead to mental health problems.

1.3. Justification of the study

Studies have indicated the presence of drinking problem among women of reproductive age demonstrating the need for alcohol use screening and interventions in order to avert future behavioural, psychological and cognitive disorders that can present in the offspring (M'soka, Mabuza and Pretorius, 2015). The exploration of alcohol use among pregnant women has been suggested as a means of managing FASDs and other mental health problems considering that pregnancy is a period of high self-motivation for most women to stop or reduce on its intake (DeVido, Bogunovic and Weiss, 2015).

Alcohol use during pregnancy is linked to high incidence of mental health issues such as depression, anxiety, mood and attention deficit/hyperactivity disorders (Coles *et.al*, 2022). In order to lessen the lifelong effects of prenatal alcohol exposure on mental health, understanding the contributing factors will aid in the formulation of more preventive strategies for prenatal alcohol exposure and better management of those women who are affected. Similarly, early detection of prenatal alcohol exposure and its consequences on those exposed prenatally could also help to improve the clinical picture of mental wellbeing.

The study will further inform on the extent to which FASD and other mental health problems are likely to occur and aid in the designing of necessary management models to ensure pregnant women abstain from alcohol prior to and during pregnancy. It will therefore help the Ministry of Health (MoH) and other stakeholders to develop appropriate interventions that will help in screening, managing and motivating women to avoid alcohol during pregnancy.

Recognizing the current status of women consuming alcohol will create an understanding of knowledge levels that will aid in the structuring of educational materials to suit the target population. The acquisition of socioeconomic status will aid in understanding the current socioeconomic status that is heavily influenced by this problem. Meanwhile, the exploration of perceptions and cultural influences will provide further information on how to contextualize community practices that would be acceptable to the target group.

1.4. Theoretical framework

This study was be guided by the Theory of Planned Behaviour (TPB) Model. This is a social psychological theory derived from the theory of reasoned action by Icek Ajzen in 1985. This theory explains the behavioral processes human beings get involved with the aim of predicting human behaviour (Zhang, 2018). The major constructs of the theory are attitude, subjective norms, perceived behavioral control which lead to an intention and behaviour occurs.

This theory was relevant to the study as it helped to explain the various prerequisites that should be present for prediction of specific behaviour, agreeably as this study explored to determinants of alcohol use during pregnancy

According to the theory of planned behaviour framework, an intention is an immediate result of the behaviour and it is due to the functionality of attitude towards a behaviour, subjective norms and perceived control behaviors (Academic Technology Services, 1998; Ajzen, 1991). This theory helps to understand and predict human behaviour and has been recommended among theories that address alcohol consumption during pregnancy (Nasution, 2015).Kang & Kim (2019), further supported the application of the theory of planned behaviour to investigate knowledge of alcohol consumption during pregnancy and factors influencing the intention to abstain from it.

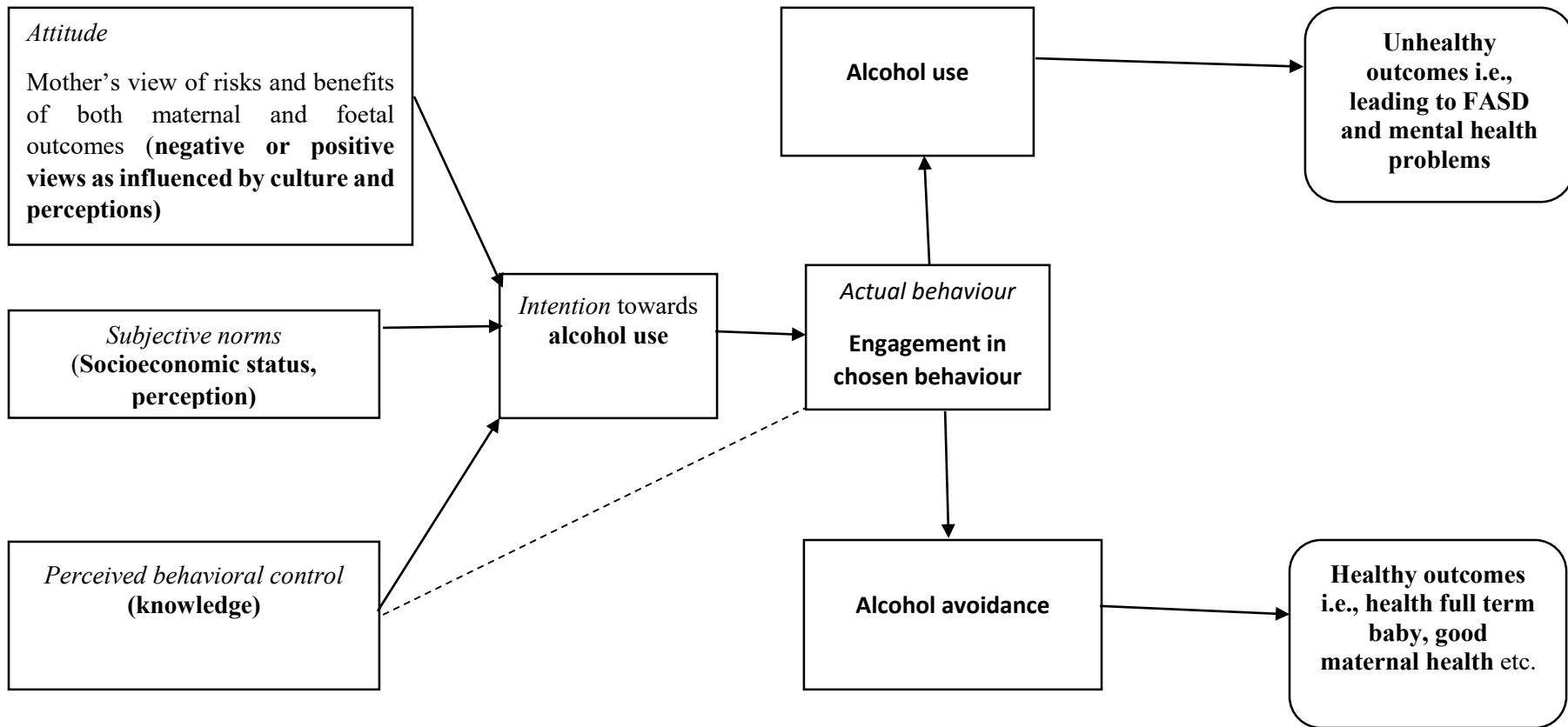


Figure 1.1: Modified theory of planned behaviour: adapted from theory of planned behaviour Icek Ajzen (1991).

In this theory, it is assumed that beliefs are divided into three categories namely; behavioral beliefs, normative beliefs and control beliefs ((Zhang, 2018). These beliefs determine to what extent different individuals will respond to a particular desired behaviour under the influence of internal factors (age, experience, intelligence) and external factors (information, cultural background, social pressures) thereby indirectly influencing one's attitude, subjective norm and perceived behavioral control. The following are the main constructs of the theory to this study;

Behavioral intention- this decision is directly influenced by attitudes, subjective norms and perceived behavioral control in whether to engage in alcohol consumption or not. Therefore, the stronger the decision to perform either behaviour the likelihood of that actual behaviour being done.

Attitude- this is an individual's opinion about alcohol consumption during pregnancy, and its attained by an evaluation of outcomes considering benefits and harms on both maternal and foetal health.

Subjective norms- these are social pressures (to consume alcohol or not) an individual is faced within their environment, which could be caused by spouse, family or friends. This is significant in predicting behaviour as the pregnant woman need to decide either to engage in the act or not by considering the voice of important people in their lives.

Perceived behavioral control- this the pregnant woman's perceived confidence and control they possess on alcohol consumption. Depending on the weakness or strength of the perception, it will either result in an intention or directly into the desired behaviour.

Actual behaviour- this is the behavioral outcome of the pregnant woman's decision on alcohol consumption.

Therefore, the three factors (attitude, subjective norms, perceived behavioral control) of the theory can help to predict a behavioral intention which will leads to actual behaviour as tested by several studies (Asare, 2015; Jones et al., 2007; Zhang, 2018).

1.5. Research question

What are the determinants of Alcohol Use among pregnant women in Zambia?

1.6. Research objectives

1.6.1. General objectives

To explore the determinants of alcohol use among pregnant women in George township

1.6.2. Specific objectives

- i. To determine the prevalence of alcohol use among pregnant women
- ii. To assess the level of knowledge among pregnant women on the effects of alcohol use in pregnancy
- iii. To determine the socioeconomic status of pregnant women consuming alcohol
- iv. To evaluate the perceptions of pregnant women on alcohol use
- v. To examine cultural influences on pregnant women in relation to alcohol use

1.7. Variables

Dependent: Alcohol use

Independent:

Knowledge

Socioeconomic factors

1.7.1. Conceptual definitions

- i. **Alcohol use** involves drinking beer, wine or hard liquor
- ii. **Socioeconomic status** describes the position of an individual in a hierarchical social structure.
- iii. **Knowledge** is the information, understanding and skill one gains through education and experience
- iv. **Perceptions** consist of the process whereby people take in information about others, understand it and form impressions of them. Our perceptions of other people influence and

reflect our thoughts, feelings and actions. Some commonly used terms representing or relating to perceptions include attitude and beliefs

- v. **Culture** refers to the set of beliefs, moral values, traditions, language, and laws (or rules of behaviour) held in common by a nation, a community or other defined group of people
- vi. **Dependence or craving** is termed as a strong desire to consume alcohol that takes much for an individual leading to continued ingestion.

1.7. Operational definitions

- i. **Alcohol use** is the consumption of any amount of alcoholic beverage among women of reproductive age prior or during pregnancy
- ii. **Perception** refers to the way a person thinks about or understands alcohol use in pregnancy
- iii. **Cultural influence** refers to what attitudes and behaviors pregnant women possess as a result of the rules of behaviour common or prescribed by their communities
- iv. **knowledge** refers to the information and understanding pregnant women possess about alcohol use in pregnancy

1.7.1. Variables, indicators and cut off points

Table 1.2: Showing variables, indicators and cut offs

Variables	Indicator	Cut off point	Question
Dependent variable			
Alcohol Use in pregnant women (Using items 1-3 on alcohol consumption found on Audit scale = 12 points)	Low risk drinking	Indicates a drinking behaviour that the woman will present some risk to the unborn if she scores 1 to 5	26-28
	High risk drinking	Indicates a drinking problem with potential harm to both the mother and the foetus if she scores of 6 and more	
Independent variable			
Knowledge	Inadequate	Shows no to less understanding of the harmful effects of alcohol on the pregnancy by answering NO to question 14	14-16
	Adequate	Shows understanding of the harmful effects of alcohol use on the pregnancy by answering YES to question 14	
Socioeconomic status (SES) (Using modified Kuppuswamy SES scale =12)	Low	Low socioeconomic status – ≤ 3	20
	Moderate	Moderate socioeconomic status – 4-7	
	High	High socioeconomic status - > 8	

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

In this study, the review of literature was intended to determine what literature was available on the determinants of alcohol use among pregnant women. This helped to generate questions and identify what is known on the topic under study. What was found to be well known was the prevalence of alcohol use and levels of knowledge, and the identified gap was to understand the reasons for specific drinking behaviors of pregnant women.

Literature reviewed was drawn from various electronic publications and other sources such as books. The electronically sourced publications were searched from Science Direct, PubMed, Google Scholar, Hinari etc. Literature was selected from most recent publications (5 and below) years using key words including Alcohol use, prenatal, FASD, culture, pregnant women, perceptions

The selected literature being under the following headings: The first section looks at the overview of alcohol use among pregnant women, while the second section discusses the prevalence of alcohol use and the third section covers the discussion on knowledge of effects on alcohol use. The fourth section continues to discuss the various perceptions held prenatal alcohol use and the fifth further discuss the socioeconomic factors while the sixth section looks at cultural factors influencing alcohol use among pregnant women.

2.1. Overview of alcohol use during pregnancy

Alcohol is a recognized teratogen in utero, and it is believed to have an impact on specific areas of the developing foetal brain causing defects in neuronal proliferation and migration, hypoxia, and cell death (Lees et al., 2020). Pregnancy alcohol usage is one of the primary causes of preventable birth malformations and neurodevelopmental disorders around the world. This can result in a variety of cognitive, developmental, and behavioral issues that can last a child's entire life and have permanent consequences. Growth restriction, distinctive facial deformities, and neurobehavioral dysfunction are only a few of the lifelong issues. The term "foetal alcohol spectrum disorder" describes this set of symptoms (Chiodo et al., 2019). These findings have consistently demonstrated that severe forms of FASD can occur when the central nervous system is damaged leading to mental health disorders such as anxiety, attention-deficit/hyperactivity

disorder (ADHD), mood, and depression. Therefore, early detection and management of prenatal alcohol use and its associated factors can lead to a decrease in the prevalence of alcohol consumption and its consequences. Knowledge, socioeconomic, perceptions, and cultural impacts are some of the factors that have been identified to influence pregnant women's alcohol consumption.

2.2. Prevalence of alcohol use among pregnant women

Alcohol use during pregnancy is common in many countries at a prevalence of 9.8%, and FAS being a prevalent alcohol-related birth defect in the general population was at 14.6 per 10000 translating that 1 in every 67 women with prenatal alcohol use history will deliver a child with FAS (Popova *et al.* 2017). A surveillance report by Centers for Disease control and prevention (CDC), disclosed that 11.5% of pregnant women in a period 2015-2017 are current drinkers while 3.9% being binge drinkers alluding to the single status of most women as a main contributor to the scourge (Denny *et al.*, 2019).

In the African region, alcohol consumption and binge drinking has shown varying prevalence ranging from 2.2% to 12.6% in Central Africa, 3.4% to 20.5% in Eastern Africa, 5.7% to 14.2% in Southern Africa, 6.6% to 14.8% in Western Africa while Northern Africa accounts for 3.2% to 5.3% respectively (Popova *et al.*, 2016). Additionally, Mpelo *et al.*, (2018) indicated a 15.1% prevalence of prenatal alcohol use associating it to pre-pregnancy alcohol use, social pressure, low economic status, low educational status and not having experienced complications in previous pregnancies.

Assessment of pregnant women in antenatal clinic is very cardinal in revealing risky alcohol use behaviour as conducted in Ethiopia which revealed 16.1% of attendees, and was associated with several factors such as depression, anxiety,, poor social support, history of abortion and family mental illness (Wubetu, Habte and Dagne, 2019).

Therefore, the provision of localized alcohol screening and brief intervention guide in addiction treatment to non-specialized health providers can help encourage regular assessments in order to facilitate early detection and management of alcohol use among pregnant women and the general population (Schölin and Fitzgerald, 2019).

Studies have found that pregnancy has a motivation role in the control of AUDs as it is observed that most women reduce alcohol intake significantly as soon as they discover they are pregnant, thereby leading to a risk reduction in the exposure of the unborn child (DeVido, Bogunovic and Weiss, 2015) Meanwhile, a study conducted in Kalingalinga township of Zambia further revealed that binge drinking was a common form of hazardous alcohol misuse which represented a proportion of 56% among female alcohol drinkers and 9.4% in the general population of women aged 20-39 years (Likashi, Paul and Jason, 2019).

Additionally, a prevalence of 21.2% of Zambian women consumed alcohol in the preconception period and during pregnancy emphasizing the need for targeted alcohol use screening and interventions during antenatal care visits (Moise, 2019).

2.3. Knowledge of effects of alcohol use in pregnancy

There has been unclear information regarding the amount of alcohol safe during pregnancy which creates a bad attitude perceived in some women as seen in a study conducted in north east England involving 171 pregnant women and 41 of their partners. The results showed that about 89.5% (153) of pregnant women indicated the need to abstain from prenatal alcohol consumption, of which only 40.9% (70) reported not drinking during pregnancy. Despite the knowledge women have on alcohol avoidance, uncertainty is still lingering as some women felt drinking low amounts of alcohol on special occasions was safe (Howlett et al., 2017)

Additionally, a randomized control study aimed at changing knowledge, attitudes and behaviour found that improving knowledge leads to a change in attitude thereby promoting good health behaviors and ultimately a better health outcome for both maternal and unborn child (Crawford-williams et al., 2016).

A study involving 648 participants on attitudes and knowledge as predictors of at-risk alcohol consumption among Russian women, found 40% had misconceptions on the acceptability of prenatal alcohol consumption, 34% were aware of foetal alcohol syndrome (FAS) while 8% had accurate knowledge concluded that lack of knowledge was associated with prenatal alcohol use (Balachova et al., 2017).

Alcohol screening was recommended during antenatal visits though its dependent on the midwives' knowledge on the usage of the alcohol screening and brief intervention (SBI) strategy,

as it can aid women to honest disclosure if well implemented while focusing on exploring pre-pregnancy drinking habits, positive conversations as well as building a trusting relationship between pregnant women and midwives (Schölin & Fitzgerald, 2019) Midwives have also been implicated on the insufficient health education rendered on several health behavioral including prenatal alcohol use, in which 91.3% of pregnant women indicated that only brief mention of alcohol is done on antenatal booking (Baron et al., 2017). It was further observed that most women receive less information with the regard to alcohol consumption during antenatal visits hence their inability to be fully aware of its effects on the unborn child (Caires & Santos, 2020).

Furthermore, another study revealed that correct health advice on prenatal alcohol avoidance does not reach the large population of pregnant women hence the need to scale out programmes that will sufficiently disseminate the information (Mendoza et al., 2019). Additionally, other researchers agree that lack of awareness on the complications of alcohol consumption during pregnancy among women is the major cause of the continued behaviour, as concluded in a study conducted in Nigeria where the prevalence of alcohol use was found to be 22.8% (Onwuka et al., 2016).

Furthermore, another study implicated the need for information dissemination on effects of alcohol on pregnancy as the culprit as most women seemed to be unaware of the gravity of this behaviour on their unborn children hence the need for emphasis (Lanting et al., 2015). Despite the presence and recommendations made by national guidelines on restricting alcohol during pregnancy, no changes have been observed in attitude and knowledge among pregnant women and hence professional health care providers are still being implicated for not offering health advise during antenatal visits (Kesmodel and Urbutè, 2019).

Conversely, a survey in Ghana on factors facilitating prenatal alcohol consumption, knowledge of adverse outcomes and alcohol expenditure was conducted on 250 pregnant women and found a high alcohol consumption despite knowledge of its effects on the foetus (Da Pilma Lekettey et al., 2017). It was also observed that regardless of the presence of policies that do not permit prenatal alcohol consumption, women still consume it and indicate that health personnel's don't offer adequate information (Foundation for alcohol research and education, 2016).

2.4. Socioeconomic factors influencing alcohol use

Studies have indicated an inconsistent view on how socioeconomic status influences the consumption of alcohol among women. A study conducted in Chile and Finland shows that heavy volume drinking was more in Finland with a high socioeconomic status, while higher abstinence levels were observed in both countries among women of lower socioeconomic status (Pena *et.al*, 2017).

Likewise, according to a cohort study aimed at examining women's alcohol use between conception and recognition of pregnancy found that about 61% of women consumed alcohol between this period. High socioeconomic status was found to be a strongest predictor leading to a high number of exposed pregnancies and it was associated with the level of alcohol use prior to recognition, illicit substance use, age and pregnancy planning (McCormack *et al.*, 2017).

Furthermore, in another study conducted in Australia on pregnant women's drinking patterns found that 27% of women who consumed alcohol throughout pregnancy had a higher income and educational attainment (Muggli *et al.*, 2016). This was further supported by a study conducted in Japan aimed at determining alcohol consumption in women before and after awareness of conception. It was found that a prevalence of 50% consumed alcohol before awareness associating it to high household income, smoking and high educational level. Meanwhile, after awareness a prevalence of 2.8% was found to be associated to older age and smoking (Ishitsuka *et.al*, 2020).

Meanwhile, a study in a peri-urban setting in south Africa, found that low-income setting was a risk of alcohol and other drugs use. It further reported associations between depression and anxiety, suicidality, substance use which were a reflection of risky environment (Onah *et al.*, 2016). Similarly, in Tanzania a prevalence of 15.1% of pregnant women was found consuming alcohol in a study conducted on 365 women; in which women with low socioeconomic status were at the highest risk of consuming alcohol during pregnancy (Mpelo *et al.*, 2018).

2.5. Perceptions of pregnant women on alcohol use

Women's perception of alcohol consumption during pregnancy still remain divided as most feel abstinence during pregnancy is cardinal despite these views some still continue consuming and hence there acceptability to screening is not clear (Howlett *et al.*, 2017).

Study conducted between Swedish and English women on perception and practices of alcohol consumption during pregnancy continues to indicate disparity of opinions, as much as most women

perceive reduction as a way of preventing detrimental effects on the unborn some still consume as they are not sure of whether low to moderate drinking could be risky (Schölin et al., 2018).

The dissemination of information to pregnant women has led to varying perceptions, as it was observed that women received unclear messages on the dangers and consistence of alcohol intake. It was further observed that this information should be provided by a professional health personnel and delivered to women early enough for them to make decisions to abstain in order to avoid exposing the unborn child (Anderson et al., 2014).

Taghizadeh *et al.* (2017), suggests that women's perception of pregnancy risk is different among age groups emphasizing the need for routine screening of perception in order to design more effective models of investigating risks. Meanwhile, a study conducted in South Africa revealed that pregnant women's personal experiences, perceived wrong sources of knowledge influenced their attitudes about the effects of prenatal alcohol use leading to a moral conflict and uncertainty over their alcohol use behaviour (Skinner and Sikkema, 2017).

Conversely, a study on women's risk perception on prenatal alcohol use revealed that educational levels and young age show low risk perception and frequent alcohol consumption while higher levels of education indicate high risk perception hence the need to consider the different levels of understanding when providing health education (Corrales-Gutierrez et al., 2019).

It has been found that creation of an intrinsic motivation would be a better option of ensuring that pregnant women abstain from alcohol. This was supported in a study conducted in South Africa that found 83% of pregnant women had non harmful attitudes towards prenatal alcohol use in the current pregnancy, and yet 51% still reported consuming alcohol in their previous pregnancy. This indicated an attitude-behaviour gap insinuating that holding a non-harmful attitude does not predict alcohol use behaviour. Furthermore, prenatal alcohol use was attributed to having unplanned pregnancy, stress, abuse or trauma and recreation (Fletcher and May, 2017) .

2.6. Cultural influences on alcohol use in pregnant women

Societal norms have been found to contribute to permissive attitudes women possess towards consuming alcohol during pregnancy. In a study conducted in Sweden, it was found that women in the reproductive age were expected to drink alcohol but abstain once aware that they are pregnant (Skagerström, 2015). This has shown uncertainty on when to abstain as most women

only stop drinking when they discover that they are pregnant leading to foetal exposure to alcohol for several weeks in early pregnancy.

Additionally, a study conducted in Australian pregnant women on influences of drinking choices found that women's awareness of lifelong effects of prenatal alcohol use alone does not discourage the practice unless by developing strategies on behaviour change addressing their social and cultural contexts (Gibson et al., 2020).

Behavioural communication was found important in communicating change of attitudes of the pregnant women. This was affirmed by a study conducted in Nigeria in which more than 59% of pregnant women attending antenatal were found to have consumed alcohol during the current pregnancy. This was attributed to ignorance, societal tolerance and free access to alcoholic beverages (Ordinioha and Brisibe, 2015).

Studies have indicated that subjective norms are based somewhat on cultural beliefs and what the significant figure in an individual's life approves. A study conducted in Zambia on cultural and health beliefs of pregnant women regarding pregnancy and child birth established that pregnant women whose cultural background despised prenatal alcohol use led them to avoid drinking so as to get approval from their significant figures (M'soka, Mabuza and Pretorius, 2015). This increases the need for health professionals to contextualize the community practices regarding different health issues such as alcohol use during pregnancy as this affects their perception of risks

2.7. Conclusion

Studies have revealed that alcohol use among pregnant women is so rampant in many countries globally hence the need to formulate localized screening guides for early detection of problem drinking in pregnancy.

Data on knowledge regarding alcohol use among pregnant women has shown to be inconsistent owing to lack of health education from health professionals as well as other factors such as level of education, social pressure, low economic status, age and their attitudes. Pregnant women's risk perception of teratogenic effects of prenatal alcohol consumption is affected by several factors such as health advice received, traditional beliefs, social norms and personal experiences.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The methods that were employed in this investigation are described in this chapter. The research design, study population, sample selection, measurements, pretesting, and ethical issues. This study was identifying the determinants of alcohol use among pregnant women in Zambia.

3.1. Research Design

The study used a mixed method approach called convergent parallel approach. This approach prioritized both quantitative and qualitative methods equally, analyzed them separately and integrated the results (J. Creswell & Clark, 2007). In this study, quantitative and qualitative methods were both applied equally, data collected concurrently, analyzed separately and independently and then results merged in order to give an overall interpretation.

The quantitative approach used an analytical cross sectional design in which data was collected at one point in time (Polit & Beck, 2010). This helped in quantifying the problem through generation of numerical data that would be statistically useable and generalizable from large samples.

The qualitative design used descriptive phenomenology approach originally by Edmund Husserl which focused on gaining detailed insight of the phenomenon to capture lived experiences and provided an improved conceptualization (Finlayson et al., 2019). Through the use of this approach, the study focused on understanding the perceptions and cultural influence on alcohol use among pregnant women in Lusaka.

3.2. Research Setting

The research was facility-based conducted at George Health Centre in Lusaka district of Zambia. In 2019, the health centre had a catchment population of approximately 189,965 with expected pregnancies of over 10,000. This site was purposively chosen because of its densely low-cost location which presented various challenges such as poverty, crime and substance abuse. It was therefore not a representation of Lusaka district health centers, as it was chosen because of its major contribution to alcohol induced cases as observed at Chainama Hills Hospital records.

3.3. Study Population

The study population were pregnant women residing in George township and accessing health care at George health centre.

The target population was 255 pregnant women who were attending antenatal care at the facility during the period of study. It was from this subgroup that pregnant women found consuming alcohol were purposively selected to participate in the focused group discussion.

3.4 Sample selection

In the quantitative part of the study, random sampling method was used to select participants in order to create an equal chance for every pregnant woman to participate in the study. This was done by applying systematic sampling in which every Nth case after a random start was selected to act as a representative sample (Taherdoost, 2018). The N (sampling interval) was established by dividing 900 (accessible population of pregnant women) by 255 (sample size) giving an interval of every 4th person being invited to participate. When they declined, the next on the queue was encouraged to take part in the study. The sampling frame as provided by the health centre was pregnant women in attendance during the period of data collection.

In the qualitative part of the study, sampling was purposive as it involved the subjective judgement of the researcher who chose participants that had experienced the phenomenon (Parahoo, 2006). This sampling method was beneficial because all participants involved were representative of people who had experienced alcohol use during pregnancy (W. J. Creswell, 2013). Therefore, the participants were purposively chosen on the basis of being pregnant, residing in George township, attending antenatal clinic at George health centre and met the inclusion criteria.

3.4.1. Sample size

Sample sizes for both quantitative and qualitative methods were determined by independently abiding to the specific procedures expected for each method.

Quantitative method sample size

The sample size was manually calculated using Krejcie and Morgan 1 formula for determining sample size.

$$n = \frac{z^2 \times P \times (1-p)}{d^2} \quad \text{where } Z = 1.96 \text{ at } d = 0.05 \text{ and } P = 0.21$$

Note:

n= the required sample size

Z= Z value e.g., 1.96 for 95% confidence level

P= population prevalence (21% expressed as a decimal 0.21)

d=degree of accuracy 5% expressed as a proportion (0.05): it is the margin of error

therefore, sample size = $\frac{1.96^2 \times 0.21 \times (1 - 0.21)}{0.05^2} = 255$

Qualitative method sample size

. Similarly, studies suggest that sample size be determined by data saturation when no new information or themes emerge from interviewing additional participants (Shosha, 2012). In this study, 6 participants were enrolled in each group based on their history of consuming alcohol from the questionnaire responses until data saturation was attained by the fourth discussion and it was reached in consultation with the supervisor. Therefore, a total of 24 pregnant women were enrolled for qualitative data collection.

3.4.2. Inclusion criteria

Pregnant women from the age of 18 attending antenatal at George clinic that gave consent to participate in the study, resided within George township and were accessible during the one-month study period.

3.4.3. Exclusion criteria

All pregnant women in need of emergency care and those with diagnosed mental health conditions (e.g., mood disorders, schizophrenia, epilepsy) which are likely to make them susceptible to substance and alcohol abuse as a result of poor cognition. In addition, all participants with known history of substance and alcohol use disorders were also excluded due to their susceptibility of continued use during pregnancy.

3.5. Data Collection plan and techniques

The collection of data was performed by the researcher in order to gain insight of the problem of alcohol use in pregnancy through the use of a questionnaire and focus group discussions (FGD). The information was collected through a questionnaire guide, note taking, focused group discussion guide and voice recorders so that it was easily accessible and able to maintain originality of the accounts (W. J. Creswell, 2013).

3.5.1. Data collection techniques for quantitative method

The researcher introduced oneself and the topic under study. Instructions were read to the participants to ensure understanding and an informed consent was obtained. Participants were engaged into a face-to-face session, in which questions from the questionnaire were read and the interviewee answered while the researcher recorded the responses onto the answer spaces. Where necessary questions and answers were repeated for clarity and at the end of the interview the participant was shown gratitude. Each interview lasted between of 10 to 15 minutes.

3.5.2. Data collection techniques for qualitative method

Four focused group discussions were conducted and each group consisted of six to eight participants. This method helped to produce adequate information, identified and explored beliefs, ideas/opinions of the pregnant women and their experiences with alcohol use. Some of the benefits of FGD were that; they allowed participants to elaborate more and share on issues raised thereby enhancing the credibility of the research by creating an environment that encouraged interaction and clarification (Bradbury-Jones et al., 2009). On the contrary, FGD poses challenges when the researcher loses control over the flow of the discussion and could lead to difficulties in data analysis (Kombo and Tromp, 2006).

Pregnant women who consented to take part in the study and met the study criteria were set for the Focus Group Discussion. The participants were kept in a quiet, isolated room at the facility and assured them of privacy which promoted their comfort and participation, as well as minimized distractions as this study was facility based. Each interview took 40 to 60 minutes. A focused group discussion guide was used as it helped in the creation of a trusting relationship between the researcher and participants thereby enhanced the participant's openness to tell the story in their own words (Vandermause and Fleming, 2011).

At the beginning of the interview, an informed consent was obtained from all participants. An introductory question was asked as 'tell me what do you say about pregnant women consuming alcohol? During the interview, probes were used to obtain additional information, brief notes taken and both responses and questions were audio taped. At the end of the interview, gratitude to the participants was expressed for their cooperation and confidentiality reassured.

3.6. Data collection tools

3.6.1. Quantitative tool: structured questionnaire

In this study, quantitative data was collected using a questionnaire guide and was administered by the researcher and research assistants. The tool selected permitted anonymity and honesty in the answering of questions thereby aided in reducing social desirability bias as participants were made to answer to the most relatable response without feeling judged. It also allowed participants to clarify questions and provided inclusiveness of all participants who may have had troubles reading and writing.

The questionnaire guide consisted of five sections with questions on demographic data, knowledge, socioeconomic status, alcohol use and alcohol consumption scale.

Section A: The demographic characteristics of all participants was obtained by noting the various characteristics of the participants. These were from question 1-13.

Section B: Knowledge levels on alcohol use was assessed and classified as inadequate and adequate levels of overall knowledge from questions 14. Similarly, knowledge on specific risks and complications were measured using questions 15 and 16 by answering YES or NO to them.

Section C: Socioeconomic level was assessed and classified as low, moderate and high from question 18.

The classification of the households in the study was according to the socioeconomic status as per the socioeconomic status (SES) scale developed for urban families by Kuppuswamy with modifications by a study done in South Africa (Schutte et al., 2019). The characteristics used to categorise SES was income, education and employment, and this was measured according to the principal earner (head of household) that is one who contributes maximum income to the family as follows;

- a. Education was classified as primary and below one point, secondary was two points and college/university were 3 points.
- b. Employment was classified as unemployed one point, student two points and employed was four points.
- c. Household income was classified as No income one point, equal to and less than one thousand (K1000) as three points, while above one thousand kwacha was 5 points.

The lowest income was according to the minimum wage as stipulated in the revised minimum wage statutory instrument number 71 of 2018 in the laws of Zambia. Meanwhile the classification was as according to approximations acquired from Paylab Zambia (Paylab Zambia, 2020). Therefore, the classifications were scored as low SES- ≤ 3 , moderate SES- 4-7 and high SES- > 7 . The validity of this scale was at 91% according to a study in India (Sarmah & Bora Hazarika, 2012). The Cronbach alpha was 0.73 according to a study conducted in India (Bhattacharya et al., 2018).

Section D: Alcohol use was assessed using the World Health Organisation (WHO) tool called AUDIT scale by adapting the first three questions that measured alcohol consumption. The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item questionnaire designed by the World Health Organization to screen for hazardous alcohol intake in primary health care settings. Each question has 4 options with a total score of 12 and any score of ≥ 6 would be considered high consumption. The Cronbach alpha of the AUDIT tool ranges between 0.77 to 0.79 in females according to regional scores obtained in Uganda and Nigeria respectively (Peng et al., 2012).

The usage of AUDIT items 1-3 on alcohol consumption has been found to be useful in predicting hazardous drinking in many countries (Fujii et al., 2016). Furthermore, studies have indicated that the AUDIT tool is a good measure for screening heavy drinking among women by ensuring that the cut off points are tailored according to gender and vulnerability. For example, the sensitivity and specificity were both above 0.80 at a cut-off point ≥ 6 for heavy drinking among middle aged women (Aalto, Tuunanen, Sillanaukee and Seppä, 2006). Meanwhile in another study conducted in South Africa found Cronbach alpha of 0.89 using an AUDIT-C scale (Peltzer, Pengpid & Sciences, 2019).

The study adopted and modified the AUDIT tool cut off points and classification on items 1-3 of alcohol consumption as suggested in a study conducted in Tanzania on prevalence and factors affecting alcohol use in pregnancy as follows; low risk drinking (1-3), moderate risk drinking (4-5) and high risk drinking (≥ 6) (Mpelo et al., 2018). Therefore, the modified cut-off points and classification used were low risk drinking (1-5) and high-risk drinking (≥ 6) respectively.

3.6.2. Qualitative tool: Focused group discussion guide

The guide had questions that aided to direct the flow of information on the determinants of alcohol use among pregnant women with regard to cultural influences and their perceptions.

3.6. Pilot study

The pilot study was conducted among pregnant women with similar characteristics at Matero first level hospital, at another location in order to avoid preconceived answers. It included 10% of the actual study sample for both quantitative and qualitative approaches. The purpose of conducting a pilot study was to assess the data collection tools for modifications and duration required before the actual study.

3.7. Data management and storage

It was the responsibility of the researcher to ensure the development of a good filing system that enhanced safety, organization and accessibility of data throughout the study process. The researcher ensured use of high-quality audio recording, flash disks, and well documented notes for both verbal and non-verbal information (reflexive journals) obtained during interviews and FGDs. The participants were provided with anonymity by masking their names in the data. The researcher further developed a master list of types of information collected and a data collection matrix as a visual means of locating and identifying information (Creswell, 2013). Therefore, all data was backed up by copies of computer files to avoid loss of information.

3.8. Quality measures

3.8.1. Quantitative data

Validity

The questions were examined by research experts (e.g., supervisors) to ensure that they elicit the responses that answered the variables being measured. The questions were also written in a simple, clear and brief manner in order to allow the participants to offer clear responses.

To determine whether all elements explored were measured, content validity was determined by comparing items in the data collection tool to the study's objectives and concepts in the theoretical framework.

Reliability

The questionnaire guide was in English and translated to one common local language (Nyanja) by a linguistic expert. The questionnaire was back translated from local language to English in order to ensure correlation in meaning. The research assistant was trained on data collection so that all participants were asked questions in the same way.

3.8.2. Qualitative data

Trustworthiness

This study applied the Lincoln and Guba evaluative criteria (1985) in order to ensure quality of the research.

Credibility: Prolonged engagement was ensured by the investigator's lasting presence throughout the focused group discussions in order to build trust and test for misinformation. Method triangulation through questionnaire as well as focused group discussion was used in order to cross check for consistence of the findings. Peer debriefing was conducted through frequent meetings and discussions with expert researchers who are the researcher supervisors and peer to allow for checks and balances throughout the research process. Validation of findings was achieved through member checking, and discussions with expert researchers and peer reviews.

Conformability: Reflexivity was achieved through maintenance of a reflexive journal and frequent meetings by continuous engagement of the research supervisors throughout the entire process. Triangulation was applied by use of different triangulation techniques; methodological use of questionnaire and focused group discussion, data source by collecting data from pregnant women with different characteristics, investigators by use of field note and reflexive journals in order to validate collected data.

Dependability: This was achieved by a detailed description of research methodology and research findings. A detailed record of data collection activities was created in order to establish an audit trail.

Transferability: The participant's experiences and behaviors as well as the context under which the phenomenon under study was conducted was clearly described. A purposeful sampling method was used in order to form a nominated sample. This sampling method was used in order that the selected participants be representative across settings as this was important in conducting analysis in different groups such as methodological and data source.

3.9. Data analysis plan/methods

3.9.1. Quantitative data analysis

Data was entered and analyzed using a Statistical Package for Social Sciences (SPSS) version 21 and manually by the use of a scientific calculator. Descriptive statistics were summarized through graphs, pie charts and frequency tables. The associations between the dependent variable (alcohol

use) and the independent variables were tested using the chi-square test. Binary logistic regression was used to predict associations between the determinants (knowledge and socioeconomic status) and dependent variable which was alcohol use. The confidence interval for the study was set at 95% and the level of significance was achieved when the P value was ≤ 0.05

3.9.2. Qualitative data analysis

Data was analyzed using the six steps of thematic analysis described by Virginia Braun and Victoria Clarke as recommended in descriptive phenomenological studies (Morrow, Rodriguez & King, 2015).

Step 1: Familiarizing yourself with your data

This step required the researcher to be fully immersed and actively engaged in the data by firstly transcribing the interactions and then reading (and re-reading) the transcripts and/or listening to the recordings. This stage required the researcher to engage in active listening of the audios and produce direct notes of the conversations.

Step 2: Generating initial codes

Once familiar with the data, the researcher then started by identifying preliminary codes, which were features of the data that appeared interesting and meaningful. These features were highlighted throughout the scripts for easy classification into codes.

Step 3: Searching for themes

The third step in the process was the start of the interpretive analysis of the collated codes. Relevant data extracts were sorted (combined or split) according to overarching themes. The researcher's thought process alluded to the relationship between codes, sub themes, and themes.

Step 4: Reviewing themes

A deeper review of identified themes followed where the researcher needed to question whether to combine, refine, separate, or discard initial themes. Data within themes cohered together meaningfully, with clear and identifiable distinctions between themes.

Step 5: Defining and naming themes

This step involved ‘refining and defining’ the themes and potential sub themes within the data. Ongoing analysis was required to further enhance the identified themes. The researcher provided theme names and clear working definitions that captured the essence of each theme in a concise and punchy manner. A thematic ‘map’ was generated from this step.

Step 6: Producing the report

Finally, the researcher transformed the analysis into an interpretable piece of writing by using vivid and compelling extract examples that related to the themes, research question, and literature. The results of the qualitative was later integrated with the quantitative data in order to produce a complete report.

3.10. Ethical considerations

In order to commence with the study, the research was granted ethical approval by University of Zambia Biomedical Research Ethical Committee (*Ref: 1440-2021*) and National Health Research Authority (*Ref: NHRA000010/22/04/2021*) before any contact with the participants. Permission from Lusaka District Health Office (LDHO), Matero hospital and George health centre was obtained. In order to be recruited into the study, all participants were availed with the information sheet which stipulated clearly the purpose of the study. Furthermore, they were given a consent form which allowed them to make an informed decision on whether to participate in the study or not, as well as their freedom to withdraw without victimization. The participants who gave informed consent were made to sign and return the form thereby upholding the Helsinki declaration of 1975. Since questions of alcohol use are likely to be considered sensitive, participants were assured of anonymity and privacy. For those participants that underwent psychological stress, they were referred to an appointed professional counsellor. After each interview, all the participants who reported alcohol use during pregnancy were offered education on its effects and advised on procedures for obtaining help.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.0. Introduction

The objective of the study was to explore the determinants of alcohol use among pregnant women attending antenatal clinic. Data collection was conducted concurrently for both quantitative and qualitative method. A total of 255 pregnant women were enrolled in the study from which 23 of them participated in the focused group discussions based on their history of consuming alcohol. In this section, data will be presented separately to be merged at interpretation level.

4.1. Quantitative results

A total of 255 pregnant women were recruited to participate in the study, and all questionnaires administered to them were satisfactorily answered generating a 100% response rate. The results present information on the prevalence of alcohol use, knowledge levels, socioeconomic status, perceptions and cultural factors related to their alcohol use.

4.1.1. Sociodemographic Information

This section shows Sociodemographic characteristics of the respondents. The characteristics consisted of age, religion and marital status.

Table 4.1: Sociodemographic characteristics of respondents (n=255)

Variable	Frequency	Percentage
Age		
18-24	124	49%
25 and above	131	51%
Religion		
Catholic	56	22%
Pentecostal	70	27%
Adventist	31	12%
Jehovah's Witness	21	8%
Others	77	30%
Marital status		
Married	195	76%
Single	60	24%

Table 4.1 shows that more than half of the respondents 131(51%) were above the age of 25. Most respondents were from Other religious denominations 77(30%) such as Methodist, Baptist, Muslim, united church of Zambia while Pentecostals accounted for 70(27%), Catholics were 56(22%), Adventists were 31 (12%) and Jehovah's witness being 21(8%). Majority of the respondents had secondary education 163(64%), followed by primary education 76 (30%). Additionally, majority of the respondents were married 195(76%) while 141(55%) had no income to contribute to the household.

The characteristics of respondents under this section consists of emotional support, smoking status, illicit drug use, pregnancy planning, gestation and parity.

Table 4.2: Psychological, Substance use and Obstetric characteristics of respondents

Maternal characteristics	Frequency	Percentage
	count	%
Emotional support		
Parent/relative	153	60.0
Spouse/SO/Friend	102	40.0
Smoking status		
Smoker	9	3.5
Non smoker	246	96.5
Illicit drugs		
User	2	0.8
Non user	253	99.2
Pregnancy planning		
Yes	94	36.9
No	161	63.1
Gestation		
1st trimester (1-3 months)	24	9.4
2nd trimester (4-6 months)	104	40.8
3rd trimester (7-9 months)	127	49.8
Parity		
One/twice	143	56.1
Three or more	112	43.9

TABLE 4.2. shows that 153(60%) of the respondents' sort emotional support from parents/relatives and 102(40%) obtained it from spouse/significant others, friends. Majority of the respondents were non-smokers 246(96.5%) and only 9(3.5%) were smokers. Similarly, 253(99.2%) used illicit drugs and only 2(0.8%) were not using them.

The table above shows that 94(36.9%) of respondents planned their pregnancies and 161(63.1%) did not plan to get pregnant. Most respondents were in third trimester 127(49.8%), 104(40.8%) were in second trimester and only 24(9.4%) were in first trimester. About 143(56.1%) had parity of one/two and 112(43.9%) had three and more.

Figure 4.1: Pregnancy planning status and respondent's alcohol consumption (n=103)

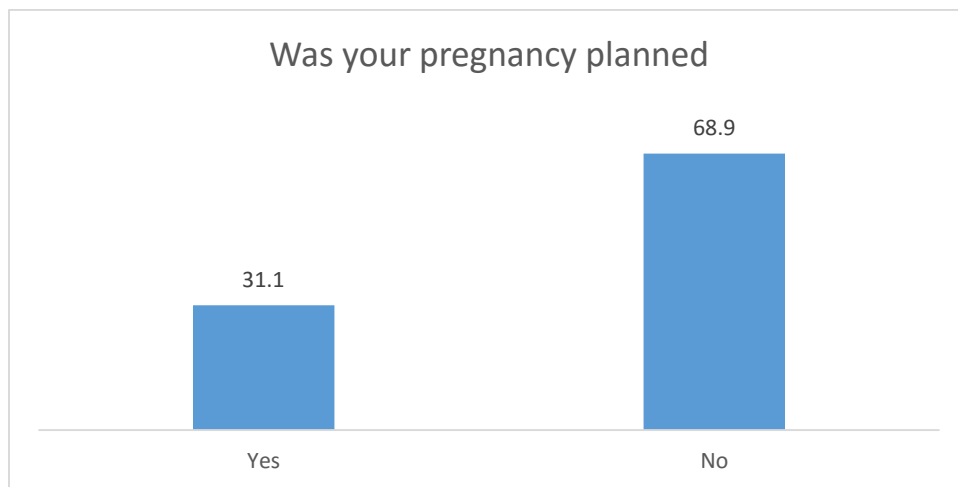


Figure 4.1. The figure above shows that 31.1% (32) of women planned their pregnancies and 68.9% (71) did not plan their pregnancies.

4.1.2. Alcohol use among respondents

The section describes the prevalence of alcohol use among respondents in this study. It shows the percentage women consuming and not consuming alcohol during pregnancy.

Figure 4.2: Alcohol use among respondents (n=255)

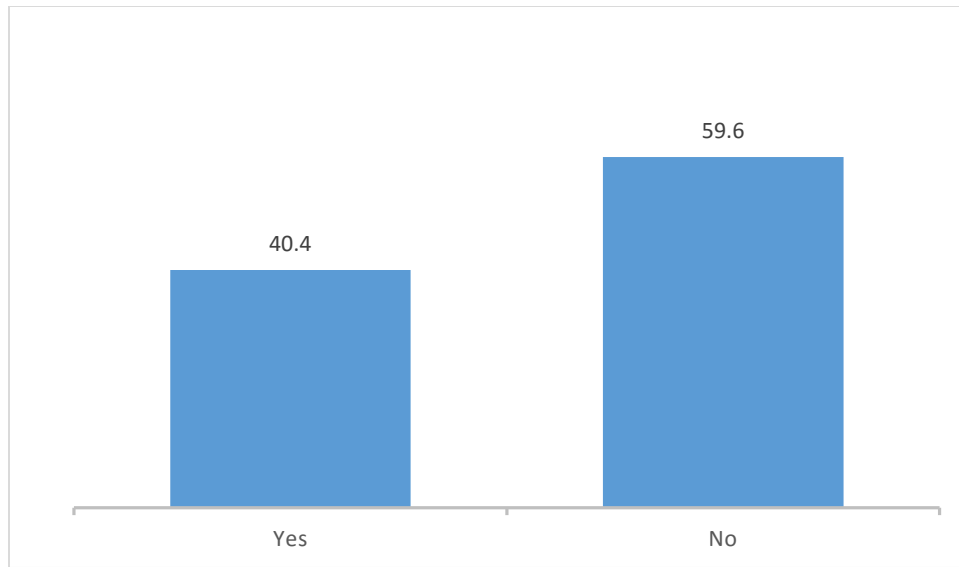


Figure 4.2 above shows that the prevalence of alcohol use among pregnant women during pregnancy was 40.4% (103) and 59.6% (152) of them did not consume alcohol.

Table 4.3: Levels of alcohol consumption among respondents (n=103)

Levels of alcohol consumption	Frequency (n)	Percentage (%)	Total
Low	18	17.5	103
High	85	82.5	103

Table 4.3 above shows that a total number of 103 of the respondents consumed alcohol, out of which 18 (17.5%) had a high consumption and 85 (82.5%) had low consumption levels.

4.1.3. Knowledge on harmful effects of alcohol

This section describes the various influences that suggest whether respondents in this study had knowledge on harmful effects of alcohol to both unborn baby and mother as well as availability of information on the same issues. Respondents were asked questions on effects of drinking alcohol to the unborn baby, associated health risks to baby and mother and awareness of information regarding alcohol in pregnancy and their sources of information.

Figure 4.3: Respondent's knowledge on the harmful effects of alcohol to the unborn baby

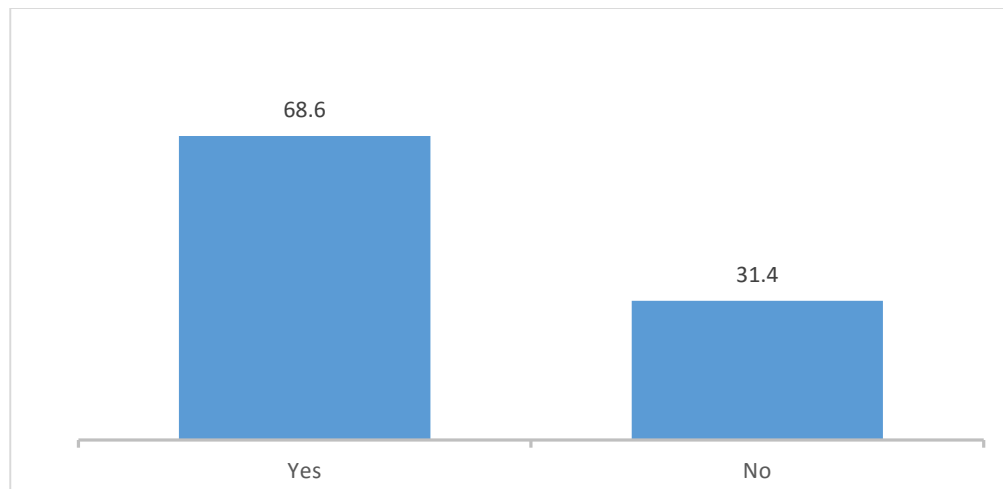


Figure 4.3. shows the respondents' knowledge on the harmful effects of alcohol to the unborn baby. A total of 175(68.6%) had knowledge and 80(31.4%) had no knowledge.

Table 4.4: Knowledge on risks of alcohol in pregnancy

Risks of alcohol use	Frequency(n)	Percentage (%)	Total
Drinking spirits will cause the same harm to the baby as traditional brews			
True	189	74.1	255
False	66	25.9	
Small amounts of alcohol during pregnancy will cause harm to the baby			
True	39	15.3	255
False	216	84.7	
The risk of harm to a baby from drinking alcohol is the same for all women			
True	79	31.0	255
False	176	69.0	
The effects of harm on the baby cannot be cured			
True	44	17.3	255
False	211	82.7	

Table 4.4. The table above shows the respondents' knowledge on risks of alcohol use in pregnancy. The respondents were asked whether drinking spirits can cause the same harm to the baby as traditional brews, in which 189 (74.1%) said true while 66 (25.9%) said false. The respondents when asked on whether small amounts of alcohol during pregnancy can cause harm to the baby, 216 (84.7%) said false while 39 (15.35) said true. When asked on whether the risk of harm to a baby from drinking alcohol is the same for all women, 79 (31%) said true while 176 (69%) said false. The respondents were also asked on whether the effects of harm on the baby cannot be cured, 44 (17.3%) said true while 211 (82.7%) said false.

Table 4.5: Knowledge of respondents on associated complications of alcohol use in pregnancy

Knowledge on associated complications	Frequency (n)	Percentage (%)	Total
Learning disability	59	12.3	255
Still births	60	12.5	255
Abortions	94	19.5	255
Low birth weight	81	16.8	255
Small head	55	11.4	255
Big babies	71	14.8	255
I don't know	61	12.7	255

Table 4. 5 above shows that the results also showed that knowledge of respondents on associated complications with alcohol use was 19.5% had knowledge of abortion and 16.8% had knowledge of low birth weight. About 12.3% had knowledge of learning difficulties while 12.5% had knowledge of still births. The remainder of the respondents had 11.4% knowledge of small head and 14.8% of big babies while 12.7% accounted for those who did not know.

4.1.4. Socioeconomic status (SES)

This section shows socioeconomic characteristics of the respondents. The characteristics consisted of education, employment and household income. The socioeconomic status of respondents was assessed based on the head of household by applying a modified Kuppaswamy's socioeconomic

scale. This scale classified respondents into Low, Moderate and High SES by using three indicators: education, employment and household income.

Table 4.6: Socioeconomic characteristics of respondents (n=255)

Variable	Frequency	Percentage
Education		
Primary	76	30%
Secondary	163	64%
Tertiary	9	4%
No formal education	7	3%
Employment		
Formal	29	11%
Self employed	80	31%
Unemployed	146	57%
Household income		
No income	141	55%
≤ K1000	97	38%
> K1000	17	7%

Table 4.6. shows that majority of the respondents had secondary education 163(64%), followed by primary education 76 (30%), with only 9(4%) having attained tertiary education and the least with no formal education 7(3%). Additionally, majority of the respondents were unemployed 146(57%) while 80(31%) accounted for the self-employed and those in formal employment were 29(11%). Most of the respondents had no income 141 (55%), 97 (38%) had income of equal to K1000 and 17 (7%) had income over K1000.

Figure 4.4: Respondent's socioeconomic status

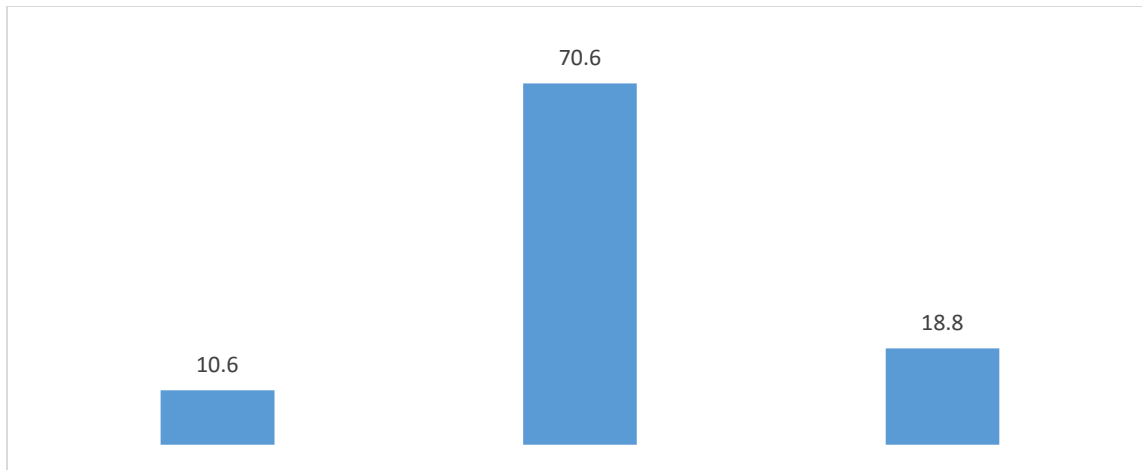


Figure 4.4 above shows that 18.8% (48) had high SES, 70.6% (180) of respondents had moderate SES and 10.6% (27) had low SES.

CROSS TABULATIONS OF ALCOHOL USE AND SELECTED FACTORS

Table 4.7: Relationship between Sociodemographic characteristics and alcohol use of respondents

Variable	Alcohol Intake (n=255)		
	Yes	No	P-Value
Age			
18-24	51	73	0.816
25 and above	52	79	
Religion			
Catholic	23	33	0.235
Pentecostal	27	43	
Adventist	9	22	
Jehovah's Witness	6	15	
Others	38	39	
Marital status			
Married	71	124	0.019
Single	32	28	

Table 4.7. The table above shows associations between sociodemographic characteristics of respondents and alcohol use. Age had a p-value of 0.816, marital status had p-value and religion had p-value 0.235. Therefore, marital status was statistically significant with a p-value of 0.019.

Table 4.8: Association between Obstetric, substance use, emotional support characteristics and alcohol use

Variable	Alcohol Intake (N=255)		
	Yes	No	P-Value
Planned pregnancy			
Yes	32	62	0.114
No	71	90	
Number of months pregnant			
1st trimester (1-3 months)	9	15	0.224
2nd trimester (4-6 months)	36	68	
3rd trimester (7-9 months)	58	69	
Number of times pregnant			
one/two	64	79	0.109
three or more	39	73	
Smoking status			
Smoker	8	1	0.003
Non smoker	95	151	
Illicit drugs			
User	102	151	0.781
Non user	1	1	
Primary source of emotional support			
Parent/relative	57	96	0.211
Spouse/significant other/friend	46	56	

Table 4.8. The table shows that pregnancy planning had a p-value of 0.114, number of times pregnant had 0.109, smoking status had p-value 0.003. Illicit drugs had p-value 0.781 and primary source of emotional support had p-value 0.211. Therefore, smoking status was statistically significant with a p-value of 0.003,

Table 4.9: Association between knowledge and alcohol use

Variable	Alcohol intake (N=255)		
	Yes	No	P-value
Is drinking alcohol during pregnancy harmful to the unborn baby			
Yes	72	103	0.718
No	31	49	

Table 4.9 shows that knowledge was not statistically significant with p-value of 0.718

Table 4.10: Associations between socioeconomic status characteristics and alcohol use

Variable	Alcohol use		P-value
	Yes	No	
Education			
Primary	31	45	0.992
Secondary	65	98	
Tertiary	4	5	
No education	3	4	
Employment			
Formal	12	17	0.727
Self employed	35	45	
Unemployed	56	90	
household income			
No income	54	87	0.587
≤ K1000	43	54	
> K1000	6	11	
Socioeconomic status			
Low SES	15	12	0.077
Moderate SES	74	106	
High SES	14	34	

TABLE 4.10. shows that the association between socioeconomic characteristics and alcohol use. Education had a p-value of 0.992, employment p-value was 0.727, household income had p-value of 0.587 and socioeconomic status was 0.077. Therefore, none of the above characteristics was statistically significant.

FACTORS ASSOCIATED WITH ALCOHOL USE AMONG PREGNANT WOMEN

The binary logistic regression adjusted for age, education, marital status, religion, socioeconomic status, emotional support, knowledge, pregnancy planning, number of times pregnant and smoking status.

Table 4.11: Binary logistic regression

Variable		Odds ratio	p-value	Confidence interval
Socioeconomic status (SES)	Low	1		[1,1]
	Mod	0.619	0.285	[0.257, 1.492]
	High	0.372	0.068	[0.129, 1.075]
No. of times pregnant	One/two	1		[1,1]
	Three/more	0.665	0.154	[0.379, 0.164]
Marital status	Married	1		[1,1]
	Single	1.394	0.315	[0.729, 2.665]
Smoking status	Non smoker	1		[1,1]
	Smoker	11.2405	0.028	[1.3019, 97.0439]

Table. 4.11. shows that smoking status is an important determinant of alcohol use among pregnant women. The odds of alcohol use among women who smoke is 11.24 times higher compared to non-smokers. Therefore, smoking status was statistically significant with p-value of 0.028. The odds of taking alcohol among single pregnant women was likely to increase by 39% compared to the married pregnant women.

The odds of pregnant women taking alcohol is 63% lower among women in high socioeconomic status compared with women in low socioeconomic status. Meanwhile the odds of pregnant women drinking alcohol reduces with a factor of 0.505 (49.5%) among women with one or two pregnancies compared to those with three or more pregnancies.

However, variables such as knowledge, pregnancy planning, emotional support, religion, education, socioeconomic status, marital status and age were not statistically significant.

4.2. Qualitative data results

The qualitative approach aimed to understand pregnant women's perception and cultural influences surrounding their alcohol use during pregnancy. A total of 24 women with a history of consuming alcohol were interviewed using a focus group discussion guide in 4 focused group discussions in which each group consisted of 6 participants.

The sociodemographic of the respondents is as follows: the age between 18 to 24 were 12(50%) and above 25 were 12(50%). The education levels for primary were 14(58.3%), secondary 6(25%), tertiary 2 (8.3%) and no formal education had 2(8.3%). The employment status for formal employment were 3(12.5%), self-employed 2(8.3%) and unemployed were 19(79.2%). Marital status those married were 14(58.3%) and single were 10(41.7%). Meanwhile, religion had 4(16.7%) for Catholics, Pentecostals 9(37.5%), Adventists 4(16.7%), Jehovah's witness had 2(8.3%) and other religions (United Church of Zambia, Baptist and Muslims) had 5(20.8%).

Thematic saturation was considered achieved as no new themes emerged in the data after approximately 4 focused group discussions in each sample. The focused group discussions were audio recorded, transcribed verbatim and translated. Data was analysed using thematic analysis as described below.

Thematic map of major themes identified

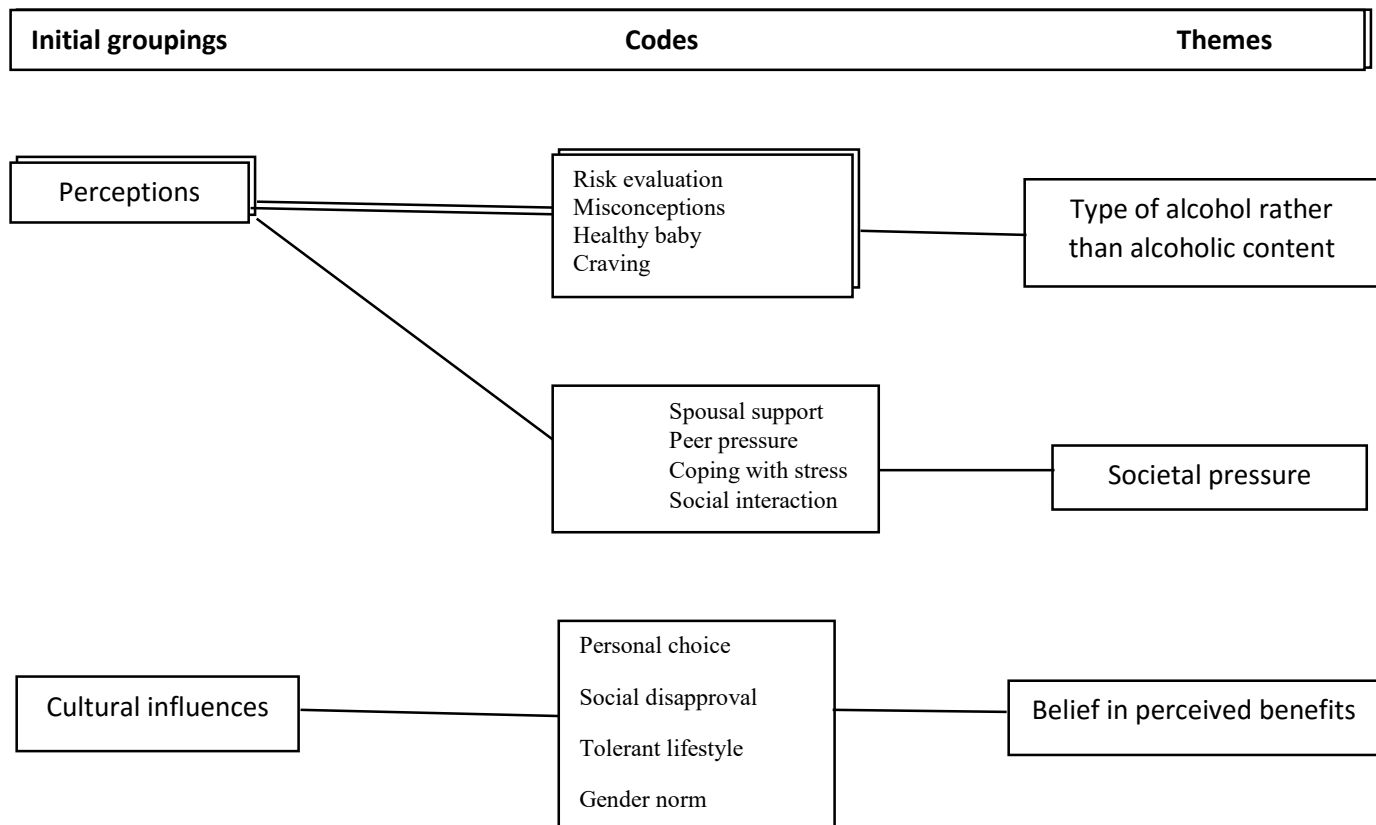


Figure 4.5: Thematic map of major themes identified

Figure 4.5 the above figure shows the major themes identified in the qualitative data.

To get the pregnant women's perceptions and cultural influence on their alcohol use, they were asked to express their thoughts as well as share the perceptions of the community and any perceived impact of this behaviour. The three major themes identified include type of alcohol rather than alcoholic content, societal pressure and belief in perceived benefits.

4.2.1. Theme one: Type of alcohol rather than alcoholic content

Several sub themes were extracted from the major theme of women's reasons for consumption of alcohol during pregnancy.

4.2.1.1. Risk evaluation

Majority participants measured the risk of alcohol on to the unborn baby to be based on the type of alcohol an individual consumes and they felt traditional brews have healthy benefits as illustrated.

My thoughts are that alcohol is good but don't drink strong ones at least Lusaka beer because strong alcohol such as spirits destroys the unborn baby. Woman #11

Some people deliver well, one of my neighbors used to drink alcohol and she used to crave traditional beer in packs. It just depends with the type of alcohol one is drinking. So she used to drink packs and the baby was born healthy up to now it is still healthy Woman #18

One woman further supported and stipulated that the nature/thickness of the beer has added advantage over other stronger types

Spirits are not good for us pregnant women to drink.....some women feel they get good appetite while in the actual sense they disturb their appetite.this affects the baby in the uterus unless you drink Lusaka beer because its porridge-like at least the baby gets some nutrients and will be born healthy. Woman # 2

While others were not even sure of the risks, they just felt that alcohol is generally good

But for me alcohol is just a drink, though not knowing whether I affect the unborn baby because we just take it that the baby is born healthy. Woman #6

4.2.1.2. Misconceptions

Women's perceptions also revealed several misconceptions that they drink alcohol in pregnancy based on what they heard and observed from others.

I have heard that the child grows fast when drinking alcohol whether kachasu (local brewed spirit) or what, it still grows well. Woman #22

I have heard that if you drink alcohol the baby will be born healthy, fat and light skinned and I have witnessed that from my friend. That's all I want for myself. She used to drink any kind of alcohol otherwise I haven't heard anything bad about alcohol. Woman # 1

Meanwhile participants had different views on whether alcohol makes them feel satisfied or not as shown below.

I have seen some women drink and don't mind about eating because they are satisfied. Woman #9

I have also heard that alcohol is good because the baby is born fat, brown and healthy. But it's not that drinking alcohol alone makes the baby like that, other times just eating makes the baby to be born healthy as you decide to drink or not. Woman #3

Another woman further added that;if you are eating well the child can be born healthy, even the drugs given during antenatal visits if one drinks as advised can make the baby healthy. Just follow the health rules given. Woman #1

The differences in their perception can also be related to knowledge received from health practitioners even though others indicated having not heard anything from the health facilities.

I feel if alcohol was good then the health care workers would have been advising us to drink but clinic doesn't permit us to drink so meaning that alcohol is bad during pregnancy. Woman #7

4.2.1.3. Healthy baby

Women's past experiences showed that babies born from mothers who consumed alcohol during pregnancy were fat and had beautiful light skin. Some added that the traditional type of alcohol with thick consistence were more nutritious and contributed to the weight of the baby.

When I discovered that I was pregnant, I changed from bottled beer to Sheki Sheki (commercial traditional type of beer) because my friends told me how beneficial they are to the baby. I actually loved the taste especially when mixed with sugar. Woman # 23

4.2.1.4. Alcohol Cravings

Sometimes women felt that they had to struggle with the urge to avoid alcohol due to various reasons despite having insight of all associated problems as highlighted below.

Others say consuming alcohol during pregnancy makes a child grow into an alcoholic while some say the baby will grow health and you nurses are saying alcohol isn't allowed. As for me who is a drunkard while pregnant the cravings are for alcohol, so I can drink. Woman # 19

.....so find that the pregnancy craves alcohol just like others crave clay or other things. So when someone says that people don't understand. Woman #22

The above wasn't a shared view by all women as some felt that they had the control to choose to drink

I have heard them say that pregnancy may lead you to drink alcohol. As for me I just drink when I come across beer, while others feel it's the pregnancy that gives them the craving. Woman # 14

Another woman disagreed as she felt that the feeling was really real

I am a practical example, for me I crave waka beer especially one mixed with sugar.... woman # 15.

4.2.2. Theme two: Societal pressure

The sub themes that emerged were focused on what kind of pressure the environment can cause on the women's perception of alcohol use in pregnancy. Included i). spousal support, 2). Peer pressure, 3). Coping with stress, and 4). Social interaction.

4.2.2.1. Peer pressure

Women felt that the environment dictated to them on whether to consume alcohol during pregnancy or not while sometimes peer influence also contributes to the pressure to drink, *'People talk when they see a pregnant woman drinking alcohol, they say she will deliver a premature baby,*

weak baby while others never drink because of fear that their babies will born with deformities, they really say different things' Woman #19.

Sometimes it's the friends we have, you find she comes to tell you that I have money for beer. So you follow them by the time you come back in the evening the day has gone by and you only have tomorrow to worry about. Woman #6

Women revealed that friends provide alcohol for them and so it aids their socialization more adventurous. Some mentioned that they have friends who are buyers and always ready to sponsor the beer. One woman said, *'my best friend's husband is a big buyer, and so every time we go out, we know that we shall be dead drunk because he has a lot of money to spend'..... all women laughed. Woman # 9.* Another added saying, *'sometimes it is very difficult to avoid alcohol even while pregnant because the friends I play with do not change. We keep being together so avoid feeling out of place I just join them every time they are drinking', woman 10.*

4.2.2.2. Spousal support

They felt that sometimes their partners and other relations especially friends have been a drive force due to the relaxed approach that they exhibit indicating to them that there's no harm in continuing consuming alcohol as illustrated, *'At this moment I think I have reduced because my husband stopped drinking alcohol. I don't even crave since my drink in December (I don't know the gestation of my pregnancy). Apparently, I don't know if we have both stopped or maybe we just took a break, but I think it's just a break. When he starts, I will also join him', Woman #16.*

4.2.2.3. Coping with stress

Women reported that stress can sometimes lead one to consume alcohol in order to relief stress and reduce their worries. Some women expressed that stress especially that caused by partner makes them to maintain the behaviour as shown; *'It's the marriage which led me to start drinking, too much conflicts and fights. He used to drink too much so I decided let me also drink so that I see how it feels when he drinks. In the end I also started enjoying alcohol (laughing)', Woman #5.*

While another indicated that life's daily disappointments can lead to this behaviour, *'I started drinking because of life's challenges, I never wanted to start drinking alcohol. I was thinking*

maybe my thoughts will get better from the worries I was going through. But again, once I sober up the same thoughts I had before pop up. Woman #2

I started drinking after being in marriage for five years, when my husband started cheating.... Woman #3

4.2.2.4. Social interaction

Women revealed that drinking alcohol in this current environment is normal because at every function beer has been normalized as a normal beverage that adds to the joy of a celebration. One woman said, *‘the last time I went to a wedding ceremony, I drunk alcohol because we were served more beer than sweet beverages making it difficult to avoid. But after drinking the following day I felt very sick so I’m on break nowadays, woman #11*

4.2.3. Theme three: Belief in perceived benefits

The following sub themes emerged from the discussions in the focused groups on how much influence culture has on women’s alcohol use i). personal choice, ii). Tolerant lifestyle, and iii). gender norms.

4.2.3.1. Personal choices

Personal choices showed that most women were aware of the unacceptability associated with a woman consuming alcohol while pregnant but they still decided to drink alcohol because it’s what they wanted to do. One woman said; *‘Mum taught that a breastfeeding woman should drink too much chibwantu (traditional energy drink) because it helps in breast milk production, gives energy and healthy..... my sister told me that if I drunk waka beer mixed with sugar, it helps better than chibwantu. So, I just drink waka beer because my mother’s choice doesn’t help (laughing). woman #12*

4.2.3.2. Tolerant lifestyle

The life style in the villages tend to prescribe a certain acceptable behaviour for their people while city life also poses a different system of behaving. The participants presented with a view that the beliefs that elders or the tradition imposes on them is different at times when one leaves for the city as illustrated, *‘I agreed with the culture then because our parents used to teach us that but when you come to the city its different... .. many times, when I’m home may say I don’t want to*

drink alcohol but when I go to the party, I go to drink can't allow myself to be drinking Fanta. I need to join and show off that I too take alcohol at least one to two bottles.' Woman # 3

While some participants expressed that drinking alcohol is a chance to interact with friends and loved ones as indicated, *'Here in the city (Lusaka) we drink because when we go to parties you find you are the only one taking softies while your friends are enjoying and dancing as you look on miserably that is not good. You need to join your friends and be joyful.....'* Woman #4

Majority of the participants clearly stated that alcohol was not tolerated in women because it showed a lack of responsibility and self-respect compared to men who are allowed to drink because for them it's in their nature to do so.

In my culture alcohol is not allowed in women. Woman #7

4.2.3.3. Social disapproval

Social disapproval for some women contributed further by creating a barrier from their communities as they felt judged and misunderstood in their behaviour as noted, *'They say bad things, I have heard them ask 'why does this woman drink alcohol while pregnant?', that's where you find someone being discouraged from drinking alcohol.'* Woman # 18

Sometimes people get angry and rebuke pregnant women who drink alcohol. Woman # 21

4.2.3.4. Gender norms

Participants expressed mixed messages on whether women are not supposed to consume alcohol. Some felt that it is totally unacceptable for a woman to take part in beer drinking because alcohol was meant for men only. When asked on their thoughts of women's consuming alcohol while pregnant, one woman said, *'I personally stopped drinking alcohol when I discovered that I was pregnant at two months. And I have seen that it has made my husband happy.'* Woman # 15.

Another noted that, *'there is no prescription on who deserves to drinks alcohol after all even our tradition allows us to drink beer as women as long as you do not misbehave'* woman # 17

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.0. Introduction

This chapter discusses findings of the study that were aimed at exploring the determinants of alcohol use among pregnant women. The study had a total of 255 participants, from which 24 participated in the qualitative part of the study after having given a history of consuming alcohol prior to pregnancy recognition and during pregnancy. The questionnaire and focus group discussion were used to collect data from the respondents. The outline of the findings will consist of findings in relation to the literature following the variables of the study.

5.1. Discussion of Variables

The study results have revealed a 40.4% prevalence rate of alcohol use among pregnant women attending antenatal visits. This study does not agree with previous study conducted in Zambia with a similar geographic characteristics indicating a prevalence rate of 21.2% in the periconceptional period and during pregnancy (Moise, 2019). Similarly, this prevalence rate is more than triple as recorded in the African region around the same time of study which indicated a prevalence of 10% (Popova, *et al.*, 2021). These variations show an increase of alcohol use among pregnant women which could be akin to the qualitative study results associating it to a more tolerant environment that allows women to continue with the behaviour. It could also be attributed to the differences in community settings where alcohol is so easily accessible as observed in the location under study of George township. Participants expressed that the environment in which they live is very tolerant to women consuming alcohol, such as traditional beliefs prescribing certain traditional brews (including Katata, and commercially brewed traditional beers such as waka beer and Shekel-Sheki beer) believed to increase breast milk production thereby encouraging them to drink alcohol prenatally in order to prepare for breastfeeding. However, it was found that this may not apply to all tribes because some only prescribed traditional energy drinks (such as munkoyo) in preparation for breastfeeding. This result was supported by a study stressing the need to understand women's culture as some have harmful beliefs and practices such as those that prescribe alcohol for breastfeeding (Popova *et al.*, 2021). Furthermore, women described the city lifestyle to be an enabler perpetuating this behaviour when compared to the village lifestyle that takes up a more conservative approach to women leading to them being labelled as drunkards or signifying a weakness in their personality. This is supported by studies indicating that women have pressure to avoid alcohol due to social norms regarding alcohol use in their culture (Gibson *et al.*, 2020).

The qualitative study results showed that driving forces to continued alcohol use in pregnancy were the pressures derived from partners or relations to join in socialization. This promoted their sense of belonging and care that was given in those acts. The study findings pointed out that women are lured into alcohol drinking by society dictating the behaviour as the only way to enjoy themselves. This agrees with a study indicating that human behaviour can be adapted from the environment which could include peers and family (Hernandez, and Calarco, 2021). Similarly, the study revealed that social influences are a contributor to the sustainability of the behaviour among pregnant women as some women indicated that participation in celebrations was mostly accompanied with eating and drinking alcohol. This finding is similar to the study conducted in Ghana which revealed that pregnant women consumed alcohol as a way of socializing with peers and family (Da Pilma Leketey, 2017).

The other driver was drinking as a way of coping with stress which some women pointed as a major stabilizer to their psychological state despite the admittance of its temporary relief. This is supported by the study indicating that the enabling environment that women are exposed to during preconception makes it difficult to avoid alcohol in pregnancy especially when experiencing additional stressors such as addiction, domestic violence and stress (Gibson et al., 2020). The study further showed that it is a cultural expectation for most communities for women to understand that alcohol is only good in men than it is in women. Participants expressed that they started drinking alcohol as a way of coping with their partners' drinking habits that turned out stressful in a sober state. In contrast with the current fights for gender equality, some women expressed unfairness in that notion indicating that if a man can drink then a woman should do the same in order to avoid unnecessary quarrels or fights. This is against the studies indicating that women involved in heavy drinking have a high exposure to intimate partner violence (Kane et al., 2020)

Meanwhile, the quantitative study results further asserts that most of the pregnant women were not in formal employment instead they thrived on their relations to maintain the behaviour. Despite their low to middle income status, most women still had easy access to alcohol on a regular basis. They explained that they had no stable sources of income but their drinking adventures were mainly as a result of spouses and friends who acted as sponsors in sustaining the behaviour. This is in agreement with another study indicating that pregnant women engaged in beer drinking for

purposes of socialization because their drinking was supported mostly by relations (Nwagu et al., 2017).

Both the quantitative and qualitative studies have further showed agreement that socioeconomic status of pregnant women contributed to their levels of alcohol consumption. Some of the constraints to changes in alcohol use observed in the qualitative study suggested financial incapacitation forcing them to change the type of alcohol, frequency and for some completely stop drinking alcohol. Some women pointed out that the current economic status was too expensive to maintain the family and continue drinking bottled alcohol. This prompted them to consume traditionally brewed alcohol as it proved to be a cheaper option and still able to keep them drunk. While other women felt that stopping alcohol or reducing the frequency and the type was good for the wellbeing of the unborn child, those who completely stopped argued that all forms of alcohol are detrimental to the health of the unborn child despite the type and amount. The quantitative study results revealed that 72% of pregnant women who consumed more alcohol were in the moderate socioeconomic status. This is supported by a study done on assessing low middle income countries, that showed women in the high socioeconomic status were unlikely to consume alcohol during pregnancy compared to those in the lower socioeconomic status and this was attributed to high income and education level (Bitew et al., 2019). Another study further indicated that women in employment had their own money to spend on alcohol despite them being low consumers (Addis and Kirksey, 2019). This could be attributed to their busy schedules at work and having access to knowledge on the dangers of alcohol use in pregnancy. Despite the SES not being statistically significant, study results indicated a 62.8% reduction in alcohol use among women of high SES compared to those in the moderate SES. Additionally, it is supported by a study showing that the diagnosis of FASD is unlikely to be made in women of a higher socioeconomic status despite their ability to abuse alcohol (Lim et al., 2019).

The quantitative study results have found that 68.6% of women had knowledge on the harmful effects of alcohol use during pregnancy. This shows a massive disparity between the high prevalence of alcohol use and the high levels of awareness which does not contribute to their behaviour. This result is in contrast with the results obtained in Nigeria showing that only 35.5% of pregnant women recognized alcohol as a dangerous substance to the foetus (Onwuka et.al, 2016). Both the qualitative and quantitative study results reveal that the level of knowledge has no

relationship with the levels of alcohol consumption. Despite this result, participants recognized that drinking during pregnancy diminished their chances of having a healthy baby, particularly high amounts of drinking, even though some women still believed that it was good to continue drinking as they believed they would have fat and light skinned babies. They also showed ignorance on specific health risks associated with alcohol such as traditional brews do not cause harm to the baby and that effects of alcohol on the baby can be cured. The findings were in line with a study done in Uganda that revealed the presence of significant variation in pregnant women's knowledge levels. (Agiresaasi, Nassanga, and Nazarius, 2021). This could be attributed to the many misconceptions that women hold about the safety of alcohol use in pregnancy leading to uncertainty on what to believe and how to behave. The qualitative study results confirmed that the continued misinformation on the safety of traditional brews has led to most women choosing them over other forms of liquor due to neglect of alcohol industries to educate the public on their safety in pregnancy. The study further revealed that sources of information among pregnant women may contribute to the misconceptions existing on the benefits of alcohol use during pregnancy as indicated by some responses. This is supported by a study indicating that lack of health education in facilities has been linked to inadequate knowledge on FASD and effects of prenatal alcohol use among health professionals (Turchi and Williams, 2017). Similarly a study done to assess whether alcohol industries put disclaimers on the safety in pregnancy verified that most of them showed uncertainties on its safety thereby misinforming the consumers (Lim et al., 2019).

In addition, most women continued to consume alcohol based on their evaluation of risks observed from those that undertook the same behaviour. Participants revealed knowing women who drank a lot of alcohol during their pregnancies with no complications, which led them to believe that drinking while pregnant is normal and health (Fletcher and May, 2017). This further confirms the notion among women that traditionally brewed alcohol especially with a thick consistence does not pose any risks both to mother and the unborn child (Pati et al., 2018). Study results indicated that the duration of consuming alcohol among the pregnant women created a barrier to abrupt cessation after pregnancy recognition while others felt that their inability to overcome the temptation of drinking alcohol was attributed to craving that comes with pregnancy. The study done in Uganda is consistent with these findings in which women alluded to pregnancy induced

craving for alcohol as one of the factors perpetuating their behaviour (Agiresaasi et al., 2021).

The study has shown that women's smoking status influences their alcohol consumption as the result was found to be statistically significant with a p-value of 0.003. This is supported by studies indicating that decreasing smoking during pregnancy is very difficult and hence women continue smoking and drinking alcohol which is hazardous to the unborn child (D'arrigo, 2020). Studies have showed that majority of women continue to smoke during pregnancy up to 74.6% while a drop is observed in which those who continue to drink concurrently with smoking are up to 35.4% and this was associated to education status, income level and living with someone (Jorda et.al, 2021). This could also be attributed to the fact that drinking has been found to increase craving for smoking (Roche *et.al*, 2016). Conversely, the qualitative results indicated that women that have been drinking for a long time continued craving alcohol during pregnancy making it hard to stop. This could be attributed to the dopaminergic reward system that thrives to maintain the pleasurable effects of alcohol.

The quantitative study revealed that 76% of participants were married out of which 54% of them consumed alcohol. This result was found statistically significant with a p-value of 0.019. The low attendance of single women at the facility could be attributed to married women being freer to access health care services at health facilities due to the policy that supports male participation in antenatal care, hence disadvantaging the single women whose partners may not be ready for those services (Zulu, 2017). Another study suggested that married women consumed more alcohol as a sign of dissatisfaction in their marriages as well as coping with their marital distress (Effiong and Umoh, 2016). Meanwhile, the qualitative result of the study has shown that married women's alcohol consumption is influenced by their spouses sponsoring their alcohol. The women indicated that their spouses, supported the behaviour as long as they drunk alcohol from home together. This result conflicts with the study suggesting that alcohol consumption in pregnancy is associated with women having unstable partners as they reported marital satisfaction contributing to their low alcohol consumption (Baptista et.al, 2017).

5.2. Implications to Nursing

The study explored the determinants of alcohol use among pregnant women with implications for mental health and psychiatric nursing. The implications have their significance on different aspects

of mental health and psychiatric nursing which include, education, research, practice and administration.

5.2.1. Nursing education

The mental health problems associated with prenatal alcohol use in pregnancy and among women of reproductive age should be emphasized in the school curriculum in order for learners to be aware of possible risks and complications before attending to women with this problem and individuals exposed to alcohol prenatally. This will improve knowledge among qualified nurses as they administer their routine care to the affected individuals.

5.2.2. Nursing practice

Alcohol use screening and management for pregnant women attending antenatal care clinics through educational campaigns will help lessen on the misconceptions that have created uncertainty on the benefits of alcohol use and its effects. This will improve pregnant women's access to early identification and treatment on alcohol withdrawal in Maternal Child and Health (MCH) departments during regular antenatal visits.

5.2.3. Nursing administration

The study has established the need for a specific space where women of reproductive age and individuals exposed prenatally can receive specific attention and care. Mental health units in all facilities with frequent mentorship could help upscale and maintain high levels of knowledge among the health professionals attending to affected individuals. These units will also enable the staff to be equipped with counselling skills that will enable women affected gain motivation and coping skills to refrain from such vices.

5.2.4. Nursing research

The review of literature showed that limited research has so far been conducted in the area of prenatal alcohol use and its effects on mental health in Zambia. Innovative research studies are vital to better understand the mechanism of alcohol on pregnancy in order to target and develop therapeutic strategies to mitigate its adverse effects and improve mental health outcomes in affected individuals. Therefore, improving the body of knowledge in mental health among nurse researchers who will in turn empower both qualified and student nurses is required.

5. 3. Conclusion

The study explored the determinants of alcohol use among pregnant women attending antenatal care. The various factors identified in the study will provide useful information on how to improve the early identification and management of both maternal and foetal mental wellbeing.

The study has showed a 40.4% prevalence of alcohol use among pregnant women, this serves as a warning mark to strengthen the public health strategies being provided in order to minimize the preventable harm attributed to its use. This result indicates a high likelihood of prenatal alcohol exposure associated with lack of pregnancy planning accounting for 68.9% of pregnancies. This situation has potential to increase mental health burden through management of various mental health problems associated to prenatal alcohol use such as depression, anxiety, mood, ADHD and FASD.

The study has shown that there is no relationship between levels of knowledge and women's levels of alcohol consumption. This observation has revealed that women still continue to drink despite their awareness of harmful effects of alcohol, this indicates the need to re-strategize the models for information delivery in this cohort. The different and unhealthy perceptions held by these women could be based on their experiences of associated complications leading to moral conflicts and uncertainty.

The study has showed that 72% of pregnant women who consumed alcohol were in the moderate socioeconomic status. Despite the low levels of employment and education, most women continued drinking alcohol under the sponsorship of their relations such as peers and family through socialization. This indicates that the environment is more tolerant of such a behaviour hence the need to engage communities in the management of this problem in order to provide a supportive environment that encourages abstinence during pregnancy.

The study showed that 54% of married women consumed alcohol indicating that the continued behaviour was supported by their spouses. This indicates the need to intensify the policy on male participation in antenatal care so that couples are counseled together and offered appropriate health education that can help deter the behaviour.

The study has also showed that there was statistical significance between smoking status and alcohol use in pregnancy. It has revealed that association between smoking increases craving for

alcohol. This signifies the need for counselling and application of models that should reduce smoking in order to minimize its effects on alcohol consumption.

5.4. Recommendations

5.4.1. To the Government

The Ministry of Health (MoH) needs to reinforce the operationalization of the National Alcohol Policy in order to give guidance on the management of alcohol consumption among women of reproductive age. The government through MoH should establish the Mental Health Council in order to help promote the interests of the mental health sector in Zambia. This will help the ministry achieve better mental health for all Zambians. There is need for multisectoral collaboration among ministries such as MoH, Gender and Community development with the participation of traditional leaders in order to design culturally based intervention.

The curriculum for Nursing and Midwifery Council of Zambia (NMCZ) and ministry of general education should be revised in order to address dangers of alcohol use in pregnancy and among women of reproductive age with regard to associated mental health outcomes. There is need to support the establishment of mental health units in all health facilities. This will help to improve the medical and psychological management of mental health problems including alcohol use disorders

5.4.2. To the Management of Matero Sub district

Nurses and midwives are excellent sources of information among pregnant women; therefore, healthcare facilities should give alcohol use screening and health education during antenatal care visits. There is a need for more research on communication tactics that work to identify which types of women should be targeted. There is a lack of understanding regarding the specific risks that maternal alcohol consumption brings to the mother and child. Therefore, educational campaigns should specifically address the harms of drinking while pregnant to raise women's risk perceptions.

5.5. Future research

The current study focused on the determinants of alcohol use in pregnancy. There would be a need to conduct an assessment study to investigate the prevalence of FASD and associated mental health problems of alcohol use during pregnancy in Zambia. This study will help to give the country an idea of the extent to which the problem has reached in order to come up with programs that will manage the anticipated mental health problems.

5.6. Dissemination of findings

At the end of the study, the research findings will be compiled and distributed to the University of Zambia library, School of Nursing Sciences (SON) and University of Zambia medical library. Several other copies will be submitted to Ministry of Health, Lusaka Provincial Health office, Lusaka District Health Office and presentations will be done to the Matero First Level Sub-District Hospital and George Health Centre in order to inform the end users. Publication will be made to several publishers in order to add to the body of knowledge.

5.7. Limitations of the study

The study was conducted at the facility and among pregnant women who may have experienced difficulties in disclosing their true levels of alcohol consumption during pregnancy for fear of victimization from peers as well as health professionals making self-reported alcohol use less accurate. This was mitigated by isolating the participants in a private room in order to promote openness. Social desirability bias was reduced by forced choice itemization of responses so that participants were able to choose the most relatable option through a structured questionnaire. This was helpful because participants did not have to struggle explaining themselves. When undertaking focused group discussions, pregnant women were grouped as alcohol users in order to encourage openness. Drinking was reported over a past period of 12 months which lead to miscalculations due to recall bias. The study was conducted in one location, there is need to conduct a study in a high socioeconomic status location in order to get a clear picture what these results on SES suggest in this study.

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5.9. APPENDICES

APPENDIX 1

PARTICIPANT INFORMATION SHEET

THE UNIVERSITY OF ZAMBIA

DEPARTMENT OF NURSING SCIENCES

Dear Participant,

It is a requirement that you carefully read or have the information sheet read to you about this study.

Introduction

I am Virginia Simasiku a post graduate (MSc MHPN) student at the University of Zambia conducting a study- **Determinants of alcohol use among pregnant women in Lusaka district, Zambia.**

Purpose of study

This study will be assessing the knowledge and perception of pregnant women attending antenatal clinic and data will be required from you in order to better understand ways of managing prenatal alcohol use and its effects on both the unborn child and mother.

Description of the study

The study will be conducted at the facility during your regular antenatal visits. Your visit will be prioritized in order to create time for the interviews. You will also be subjected to both individual interview as well as focused group discussion. Both activities will be conducted by the chief investigator and audio recorded.

Benefits and risks

Even though this study will not benefit you directly, your contribution will aid in the mitigation and management of effects of alcohol use on maternal and unborn child's health. Furthermore, due to the nature of the interviews, short breaks will be allowed as required and snacks for refreshment will be provided. In an event that you feel distressed as you recount your experiences, the

researcher will refer you to a counsellor to remedy the situation. There are no foreseen risks to you or the unborn child by sharing this information.

Confidentiality

The interviews and focused group discussions will be conducted in a quiet room and privacy will be provided. Your identity will not reflect on the documents and responses during the discussions will not be revealed to anyone outside the research team.

Voluntary participation and withdraw

You are informed that your participation is voluntary, in that, you are free to withdraw at any point of the discussion without victimization or penalty.

PERSONS TO CONTACT FOR QUESTIONS/CONCERNS

1. Virginia Simasiku, University of Zambia, Department of Nursing Sciences, PO BOX 50110, Lusaka. Cell: 0977366475. Email: virginiasimasiku@gmail.com
2. Dr. Caroline Zulu, University of Zambia, Department of Public Health Nursing, P.O. BOX 50110, Lusaka. Cell: 0977691684. Email: caroline.zulu482015@gmail.com
3. Mr. James Mwanza, University of Zambia, School of Medicine, Department of Psychiatry. Cell: +260760557738. Email: jamesmwanza@gmail.com
4. The Chairperson, University of Zambia, Biomedical Research Ethics Committee, Telephone: +260-211-290258/293937. P. O. Box 32379; Fax: +260-211-290258/293937 Lusaka, Zambia. Email drgs@unza.zm

ZOWONJEZERA CHOYAMBA

PEPALA LA OTENGAKO MBALI

SUKULU LA UNIVERSITI LA ZAMBIA

CHIGAWO CHA MAPHUNZIRO YA ANASI

Kwa otengako Mbali

Muyenera kuwerenga bwino-bwino pepalayi kapena kuuzidwa pamakucita.

Kudziwana

Ndine Virginia Simasiku mphunzi wama phunziro yapa mwamba muchigawo cha anasi oyangana pa thanzi ya maganizo ndi azamisala, wapa sukulu lalikuli mu Zambia (UNZA) kuyangana **pa zosankha zakumwa mowa mu azimai ali ndi pakati mu m'boma ya Lusaka, Zambia.**

Cholinga cakuwerenga

Kuyetsa kudziwa zomwe azimai apakati womwe apita kucipatala kupimitsa pakati adziwa pankhani ya kumwa moba pomwe mwana asanabadwe ndipo comwe mobawu utha kucita umoyo wao ndiponso wamwana.

Matanthauzo a maphunzirowo

Nchitoyi izacididwa pa malo omwe azimai apita kukapimidwa pakati. Ndipo mudzakhala oyamba kupimidwa kuti tisiyeko nthawi yokambitsana. Mudzafunsidwa panokha ndiponso pa gulu lotsankhidwa lapadela. Ndipo ndidzatenga zotuluka mukukambisanakwathu polemba ndinso patepu rekoda.

Zothandiza ndi zoopsya

Ngakhale kuti zotuluka muno sizisakuthandizani, mayankho yanu ya zathandiza ku azimai omwe akumwa moba panthawi ya pakati ndipo momwe umoyo wa mwana asanabadwe ungatetezedwe. Ndipo tizayamba kupuma pakanthawi ndi kumwako madzi. Ngati simukumvera bwino mumakhalidwe anu, ndidzakuperekani kwa a kansela kuti apeze thandizo pa zobvuta zilizonse. Ndipo kulibe zoopsya kwa inu ndi kwa mwana asanabadwe pakugawana mau athu

Cisinsi

Kukambisana kwathu kudzacitika mwacisinsi ndipo kulibe wakunja adzakhala ndi mpata wodziwa zomwe zakambidwa ndipo dzina lanu sililembedwa pali ponse pa pepalali.

Kuzipereka kutengako mbali kapena kukana

Mwauzidwa kuti kutengako mbali kwanu ndi kozipereka ndipo ndinu womasuka kucokamo pamene mwafunira wopanda kuzengedwa mlandu kapena malipiro.

Anthu ofunsa ngati muli ndi Mafunso aliyense

1. Virginia Simasiku, Universiti ya Zambia, Chigawo cha anasi, P.O. BOX 50110, Lusaka. Nambala ya lamy: 0977366475. Email: virginiasimasiku@gmail.com
2. Dotolo a Caroline Zulu, Universiti ya Zambia, Chigawo cha anasi mu zaumoyo wamagulu. P.O. BOX 50110, Lusaka. Cell: 0977691684. Email: caroline.zulu482015@gmail.com
3. Bambo James Mwanza, Universiti ya Zambia, Sukulu la maphunziro la mankhwala. Chigawo cha umoyo wa anthu odwala misala. Cell: +260760557738. Email: jamesmwanza@gmail.com
4. Tcheyamani, komiti yamalamulo ochita kafukufuku, Univesiti ya Zambia, Nambala ya lamy: +260-211-290258/293937. P. O. Box 32379; Fax: +260-211-290258/293937 Lusaka, Zambia. E-mail drgs@unza.zm

APPENDIX II

INFORMED CONSENT FORM

Declaration

I understand that my participation in this study is voluntary, and that I may refuse or withdraw my consent at any time without victimization or penalty.

I Hereby freely consent to take part in this study

(participant's name)

Signature/thumbprint.....

Date.....

INVESTIGATOR

It is my opinion that the participant understands the risks, benefits and obligations involved in this study.

Signature of investigator.....

Date.....

ZOWONJEZERA ZA CHIWIRI

FOMU LOBVOMERA

Kudzipereka

Ine ndamvetssta kuti kutengako Mbali kwanga munchito ino ndi kwaulere, ndipo ndingathe kucokamo pomwe ndifunira kopanda kuimbiwa mlandu.

Ine mwaufulu ndabvomera kutengako Mbali pa nchitoyi
(zina)

Siginecha / cikhadabo:..... Tsiku:.....

Ofufuza

Ndi maganizo anga kuti otengako Mbali amvetsetsa zoopsy, zabwino ndinso ofunika mu nchitoyi.

Siginecha ya ofufuza:..... Tsiku:.....

APPENDIX III

QUESTIONNAIRE

THE UNIVERSITY OF ZAMBIA

DEPARTMENT OF NURSING SCIENCES

DETERMINANTS OF ALCOHOL USE AMONG PREGNANT WOMEN IN LUSAKA DISTRICT, ZAMBIA

Code of interviewee.....

Date of interview.....

Place of interview.....

INSTRUCTIONS FOR THE INTERVIEWEE

- 1. Ensure that you understand the question before answering**
- 2. You are assured that the information provided will be kept confidential and used for the purpose intended**

A. Sociodemographic profile

No.	Question	Response	Official use
1.	Age.....	1. 18–24 <input type="checkbox"/> 2. 25 and above <input type="checkbox"/>	
2.	What is your religion?	1. Catholic <input type="checkbox"/> 2. Pentecoastal <input type="checkbox"/> 3. Adventist <input type="checkbox"/> 4. Jehovah's witness <input type="checkbox"/> 5. Other <input type="checkbox"/>	
3.	What is your highest level of education.....?	1. Primary <input type="checkbox"/> 2. Secondary <input type="checkbox"/> 3. Tertiary <input type="checkbox"/> 4. No formal education <input type="checkbox"/>	
4.	Are you employed?	1. Formal <input type="checkbox"/> 2. Self employed <input type="checkbox"/> 3. Unemployed <input type="checkbox"/>	
5.	What is your marital status?	1. Married <input type="checkbox"/> 2. Single <input type="checkbox"/>	
6.	Household income	1. Dependent (no income) <input type="checkbox"/> 2. ≤ K1000 <input type="checkbox"/> 3. > 1000 <input type="checkbox"/>	

7.	Who is your primary source of emotional support?	1. Parent/relative <input type="checkbox"/> 2. Spouse/significant other/ Friend <input type="checkbox"/>	
8.	Smoking status (e.g. nicotine, snuff e.g. nsuko)	1. Non smoker <input type="checkbox"/> 2. Smoker <input type="checkbox"/>	
9.	Usage of illicit drugs (e.g. marijuana, cannabis, heroin)	1. Non user <input type="checkbox"/> 2. User <input type="checkbox"/>	
10	Was your pregnancy planned?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	
11	How many months pregnant are you right now?.....	1. 1st trimester (1-3 months) <input type="checkbox"/> 2. 2nd trimester (4-6 months) <input type="checkbox"/> 3. 3rd trimester (5-9 months) <input type="checkbox"/>	
12	Number of times pregnant.....	1. One /Twice <input type="checkbox"/> 2. Three or more <input type="checkbox"/>	
13	Usage of an alcoholic drink 6 months before	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	

	pregnancy recognition?		
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B. Knowledge

No.	Question	Response	Official use
14.	Is drinking alcohol during pregnancy harmful to the unborn baby?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>	
15.	For the following statements, answer true (1) or false (2)	a. Drinking spirits will cause more harm to the baby than traditional brews 1. <input type="checkbox"/> 2. <input type="checkbox"/> b. Small amounts of alcohol during pregnancy will cause no harm to the baby. 1. <input type="checkbox"/> 2. <input type="checkbox"/> c. The risk of harm to a baby from drinking alcohol during pregnancy is the same for all women. 1. <input type="checkbox"/> 2. <input type="checkbox"/> d. The effects of alcohol on the baby can be cured 1. <input type="checkbox"/> 2. <input type="checkbox"/>	
16.	Which of the following problems in the baby do you think are associated	a. Learning difficulties <input type="checkbox"/> b. Still birth <input type="checkbox"/> c. Abortion <input type="checkbox"/> d. Low birth weight <input type="checkbox"/>	

	with drinking alcohol during pregnancy?	e. Small head <input type="checkbox"/> f. Big babies <input type="checkbox"/> g. I don't know <input type="checkbox"/> (tick all that apply)	
17.	Have you ever come across any information regarding drinking alcohol during pregnancy?	a. Yes b. No	
17.1.	If yes, what was the source of the information?	i. Healthcare professionals (Doctor, nurse) <input type="checkbox"/> ii. Media (radio/TV) <input type="checkbox"/> iii. School <input type="checkbox"/> iv. Friends/family <input type="checkbox"/> v. Cultural/religious vi. Cannot remember <input type="checkbox"/>	

C. Socioeconomic status

18. The following questions are based on the head of your household who contributes the maximum income to your household.

Modified Kuppuswamy socioeconomic status Scale

No.	Indicator	Category	Points (tick)
1.	Education	No formal education Primary and below Secondary College/university	0 1 2 3
2.	Employment	Unemployed	1

		Self employed	2
		Employed	4
3.	Household income	No income	1
		≤K1000	3
		>K1000	5
Total (out of 12)			
<u>Scoring</u> Low socioeconomic status – ≤ 3 Moderate socioeconomic status – 4-7 High socioeconomic status - > 8			

D. Alcohol Use

19. Do you drink alcohol?

1. Yes ☐

2. No ☐

E. Alcohol use disorder identification test (AUDIT scale)

20. Now I am going to ask you some questions about your use of alcoholic beverages during this past year (**past 12-month period**). Using the alcohol use disorder identification test (AUDIT scale) to assess alcohol consumption

		Score				
		0	1	2	3	4
21	How often do you have a drink containing alcohol?	Never (do not proceed)	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week
23.	How many drinks containing alcohol do you have on a typical day when you are drinking	1-2	3-4	5-6	7-9	≥10

24.	How often do you have six or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
<p>Score -</p> <p>Total score- 12</p> <p>Score</p> <p>Low alcohol consumption – 1-5</p> <p>High alcohol consumption - ≥ 6</p>						

APPENDIX IV: GUIDE ON PSYCHOEDUCATION FOR PARTICIPANTS

Score	Advice to be given
1-5 (low risk drinking)	<p>-Provide positive reinforcement and encourage her not to continue drinking any alcohol during pregnancy.</p> <p>-Advise her that the safest option is not to drink any alcohol during pregnancy.</p> <p>- Discuss that the score indicates that she is drinking at a level of increasing risk for her health</p> <p>• Advise that the risk of harm to the developing foetus increases with increasing amounts and frequency of alcohol consumption</p> <p>-Discuss the effects of current alcohol consumption levels and outline health concerns for both the woman and her baby</p> <p>-Reinforce the benefits of stopping drinking at any stage during her pregnancy to minimize further risk to herself and her baby.</p> <p>•Ask her how she feels about stopping drinking or cutting down and establish: —</p> <p>Positives and negatives of taking action</p> <ul style="list-style-type: none"> - How confident she is in being able to stop or cut down - Tips, strategies and plans for taking action - If she would like assistance, including from support networks and partners - Offer to arrange referral if it is determined that she requires this - If you suspect that the woman may be alcohol dependent arrange to refer the woman to a specialist treatment service.
≥ 6 (high risk drinking)	<p>-Discuss that the AUDIT score indicates that she is drinking at a level of high risk for her health and high risk for the baby's health.</p> <p>-Discuss positives and negatives of taking action and determine what assistance she requires to be able to stop or cut down.</p> <p>-Refer to a specialist alcohol service as she may be at risk of alcohol dependence.</p> <ul style="list-style-type: none"> - Specialist support should be organized for her before advising her to stop or cut down her alcohol consumption, as without support alcohol withdrawal can be dangerous to both their health and the baby's health.

ZOWONJEZERA ZA CHITATU

PEPALA LAMA FUNSO

SIKULU LAMA PUNZIRO LA PAMWAMBA LA ZAMBIA

CHIGAWO CHA MAPHUNZIRO YA ANASI

**ZOSANKHA ZAKUMWA MOWA MU AZIMAI ALI NDI PAKATI MU M'BOMA LA
LUSAKA, ZAMBIA**

Numbala ya chizindikiro.....

Siku lo funsidwa.....

Malo.....

MALANGIZO KWA OFUNSIDWA

1. Mvetsetsani funso musanayankhe
2. Khulupirirani kuti zones zomwe zidzakambidwa mu pepala ino simudzadzimera kwina ai.

Ndime ya A: Chikhalidwe cha Ziwerengero

Nambala	Funso	Yanko	Pogwiritsa nchito
1.	Zaka	1. fiftini kufika makumi awiri ndi zinayi <input type="checkbox"/> 2. makumi awiri ndi zisanu ndi kupitirira <input type="checkbox"/>	
2.	Chipembedzo canu ndi citi?	1. Chikhristu <input type="checkbox"/> 2. Zina <input type="checkbox"/>	
3.	Munafika pati mumaphunziro anu?	1. pulamairi <input type="checkbox"/> 2. sekondari <input type="checkbox"/> 3. college <input type="checkbox"/>	
4.	Mugwira kuti nchito?	1. kuboma olo kukampani <input type="checkbox"/> 2. pa nokha <input type="checkbox"/>	
5.	Za banja?	1. Wokwatiwa <input type="checkbox"/> 2. wopanda cikwati <input type="checkbox"/>	
6.	Zacuma zapanyumba?	1. wopanda ndalama <input type="checkbox"/> 2. wanu sauzandi kubwera pansi <input type="checkbox"/> 3. kupitirira sauzandi imodzi <input type="checkbox"/>	
7.	Ndani akulimbisani paumoyo wanu?	1. kholo/acibanja <input type="checkbox"/> 2. amuna anu/abwenzi/ena onse <input type="checkbox"/>	
8.	Zokoka fodya	1. Osakoka <input type="checkbox"/> 2. Okoka <input type="checkbox"/>	
9.	Kugwiritsa nchito zinthu zosokoneza bongo (monga camba ndi zina)	1. wogwiritsa nchito <input type="checkbox"/> 2. osagwiritsa nchito <input type="checkbox"/>	
10.	Kodi munakonzeka kukhala ndi pakati?	1. Inde <input type="checkbox"/> 2. Ai <input type="checkbox"/>	
11.	Kodi muli pakati ndi pa myezi ingati?	1. Umodzi kufika pazitatu <input type="checkbox"/> 2. zinai kufika pa zisanu ndi umodzi <input type="checkbox"/> 3. zisanu ndi ziwiri kufika pa zisanu ndi zina <input type="checkbox"/>	
12.	Mwakhala ndi pakati kangati?	1. kamodzi/kawiri <input type="checkbox"/> 2. katatu ndi kupitirira <input type="checkbox"/>	
13.	Kodi munamwapo zakumwa zolezeletsa pamwezi zisanu ndi modzi musanadziwe kuti muli ndi pakati?	1. Inde <input type="checkbox"/> 2. Ai <input type="checkbox"/>	

Ndime ya B: Zofunika kudziwa

Nambala	Funso	Yanko	Pogwiritsa nchito
14.	Kodi kumwa moba ngati muzimai ali ndi pakati kutha kuyopsya umoyo wa mwana asanabadwe?	1. Inde <input type="checkbox"/> 2. Ai <input type="checkbox"/>	
15.	Munsimu muyankhe choona (1) kapena zabodza (2)	a. Kumwa moba wama spirit uononga mwana kopambana moba wamasese 1. <input type="checkbox"/> 2. <input type="checkbox"/> b. Kumwa moba pang'ono cabe sunga ononge mwana asanabadwe 1. <input type="checkbox"/> 2. <input type="checkbox"/> c. Kodi moba uononga mwana cimodzi-modzi mu azimai onse? 1. <input type="checkbox"/> 2. <input type="checkbox"/> d. Zocita zamoba pamwana zingaciritsidwe 1. <input type="checkbox"/> 2. <input type="checkbox"/>	
16.	e. Kodi ndi mabvuto otani omwe munganiza kuti angabwere cifukwa cakumwa?	a. Kubvuta kuphunzira <input type="checkbox"/> b. Kubala mwana wakufa <input type="checkbox"/> c. Kupolodza <input type="checkbox"/>	

		d. Mwana osalema makilo okwana <input type="checkbox"/> e. Mwana wamutu ung'ono <input type="checkbox"/> f. Ana akulu <input type="checkbox"/> g. Sindidziwa <input type="checkbox"/>	
17.	f. Kodi mulipo ndi uthenga ulionse pa za kumwa moba ku munthu ali ndi pakati?	a. Inde <input type="checkbox"/> b. Ai <input type="checkbox"/>	
17.1.	a. Ngati inde, muna upeza kuti?	i. Anchito zaumoyo (adotolo, anasi) <input type="checkbox"/> ii. Pa zolengeza (pawailesi/pawailesi yakanema) <input type="checkbox"/> iii. Ku sukulu <input type="checkbox"/> iv. Abwenzi/acibanja <input type="checkbox"/> v. Kuchalichi/zamiyambo <input type="checkbox"/> vi. Sindikumbuka <input type="checkbox"/>	

Ndime ya C: Za Cuma

18. Mafunso munsimo ndi apamutu wanyumba womwe abweretsa Cuma ca pakhomopo

Nambala	Cionetso	Gulu	Mapointi
Yoyamba	Maphunziro	Pulaimari ndi pansi Sekondari Kollegi/univesiti	Kamodzi Tuwiri Tutatu
Yachiwiri	Nchito	Wosasenbenza Mphunzi Wosebenza	Kamodzi Tuwiri Zinayi
Yachitatu	Cuma ca panyumba	Chikwi chimodzi ndi zana zisanu kubwera pansi Pakati ya Chikwi chimodzi ndi zana zisanu kufika chikwi khumi Kupitirira chikwi khumi	Kamodzi Tutatu Zisanu
Mapointi onse – khumi ndi ziwiri			
Tanthauzo Kucepera kwa Cuma – kamodzi kufika pa zitatu Cuma capa kati – zinayi kufika pa seveni Cuma copambana – eyiti ndi kupitirira			

Ndime ya D: Zo kumwa moba

19. Kodi mumamwa moba ngakhale ngakhale ma dilinki yolezeletsa?

1. Inde ☐

2. Ai ☐

Ndime ya E: Sikelo yopima kasebenzedwe kamoba

20. Ngakufunsani mafunso pa kasebenzetsedwe ka zakumumwa zolezeletsa pa caka comodzi capita (mwezi khumi ndi ziwiri) tebulo loonesta kamwedwe kamoba

	Cionetso	Chigoli				
		Ziro	Kamodzi	Tuwiri	Tutatu	Inayi
21.	Kodi mumamwa kangati zakumwa zolezeletsa?	Sindi namwepo (lekani)	Mwenzi umodzi ndi pansi	Kawiri kufika kanai pa mwezi	Kawiri kufika kakatu pa sabata	Kanai ndi kupita pamwamba pa sabata
22.	Kodi mumamwa ma botolo angati patsiku amoba?	Kamodzi kufika pa tuwiri	Katatu kufika pa zinayi	Zisanu kufika pa zisanu ndi chimodzi	Seveni kufika pa zisanu ndi zinayi	Khumi ndi kupitirira
23.	Kodi ndi kangati pomwe mumamwa mabotolo kufika pa chisanu ndi chimodzi ndikupitirira?	Sindi kumwa	Kucepekera mwezi umodzi	Pa mwezi	Pa sabata	masiku
Chigoli Kamwedwe pang'ono- nambala ya kamodzi kufika pa chisanu Kamwedwe kopambana – nambala ya chisanu ndi kamodzi nopitilila						

ZOWONJEZERA ZA CHISANU: ZOLONDOLA PA ZA MAPHUNZIRO YA OTENGAKO MBALI

Chigoli	Malangizo opatsidwa
Chimodzi kufika pa chisanu (kuopsya pa kamwedwe kapang'ono)	<p>-kukambirana bwino ndipo kucenjedza kusiya kumwa moba pathawi yo yembekedzera mwana</p> <p>-kwabwino osamwa moba panthawi iyi</p> <p>-zopezekazi ndi ciopsyeyo ku umoyo wake</p> <p>-kukala kwa mwana kuopesedwa ndi kamwedwe kopitirira</p> <p>-kukambirana kuti zotuluka mu moba zitha kuononga umoyo wa main di mwana asanabadwe</p> <p>-za ubwino wosamwa moba ngati mzimai ayembekeza mwana, ndi cabwino kwa iye ndi kwa mwana yemwe</p> <p>-mzimai afunsidwe momwe amverera pakusiya kapena kecepetsako kumwa moba ndipo zabwino ndi zoipa zikambikepo</p> <p>-kodi mukumvera bwanji kusiya kapena kucepetsa kumwa moba</p> <p>-malangizo kapena njira zolondolola</p> <p>-ngati akufuna thandizo, athandidzidwe</p> <p>-athandidzidwe ngati ndikofunika kupita kucipatala cacikulu, kapena kwa akatswiri apadela</p>
Chisanu ndi chimodzi nopitilila (kuopsya pa kamwedwe kopambana)	<p>-kukambirana papopezeka kulingana ndi kamwedwe kopambana kuti ndikoopsya ku umoyo wa azimai ndi ku umoyo wa mwana asanabadwe</p> <p>-kukambirana mbali zabwino ndi zoipa pa sankha zocita ndipo kuona thandizo ingapatsidwe kuti mai asiye kapena acepetseko kumwa moba</p> <p>-aperekedwe kwa akatswiri aza kamwedwe kamoba chifukwa moyo wake wonse ulipamoba</p>

	-thandizo la akatswiri ifunika kupatsidwa poyamba asanalekelatu kapena kucepetsa kumwa moba chifukwa kopamba thandizoli umoyo wake ndi moya wamwana utha kukhala mumabvuto
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APPENDIX V

FOCUS GROUP DISCUSSION GUIDE

Date of group discussion..... Time.....

Number of participants..... Place.....

Welcome participants to the discussion and thank them for their participation and time.

Introduction: This focus group discussion has been created to enable you share your perceptions, cultural beliefs and experiences of alcohol use during pregnancy.

Anonymity: Even though I am audio recording the discussion I would like to assure you that it will be anonymous. The recorded audio will be kept safely locked up until they are transcribed word for word after which they will be destroyed. The transcribed information will not be linked to any participant's contribution. In order to maintain anonymity, I just ask that anything that is said during our session is not repeated outside of our session.

I urge you to be as free as possible. Let us all respect each other's contributions and refrain on commenting on other people's contributions. In case of discussions you are not comfortable in contributing, feel free not to participate but please try to be involved.

Ground rules:

- Only one person speaks at a time
- No right or wrong answers
- When you have something to say please do so. It is important that I obtain views from each of you.
- There is no need to agree with views of others in the group

- Does anyone have questions?

I am just going to give you a couple of minutes to think about your experiences with alcohol before and after becoming pregnant. Would anyone be happy to share their thoughts on women drinking alcohol during pregnancy?

Area of inquiry	Sample question	Probes
Perception	What are your thoughts on women drinking alcohol during pregnancy?	<ul style="list-style-type: none"> -perceived impact on drinking - any children you know who were born from a woman who consumed alcohol - what is your community's view on pregnant women drinking
Cultural influence	What does your culture say about women drinking alcohol while pregnant?	<ul style="list-style-type: none"> - what beliefs does your culture have towards drinking alcohol during pregnancy? - do you accept the beliefs your culture holds?
Alcohol use	Tell me about your experience with alcohol	<ul style="list-style-type: none"> -how did you start drinking - how often, type of beer - who do you drink with - since you discovered you are pregnant (how often?) - if you stopped what are the reasons - if still drinking, any changes in the intake

Concluding question

- Of all the things we've discussed today, what would you say are the most important issues you would like to express about women drinking alcohol during pregnancy?

Conclusion

- Thank you for participating. This has been a very successful discussion
- Your opinions will be a valuable asset to the study
- We hope you have found the discussion interesting
- If there is anything you are unhappy with or wish to complain about, please contact the health center management or speak to me later
- I would like to remind you that any comments featuring in this report will be anonymous

ZOWONJEZERA ZA ZISANU

ZOLONDOLA PAKUKAMBIKIRANA NDI GULU

Tsiku lokambirana..... Nthawi.....

Nambala ya anthu..... Malo.....

Kulandila anthu ndi kuthokodza pakupezeka mukukambiranaku ndi pakupezatu nthawi

Mutu wankhani: ili gulu lapangidwa kuti tigawane maganizo pa zomwe tikhulupiriramo ndi zomwe tapitamo pomwe tikumwa moba panthawi yoyembekezera mwana

Kopanda kudziwika: ngakhale ndi kulemba zonse zomwe tikukambirana pano, ndikutsimikiza kuti nkhanayi siizamveka kwina kuli konse. Nkhani iyi izasungidwa ndi cisintsi kufikira pomwe idzathera ndipo mwafunsidwa kuti osagawana zotuluka muno ndi munthu wina aliyense.

Mukhale omasuka pakukambirana pano ndipo tilemekezanewina ndi mnzake

Malamulo agulu

- Munthu umodzi panthawi
- Kulibe yankho ya zoona kapena yaboza
- Ngati muli ndi zokamba, bwino mukambe
- Osabvomekeza maganizo anzako
- Kodi kuli mafunso kucokera kwa aliyense?

Tsono ndikupatsani nthawi kuti muganize pakumwa moba musanakhale ndi pakati kapena pambuyo pokhala ndi pakati. Kodi pali aliyense ali womasuka kuti uza maganizo ake pakamwedwe kamoba pomwe mai ali ndi pakati?

Mbali yo funsa	Mafunso	Kufunsidwa kwambiri
Malingalilo	Muli ndi maganizo otani pa azimai akumwa moba pomwe ali ndi pakati?	-ganizo pakuzakumwa moba -kodi mudziwa ana alionse omwe anabadwa ku mzimai wakumwa moba ndi pakati? -M'malo amene mukhala mumawa ganizira kapena kuwaona bwanji azimai akumwa moba pomwe ali ndi pakati?
Pamwambo wanu	Kodi mwambo wanu unena chiyani pa azimai kumwa moba pomwe bali pakati?	-kodi mwambo wanu ukhulupirira zotani pa zakumwa moba pomwe mzimai ayembekezera mwana? -kodi mubvomera zimene mwambo unena?
Kumwa moba	Ndiuzeni zomwe munapezamo pakumwa moba?	-munayamba bwanji kumwa? -mumamwa kangati, moba wotani? -mumamwa ndiyani -pambuyo pokhala ndi pakati, mukumwa kangati? -ngati munasiya, chifukwa nichiyani? -ngati mukhalikumwa kodi kuliko kusintha mukamwedwe?

Mafunso otsiriza

Pazonse zomwe takambirana lero, ndi ndemanga ziti zomwe mungauzeke azimai omwe akumwa moba ngati ali ndi pakati?

Potsiriza

- Dzikomo potengako Mbali kwanu
- Mwafotokoza bwino kwambiri

- Zakamba zanu zidzandithandiza kumaphunziro anga
- Ndikhulupirira kuti kukambisana kwathu mwapezamo phindu
- Ngati pali zomwe simunakondwere nazo, mutha kundiona pambuyo pake kapena mupite kuona akulu acipatala.
- Ndipo mudziwe kuti zonsezi zakambika pano simudzadzimverera kwina kwace ai.