

KNOWLEDGE, ATTITUDES AND PRACTICES OF PREGNANT WOMEN
REGARDING TOBACCO AND ALCOHOL USE IN PREGNANCY AT
MARIENTAL CLINIC, HARDAP REGION, NAMIBIA

A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR THE
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ABSTRACT

Globally, alcohol and tobacco use during pregnancy is considered a challenge and has been linked to negative effects on a person's health and wellbeing. The Mariental Hospital's maternity records 2019 revealed that 76 of the 443 women who gave birth claimed that they had drunk alcohol or smoked tobacco during their pregnancy. In addition, in 2019 it was noted that 6 % of premature babies were delivered to mothers who smoked during pregnancy, and 25 percent of premature babies were born to mothers who consumed alcohol during pregnancy. The main aim of this study was to investigate the knowledge, attitudes and practices of pregnant women attending antenatal care at Mariental clinic regarding the use of tobacco and alcohol in pregnancy. The study adopted a quantitative research approach with a descriptive, cross-sectional, analytical design. The study population were all pregnant women aged 18 years and above attending antenatal care at Mariental clinic during the study period. Informed consent was obtained from all respondents prior to data collection. The data was collected from 211 respondents who were selected through a systematic sampling method. The data was analysed by means of Statistical Package of the Social Sciences (SPSS) version 27. Fisher's Exact test at 0.05 alpha level was used to determine the association between variables. Only marital status showed a significant association with the attitudes towards alcohol use ($p=0.042$). Educational levels showed a significant association with practices towards tobacco smoking ($p=0.042$). The majority 92 (43.6%) of respondents were aged between 18-24 years, while 186 (88.15%) of the respondents were single. The findings indicated that 148 (70.1%) had high levels of knowledge towards smoking during pregnancy. About 165 (78.2%) respondents showed a positive attitude towards alcohol use during pregnancy. A total of 63 (29.86%) respondents were classified as having bad practices towards alcohol

use in pregnancy. A total of 21 (10.0%) respondents were classified as having bad practices towards tobacco use in pregnancy. The study concluded that pregnant women exhibited a significant amount of awareness regarding the impacts of alcohol and tobacco usage during pregnancy. Additionally, the participants displayed favourable attitudes towards abstaining from alcohol and tobacco consumption during pregnancy. The study recommends that the Ministry of Health and Social Services develops guidelines and policies on preventative measures and awareness programs on tobacco and alcohol use during pregnancy.

KEY WORDS: Tobacco use, Alcohol use, Pregnant women

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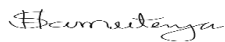
DEDICATION

I would like to dedicate this study to all women of childbearing age who have abstained from using alcohol and tobacco while pregnant.

DECLARATION

I, Selma Hamutenya, hereby declare that this study is my own work and is a true reflection of my research, and that this work, or any part thereof has not been submitted for a degree at any other institution. No part of this thesis/dissertation may be reproduced, stored in any retrieval system, or transmitted in any form, or by means (e.g. electronic, mechanical, photocopying, recording or otherwise) without the prior permission of the author, or The University of Namibia in that behalf.

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October 2023

Signature

Date

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LIST OF ACRONYMS AND ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
ANC	Antenatal Care
APA	American Psychological Association
CDC	Centres for Disease Control
FASD	Foetal Alcohol Spectrum Disorder
HBM	Health Belief Model
KAP	Knowledge Attitudes and Practices
MoHSS	Ministry of Health and Social Services
SPSS	Statistical Package for the Social Sciences
UNAM	University of Namibia
WHO	World Health Organization

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CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

This study's main aim is focused on knowledge, attitudes and practices (KAP) of pregnant women regarding tobacco and alcohol use during pregnancy. This chapter presents the background of the study which focuses on the information related to smoking and alcohol consumption during pregnancy. The problem statement is also presented in this chapter along with study aims, objectives and significance of the study and the definition of the main terms used.

1.2 Background of the study

Globally, alcohol and tobacco use during pregnancy is considered a challenge and has been linked to negative effects on a person's health and wellbeing (Hilbom, 2016). Alcoholic beverages are described as liquids with alcohol (ethanol) in them that are meant to be consumed. The majority of the alcoholic drinks are made through the procedures of fermentation and distillation, but some are also made through the process of blending (World Health Organisation, 2015). Pregnant women should not consume any alcohol, according to the Centre for Disease Control (CDC) (2020), as it has been demonstrated to have serious and detrimental effects on the development of the unborn child (foetus). There is no established safe alcohol intake during pregnancy.

According to Leone, Landini and Leone (2015) smoking is defined as breathing in tobacco smoke from cigarettes, pipes, or cigars. According to Benjamin (2015), tobacco smoke's harmful effects are mediated by a number of chemical components

that are typically concentrated and condensed into tobacco mixtures. In addition, the chemicals in tobacco smoke cause lung inflammation and damage. Smoking by mothers, especially during pregnancy, has detrimental effects on both the mother and the foetus because it is the best indicator of foetal outcomes such as ectopic pregnancy, and orofacial clefts (Murthy and Mishra, 2017). A study conducted in Jordan revealed that there was a high prevalence of smoking among pregnant women, as well as alternative tobacco use, with little knowledge of the health risks of all types of smoking during pregnancy (Hamadneh, Hamadneh, Amarin and Al-Beitawi 2021).

Despite widespread knowledge that drinking alcohol during pregnancy can result in undesirable effects such as Foetal Alcohol Spectrum Disorder (FASD), one out of every ten pregnant women in underdeveloped nations is believed to drink alcohol throughout pregnancy (Coons, Watson, Yantzi, Lightfoot & Larocque, 2017). The global prevalence of Foetal Alcohol Spectrum Disorder (FASD), which is caused by prenatal alcohol consumption in children and adolescents, is estimated to be 7.7 per 1000 people (Holland, McCallum & Walton, 2016). One of the key avoidable risks linked to increased maternal and foetal morbidity and mortality is smoking during pregnancy (Motoc, Vancea & Voevod, 2019). Furthermore, smoking during pregnancy is a severe public health issue because it harms the mother and the foetus, as well as increasing the chance of premature birth (Monica, 2016).

Alege, Jurua and Drazidio (2021) indicated that smoking during pregnancy increases the chance of infertility, as well as the likelihood of spontaneous abortions, early birth, stillbirths, and low birth weight babies. Additionally, studies have shown that females who smoke have much lower cervix immune responses and that nicotine and tobacco-specific carcinogens have been found in the cervical mucus of smokers (Agrawal, 2018). A toxin from tobacco smoke causes placental damage and can result in abortion,

placenta praevia, or placental abruption. Smoking during pregnancy increases the likelihood of respiratory problems in infants, including obesity, behavioural issues, and asthma. Given that there is strong evidence that mean birthweight reductions are larger with increased cigarette smoking during pregnancy, these effects may be dose-related (Delpisheh, 2016).

In Slovenia, Rozman, Mivšek, Došle and Kusterle (2018) revealed that despite knowing and being informed about all of the problems smoking poses to the pregnancy and the foetus, about 66% of women continued to smoke during pregnancy. Smoking during pregnancy has been linked to a variety of health problems in children, including asthma, recurrent otitis media, obesity, and future nicotine addiction (Jordan, Conant, Sandstrom, Klug & Angal, 2021). Furthermore, Zaren (2017) revealed that prenatal tobacco exposure may have a worse effect on the male foetus than the female foetus. According to Zaren's research, males born to heavily smoking mothers experienced faster weight loss, lesser fat accretion, and smaller head circumferences than their female counterparts. In addition to growth deficiencies at birth, prenatal tobacco exposure may also be linked to excessive weight (for height) in both babies and young children. For instance, recent Swedish research of over 200,000 babies indicated that prenatal tobacco exposure was strongly linked to shorter birth length and lower birth weight (Lindley, 2016).

Smoking during pregnancy is one of the most significant preventable causes of unfavourable pregnancy outcomes and is the first significant environmental danger to the developing child (Mund, Louwen, Klingelhofer and Gerber, 2015). It can be viewed as the first significant environmental risk factor that unborn children in both wealthy and developing countries may experience. Exposure to tobacco smoke is one of the most dangerous prenatal risk factors when compared to other risk factors

(Bickerstaff, Beckmann, Gibbons and Flenady, 2012). Recent studies have shown that pregnant women have knowledge on the effects of smoking tobacco during pregnancy, for example a study in China by Xu, Rao, Wang, Liu, Guo, Sharma and Zhao (2017) reported that 82% of smoking women stopped smoking after finding out they were pregnant, citing the risks of smoking to the foetus, such as preterm birth. During pregnancy, smoking compromises local and systemic immune responses, which in turn may be associated with adverse pregnancy outcomes (Prins, Hylkema, Huitema, Dekkema and Dijkstra, 2017). Postpartum, cigarettes can cause early cessation of breastfeeding and consequences for child health and development (Del-Ciampa, Ricco and Ferraz, 2016).

A study conducted in Armenia by Atabekyan (2017) on KAPs of pregnant women on environmental tobacco smoke revealed that lack of information on the consequences of smoking on pregnant women resulted in poor knowledge of active and passive smoking health effects. In a comparable study on KAPs of pregnant women on environmental tobacco conducted in Sunsari, Nepal by Khanal, Budhathoki, Nath, Tamrakar, Pokharel, Shrestha, and Pokharel (2018), pregnant women had higher knowledge of the risks of environmental tobacco on their health and the foetus. The same survey found that women's attitudes and practises about smoking were positive. However, many African countries lack reliable data on tobacco use by women especially pregnant women, which are needed to inform tobacco control and prevention efforts (Rani, 2016).

Alcohol use during pregnancy has been reported differently in different nations. According to a survey done in Canada in 2017, the majority of women (75%) are aware that any degree of prenatal alcohol exposure can impair the foetus, and there is a widespread notion that the higher the level of alcohol intake, the more severely the

baby is impacted (Waterson & Murray-Lyon, 2018). In a study conducted in United Kingdom, Howlett et al., (2017) reported that 40.9% of the 171 women who took part in the study continued to drink alcohol while pregnant. These women were aware of the consequences of alcohol, but their attitudes towards drinking was that there was an acceptable level of alcohol that could be drunk during pregnancy.

Apophia, Nazarius and Goretti (2021) conducted a study on attitudes, perceptions, knowledge and communication interventions for alcohol-exposed pregnancies in Africa, during which it was reported that South Africa, Nigeria, Ghana, and Uganda all had high rates of alcohol intake during pregnancy. Addila, Bisetegn, Gete, Mengistu, and Beyene (2020) confirmed these findings, reporting that alcohol intake during pregnancy was high in Sub-Saharan Africa. Depression, partners' alcohol use, unplanned pregnancy, and knowledge of the detrimental consequences of alcohol intake were all linked to alcohol consumption during pregnancy

In Eastern Africa, the amount of alcohol consumed by mothers varies. In Dodoma, Tanzania, a recent study found that alcohol use during pregnancy was 15.1%. The usage of alcohol by mothers was reported to be 34% in Ethiopia. Knowledge and attitudes, having disposable cash, having a spouse or friend who drinks alcohol, and pre-pregnancy alcohol consumption have all been proven to predict drinking during pregnancy (Lekettey, Daco-Gyeke, Agyemang & Aikins, 2017). In a study conducted in Uganda by Agiresaasi, Tumwesigye, Nabiwemba, Kiguli, Maina, and Nassanga (2021), women who took part in the survey had a variety of opinions about drinking during pregnancy. The same study found that there was a wide range of knowledge and attitudes towards drinking alcohol while pregnant, such as that drinking small amounts of alcohol is allowed during pregnancy, while others believed that any amount of alcohol consumption poses a danger to the foetus.

A study conducted in South Africa by Watt et al. (2016) reported that pregnant women were mainly unaware of FASD, and their understanding of the effects of foetal alcohol exposure was frequently incorrect. Personal experiences altered participants' opinions towards the effects of alcohol during pregnancy, resulting in misinformation being internalised. Nghitongo (2021) did a study on KAPs in Namibia on alcohol intake and its health implications but focused on young adults. As a result, focusing on the KAPs of pregnant women on tobacco and alcohol will contribute to Namibia's lack of research.

1.3 Problem statement

Tobacco and alcohol use during pregnancy has negative consequences, particularly for the unborn baby, affecting the baby's birth weight, leading to short and long-term complications such as an increased risk of psychiatric disorders, Attention Deficit Hyperactivity Disorder (ADHD), and poor school performance in children (Hamulka, Zielinska & Chadzynska, 2018).

According to Mariental District Hospital's maternity data from January to June 2019, there were a total of 443 deliveries, with 11% (47) of those being low birth weight babies (below 2500g). According to Mariental Hospital's maternity records, 76 of the 443 women who gave birth claimed that they had drunk alcohol or smoked tobacco during their pregnancy (Mariental Hospital maternity records, 2019). About 36 % of premature babies were delivered to mothers who smoked during pregnancy, and 25 percent of premature babies were born to mothers who consumed alcohol during pregnancy (ANC annual report, 2019).

In Namibia, the researcher discovered little information on pregnant women's knowledge, attitudes, and practises regarding the use of cigarettes and alcohol during

pregnancy. Despite the fact that the researcher was unable to locate published evidence of data on knowledge, attitude and practice of alcohol and tobacco use during pregnancy in Mariental, the researcher observed that alcohol and tobacco use during pregnancy remains a serious public health concern in Mariental and the country at large, prompting the researcher's interest in conducting this research.

1.4 Aim of the study

The aim of the study was to investigate the knowledge, attitudes and practices of pregnant women attending antenatal care at Mariental clinic regarding the use of tobacco and alcohol in pregnancy.

1.5 Objectives

The objectives of the study are:

- To assess the knowledge of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic in Hardap region.
- To determine the attitudes of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic in Hardap region.
- To determine the practices of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic in Hardap region
- To analyse the relationships between knowledge, attitudes, practices and other variables on the use of tobacco and alcohol in pregnancy.

1.6 Significance of the study

The results of this study may provide information on the knowledge, attitudes and practices relating to the use of tobacco and alcohol during pregnancy, thus creating awareness to all pregnant women about the risks of using tobacco and alcohol in pregnancy. Stakeholders will have access to the study's findings, which will benefit policymakers and expand knowledge about the consequences of tobacco and alcohol during pregnancy. The findings of the study could be utilised as a starting point for health practitioners to devise solutions and programmes aimed at assisting pregnant women about the effects of alcohol and tobacco to the mother and foetus.

1.7 Delimitations of the study

The participation in this study is delimited to pregnant women attending antenatal care at Mariental clinic only and nowhere else in Hardap region.

1.8 Definition of terms

Alcohol - WHO (2022) defines alcohol as a psychoactive substance with dependence-producing properties that has been widely used in many cultures for centuries. In this study, alcohol refers to any drink that can make a pregnant woman drunk and could cause harm to both the mother and the baby.

Attitude - Baker (2017) defines attitude as a mental or neural state of readiness that has been organised by experience and has a directional or dynamic influence on the individual's response to all objects and situations with which it is associated. In this study, attitude refers to the way pregnant women feel about using tobacco and alcohol during pregnancy.

Knowledge - Oeberst, Kimmerle and Cress (2016) define knowledge as perceiving, discovering, or learning a person's or something understands, such as facts, information, descriptions, or abilities, which is gained through experience or education by perceiving, discovering, or learning. In this study, knowledge refers to the perceiving and awareness of pregnant women on the effects, risks of smoking tobacco and drinking alcohol during pregnancy both to the mother and the baby.

Practice – is defined as the actual application of a belief or an idea (Steadman, 2018). In the context of this study, practice includes the actions and behaviour of pregnant women related to the use of tobacco and alcohol during pregnancy.

Tobacco – WHO (2022) defines tobacco as a plant grown for its leaves, which are dried and fermented before being put in tobacco products. In this study, tobacco includes burned tobacco leaves in cigarettes that pregnant women smoke, which can harm the mother and the baby.

1.9 Chapter summary

The study's background provided information on smoking and alcohol consumption in various countries throughout the world. The problem statement, which centred on the situation at Mariental Clinic was then presented. In this chapter, the study objectives, significance of the study, limitations and delimitations of the study were presented in this chapter. Lastly, definitions of terms were presented.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section deals with the review of literature which has been published both locally and globally about knowledge, attitudes and practices of pregnant women regarding the use of tobacco and alcohol in pregnancy. The literature review is discussed according to the following headings: prevalence of tobacco and alcohol use in pregnancy; knowledge of pregnant women regarding the use of alcohol and tobacco in pregnancy; attitudes of pregnant women regarding the use of tobacco and alcohol in pregnancy; and practices of pregnant women regarding tobacco and alcohol in pregnancy.

2.2 Prevalence of tobacco and alcohol use in pregnancy

The use of tobacco and alcohol during pregnancy has been a topic of debate in the medical literature for many years. While some studies suggest that moderate use of these substances may not have significant negative effects on the developing fetus, most research indicates that any use of tobacco or alcohol during pregnancy can increase the risk of adverse outcomes for both the mother and baby.

The Centers for Disease Control and Prevention (CDC) reports that in the United States, about 7.6% of pregnant women reported smoking cigarettes during pregnancy in 2019, while approximately 11.3% reported drinking alcohol. These rates have declined over the past decade but are still a concern for public health (CDC, 2019). A study published in the American Journal of Obstetrics and Gynecology in 2017 found that in a sample of over 12,000 pregnant women in the United States, 8.4% reported

using tobacco during pregnancy, while 9.9% reported using alcohol. The study also found that women who used both substances were at increased risk for adverse pregnancy outcomes, such as preterm birth and low birth weight. (Source: Tong et al., 2019).

Smoking during pregnancy is common in many countries, despite the fact that globally, it appears to be at a low prevalence of 1.7% (Lange, Probst, Rehm & Popova, 2018). Smoking is far more common among Indigenous people in Australia, New Zealand, the United States, and Canada (32% - 60%) than among non-Indigenous people (18%-23%) (Gould, Lim & Matter, 2017). Similarly, more Native pregnant women smoke than their non-Native counterparts in these high-income nations. In Australia, there are more than three times as many pregnant Indigenous women who smoke (47%) than pregnant non-Indigenous women (13%). In addition, pregnancy smokeless tobacco usage is also common among Alaska Native women, with 56% to 60% of women in rural southwest Alaska reporting use (Gould et al., 2017).

The European region had the highest estimated prevalence of pregnancy smoking 8.1%, but had the lowest estimated proportion of women who smoked daily and continued to smoke daily during pregnancy, accounting for 30.6% (Lange, Probst, Rehm & Popova, 2018). The African region had the second-highest estimated percentage of women who continued to smoke every day while pregnant but had the lowest projected prevalence of smoking during pregnancy. The Western Pacific Region had the highest proportion of women who smoked daily and continued to smoke daily during pregnancy (Lange, et al., 2018). Similarly, Hamadneh, Hamadneh, Amarin and Al-Beitawi (2021) in a study conducted in Jordan revealed that there was a high prevalence of smoking among pregnant women, as well as alternative tobacco use, with little knowledge of the health risks of all types of smoking during pregnancy.

Addila, Bisetegn, Gete, Mengistu, and Beyene (2020) reported that alcohol intake during pregnancy was high in Sub-Saharan Africa as women continued to drink even after finding out that they are pregnant. Depression, partners' alcohol use, unplanned pregnancy, and knowledge of the detrimental consequences of alcohol intake were all linked to alcohol consumption during pregnancy. Women who drink while pregnant put their babies at risk for FASD, as well as other negative pregnancy outcomes like stillbirth, abortion, early birth, and low birth weight when born (Paposa, Lange, Probst, Shivli & Rehm, 2016).

Abiodun et al. (2017) conducted a study in Nigeria to determine the prevalence of alcohol consumption and cigarette smoking among pregnant women. They found that 6.5% of the pregnant women reported alcohol consumption, while 2.8% reported cigarette smoking.

In the Eastern Africa WHO region, the estimated prevalence of alcohol consumption during pregnancy among the general population ranged from 3.4% in Seychelles to 20.5% in Uganda. In Ethiopia, the magnitude of alcohol consumption during pregnancy ranged from 7.9% to 34% (Alamneh, Endris, Gebreyesus, 2020). The prevalence of maternal tobacco smoking during pregnancy ranged from 0.5 percent in Congo (Brazzaville), 0.6 percent in Malawi, and 0.8 percent in Mozambique, to 7.6 percent in Namibia and 11.9 percent in Madagascar (Peltzer & Pengpid, 2020).

Alemayehu et al. (2019) conducted a cross-sectional study in Ethiopia to determine the prevalence and factors associated with alcohol and tobacco use among pregnant women. They found that 8.7% of the pregnant women reported alcohol consumption, while 2.8% reported tobacco use. In another study, Asfaw et al. (2020) conducted a study in Ethiopia to determine the prevalence and factors associated with tobacco use

among pregnant women. They found that 2.9% of the pregnant women reported tobacco use, with age, educational status, and occupation being significantly associated with tobacco use. Similarly, Ouma et al. (2017) conducted a cross-sectional study in Kenya to determine the prevalence of alcohol consumption and cigarette smoking among pregnant women. They found that 5.2% of the pregnant women reported alcohol consumption, while 0.8% reported cigarette smoking.

In a comparable study in Sub-Sahara Africa, it was discovered that 11 percent of pregnant women in Madagascar, 5.4 percent in Lesotho, 4.8 percent in Sierra Leone, 4.4 percent in Namibia, and 4.2 percent in Burundi used tobacco, making them among the top countries with significant tobacco use in pregnancy (Yaya, Uthman, Adjiwanou & Bishwajit, 2018).

2.3 Knowledge of pregnant women regarding the use of tobacco and alcohol in pregnancy

This section presents previous studies which have focused on the knowledge of pregnant women on tobacco and alcohol. According to findings of a study that was done in Brazil, the level of knowledge possessed by pregnant women about the adverse effects of smoking tobacco was disappointing. Most of the pregnant smokers were not aware of the hazards that smoking poses to the foetus and new-born infants, as well as tobacco-related diseases in general (Bertani, Garcia, Tanni, & Godoy, 2015). Similarly, in a different study women were asked to indicate whether they have ever heard of a disorder called foetal alcohol disorder and to describe the characteristics of the disorder. The researchers found that the knowledge of the characteristics of the disorder was very poor (Peadon et al, 2010). A study done in Romania revealed that more than 38% of women were told by the health care provider that continuing to

smoke a few cigarettes during pregnancy is acceptable, and 47.6% of them perceived smoking a few cigarettes during pregnancy as safe (Jaber et al, 2020).

According to a survey done in Canada in 2017, the majority of women (75%) were aware that any degree of prenatal alcohol exposure can impair the foetus, and there was a widespread notion that the higher the level of alcohol intake, the more severely the baby would be impacted (Waterson & Murray-Lyon, 2018). Similarly, Howlett et al., (2017) reported that 70% of women who took part in the study continued to drink alcohol while pregnant. These women were aware of the consequences of alcohol, but their attitudes towards drinking were that there was an acceptable level of alcohol that could be drunk during pregnancy.

Most understood the consequences of smoking during pregnancy for the fetus and were aware of the risks, but some women held incorrect or confused perceptions regarding the possible consequences, as well as how and if they could occur (Bianchini et al, 2020). Knowledge regarding the dangers of drinking alcohol during pregnancy for the health of the woman and baby was less than that regarding smoking. The women believed that small amounts of alcohol were not harmful and only high doses of alcohol had consequences for babies (Bianchini et al., 2020).

A French study reported that when pregnant women were asked to describe the effects of alcohol drinking during pregnancy on the unborn child using open ended questions, 56.4% of the women could describe up to three effects. The most quoted effect was brain damage (34.2%) followed by malformation (30.2%), growth retardation or low birth weight (17.1%) and other disorders including cardiac problems and miscarriage (10.6%) (Dumas, Tountain, Hill & Summat-Durand, 2018).

In a study conducted in Poland, a total of 74% of the respondent's received information from their doctor about health behaviours which affect the course of pregnancy and the proper development and growth of the foetus. Unfortunately, only just over half of the women (56%) were told about the detrimental effects of alcohol consumption on the foetus. Nevertheless, 99% reported awareness of the negative influences of alcohol on the developing foetus (Gorniaczyt, Czech-Szczapa, Sobkowski & Chmaj-Wierzchowska, 2017).

According to a study conducted in Italy, 75.4% of expectant mothers revealed that their doctors had informed them about the potential harm that drinking alcohol could have on the unborn child. In addition, 94% of respondents disclosed that they had been informed about the potential harm that smoking cigarettes could have on the unborn child. The same study showed that only 43.7% of pregnant women indicated that they had received information on the possible damage resulting from alcohol and smoking in pregnancy (Esposito, Ambrosio, Napolitano & Di Giuseppe, 2015).

In Uganda a study revealed that 55.7 % of the respondents had poor knowledge on effects of alcohol on mother and baby; 41.9 % had fair knowledge; and 2.4 % had adequate knowledge on the effects of alcohol on mother and baby (Agiresaasi et al, 2021). In addition, Leketey, Daco-Gyeke, Agyemang and Aikins, (2017) reported that pregnant women continued to drink during pregnancy due to having disposable income, marital problems and low levels of education on the consequences of alcohol to the unborn child.

Carson et al. (2016) found that pregnant women's attitudes towards smoking and alcohol were influenced by their social networks, including family, friends, and healthcare providers. The authors noted that social support from these networks was a

critical factor in helping pregnant women quit smoking and reduce alcohol consumption. Similarly, a study by Sipsma et al. (2014) found that pregnant women's exposure to media coverage of alcohol-related topics such as debates over alcohol policies and media campaigns targeting pregnant women influenced their knowledge and behaviour related to alcohol consumption during pregnancy.

Furthermore, a study by Prickett et al. (2014) found that pregnant women's knowledge of the risks associated with smoking and alcohol consumption during pregnancy was limited, with many women having misconceptions about the safety of light or occasional alcohol consumption. The authors suggest that media campaigns and healthcare providers have a critical role in improving knowledge and promoting healthy behaviours during pregnancy. Therefore, these studies suggest that pregnant women's knowledge regarding smoking and alcohol is influenced by a complex interplay of factors, including social networks, media exposure, and healthcare providers. Interventions targeting these factors may be effective in improving knowledge and promoting healthy behaviours during pregnancy.

2.4 Attitudes of pregnant women on the concomitant use of tobacco and alcohol in pregnancy

The perceptions of pregnant smokers regarding health risks of smoking and the need to abstain from smoking have been described as important factors influencing smoke-free behaviour (Vivilaki et al, 2016). In a national survey, pregnant women who had given birth previously or smoked were more likely to have a tolerant attitude towards alcohol consumption during pregnancy (Peadon et al, 2010). Moreover, the results of a study done in Italy regarding the main risk factors in pregnancy indicated that a large proportion of women agreed that consumption of alcohol (91.4%) and smoking

(53.7%) in pregnancy could cause harm to the foetus (Esposito, Ambrosio, Napolitano & Di Giuseppe, 2015).

Attitudes towards tobacco and alcohol use during pregnancy can vary based on cultural and socio-economic factors. For example, a study conducted in the UK found that pregnant women from lower socio-economic backgrounds were more likely to report smoking during pregnancy, and that their attitudes towards smoking were influenced by cultural norms within their social networks (Mullally et al., 2009). In contrast, a study conducted in Italy found that pregnant women had a more negative attitude towards smoking during pregnancy, with many expressing a desire to quit (Vincenzi et al., 2017).

In terms of alcohol use during pregnancy, a study conducted in the US found that while most pregnant women were aware of the risks associated with heavy drinking, many believed that occasional or moderate drinking was safe (Kypri et al., 2014). Similarly, a study conducted in Australia found that pregnant women were often uncertain about the safety of drinking during pregnancy and relied on personal experiences and advice from family and friends (Peadon et al., 2010).

According to the study conducted in Poland, smoking was believed to be harmful to the developing foetus by 99% of the respondents, with 57% having received that information from their doctor. Despite the fact that 15% of women smoked before conception, 100% declared absolute tobacco abstinence once they learned about their pregnancy. Passive smoking before pregnancy was reported by 36% of the participants, but the rate decreased to 24% after the discovery of the pregnancy (Gorniaczyk et al 2017).

A study conducted in Poland by Gorniaczyk, Czech- Szczapa, Sobkowski and Chimaj-Wierzchowska, (2017) revealed that despite the fact that a majority of the women in the study said they stopped smoking after finding out they were pregnant, and roughly 36% were still exposed to passive smoking and had no idea of the dangers of maternal passive smoking to the foetus. Similarly, a study conducted by Hirsch et al. (2017) aimed to assess the knowledge of pregnant women regarding the use of tobacco. The study found that although the majority of pregnant women knew that smoking was harmful to their health and the health of their baby, many were not aware of the risks associated with second hand smoke exposure.

In Slovenia, Rozman, Mivšek, Došle and Kusterle (2018) revealed that despite knowing and being informed about all of the problems smoking poses to the pregnancy and the foetus, about 66% of the women interviewed continued to smoke during pregnancy. Smoking during pregnancy has been linked to a variety of health problems in children, including asthma, recurrent otitis media, obesity, and future nicotine addiction (Jorda, Conant, Sandstrom, Klug & Angal 2021).

A study conducted in Nigeria by Oluwole and colleagues (2018) found that pregnant women had a low level of awareness regarding the dangers of alcohol consumption during pregnancy. The study also revealed that women who consumed alcohol during pregnancy did so mainly due to peer pressure, cultural practices, and lack of knowledge regarding the risks associated with alcohol consumption during pregnancy. Similarly, a study conducted in South Africa by Morojele and colleagues (2019) found that pregnant women who consumed alcohol during pregnancy did so due to peer influence, social pressure, and lack of awareness of the harmful effects of alcohol on foetal development.

A study conducted in Uganda showed that slightly more than half (54.3%) of the respondents had positive attitudes by indicating that alcohol was extremely important or very important in increasing health risks to the mother. It was discovered that 54% of the respondents had unfavourable sentiments, saying alcohol had none or minor role in raising health risks for the mother and baby (31.9%) (Agiresaasi et al, 2021).

According to a study done in South Africa on participants' attitudes towards alcohol use during pregnancy, 16.5% of the respondents were classified as having harmful attitudes (Bianchini et al, 2020). A separate South African study reported that pregnant women talked about their smoking habits and expressed the desire to cut down or stop. The main strategy employed by pregnant women was a gradual reduction in the number of cigarettes smoked (Bianchini et al, 2020).

Overall, the literature suggests that attitudes towards the use of tobacco and alcohol during pregnancy are complex and influenced by a range of factors, including cultural norms, socio-economic status, and personal experiences. It is important for healthcare professionals to provide accurate information and support to pregnant women to help them make informed decisions about their health and the health of their unborn child.

2.5 Practices of pregnant women regarding alcohol and tobacco use in pregnancy

The detection of the use of tobacco and alcohol during pregnancy and the offer of appropriate, effective advice can contribute to ensuring the health of both the woman and infant (Bianchini et al, 2020). A study done in Ethiopia indicated that pregnant women who used tobacco while pregnant were more likely to give birth to low weight babies. In this study, smoking tobacco was strongly associated with lower birth weight (Dendir & Deyessa, 2017). Furthermore, 22.3% of the women in a study conducted in

Italy reported smoking during pregnancy, an average consumption of 7.4 cigarettes per day. The same study revealed that approximately one-third (28.9%) of the women reported drinking alcohol regularly before pregnancy but 74.8% of these women reported that they had stopped drinking when they became pregnant. Only 7.2% of the women continued drinking alcohol while pregnant (Esposito, Ambrosio, Napolitano & Di Giuseppe, 2015).

The effects of alcohol during pregnancy can cause miscarriage, stillbirth, premature birth, congenital malformations, intrauterine growth retardation, and low birth weight. It is also attributed to Foetal Alcohol Spectrum Disorders (FASDs), a group of conditions related to alcohol exposure before birth and characterized by a range of lifelong irreversible negative health impacts, like physical, behavioural, and intellectual disabilities; and a leading cause of non-genetic mental retardation and other neurodevelopment deficits (Chola, et al., 2017).

In a study done in the Central United States, the assessment of smoking found that 19.9% of mothers did not smoke, 5.5% of the mothers quit smoking during pregnancy and 74.6% smoked during pregnancy (Jorda et al, 2021). The same study revealed that nearly three quarters of the women smoked during pregnancy and that 14.3% of women smoke during pregnancy in the U.S., pregnant women on this Tribal Nation was over 5 times more likely to smoke. In comparison to American Indian/Alaska Native population data that indicated a smoking rate of 26.0% during pregnancy, women on the rural Tribal Nation were 2.9 times more likely to smoke during pregnancy. Alcohol use during pregnancy of Tribal Nation was also higher than the U.S. average; 40% vs. 15% respectively (Jorda et al, 2021). In addition, Vietnam by Vu et al., (2020) revealed that both smoking and non-smoking women had moderate to poor knowledge of KAP throughout pregnancy. The subsequent scores corroborated

this: knowledge (mean score 4.19/10, SD = 2.12) and practice (mean score 4.30/10, SD = 2.39) with a relatively high attitude towards tobacco smoking (7.45/10, SD = 3.05).

The prevalence of alcohol use during pregnancy was 14.12%. Most of the women who drank reported doing so rarely for one to five years (Bianchini et al. 2020). Furthermore, an Australian study showed that two respondents surveyed after the initial antenatal visit reported that they had consumed alcohol at medium or high level since pregnancy recognition. One of these respondents reported that she was offered a referral for further support to address her alcohol consumption (Doherty et al, 2019). Hartel, Turawa, Oelofse and De Smit (2022) described a systematic review protocol that aimed to investigate the effect of maternal cigarette smoking and alcohol consumption during pregnancy on birth weight and cardiometabolic risk factors in infants, children, and adolescents. The review focused on observational studies published in English from 2000 to 2021, and included studies that assess birth weight and cardiometabolic risk factors such as obesity, hypertension, and diabetes in offspring of women who smoked or consumed alcohol during pregnancy. The review showed that prenatal alcohol use and cigarette smoking have conflicting direct and indirect effects on the risk of cardiometabolic disease in children. This may be due to numerous factors, such as the amount and timing of exposure to cigarette smoking and alcohol during pregnancy; the influence of maternal, environmental and socioeconomic factors

In a study conducted in Butajira, none of the pregnant women were active tobacco smokers. However, the prevalence of passive smoking was at 23.2%. This figure is lower compared to the findings of a study conducted in Shanghai, China (2016) where the prevalence of passive smoking was at 34.8% (Alamneh, Endris & Gebreyesus,

2020). Even though the reported figure was lower, active or passive tobacco smoke exposure during pregnancy has adverse health effects on the foetus, as well as the mother. The adverse health effects of cigarette smoke on the foetus include, an increased risk of strabismus in the offspring, clubfoot, Low Birth Weight for Gestational Age (LBWGA), low birth weight, preterm births (28, 29), increased odds of elevated levels of antisocial behaviours during adolescence and adulthood, as well as violent and nonviolent outcomes, an increased risk of wheeze in children and almost three times increased risk of congenital heart defects.

Fawole et al. (2018) conducted a cross-sectional study in Nigeria to assess the prevalence of tobacco use among pregnant women. These authors found that 3.6% of the pregnant women reported current tobacco use, with age, education level, and occupation being significant determinants. Similarly, Doku et al. (2012) conducted a cross-sectional study in Ghana to examine the prevalence and predictors of tobacco use among pregnant women. The study found that 2.9% of the pregnant women reported current tobacco use, with age, education level, and occupation being significant predictors. Moreover, tobacco smoke during pregnancy increases the prevalence of depressive symptoms during pregnancy. This indicates the need for tobacco smoking interventions at home, work and public places to improve foetal, maternal and societal health (Alamneh, Endris & Gebreyesus, 2020).

Adebayo et al. (2018) conducted a study in Nigeria to assess the prevalence and determinants of alcohol consumption among pregnant women. The study found that 9.7% of the pregnant women reported alcohol use during pregnancy, with age, education level, and occupation being significant determinants. In another study, Assefa et al. (2020) conducted a cross-sectional study in Ethiopia and the results show that 9.7% of the pregnant women reported alcohol use during pregnancy, while 3.7%

reported tobacco use, with age, education level, and occupation being significant predictors.

A study in Tanzania showed that up to 15.1% of pregnant women reported having consumed alcohol in pregnancy. Moreover, the same study found that having local alcohol as a source of income increased the likelihood of consuming alcohol during pregnancy (Mpelo et al, 2018). In addition, a study done in Ethiopia revealed that from a total of 341 pregnant women, 11.1% (95% CI: 8.2%, 15.0%) consumed alcohol in the last 3 months before the current pregnancy, and 10.0% (95% CI: 7.2%, 13.7%) consumed alcohol during their current pregnancy. Moreover, 4.4% (2.7, 7.2%) of pregnant women were binge drinkers (consumed five or more drinks on a single occasion). Most (76.8%) of the women who drank alcohol throughout their current pregnancy did so on a monthly or less frequent basis, and nearly all (94.1%) of them took 1-2 drinks on a normal day whenever they drank (Alamneh et al. 2020).

Furthermore, Tesfaye et al (2019) reported that in Ethiopia alcohol use during pregnancy was at 37.1%. Of this figure, the majority (use alcohol during the second trimester (46.1%) and most of them were married (93.5%) and they had a history of pre-pregnancy alcohol use (52.1%). A study in Ethiopia reported that 5.5% of the pregnant women reported alcohol use during pregnancy, with age, marital status, and educational level being significant predictors Mekbib et al, 2017). Moreover, Alcohol Use Disorder Identification Test (AUDIT) results showed that a more than half (57.1%) of pregnant women polled admitted to drinking alcohol. Furthermore, the majority of these women (52.5%) stated that they drank one to two drinks throughout their drinking sessions (Tefaye et al., 2019).

In the United States, approximately one-third of pregnant women reported consuming alcohol during pregnancy occasionally. (Kendall-Tackett, 2007). However, in Australia although most pregnant women were aware of the risks associated with alcohol use during pregnancy, some women believed that occasional or moderate consumption was safe (Forster et al., 2019). It is worth noting that it is recommended that pregnant women abstain from alcohol use completely during pregnancy, as even moderate alcohol consumption can pose a risk to the developing fetus (American College of Obstetricians and Gynecologists, 2020).

The results of a study done in Butajira showed that from a total of 341 pregnant women, 11.1% (95% CI: 8.2%, 15.0%) have consumed alcohol in the last three months before the current pregnancy and 10.0% (95% CI: 7.2%, 13.7%) consumed alcohol during their current pregnancy. Moreover, 4.4% (2.7, 7.2%) of pregnant women were binge drinkers (consuming five or more drinks on a single occasion).

A study done in Uganda revealed that out of 420 pregnant women surveyed, 46.2% reported lifetime abstinence of alcohol. Slightly more than half, 226 (53.8%) reported that they have consumed alcohol, and of these, 99 (23.6%) reported alcohol use during their current pregnancy, while 10% reported that they stopped alcohol consumption after pregnancy recognition. The same study disclosed that among current drinkers 29.3% reported that they drink 3 to 4 drinks per day and 69% consumed 1 or 2 drinks per day. When asked how often they drink on an occasion 13.7% said less than monthly, 7.1% said monthly and 2% said weekly (Agiresaasi et al, 2021).

Jorda et al., (2021) reported that 40% of the women drank during pregnancy, 34% quit drinking during pregnancy, and 2% drank continuously during pregnancy. In addition, according to a study conducted in South Africa, 64.7% of women said they consumed alcohol during their previous pregnancy. More than half of the pregnant women

(51.1%) satisfied the criteria for risky drinking, and more than a third (34.1%) admitted to binge drinking (consuming six or more drinks on a single occasion) at least weekly (Frecher et al., 2018). Another South African study reported that overall, 5.0% of women had been using tobacco when they were pregnant, 28.1% among the Coloured population group, 20.8% in the Western Cape province, and 19.9% in the Northern Cape province. In a bivariate analysis, the prevalence of tobacco use during pregnancy was higher in urban than rural areas, in respondents with poorer self-rated health status, having ever been diagnosed with tuberculosis, having insomnia symptoms, and psychological distress. Almost one-third (31.5%) of prenatal smokers had also been using alcohol during pregnancy, and almost half (44.3%) of prenatal smokers were current daily tobacco users (Mafuya et al, 2020).

2.6 Theoretical framework

This study adopted the Health Belief Model (HBM) as shown in Figure 1. The HBM was developed in the 1950s by psychological scientists Hochbaum, Rosenstock and Kegels. It is a psychological model which invests its focus on attitudes and beliefs of individuals in an attempt to explain and predict the health behaviours of individuals and population. The Health Belief Model is made up of four concepts which entail the threats and benefits that are perceived by an individual before and during the time he or she is taking the recommended health action. They are perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy (Glanz, Barbara, Rimer & Viswana, 2015). The Health Belief Model suggests that individuals are more likely to refrain from using alcohol and tobacco if they believe that doing so will prevent the negative outcomes associated with these substances, such as giving birth to a premature baby.

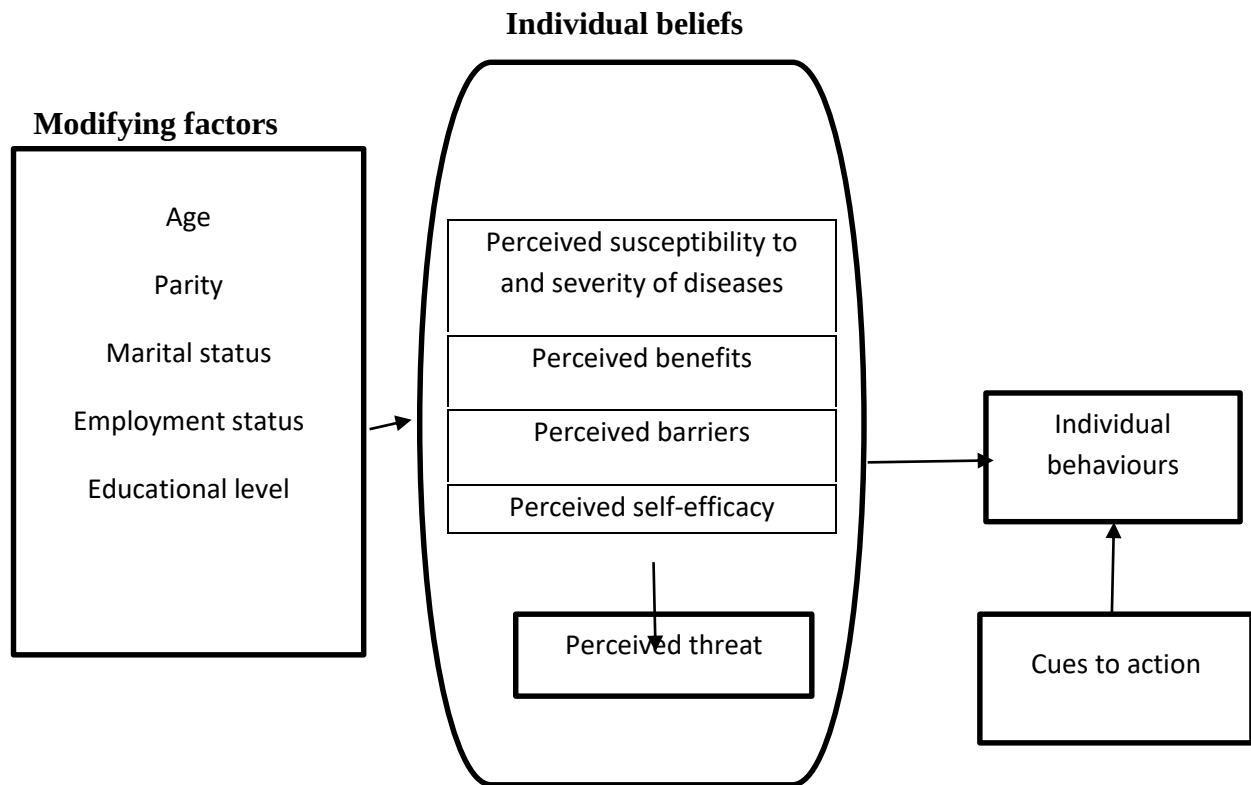


Figure 1: Health Belief Model (Adopted from Glanz et al., 2015)

2.6.1 Constructs of the Health Belief Model

2.6.1.1 Perceived susceptibility

These are conditions that are perceived by an individual to be caused by alcohol and tobacco use (Glanz et al., 2015). In this study, this risk includes addiction, premature birth, abortion, placenta, previa and low birth weight babies.

2.6.1.2 Perceived severity

These are individuals' perceived opinions on the seriousness of conditions caused by using alcohol and tobacco and how serious their consequences can be (Glanz et al., 2015). In this study, perceived severity includes specifying to pregnant women that using alcohol and tobacco in pregnancy can eventually lead to serious problems to both the mother and the unborn baby.

2.6.1.3 Perceived benefits

These are benefits that an individual expects from undertaking a recommended action (Glanz et al., 2015). In this study, perceived benefits include clarifying to pregnant women that quitting alcohol and tobacco use leads to living a sober life where they spend resources well without wasting, giving birth to a healthy baby and concentrating on building a bright future.

2.6.1.4 Perceived barriers

These are the individual's opinions on the things that prevent him or her from quitting alcohol or tobacco (Glanz et al., 2015). This could include the cost of rehabilitation, frequency of relapsing and time to go to the rehabilitation centre. One should identify such barriers and try to reduce them.

2.6.1.5 Cues to action

These are the strategies that are put in place in order to activate the readiness to quit alcohol or tobacco use (Glanz et al., 2015). This can be creating awareness on the effects of alcohol and tobacco use in pregnancy, providing information on how to stop taking alcohol and tobacco and providing free or less costly rehabilitation services.

2.6.1.6 Self-efficacy

This is an individual's readiness and confidence in quitting alcohol use (Glanz et al., 2015). This can be promoted through registering the person in a rehabilitation centre, giving pregnant women enough education on how to quit alcohol and tobacco during antenatal visits and follow them up in order to ensure that the action is undertaken.

2.7 Summary

This chapter dealt with the relevant literature studied to provide an overview of the study problem. The prevalence of tobacco and alcohol use, knowledge, attitudes and practices of pregnant women regarding the use of tobacco and alcohol in pregnancy were discussed in this chapter with references from different countries. Lastly the chapter presented the Health Belief Model which guided the study. The next chapter will focus on the research methodology and design.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The previous chapter dealt with the literature review and the theoretical framework relevant to the topic under study. This chapter outlines the research method and design employed in this study. The population under study is also explained. In addition, this chapter discusses the sampling method, pilot study, data collection and analysis. The validity and reliability of the study, as well as the research ethics are also discussed in this chapter.

3.2 Research Design

Research design refers to the plan or blueprint that a researcher creates to guide their study and address their research question. It involves a logical and systematic approach that outlines the methodology, data collection and analysis techniques, and interpretation of results (Brink, van der Walt & Rensburg, 2018). A quantitative, descriptive, cross-sectional, analytical research design was utilized in this study. Quantitative research is a methodological approach that focuses on the collection and analysis of numerical data to draw statistical inferences and generalizations (Creswell, 2013). Descriptive research seeks to describe a phenomenon or situation, while cross-sectional research is conducted at a specific point in time. Analytical research is used to explore relationships between variables and test hypotheses (Polit & Beck, 2017).

The use of a cross-sectional design enables the collection of data from a large and diverse population, providing a snapshot of a specific moment in time. It is particularly useful in investigating the prevalence of a particular phenomenon or behaviour

(Sekaran & Bougie, 2016). Descriptive research allows for a comprehensive description of the research question, while the analytical component of the research design allows for the exploration of relationships and patterns within the data (Polit & Beck, 2017). Overall, a well-designed research plan is crucial for conducting rigorous and valid research that produces reliable results. By selecting an appropriate research design, researchers can ensure that their study is aligned with their research question and aims, and that their findings are meaningful and relevant (Trochim, 2006).

3.2.1 Quantitative approach

Quantitative research is a research approach that involves the collection and analysis of numerical data to test hypotheses and draw statistical inferences about a population or phenomenon (Trochim, 2006). This research method involves the use of structured surveys, questionnaires, and experiments to gather data that can be analysed using statistical techniques. In quantitative research the researcher describes and examines the relationship between variables, the researcher also determines the cause-and-effect relationships between the variables (Brink, van der Walt & Rensburg, 2018). In this study, a quantitative research approach is relevant as it involves the use of numbers, for example the number of cigarettes smoked per day, and statistics in the process of data analysis.

3.2.2 Descriptive study

According to Brink, van der Walt and Rensburg (2018), descriptive designs are used in studies where more information is required in a particular field through the provision of a picture of the phenomenon as it occurs naturally. These designs describe the variables in order to answer the research question, and there is no intention of establishing a cause-effect relationship (Brink, van der Walt & Rensburg, 2018). A descriptive design was used in this study to describe the knowledge, attitudes and

practices of pregnant women on the use of alcohol and tobacco in pregnancy. These were described through tables and figures.

3.2.3 Cross sectional design

In cross-sectional studies, the identified variables in a sample of objects are measured once, and the relationship between the variables are determined and measured (Brink, van der Walt & Rensburg, 2018). A cross-sectional study was used to examine data at one point in time; the data was collected on one occasion only, with different participants.

3.2.4 Analytical design

An analytical research design involves the use of proper strategies to break a problem down into elements that are of essence in solving it. This design deals with the cause-and-effect relationship and correlations in a phenomenon (Austin et al. 2019). An analytical study was used in order to discover the association between knowledge, attitudes, practices and other variables. This helped to understand the association between demographic data and knowledge, as well as attitudes and practices of pregnant women regarding the use of tobacco and alcohol in pregnancy.

3.3 Population

In research, a population is the entire group of individuals, objects, or events that share common characteristics and are of interest to the researcher. This group is typically defined based on specific criteria, such as age, gender, geographical location, or health status (Smith, 2021). The study population included all the pregnant women attending antenatal care at Mariental clinic. According to the statistics obtained from Mariental clinic, the total number of pregnant women who came for antenatal visits from January 2020 to October 2020 were 510 women with a maximum of about 51 pregnant women

per month. The target population for this study, thus includes 510 pregnant women attending antenatal care at Mariental clinic.

3.3.1 Inclusion Criteria

The study included all pregnant women who attended antenatal care at Mariental clinic aged 18 years and above.

3.3.2 Exclusion Criteria

The study excluded pregnant women who are under 18 years of age because they would need consent from their parents. This would have been challenging for the researcher to reach their parents due to the cost of transport. Pregnant women who are diagnosed with mental illnesses were also excluded because they might give information not relevant to the research problem and they would also need consent from their caregivers.

3.4 Sample and Sampling

A probability sampling method using a systematic sampling technique was used to select the sample from the study population. Probability sampling implies that all elements in the population have an equal chance of being included in the sample (Brink, van der Walt & van Rensburg, 2018). Systematic sampling involves selecting elements at equal intervals, such as every fifth, eighth or 20th elements (Brink et al., 2018). Systematic sampling is appropriate for this study as the researcher selected elements (pregnant women) at equal intervals from the antenatal register so that every second element was included in the sample size until the desired number of respondents was reached. The researcher contacted the selected respondents through the contact information available in the antenatal register. This included phone calls, text messages and emails, depending on the mode of communication preferred by the

participants. Alternatively, the researcher also contacted the respondents during their routine antenatal visits to the healthcare facility. Yamane's (1967) formula of $N/(1+Ne^2)$ to calculate the sample size was used. In this formula, 'n' represents the sample size, 'N' represents the population size under the study and 'e' represents the margin of error. The following parameters were used: a population size of 510, margin error of 0.05 and confidence level of 95%, therefore giving a sample size of 224 participants.

n =sample size

e =margin of error

$n=N/(1+Ne^2)$

$N/(1+N(e^2))$

$510/(1+510(0.05^2))$

$510/(1+510(0.0025))$

$510/(1+1.275)$

$510/2.275$

$n=224.175$

$n=224$

3. 5 Data collection instrument

A self-administered questionnaire was designed by the researcher to obtain demographic data such as age, parity, marital status, educational level, employment, and also to assess the levels of knowledge, attitudes and practices of pregnant women.

The questionnaire was developed based on the literature review. The questionnaire was written in English and was given to those who can read English during the time of data collection. Data about knowledge on the use of alcohol and tobacco in pregnancy was measured using a 3-point Likert scale ranging from 1 = disagree, 2 = not sure and 3 = agree. Attitudes on the use of alcohol and tobacco in pregnancy was measured using a list of statements on a 3-point Likert scale ranging from 1 = disagree, 2 = not sure and 3 = agree. Close-ended questions (yes or no) were used to discover the practices of alcohol and tobacco in pregnancy. The questionnaire consisted of four sections: Section A consisted of demographic data, Section B captured the data on knowledge, Section C dealt with data on the attitudes of pregnant women and Section D consisted of questions about the practices of alcohol and tobacco by pregnant women.

3.6 Data collection procedure

Data collection provides an audit trail which includes a clear and specific explanation of how data were collected, how the results or findings were derived as well as the rationale for the method selected (Brink, van der Walt & van Rensburg, 2018). Data was collected over a period of two months between 01st February and 30th March 2022. Self-administered questionnaires were distributed to the respondents who came for antenatal visits. The data was collected in a private room at Mariental clinic in Hardap region. The researcher selected respondents using the available elements (pregnant women) in all trimesters that came for antenatal visits during the time of data collection until the desired number of respondents was reached.

Before being invited to participate in the study, potential respondents were first informed about the purpose of the research. Subsequently, they were asked to indicate their proficiency in reading and writing in the English language. In order to ensure that

the study would yield accurate and meaningful results, it was important to verify that all respondents were able to understand and communicate effectively in English. This was done by giving respondents a clear explanation of the study and then asking them to self-assess their own level of English proficiency. Those who were unable to read or write in English were advised to inform the researcher accordingly.

The researcher first explained the objectives and the purpose of the study to the participants. Questionnaires and consent forms were distributed to respondents and a written informed consent was obtained from each participant. Upon completion of the questionnaires, the researcher collected the questionnaires from the participants, checked for completeness at that moment and made corrections where necessary. The questionnaires were kept in a safe, locked cupboard throughout data analysis and the key was kept safe by the researcher.

3.7 Data analysis

Descriptive, analytical statistics were used in this study. Descriptive statistics explain and summarise data (Brink, van der Walt & van Rensburg, 2018). Returned questionnaires were coded and data entered on computer for analysis using Statistical Package for Social Sciences (SPSS), Version 27. The researcher used descriptive statistics to provide answers to the research questions. Demographic data are presented as percentages. Descriptive measures were presented in the form of frequency tables and graphs for easy interpretation. Knowledge and attitude levels were determined using a list of ten statements on the effects of alcohol and tobacco use in pregnancy by using a 3-point Likert scale running from disagree 1, not sure 2, and agree 3. In Section B, all statements on knowledge on alcohol and tobacco use during pregnancy were scored and added together to produce a total range of 10 to 30. The individual scores were then categorized as follows: 10-16 = low knowledge, 17-23 = average

knowledge, 24-30 = high knowledge. In Section C, all statements on attitudes towards alcohol use during pregnancy were scored and added together to produce a total scored range of 6 to 18. The individual scores were then categorized as follows: 6-12= negative attitudes, 13-18= positive attitudes. Statements on attitudes towards smoking during pregnancy were scored and added together to produce a total score range of 9 to 27. The individual scores were then categorized as follows: 9 -18 = negative attitudes, 19-27 = positive attitudes. In Section D, four questions that assessed the severity of alcohol drinking were summed up to produce a total score indicative of the levels of drinking. The total scores were then categorized into: low to moderate for scores between 4 and 8 and heavy drinkers for scores of 9 to 12.

Questions that assessed the severity of tobacco smoking were summed up to produce a total score indicative of the severity of smoking. The total scores were then categorized into: low to moderate for scores between 4 and 6, and heavy smokers for scores of 7 to 8. The overall levels of practices towards alcohol use/consumption during pregnancy were analysed for their association with demographic characteristics. The levels of association and their significance were tested using Fisher's Exact test at 0.05 alpha levels.

3.7.1 Validity

The validity of an instrument seeks to ascertain whether an instrument provides accurate measures given the context in which it is applied (Brink, van der Walt & van Rensburg, 2018). In this study, content, face and construct validity were ensured. Content validity is an assessment of how well the instrument represents all the components of the variable to be measured (Brink, van der Walt & van Rensburg, 2018). Content validity was ensured by giving the questionnaires to the experts (supervisors) to evaluate the content of the instrument. Moreover, the researcher

constructed the questionnaire based on literature reviews on knowledge, attitudes and practices of pregnant women on the use of alcohol and tobacco during pregnancy. Face validity merely means that the instrument appears to measure what it is supposed to measure (Brink, van der Walt & van Rensburg, 2018). To ensure face validity, the data collection instrument was handed over to the supervisors to check if the instrument appears to measure what it is supposed to measure.

Construct validity measures the relationship between the instrument and the related theory; it is used to explore the relationship of the instrument's results to measures of the underlying theoretical concepts of the instrument (Brink, van der Walt & van Rensburg, 2018). In this study, questions were well-formed to measure knowledge, attitudes and practices of pregnant women on alcohol and tobacco use in pregnancy. The content was validated by reviewing literature on knowledge, attitudes, and practices on tobacco and alcohol use in pregnancy. Subject experts such as supervisors and midwives assessed the instrument to make sure that it contains questions which address the study objectives. The instrument was piloted on 22 pregnant women prior to the actual study to ensure that all important areas of concern are reflected in it.

3.7.2 Reliability

Reliability refers to the degree to which an instrument can be depended upon to yield consistent results if used repeatedly over time on the same person, or if used by two researchers (Brink, van der Walt & van Rensburg, 2018). A pilot study was conducted to identify any possible problems and make sure that the questionnaire is complete and easy to understand. Furthermore, the data from all respondents was collected using the same instrument with the same questions.

3.8 Pilot study

A pilot study was conducted prior to the actual collection of data. This was done to ensure validity and reliability. The pilot study was conducted on 22 pregnant women at Maltahohe Health Centre, who met the inclusion criteria, but did not partake in the main study. Data for the pilot study was collected from subjects with the same characteristics as those under study. The respondents completed a self-administered questionnaire to assess knowledge, attitudes, and practices of pregnant women regarding tobacco and alcohol use in pregnancy. The outcome of the pilot study was that questions were well understood, and no major changes were made. The time taken to complete each questionnaire was noted (10 to 15 minutes) as anticipated by the researcher.

3.9 Research Ethics

Ethical clearance certificate was obtained from the Human Research Ethics Committee of the University of Namibia. The researcher then got permission from the Ministry of Health and Social Services Research Ethical Committee. Furthermore, permission from the Hardap Regional Directorate was obtained in order to conduct the study in Hardap region. The researcher then got permission from the Chief Medical Officer of Mariental District.

The following ethical principles were applied during the study: respect for person, beneficence, non-maleficence and justice.

3.9.1 Respect for person

The researcher treats the respondents with consideration and with due regard for their individual human dignity, and gains voluntary informed consent (Brink, van der Walt & van Rensburg, 2018). A written informed consent was obtained from all respondents

after an explanation on the purpose of the study had been given by the researcher prior to participation. The researcher informed the respondents that they have the right to withdraw from the study at any point without any risk. The researcher did not by any chance force any participant to take part in the study but autonomy was ensured. The researcher let the respondents know that the information collected from them was anonymous by distributing questionnaires that were returned back without any identifying details. The researcher ensured participant's confidentiality by keeping responses to questionnaires in a safe place where unauthorised persons will not get access to the data.

3.9.2 Beneficence

To adhere to this principle the researcher needs to secure the well-being of the participant, who has a right to protection from discomfort and harm, be it physical, psychological, emotional, spiritual, economic, social or legal (Brink, van der Walt & van Rensburg, 2018). The researcher made sure that the questions are well structured to prevent psychological harm to the participants. The researcher made respondents aware that the results of the study might not benefit them as individuals but might help in the review of policies by the Ministry of Health and Social Services that might benefit the community at large.

3.9.3 Justice

The principle of justice refers to the participant's right to fair selection and treatment (Brink, van der Walt & van Rensburg, 2018). The researcher ensured fair selection and treatment of all respondents by selecting them for reasons directly related to the research problem. All respondents were treated equally irrespective of their race, language and educational background.

3.10 Summary

This chapter highlighted the methodology of the study, and presented the research method and design, population and sampling method for this study. The most suitable instrument for data collection was presented. Data collection procedure, data analysis, validity and reliability of the research instrument and pilot study of the research were also discussed. The chapter also discussed the ethical considerations in the study. The next chapter (Chapter Four) presents the results of the study.

CHAPTER FOUR

PRESENTATION OF RESULTS

4.1 Introduction

The previous chapter focused on the research design and data collection methods used in this study. This chapter deals with the presentation, analysis and interpretation of the research findings. The purpose of the study was to assess the knowledge, attitudes and practices of pregnant women regarding the use of tobacco and alcohol in pregnancy at Mariental clinic, in Hardap region.

4.2 Response rate

In this study, it was expected that a calculated sample of 224 pregnant women would participate in the study. However, only 211 respondents agreed to participate in the study. This means that the response rate is 94%.

4.3 Respondents Demographic Data

4.3.1 Socio demographic results

Respondents were asked different socio-demographic characteristics. They were asked to indicate the applicable choice by placing a tick next to it. These characteristics were such as: age, number of children, age of pregnancy, marital status, employment status and highest level of qualification. The results are discussed below.

4.3.2 Age classifications of the respondents

The minimum age of the respondents was 18 years, while the maximum age was 43 years. The mean age was 28.8 with a standard deviation of 6.9 years. The participants' ages were further categorized into age groups as shown in Table 4.1. Most participants, 92 (43.6%) were aged between 18 and 24 years.

Table 4.1 Age classification of the respondents

Age category	Frequency (N)	Percentage (%)
18 - 24 Years	92	43.6
25 - 34 Years	77	36.5
35 - 44 Years	30	14.2
No age indicated	12	5.7
Total	211	100.0

4.3.3 Number of children

The minimum number of children for the respondents in this study was one and the maximum was eight kids. The number of children was further grouped into three categories as shown in Table 4.2. Most of the respondents 163 (77.3%) had 0 to 2 children before the current pregnancy.

Table 4.2 Number of children

Number of children	Frequency (N)	Percentage (%)
0 - 2 Children	163	77.3
3 - 5 Children	40	19.0
6 - 8 Children	8	3.8
Total	211	100.0

4.3.4 Gestational age of the pregnancy

The gestational age of the pregnancy differed from eight weeks to 40 weeks. The mean age was 6.6 months with a standard deviation of 1.7 months. The gestational age of pregnancy was further classified into the trimesters and the results are shown in Table 4.3. Most of the respondents 127 (60.0%) were in their third trimester of pregnancy.

Table 4.3 Gestational age of pregnancy

Gestational age of pregnancy	Frequency (N)	Percentage (%)
First trimester	15	7.1
Second trimester	69	32.9
Third trimester	127	60.0
Total	211	100.0

4.3.5 Marital status

Figure 4.1 shows the marital status of participants. A majority of the respondents were single 186 (88.15%), while only four (1.90%) had divorced.

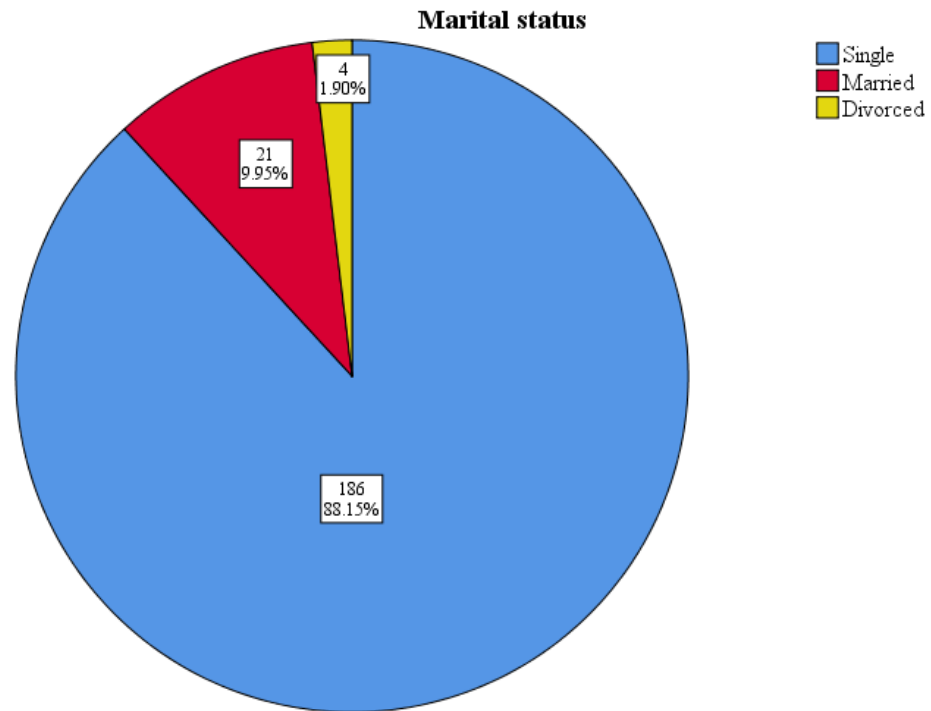


Figure 4.1 Marital status

4.3.6 Employment status

The participants' employment status was asked. Table 4.4 shows that most of the respondents were unemployed 154 (73%).

Table 4.4 Employment status

	Frequency (N)	Percentage (%)
Yes	57	27
No	154	73
Total	211	100

4.3.7 Educational status

Figure 4.2 shows that most respondents 153 (72.86%) had attended secondary education as their highest level of qualification, while nine (4.29%) did not attend school at all.

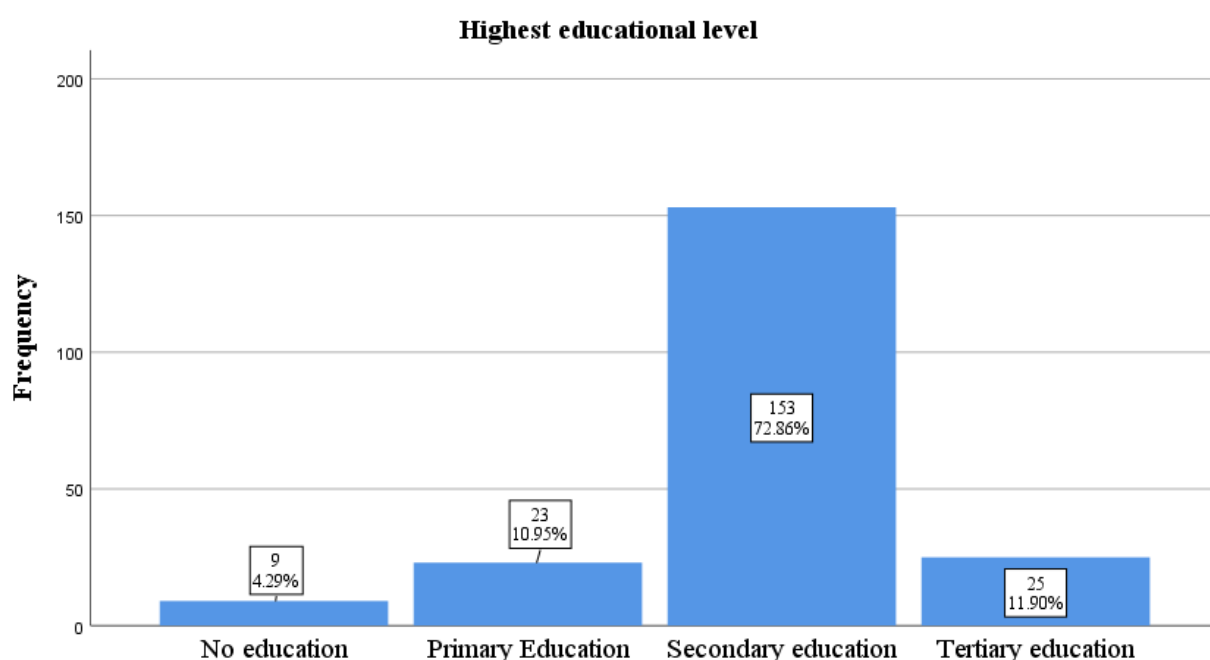


Figure 4.2 Educational status

4.4 Data presentation

4.4.1 Knowledge on alcohol use during pregnancy

Respondents were asked different questions to assess their knowledge, including questions on the risks of alcohol use in pregnancy. Table 4.5 below presents the results. A majority of the respondents 163 (77.3%) have read about the dangers of using alcohol during pregnancy. About 185 (87.7%) agreed that drinking alcohol while pregnant can harm the unborn baby. Most respondents 161 (76.3%) have received

information from a nurse on the possible harm of using alcohol in pregnancy. A large number of respondents¹²⁷ (60.2%) agreed that damages to the baby depend on the amount and frequency of alcohol consumption. At least 145 (68.7%) respondents agreed that drinking alcohol while pregnant causes low birth weight.

Table 4.5 Knowledge on alcohol use during pregnancy

No	Statement	Disagree N (%)	Not sure N (%)	Agree N (%)
1.	I have read about the dangers of using alcohol during pregnancy.	30 (14.2)	18 (8.5)	163 (77.3)
2.	I have received information from the nurse on the possible harm of using alcohol in pregnancy.	27 (12.8)	23 (10.9)	161 (76.3)
3.	Drinking alcohol while pregnant can harm the unborn baby.	8 (3.8)	18 (8.5)	185 (87.7)
4.	The type of alcohol a woman takes when she is pregnant affects the outcome of her pregnancy.	7 (3.3)	63 (29.9)	141 (66.8)
5.	Alcohol consumption in pregnancy results in lifelong disabilities in children.	16 (7.6)	78 (37.0)	117 (55.5)
6.	Damages to the baby depend on the amount and frequency of alcohol consumption.	9 (4.3)	75 (35.5)	127 (60.2)
7.	Drinking alcohol while pregnant causes low birth weight.	14 (6.6)	52 (24.6)	145 (68.7)
8.	Home-made alcohol can also affect the unborn baby.	26 (12.3)	44 (20.9)	141 (66.8)
9.	Women who consume alcohol before pregnancy are more likely to continue drinking alcohol during pregnancy.	32 (15.2)	53 (25.1)	126 (59.7)
10.	It is difficult for the pregnant woman to quit alcohol if her partner/friends drink alcohol.	55 (26.1)	48 (22.7)	108 (51.2)

4.4.2 Levels of knowledge towards alcohol use during pregnancy

All statements on knowledge of alcohol use during pregnancy were scored and added together to produce a total score range of 10 to 30. The individual scores were then categorized as follows: 10 - 16 = Low; 17 - 23 = Average; 24 – 30 = High. The results in Table 4.5 show that the majority (78.7%) had a high level of knowledge regarding the use of alcohol during pregnancy.

Table 4.6 Levels of knowledge towards alcohol use in pregnancy

Level of Knowledge	Frequency	Percentage (%)
Low	4	1.9
Average	41	19.4
High	166	78.7
Total	211	100.0

4.4.3 Knowledge on tobacco use during pregnancy

To assess participants' knowledge on the use of tobacco in pregnancy, respondents were asked questions about the risks of smoking tobacco in pregnancy. A large number of participants, 181 (85.8%) indicated that they were aware that smoking in pregnancy can harm the baby. Table 4.7 below shows the results. Most respondents 138 (65.4%) have received health education on the effects of tobacco during pregnancy. Seventy-eight percent of the respondents (165) agreed that smoking tobacco affects the pregnant women's health. A lot of respondents 139 (65.9) agreed that other forms of tobacco such as snuff puts the life of the unborn baby at risk. Many respondents 135

(64%) agreed that exposure to second-hand smoke also puts the pregnant woman and unborn child in danger.

Table 4.7 Knowledge on tobacco use during pregnancy

No	Statement	Disagree N (%)	Not sure N (%)	Agree N (%)
1.	I am aware that smoking tobacco in pregnancy can harm the unborn baby.	12 (5.7)	18 (8.5)	181 (85.8)
2.	I have received health education on the effects of tobacco during pregnancy.	41 (19.4)	32 (15.2)	138 (65.4)
3.	I am aware that smoking tobacco in pregnancy causes miscarriages.	11 (5.2)	101 (47.9)	99 (46.9)
4.	Tobacco smoking in pregnancy increases the deliveries of low-birth-weight babies.	4 (1.9)	76 (36.0)	131 (62.1)
5.	Smoking tobacco affects the pregnant women's health.	9 (4.3)	37 (17.5)	165 (78.2)
6.	Pregnant women who smoke tobacco are at risk of delivering premature babies.	7 (3.3)	68 (32.2)	136 (64.5)
7.	Other forms of tobacco such as snuff put the life of the unborn baby at risk.	12 (5.7)	60 (28.4)	139 (65.9)
8.	Even taking one cigarette per day in pregnancy can cause harm to the unborn baby.	25 (11.8)	63 (29.9)	123 (58.3)
9.	Exposure to second hand smoke also puts the pregnant woman and unborn child in danger.	20 (9.5)	56 (26.5)	135 (64.0)
10.	Tobacco use in pregnancy is associated with incomplete antenatal care	13 (6.2)	96 (45.5)	102 (48.3)

4.4.4 Levels of knowledge towards smoking during pregnancy

All statements on knowledge of smoking during pregnancy were scored and added together to produce a total score range of 10 to 30. The individual scores were then categorized as follows: 10-16 = Low; 17-23 = Average; 24-30 = High.

Table 4.8 Levels of knowledge towards smoking during pregnancy

Level of Knowledge	Frequency	Percentage (%)
Low	5	1.9
Average	59	28
High	148	70.1
Total	211	100.0

4.5.1 Attitudes on alcohol use in pregnancy

To determine participants' attitudes towards the use of alcohol in pregnancy, respondents were asked six questions scaling at a three-point Likert scale. A majority of the respondents 133 (63%) agreed that it is shameful for a pregnant woman to drink alcohol. A large number of respondents (84.8%) agreed that it is advisable for pregnant women to stop drinking alcohol. About 164 of the (77.7%) believe that most pregnant women are aware of the effects that alcohol can have on the unborn child. Most respondents 174 (82.5%) felt that health care workers are responsible for giving health education on the effects of alcohol use in pregnancy. These results are shown below in Table 4.

Table 4.9 Attitudes on alcohol use in pregnancy

No	Statement	Disagree N (%)	Not sure N (%)	Agree N (%)
1.	I think it is not permissible for a pregnant woman to be intoxicated.	19 (9.0)	67 (31.8)	125 (59.2)
2.	I believe it is safe to take at least one or two glasses of alcohol daily when you are pregnant.	86 (40.8)	46 (21.8)	79 (37.4)
3.	I feel it is shameful for a pregnant woman to drink alcohol.	44 (20.9)	34 (16.1)	133 (63.0)
4.	I believe it is advisable for pregnant women to stop drinking alcohol.	10 (4.7)	22 (10.4)	179 (84.8)
5.	I believe most pregnant women are aware of the effects that alcohol can have on the unborn child.	12 (5.7)	35 (16.6)	164 (77.7)
6.	I feel that health care workers are responsible to give health education on the effects of alcohol use in pregnancy.	9 (4.3)	27 (12.8)	174 (82.5)

4.5.2 Levels of Attitude towards alcohol use during pregnancy

All statements on attitudes towards alcohol use during pregnancy were scored and added together to produce a total score range of six to 18. The individual scores were then categorized as follows: 6 - 12 = Negative; 13 - 18 = Positive

Table 4.10 Levels of attitudes towards alcohol use during pregnancy

Attitude levels	Frequency	Percentage (%)
Negative	46	21.8
Positive	165	78.2
Total	211	100.0

4.5.3 Attitudes on tobacco use in pregnancy

Participants' attitudes on the use of tobacco in pregnancy were assessed using a three-point Likert scale ranging from disagree, not sure or agree. A large number of respondents 172 (81.5%) agreed that it is not acceptable for a pregnant woman to smoke cigarettes. A majority of the respondents 177 (83.9%) believed that it is not permissible for pregnant women to use any other forms of tobacco. Most respondents 184 (87.2%) believed that smoking tobacco while pregnant can harm the unborn baby's health. Eighty-five percent of the respondents (180) felt that it is the responsibility of health care workers to advise pregnant women to stop smoking. Many respondents 181 (85.8%) agreed that smoking should be avoided during pregnancy.

Table 4.11 Attitudes on tobacco use in pregnancy

No	Statement	Disagree N (%)	Not sure N (%)	Agree N (%)
1.	I think it is not acceptable for a pregnant woman to smoke cigarette.	15 (7.1)	24 (11.4)	172 (81.5)
2.	I believe It is not permissible for pregnant women to use any other forms of tobacco.	9 (4.3)	25 (11.8)	177 (83.9)
3.	I think that tobacco smoking puts you at risk of drinking alcohol while pregnant.	14 (6.6)	49 (23.2)	148 (70.1)
4.	I believe smoking tobacco while pregnant can harm the unborn baby's health.	3 (1.4)	24 (11.4)	184 (87.2)
5.	I believe that nurses provide pregnant women with information on smoking during pregnancy during antenatal visits.	11 (5.2)	41 (19.4)	159 (75.4)
6.	I feel that it is the responsibility of health care workers to advise pregnant women to stop smoking.	13 (6.2)	18 (8.5)	180 (85.3)
7.	I believe the harms of smoking tobacco in pregnancy are less compared to other risks that pregnant women face.	30 (14.2)	78 (37.0)	103 (48.8)
8.	I think it is harder to quit smoking when pregnant than any other times.	39 (18.5)	70 (33.2)	102 (48.3)
9.	I think smoking tobacco should be avoided during pregnancy.	10 (4.7)	20 (9.5)	181 (85.8)

4.5.4 Levels of Attitudes towards tobacco use during pregnancy

All statements on attitudes towards smoking during pregnancy were scored and added together to produce a total score range of 9 to 27. The individual scores were then categorized as follows: 9 - 18 = Negative; 19 - 27 = Positive.

Table 4.12 Levels of attitudes towards tobacco use in pregnancy

Attitude level	Frequency	Percentage (%)
Negative	13	6.2
Positive	198	93.8
Total	211	100.0

4.5.4.1 Current drinking status

Participants' practices of alcohol in pregnancy were assessed. About 148 (70.1%) of the respondents indicated that they are currently not drinking.

Table 4.13 Current drinking status

Are you currently drinking alcohol?	Frequency (N)	Percentage (%)
Yes	63	29.9
No	148	70.1
Total	211	100

4.5.4.2 The type of alcohol drunk

Table 4.14 shows the types of alcohol that the respondents indicated. Non-homemade alcohol was the least used alcohol, taken by 35 (16.6%) participants.

Table 4.14 Type of alcohol drunk

What type of alcohol do you take?	Frequency (N)	Percent (%)
Non-home made	35	16.6
Homemade	13	6.3
Both	15	7.1
Not drinking	148	70.1
Total	211	100.0

4.5.4.3 Frequency of alcohol use

Participants' frequency of alcohol use was assessed. A great number of respondents 44 (69.84%) indicated that they only drink alcohol less than once a week. The table below shows the results.

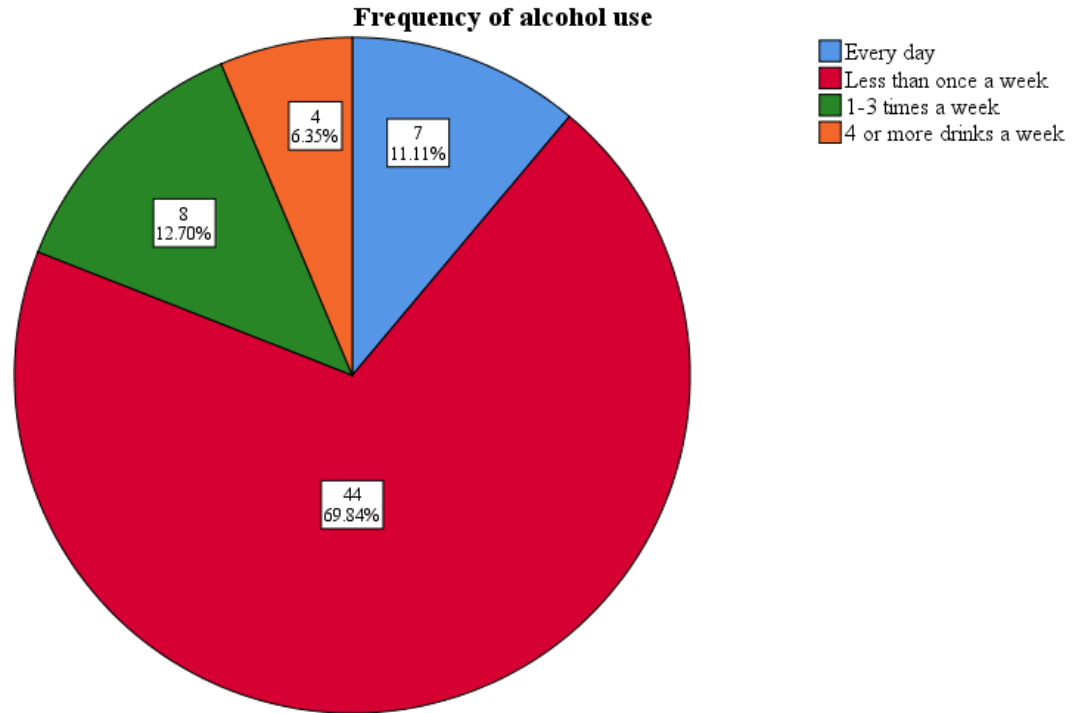


Figure 4.3 Frequency of alcohol use

4.5.4.4 Number of glasses consumed

Figure 4.4 shows the number of glasses consumed per occasion by respondents who indicated that they were using alcohol. Most of the respondents 35 (55.56%) disclosed that they only took one to two glasses of alcohol per occasion.

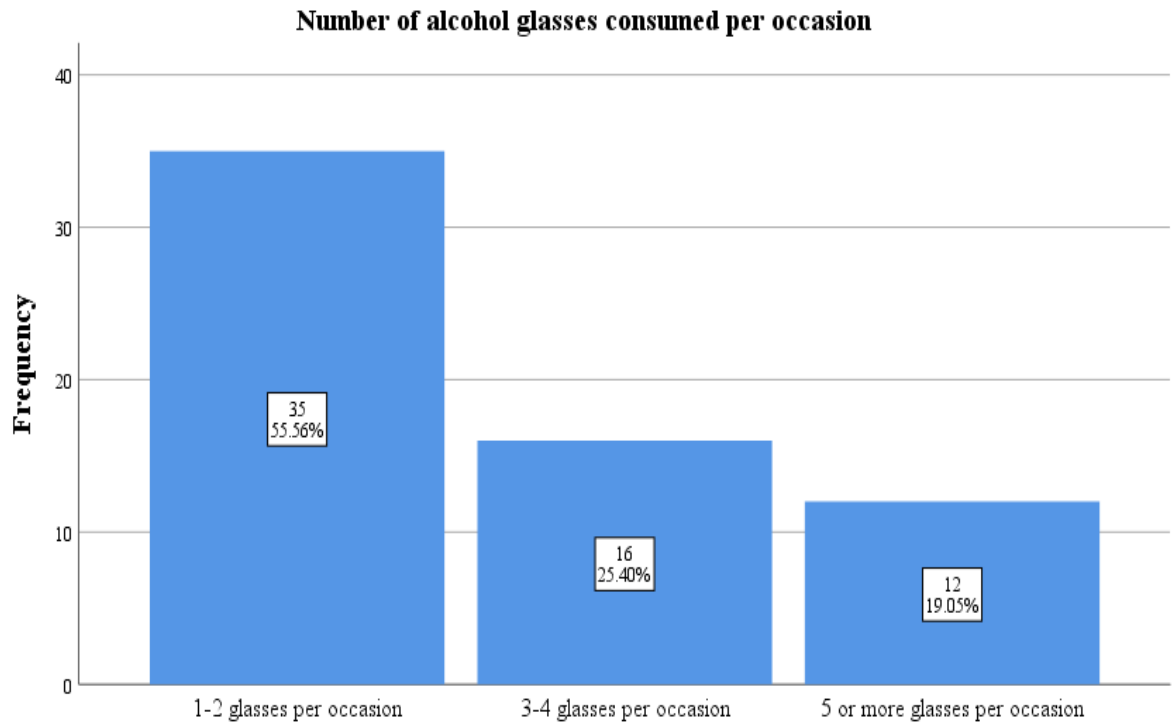


Figure 4.4 Number of glasses consumed

4.5.4.5 Intention to quit alcohol

Respondents were asked about their intention to quit alcohol. The table below shows that 47 (22.3%) respondents had good intentions of quitting alcohol.

Table 4.15 Intention to quit alcohol

Do you intend to quit alcohol	Frequency (N)	Percentage (%)
Yes	47	22.3
No	16	7.6
Not drinking	148	70.1
Total	211	100

4.5.4.6 Drinking status before pregnancy

Table 4.16 shows the participants' drinking status before pregnancy. More than half of the respondents 117 (55.5%) indicated that they were not drinking alcohol before pregnancy.

Table 4.16 Drinking status before pregnancy

Were you drinking alcohol before you fell pregnant?	Frequency (N)	Percentage (%)
Yes	94	44.5
No	117	55.5
Total	211	100

4.5.4.7 Partner drinking alcohol

Respondents were also asked if their partners are drinking alcohol. A large number of respondents 112 (53.1%) indicated that their partners were drinking alcohol.

Table 4.17 Partner drinking alcohol

Is your partner drinking alcohol?	Frequency (N)	Percentage (%)
Yes	112	53.1
No	99	46.9
Total	211	100

4.6.1 Practices towards the use of alcohol during pregnancy

Respondents who were drinking alcohol during pregnancy were classified as having bad practice while those who were not drinking were classified as having good practice towards alcohol use during pregnancy, as shown in Figure 4.4. A total of 63 respondents (29.86%) were classified as having bad practices towards alcohol use in pregnancy.

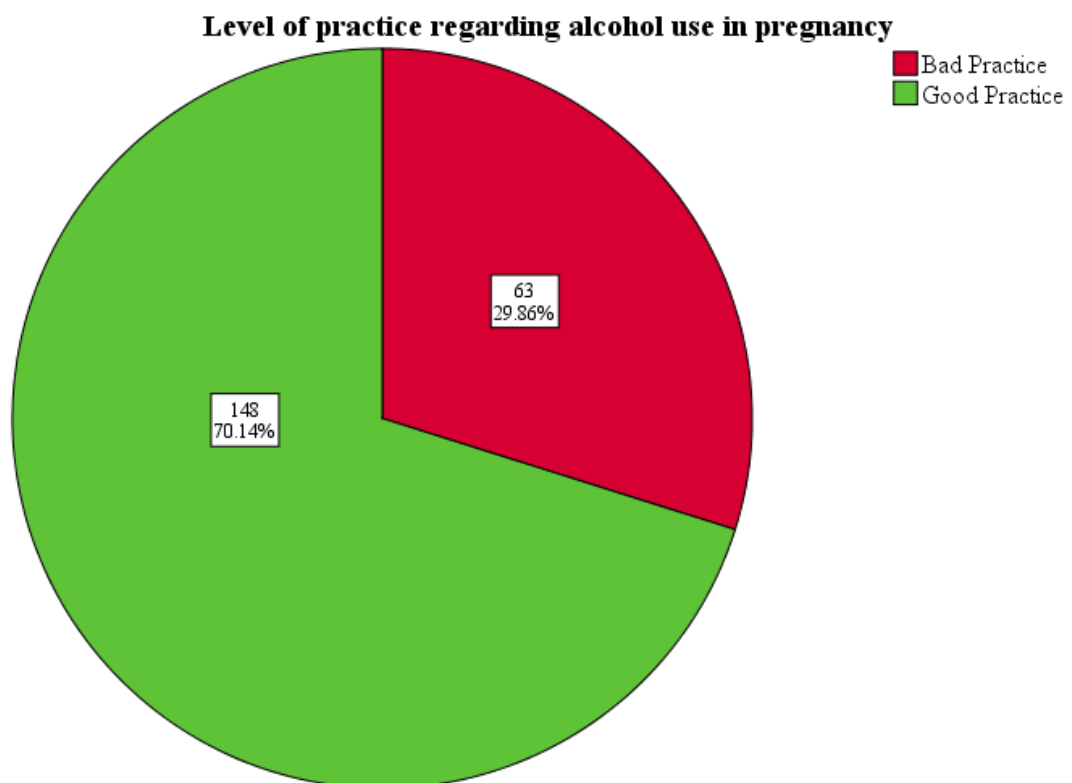


Figure 4.5 Level of practice regarding alcohol use in pregnancy

4.6.1.1 Severity of drinking for those who were alcohol drinkers

Four questions that assessed the severity of alcohol drinking were summed up to produce a total score indicative of the levels of drinking. The total scores were then categorised into low to moderate for scores between four and eight and heavy drinkers for scores of nine to 12. Up to 8 (12.7%) of the alcohol drinkers were classified as heavy drinkers.

Table 4.18 Severity of drinking for those who were alcohol drinkers

Severity	Frequency	Percentage (%)
Low to moderate	55	87.3
Heavy	8	12.7
Total	63	100.0

4.7.1 Smoking status

Participants' smoking status during pregnancy was assessed. At least 190 (90%) of the respondents indicated that they do not smoke tobacco at all.

Table 4.19 Smoking Status

Are you currently smoking tobacco?	Frequency (N)	Percentage (%)
Yes	21	10.0
No	190	90.0
Total	211	100

4.7.1.1 Length of smoking in years

The shortest length of time a participant has been smoking was one year while the longest was 25 years. The average length was 6.1 years with a standard deviation of 6.2 years.

4.7.1.2 Number of times smoked per day

The minimum number of times respondents smoked per day was one and the maximum was two. The mean was 3.1 times with a standard deviation of 1.7 times.

4.7.1.3 Number of cigarettes smoked

Table 4.20 shows the number of cigarettes smoked per day. About 19 (9%) of the respondents indicated that they smoked one to nine cigarettes per day.

Table 4.20 Number of cigarettes smoked

How many cigarettes do you smoke per day?	Frequency (N)	Percentage (%)
1 - 9 cigarettes per day	19	9.0
Above 10 cigarettes per day	2	1.0
Not smoking	190	90.0
Total	211	100

4.7.1.4 Intention to quit smoking

Participants' intentions to quit smoking were assessed. Table 4.21 below shows that about 17 (8.1%) of the respondents are willing to quit smoking tobacco.

Table 4.21 Intention to quit smoking

Do you intend to quit smoking?	Frequency (N)	Percentage (%)
Yes	17	8.1
No	4	1.9
Not smoking	190	90.0
Total	211	100

4.7.1.5 Smoking status before pregnancy

Respondents were asked about their smoking status before pregnancy. A large number of respondents 188 (89.1%) indicated that they were not smoking tobacco before pregnancy.

Table 4.22 Smoking status before pregnancy

Were you smoking before you fell pregnant?	Frequency (N)	Percentage (%)
Yes	23	10.9
No	188	89.1
Total	211	100

4.8.1 Practices towards cigarette smoking during pregnancy

Respondents who were smoking cigarettes during pregnancy were classified as having a bad practice while those who were not smoking were classified as having a good practice towards smoking during pregnancy as shown in Table 5.15. A total of 21 respondents(10.0%) were classified as having a bad practice towards tobacco use in pregnancy.

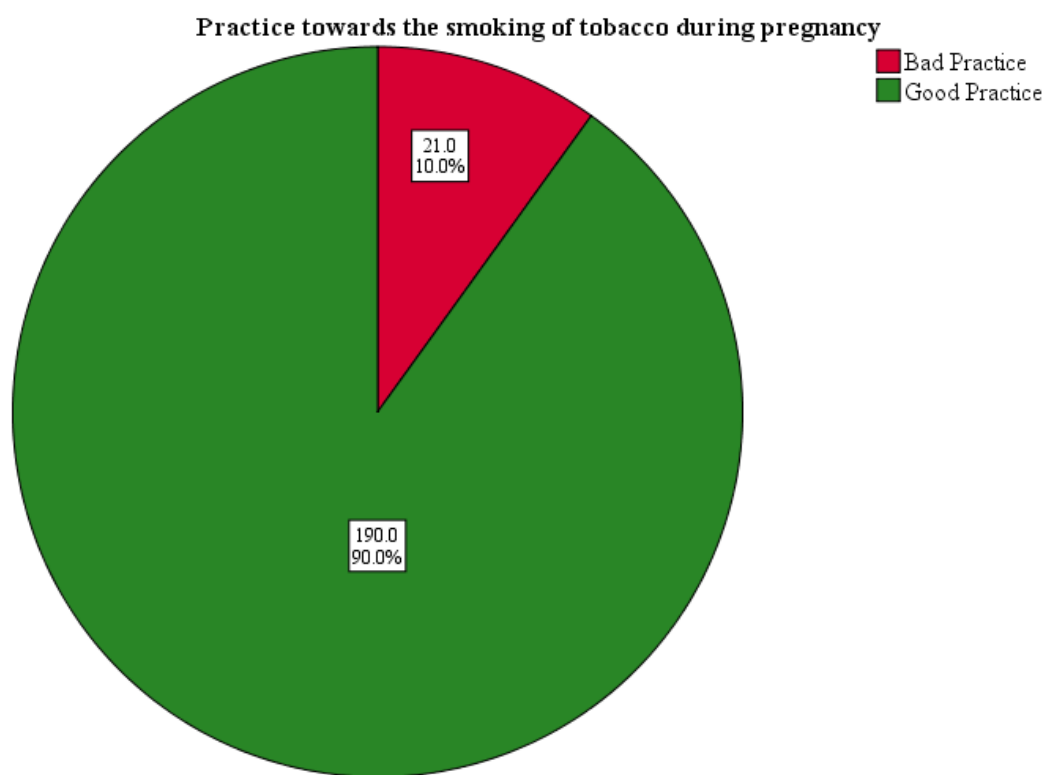


Figure 4.6 Practices towards the smoking of tobacco during pregnancy

4.8.1.1 Severity of smoking for those who were tobacco smokers

Four questions that assessed the severity of tobacco smoking were summed up to produce a total score indicative of the severity of smoking. The total scores were then categorised into low to moderate for scores between four and six and heavy smokers

for scores of seven to eight. As shown in Table 4.23, up to 20.0% of the smokers were classified as heavy smokers.

Table 4.23 Severity of smoking for those who were tobacco smokers

Severity	Frequency	Percentage (%)
Low to moderate	16	76.2
Heavy	5	23.8
Total	21	100.0

4.9.1 Association of levels of knowledge on alcohol use/consumption during pregnancy with demographic characteristics

The overall levels of knowledge on alcohol use during pregnancy was analysed for its association with demographic characteristics. The level of association and its significance were tested using Fisher's Exact test at 0.05 alpha level. None of the demographic variables revealed a significant association as shown in Table 4.24

Table 4.24 Association of levels of knowledge on alcohol use/consumption during pregnancy with demographic characteristics

Demographic Characteristic		Levels of knowledge on alcohol use during pregnancy			p-value
		Low	Average	High	
Mother Age	18 – 24 years	4 (4.3%)	22 (23.9%)	66 (71.7%)	0.083
	25 – 34 years	0 (0.0%)	12 (15.6%)	65 (84.4%)	
	35 – 44 years	0 (0.0%)	3 (10.0%)	27 (90.0%)	
Number of children	0 – 2	4 (2.5%)	36 (22.1%)	123 (75.5%)	0.145
	3 – 5	0 (0.0%)	3 (7.5%)	37 (92.5%)	
	6 – 8	0 (0.0%)	2 (25.0%)	6 (75.0%)	
Age of pregnancy	1 st trimester	1 (6.7%)	4 (26.7%)	10 (66.7%)	0.309
	2 nd trimester	1 (2.9%)	13 (18.8%)	54 (78.3%)	
	3 rd trimester	1 (0.8%)	24 (19.0%)	101 (80.2%)	
Marital status	Single	4 (2.2%)	38 (20.4%)	144 (77.4%)	0.664
	Married	0 (0.0%)	2 (9.5%)	19 (90.5%)	
	Divorced	0 (0.0%)	1 (25.0%)	3 (75.0%)	
Employment Status	Employed	1 (1.8%)	8 (14.0%)	48 (84.2%)	0.451
	Not employed	3 (1.9%)	33 (21.4%)	118 (76.6%)	
Education level	No education	0 (0.0%)	2 (22.2%)	7 (77.8%)	0.314
	Primary education	1 (4.3%)	8 (34.8%)	14 (60.9%)	
	Secondary education	3 (2.0%)	28 (18.3%)	122 (79.7%)	
	Tertiary education	0 (0.0%)	3 (12.0%)	22 (88.0%)	

4.9.2 Association of levels of knowledge on tobacco smoking during pregnancy with demographic characteristics

The overall levels of knowledge on tobacco smoking during pregnancy was analysed for its association with demographic characteristics. The level of association and its significance were tested using Fisher's Exact test at 0.05 alpha level. None of the demographic variables revealed a significant association as shown in Table 4.25.

Table 4.25 Association of levels of knowledge on tobacco smoking during pregnancy with demographic characteristics

Demographic Characteristics		Levels of knowledge on tobacco smoking during pregnancy			p-value
		Low	Average	High	
Mother Age	18 – 24 years	1 (1.1%)	32 (34.8%)	59 (64.1%)	0.184
	25 – 34 years	3 (3.9%)	16 (20.8%)	58 (75.3%)	
	35 – 44 years	0 (0.0%)	7 (23.3%)	23 (76.7%)	
Number of children	0 – 2	4 (2.5%)	50 (30.7%)	109 (66.9%)	0.391
	3 – 5	0 (0.0%)	7 (17.5%)	33 (82.5%)	
	6 – 8	0 (0.0%)	2 (25.0%)	6 (75.0%)	
Age of pregnancy	1 st trimester	0 (0.0%)	6 (40.0%)	9 (60.0%)	0.327
	2 nd trimester	3 (4.3%)	20 (29.0%)	46 (66.7%)	
	3 rd trimester	1 (0.8%)	33 (26.2%)	92 (73.0%)	
Marital status	Single	4 (2.1%)	50 (26.9%)	132 (71.0%)	0.279
	Married	0 (0.0%)	6 (28.6%)	15 (71.4%)	
	Divorced	0 (0.0%)	3 (75.0%)	1 (25.0%)	
Employment Status	Employed	1 (1.8%)	15 (26.3%)	41 (71.9%)	0.942
	Not employed	3 (1.9%)	44 (28.6%)	107 (69.5%)	
Education level	No education	0 (0.0%)	3 (33.3%)	6 (66.7%)	0.283
	Primary education	2 (8.7%)	8 (34.8%)	13 (56.5%)	
	Secondary education	2 (1.3%)	39 (25.5%)	112 (73.2%)	
	Tertiary education	0 (0.0%)	8 (32.0%)	17 (68.0%)	

4.9.3 Association of levels of attitudes towards alcohol use during pregnancy with demographic characteristics

The overall levels of attitudes towards alcohol use/consumption during pregnancy was analysed for its association with demographic characteristics. The level of association and its significance were tested using Fisher's Exact test at 0.05 alpha level. Only marital status showed a significant association with the attitudes towards alcohol use ($p=0.042$). All the other demographic variables were not a significant association as shown in Table 4.26

Table 4.26 Association of levels of attitudes towards alcohol use during pregnancy with demographic characteristics

Demographics Characteristics		Levels of Attitudes towards alcohol use during pregnancy		p-value
		Negative	Positive	
Mother Age	18 – 24 years	21 (22.8%)	71 (77.2%)	0.248
	25 – 34 years	19 (24.7%)	58 (75.3%)	
	35 – 44 years	3 (10.0%)	27 (90.0%)	
Number of children	0 – 2	37 (22.7%)	126 (77.3%)	0.397
	3 – 5	9 (22.5%)	31 (77.5%)	
	6 – 8	0 (0.0%)	8 (100.0%)	
Age of pregnancy	1 st trimester	2 (13.3%)	13 (86.7%)	0.745
	2 nd trimester	14 (20.3%)	55 (79.7%)	
	3 rd trimester	29 (23.0%)	97 (77.0%)	
Marital status	Single	40 (21.5%)	146 (78.5%)	0.042
	Married	3 (14.3%)	18 (85.7%)	
	Divorced	3 (75.0%)	1 (25.0%)	
Employment Status	Employed	11 (19.3%)	46 (80.7%)	0.708
	Not employed	35 (22.7%)	119 (77.3%)	
Education level	No education	5 (55.6%)	4 (44.4%)	0.071
	Primary education	5 (21.7%)	18 (78.3%)	
	Secondary education	29 (19.0%)	124 (81.0%)	
	Tertiary education	7 (28.0%)	18 (72.0%)	

4.9.4 Association of levels of attitudes towards tobacco smoking during pregnancy with demographics characteristics

The overall levels of attitudes towards tobacco smoking during pregnancy was analysed for its association with demographics characteristics. The levels of association and its significance were tested using Fisher's Exact test at 0.05 alpha level. All demographic variables were not significantly associated as shown in Table 4.27.

Table 4.27 Association of levels of attitudes towards tobacco smoking during pregnancy with demographic characteristics

Demographic Characteristic		Levels of attitudes towards tobacco smoking during pregnancy		p-value
		Negative	Positive	
Mother Age	18 – 24 years	5 (5.4%)	87 (94.6%)	0.718
	25 – 34 years	6 (7.8%)	71 (92.2%)	
	35 – 44 years	1 (3.3%)	29 (96.7%)	
Number of children	0 – 2	10 (6.1%)	153 (93.9%)	0.835
	3 – 5	3 (7.5%)	37 (92.5%)	
	6 – 8	0 (0.0%)	8 (100.0%)	
Age of pregnancy	1 st trimester	0 (0.0%)	15 (100.0%)	0.736
	2 nd trimester	5 (7.2%)	64 (92.8%)	
	3 rd trimester	8 (6.3%)	118 (93.7%)	
Marital status	Single	12 (6.4%)	174 (93.5%)	0.171
	Married	0 (0.0%)	21 (100.0%)	
	Divorced	1 (25.0%)	3 (75.0%)	
Employment Status	Employed	2 (3.5%)	55 (96.5%)	0.521
	Not employed	11 (7.1%)	143 (92.9%)	
Education level	No education	1 (11.1%)	8 (88.9%)	
	Primary education	4 (17.4%)	19 (82.6%)	
	Secondary education	8 (5.2%)	145 (94.8%)	
	Tertiary education	0 (0.0%)	25 (100.0%)	

4.9.4 Association of levels of practices towards alcohol use during pregnancy with demographic characteristics

The overall levels of practices towards alcohol use/consumption during pregnancy was analysed for its association with demographic characteristics. The level of association and its significance were tested using Fisher's Exact test at 0.05 alpha level. Only educational levels showed a significant association with the practice towards alcohol use ($p=0.042$). All the other demographic variables were not significantly associated as shown in Table 4.28.

Table 4.28 Association of levels of practices towards alcohol use during pregnancy with demographic characteristics

Demographic Characteristic		Levels of practices towards alcohol use in pregnancy		p-value
		Bad	Good	
Mother Age	18 – 24 years	24 (26.1%)	68 (73.9%)	0.566
	25 – 34 years	25 (32.5%)	52 (67.5%)	
	35 – 44 years	7 (23.3%)	23 (76.7%)	
Number of children	0 – 2	48 (29.4%)	115 (70.6%)	0.427
	3 – 5	11 (27.5%)	29 (72.5%)	
	6 – 8	4 (50.0%)	4 (50.0%)	
Age of pregnancy	1 st trimester	8 (53.3%)	7 (46.7%)	0.120
	2 nd trimester	21 (30.4%)	48 (69.6%)	
	3 rd trimester	34 (27.0%)	92 (73.0%)	
Marital status	Single	57 (30.6%)	129 (69.4%)	0.297
	Married	4 (19.0%)	17 (81.0%)	
	Divorced	2 (50.0%)	2 (50.0%)	
Employment Status	Employed	20 (35.1%)	37 (64.9%)	0.315
	Not employed	43 (27.9%)	111 (72.1%)	
Education level	No education	2 (22.2%)	7 (77.8%)	0.042
	Primary education	11 (47.8%)	12 (52.2%)	
	Secondary education	38 (24.8%)	115 (75.2%)	
	Tertiary education	11 (44.0%)	14 (56.0%)	

4.9.5.1 Association of the severity of alcohol consumption during pregnancy with demographic characteristics

The severity of alcohol use/consumption during pregnancy was analysed for its association with demographic characteristics. The level of association and its significance were tested using Fisher's Exact test at 0.05 alpha level. Marital status ($p=0.015$) and educational levels ($p=0.049$) showed a significant association with the severity of alcohol use. All the other demographic variables were not significantly associated as shown in Table 4.29.

Table 4.29 Association of the severity of alcohol consumption during pregnancy with demographic characteristics

Demographic Characteristics		Severity of alcohol consumption during pregnancy		p-value
		Low to moderate	Heavy	
Mother Age	18 – 24 years	22 (91.7%)	2 (8.3%)	0.647
	25 – 34 years	20 (83.3%)	4 (16.7%)	
	35 – 44 years	6 (85.7%)	1 (14.3%)	
Number of children	0 – 2	42 (89.4%)	5 (10.6%)	0.760
	3 – 5	9 (81.8%)	2 (18.2%)	
	6 – 8	4 (100.0%)	0 (0.0%)	
Age of pregnancy	1 st trimester	7 (87.5%)	1 (12.5%)	0.317
	2 nd trimester	17 (81.0%)	4 (19.0%)	
	3 rd trimester	31 (93.9%)	2 (6.1%)	
Marital status	Single	51 (91.1%)	5 (8.9%)	0.015
	Married	4 (100.0%)	0 (0.0%)	
	Divorced	0 (0.0%)	2 (100.0%)	
Employment Status	Employed	17 (85.0%)	3 (15.0%)	0.671
	Not employed	38 (90.5%)	4 (9.5%)	
Education levels	No education	2 (100.0%)	0 (0.0%)	0.049
	Primary education	7 (63.6%)	4 (36.4%)	
	Secondary education	35 (94.6%)	2 (5.4%)	
	Tertiary education	10 (90.9%)	1 (9.1%)	

4.9.6 Association of levels of practices towards tobacco smoking during pregnancy with demographic characteristics

The overall levels of practices towards tobacco smoking during pregnancy were analysed for their association with demographic characteristics. The level of

association and its significance were tested using Fisher's Exact test at 0.05 alpha level. Only educational levels showed a significant association with tobacco smoking ($p=0.042$). All the other demographic variables were not significantly associated as shown in Table 4.30.

Table 4.30 Association of levels of practices towards tobacco smoking during pregnancy with demographic characteristics

Demographic Characteristics		Levels of practices towards smoking during pregnancy		p-value
		Bad	Good	
Mother Age	18 – 24 years	5 (5.4%)	87 (94.6%)	0.215
	25 – 34 years	9 (11.7%)	68 (88.3%)	
	35 – 44 years	4 (13.3%)	26 (86.7%)	
Number of children	0 – 2	16 (9.8%)	147 (90.2%)	0.296
	3 – 5	3 (7.5%)	37 (92.5%)	
	6 – 8	2 (25.0%)	6 (75.0%)	
Age of pregnancy	1 st trimester	2 (13.3%)	13 (86.7%)	0.699
	2 nd trimester	7 (10.1%)	62 (89.9%)	
	3 rd trimester	11 (8.7%)	115 (91.3%)	
Marital status	Single	18 (9.7%)	168 (90.3%)	0.503
	Married	2 (9.5%)	19 (90.5%)	
	Divorced	1 (25.0%)	3 (75.0%)	
Employment Status	Employed	7 (12.3%)	50 (87.7%)	0.605
	Not employed	14 (9.1%)	140 (90.9%)	
Education levels	No education	2 (22.2%)	7 (77.8%)	0.021
	Primary education	2 (8.7%)	21 (91.3%)	
	Secondary education	10 (6.5%)	143 (93.5%)	
	Tertiary education	6 (24.0%)	19 (76.0%)	

4.9.7 Association of the severity of tobacco smoking during pregnancy with demographic characteristics

The severity of tobacco smoking during pregnancy was analysed for its association with demographic characteristics. The level of association and its significance were tested using Fisher's Exact test at 0.05 alpha level. All the demographic variables were not significantly associated as shown in Table 4.31.

Table 4.31 Association of the severity of tobacco smoking during pregnancy with demographic characteristics

Demographic Characteristics		Severity of tobacco smoking during pregnancy		p-value
		Low to moderate	Heavy	
Mother Age	18 – 24 years	4 (100.0%)	0 (0.0%)	0.241
	25 – 34 years	8 (88.9%)	1 (11.1%)	
	35 – 44 years	2 (50.0%)	2 (50.0%)	
Number of children	0 – 2	13 (86.7%)	2 (13.3%)	0.249
	3 – 5	2 (66.7%)	1 (33.3%)	
	6 – 8	1 (50.0%)	1 (50.0%)	
Age of pregnancy	1 st trimester	2 (100.0%)	0 (0.0%)	0.361
	2 nd trimester	6 (100.0%)	0 (0.0%)	
	3 rd trimester	7 (63.3%)	4 (36.5%)	
Marital status	Single	13 (76.5%)	4 (23.5%)	1.000
	Married	2 (100.0%)	0 (0.0%)	
	Divorced	1 (100.0%)	0 (0.0%)	
Employment Status	Employed	7 (100.0%)	0 (0.0%)	0.249
	Not employed	9 (69.2%)	4 (30.8%)	
Education levels	No education	2 (100.0%)	0 (0.0%)	0.292
	Primary education	1 (100.0%)	0 (0.0%)	
	Secondary education	6 (60.0%)	4 (40.0%)	
	Tertiary education	6 (100.0%)	0 (0.0%)	

4.10 Summary

This chapter presented an overview of data collection, as well as response rates. The findings were presented according to the study objectives, which included demographic results, findings on the participants' knowledge, attitudes and practices. The total scores and categories on KAPs are also presented. In the next chapter, discussion of the results, conclusions, recommendations as well as study limitations will be presented.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This chapter discusses the study's findings, linking them with the literature on KAPs on alcohol and tobacco use among pregnant women.

5.2 Knowledge of pregnant women on the use of alcohol during pregnancy

The findings of the study revealed that 77.3% of the respondents had knowledge on the dangers of using alcohol during pregnancy, with 76.3% of the respondents having received that information from nurses. These findings imply that the Mariental clinic's nurses invested their time and resources in educating expectant mothers about health-related issues, especially on the effects of alcohol. The time spent in ANC teaching about the effects of alcohol during pregnancy will be limited as the majority of women would have received the information already before becoming pregnant as a result of the information received by these pregnant women potentially being passed on to other women in the community of Mariental. These results correlate with a study of Esposito et al (2015) who indicated that 75.4% of respondents revealed that during pregnancy they have received information from a physician about possible damages to the newborn baby resulting from alcohol intake during pregnancy.

On the contrary, Prickett et al. (2014) found that pregnant women's knowledge of the risks associated with smoking and alcohol consumption during pregnancy was limited, with many women having misconceptions about the safety of light or occasional alcohol consumption. The authors suggest that media campaigns and healthcare providers have a critical role in improving knowledge and promoting healthy

behaviours during pregnancy. Doherty et al. (2019) revealed that significant lower proportions of women 15.8% reported receiving advice on the safety of not consuming alcohol during pregnancy, potential risks associated with alcohol consumption during pregnancy (21.0%) and complete advice (8.8%). This is

The findings of the study revealed that 87.7% of the respondents agreed that drinking alcohol while pregnant can harm the unborn baby with 68.7% of respondents acknowledging that it causes low birth weight. These findings imply that pregnant women are aware of the risks associated with alcohol use during pregnancy. One of these risks is low birth weight, which pregnant women would prefer to avoid because it would mean longer hospital stay for the baby to gain weight. As a result, pregnant women would abstain from alcohol consumption to have healthy new-borns. These results correspond with a survey done in Canada in 2017 which revealed that the majority of women (75%) are aware that any degree of prenatal alcohol exposure can impair the foetus, and there is a widespread notion that the higher the level of alcohol intake, the more severely the baby is impacted (Waterson et al., 2018). The study results were supported by Hirsch et al. (2017) who revealed that knowledge of pregnant women regarding the use of tobacco. The study found that although the majority of pregnant women knew that smoking was harmful to their health and the health of their baby, many were not aware of the risks associated with second hand smoke exposure.

The Health Belief Model proposes that individuals' health-related behaviours are influenced by their perceived susceptibility to a particular health problem, the perceived severity of the problem, the perceived benefits and barriers to taking action, and cues to action. The current study findings revealed that majority of the respondents agreed that drinking alcohol while pregnant can harm the unborn baby suggests a high

level of perceived susceptibility to the negative health consequences of drinking during pregnancy. Therefore, respondents are aware of the risks and believe that they are personally susceptible to the harm that alcohol can cause to the developing fetus.

Also, the finding that 68.7% of respondents acknowledged that drinking during pregnancy causes low birth weight indicates a moderate level of perceived severity of the negative consequences of drinking alcohol during pregnancy. This suggests that the respondents recognize that the harm caused by alcohol can have serious health consequences for the developing fetus. The finding that the majority of respondents acknowledged the negative health consequences of drinking during pregnancy may serve as a cue to action for some women who are currently pregnant or planning to become pregnant. This information may motivate them to take action to avoid alcohol during pregnancy, such as seeking support from healthcare professionals or loved ones, or abstaining from alcohol altogether.

The findings of the study revealed that 60.2% of the respondents agreed that damages to the baby depend on the amount and frequency of alcohol consumed. This suggests that higher levels of alcohol consumption increase the risks to the foetus and the complications to the mother during pregnancy, but the percentage of respondents is unsatisfactory because the 39.8% of respondents who did not agree is a larger margin, necessitating more education on the subject. These results are supported by Waterson and Murray-Lyon (2018) who revealed that any degree of prenatal alcohol exposure can impair the foetus, and there is a widespread notion that the higher the level of alcohol intake, the more severely the baby is impacted.

Furthermore, the findings of the study revealed that the level of knowledge towards alcohol use during pregnancy is high 78.7%, while 19.4% had average level and 1.9%

had low levels of knowledge. This implies that while the majority of respondents had high levels of knowledge, there is still a need to increase education and awareness on the use of alcohol during pregnancy so as to build on the knowledge of respondents with average and low knowledge levels. The study results are supported by Waterson and Murray-Lyon (2018) who indicated that the majority of women (75%0 are aware that any degree of prenatal alcohol exposure can impair the foetus, and there is a widespread notion that the higher the levels of alcohol intake, the more severely the baby is impacted.

5.3 Knowledge of pregnant women on the use of tobacco during pregnancy

The findings of the study revealed that the majority (85.8%) of respondents were aware that smoking during pregnancy can harm the baby, with 65.4% of the respondents having received health education on the effects of tobacco during pregnancy. This suggests that medical staff at Mariental Clinic have actively participated in educating expectant mothers about the risks of smoking, and that more education is needed to inform the remaining pregnant women of the risks of tobacco use. In support, Jaber et al. (2020) revealed that more than 38% of pregnant women were told by a health care provider that continuing to smoke a few cigarettes during pregnancy is acceptable, however 47.6% of the respondents perceived smoking a few cigarettes during pregnancy as safe.

The Health Belief Model proposes that individuals' health-related behaviours are influenced by their perceived susceptibility to a particular health problem, the perceived severity of the problem, the perceived benefits and barriers to taking action, and cues to action. The current study findings indicated that majority of respondents were aware that smoking during pregnancy can harm the baby, that suggests a high

level of perceived susceptibility to the negative health consequences of smoking during pregnancy. This suggests that the respondents are aware of the risks and believe that they are personally susceptible to the harm that smoking can cause to the developing fetus.

The current study also found that majority of respondents were aware that smoking during pregnancy can harm the baby indicates a high level of perceived severity of the negative consequences of smoking during pregnancy. This suggests that the respondents recognize that the harm caused by smoking can have serious health consequences for the developing fetus.

Furthermore, the current study revealed that 65.4% of the respondents had received health education on the effects of tobacco during pregnancy suggests that they may have received information on the benefits of quitting smoking during pregnancy and the barriers to doing so. In addition, majority of respondents were aware that smoking during pregnancy can harm the baby may serve as a cue to action for some women who are currently pregnant or planning to become pregnant. This information may motivate them to take action to quit smoking during pregnancy, such as seeking support from healthcare professionals or loved ones, or using nicotine replacement therapy.

The findings of the study revealed that 65.9% of the respondents agreed that other forms of tobacco such as snuff put the life of the unborn baby at risk. These findings imply that all types of tobacco have harmful effects on the foetus, so all expectant mothers should be aware that smoking during pregnancy is not advised and should not be considered. These results are similar to that of China, Xu et al. (2017) who reported that 82% of smoking women had to stop smoking after finding out they were pregnant,

citing the risks of smoking to the foetus, such as preterm birth. Moreover, the above results correspond with Khanal et al. (2018) who revealed that pregnant women had higher knowledge of the risks of environmental tobacco on their health and the foetus. However, the study results were contrary to that of Bertani et al. (2015) who found that the level of knowledge possessed by pregnant women about the adverse effects of smoking tobacco was disappointing. Most of the pregnant smokers were not aware of the hazards that smoking poses to the foetus and new-born infants, as well as tobacco-related diseases in general.

The study revealed that 70.1% of the respondents had high levels of knowledge towards smoking during pregnancy while 28% had average levels and 1.9% had low levels of knowledge on smoking during pregnancy. This implies that the education at Mariental clinic on smoking during pregnancy is effective however they would need to introduce various methods of teaching so that those with low and average levels of knowledge may be empowered. The study results are similar to that of Sunsari et al., (2018) who indicated that pregnant women had higher knowledge of the risks of environmental tobacco on their health and the foetus. On contrary, Bianchini et al (2020) study found that most respondents understood the consequences of smoking during pregnancy for the fetus and were aware of the risks, but some women held incorrect or confused perceptions regarding the possible consequences, as well as how and if they could occur.

5.4 Attitudes of pregnant women on the use of alcohol during pregnancy

The findings of the study revealed that 63% of respondents agreed that it is shameful for pregnant women to drink alcohol. These findings imply that pregnant women should be aware of the effects of drinking alcohol and should take into account the

effects of consuming alcohol during pregnancy; consequently, those who drink are seen as doing wrong by society. A pregnant woman drinking alcohol is thus viewed as doing something shameful, as drinking is seen as endangering the unborn child and raising concerns about the mother's care.

The findings of the study revealed that 77.7% of the respondents believed that most pregnant women are aware of the effects that alcohol can have on the unborn child, with 84% of the respondents agreeing that it is advisable for pregnant women to stop drinking. These findings imply that expectant mothers fully recognised the risks associated with alcohol use, and it is recommended that the Mariental clinic continue to teach these lessons in order to raise community awareness. Additionally, these findings imply that pregnant women attended ANC sessions where health hazards during pregnancy were discussed. In support, Apophia (2021) revealed that the majority of respondents in his study understood the effects of alcohol consumption during pregnancy, such as Foetal Alcohol Spectrum Disorders (FASD). Women who drink while pregnant put their babies at risk for FASD, as well as other negative pregnancy outcomes like stillbirth, abortion, early birth, and low birth weight newborns (Paposa et al., 2017). Also in support, Mekbib et al. (2017) conducted a cross-sectional study in Ethiopia to assess the prevalence and predictors of alcohol use among pregnant women. They found that 5.5% of the pregnant women reported alcohol use during pregnancy, with age, marital status, and educational level being significant predictors.

According to the HBM, the study results revealed that participants' beliefs about alcohol consumption during pregnancy align with the model's constructs. Specifically, the finding that 77.7% of the respondents believed that most pregnant women are aware of the effects of alcohol on the unborn child suggests that they perceive the

severity of the health problem associated with alcohol consumption during pregnancy. This perception of severity may motivate them to take action to prevent the problem.

The current study found that majority of the respondents agreed that it is advisable for pregnant women to stop drinking, that aligns with the HBM construct of perceived benefits. Participants perceive the benefits of stopping drinking during pregnancy to be greater than the costs or barriers of doing so. These findings suggest that the participants' beliefs about alcohol consumption during pregnancy align with the HBM, which may be useful in designing interventions to promote healthy behaviours during pregnancy.

Similarly, Agiresaasi et al. (2021) reported that more than half of the respondents had positive attitudes by indicating that alcohol was extremely important or very important in increasing health risks to the mother and baby (54.3%). Few respondents had fair attitudes towards maternal alcohol use by indicating that alcohol was moderately important in increasing health risks to the mother and baby (13.8%). These women were aware of the consequences of alcohol, but their attitude towards drinking was that there was an acceptable level of alcohol that could be drunk during pregnancy.

The study revealed that 78.2% had positive attitudes towards alcohol use while 21.8% had negative attitudes towards the use of alcohol. This implies that the majority of respondents had received information on the risks associated with alcohol consumption during pregnancy hence they had a positive attitude. In addition, this implies that the respondents with negative attitudes may be because of resistance to change or maybe influenced by family backgrounds on the consumption of alcohol hence the continuation of drinking alcohol even after they have received teachings on the dangers of alcohol. These study results are contradictory to the study of Howlett et

al., (2017) who reported that 70% of respondents in his study continued to drink alcohol while pregnant. These women were aware of the consequences of alcohol, but their attitude towards drinking was that there was an acceptable level of alcohol that could be drunk during pregnancy.

5.6 Attitudes of pregnant women on tobacco use in pregnancy

The findings of the study revealed that 81.5% of the respondents agreed that it is not acceptable for a pregnant woman to smoke cigarettes, with 83.9% of the respondents believing that it is not permissible for pregnant women to use any form of tobacco. These findings imply that women who are pregnant have developed a negative attitude towards smoking tobacco as a result of the knowledge they learned from nurses, which includes information about the effects of substances like nicotine found in tobacco on the baby that may lead to preterm births. In support, Dendir and Deyessa (2017) revealed that pregnant women who used tobacco while pregnant were more likely to give birth to low weight babies.

The HBM concur with the study's results, since the participants' beliefs about smoking during pregnancy align with the model's constructs. Majority of the respondents agreed that it is not acceptable for a pregnant woman to smoke cigarette and is not permissible for pregnant women to use any form of tobacco that confirms that respondents perceived the severity of the health problems associated with smoking during pregnancy. This perception of severity may motivate them to take action to prevent the problem.

Moreover, respondents perceive the benefits of not smoking during pregnancy to be greater than the costs or barriers of doing so. The study findings indicate that participants' beliefs about smoking during pregnancy align with the HBM, which may

be useful in designing interventions to promote healthy behaviours during pregnancy. Interventions that address perceived severity and benefits may be particularly effective in promoting smoking cessation among pregnant women.

Furthermore, the findings of the study revealed that 85.3% of the respondents felt that it is the responsibility of health care workers to advise pregnant women to stop smoking. These findings suggest that health professionals should always play a proactive role in teaching expectant mothers as mothers seem to respect the knowledge, they receive from health experts.

The study revealed that 85.8% of the respondents agreed that smoking should be avoided during pregnancy, with 87.2% of the respondents believing that smoking tobacco while pregnant can harm the unborn baby's health. These findings tend to indicate that smoking has detrimental health impacts on both the mother and the unborn child as well, and participants' indications of avoiding smoking reflect their awareness of these implications. In support of the above results Esposito et al. (2015) revealed that 53.7% of women in their study agreed that smoking in pregnancy could cause harm to the foetus. Furthermore, Gorniaczyk et al. (2017) also revealed that smoking was believed to be harmful to the developing foetus by 99% of the respondents, with 57% having received that information from their doctor.

The study revealed that 93.8% of respondents had positive attitudes towards tobacco use during pregnancy while 6.2% had a negative attitude. This implies that the risks associated with smoking tobacco during pregnancy was understood by the majority of participants, hence their refrain from smoking tobacco. This protects the unborn baby and the mother from health risks during pregnancy. Contrary to the study results, Casiro (2018) found that pregnant women were satisfied with the treatment they

received, but that their understanding of the consequences of smoking and alcohol consumption was limited, and that their knowledge was sometimes erroneous or confusing.

5.7 Frequency of alcohol use during pregnancy

The findings of this study revealed that 69.84% of respondents only drank alcohol less than once a week. These findings imply that women who continue to drink alcohol, albeit a few drinks a week, despite having the relevant information at hand, are doing so out of ignorance of the risks. Since no amount of alcohol is thought to be safe during pregnancy, some women might find solace in having a few drinks, but these pregnant women should not underestimate the effects of alcohol. These results are similar to that of Alamneh et al. (2020) who revealed that a majority of the women (76.8%) who consumed alcohol during their current pregnancy did so with a frequency of monthly or less than monthly, and almost all 94.1% of them consumed 1–2 drinks on a typical day, whenever they drank.

5.8 Practices of pregnant women on use of alcohol during pregnancy

The findings of the study revealed that 29.86% of the respondents were classified as having bad practices towards alcohol use in pregnancy. These findings seem to indicate that even after learning about the negative effects of alcohol consumption on both the pregnant mother and the foetus, some women continued to find solace in drinking. This could be due to a number of factors, including the fact that these women are alcoholics or that they are under stress in their lives, which may cause them to desire to drink while they are expecting. These results are similar to that of Dendir and Deyessa, (2017) who revealed that approximately 28.9% of women reported drinking alcohol regularly before pregnancy, but 74.8% of these women reported that they had

stopped drinking when they became pregnant. On contrary to study results, Kypri et al (2014) revealed that while most pregnant women were aware of the risks associated with heavy drinking, many believed that occasional or moderate drinking was safe. Similarly, a study conducted in Australia found that pregnant women were often uncertain about the safety of drinking during pregnancy and relied on personal experiences and advice from family and friends (Peadon et al., 2011).

The findings of the study revealed that 10.0% of the respondents were classified as having bad practices towards alcohol use in pregnancy. These findings imply that women who continue drinking may have an alcohol addiction or may do so as a result of societal pressures or cultural norms that may have caused them to drink throughout their pregnancy. This was similar to the global statistics which revealed that 9% of women who drank alcohol continued to drink daily during pregnancy (Lange et al. 2018). Similarly, Addila, et al. (2020) confirmed these findings, reporting that alcohol intake during pregnancy was high in Sub-Saharan Africa as women continued to drink even after finding out that they were pregnant.

The study revealed that 87.3% had low to moderate levels of severity of drinking for those who were alcohol drinkers while 12.7% had high levels of severity of drinking alcohol. This implies that a majority of the respondents quit alcohol when they became pregnant, which might have been based on the education received and also on wanting to have a healthy baby. The results also suggest that those that are still heavy drinkers may not be aware of the consequences of drinking alcohol or they are ignorant of the risks associated with alcohol intake during pregnancy. The study results are similar to that of Agiresaasi et al., (2021) who revealed that there was a wide range of knowledge and attitudes towards drinking alcohol while pregnant such as that drinking small

amounts of alcohol is allowed during pregnancies, while others believed that any amount of alcohol consumption poses danger to the foetus.

5.9 Smoking status of pregnant women

The study revealed that about 90% of respondents did not smoke tobacco at all. These findings seem to indicate that these expectant mothers are aware of the negative effects of smoking, but the 10% who continue to smoke raise serious concerns since they endanger the unborn child. These results are supported by Jorda et al. (2021) who indicated that smoking during pregnancy has been linked to a variety of health problems in children, including asthma, recurrent otitis media, obesity, and future nicotine addiction. On the contrary, Hamadneh et al., (2021) revealed that there was a high prevalence of smoking among pregnant women, as well as alternative tobacco use, with little knowledge of the health risks of all types of smoking during pregnancy.

5.10 Smoking status of pregnant women before pregnancy

The findings of the study show that 89.1% of the respondents were not smoking tobacco before pregnancy. These findings appear to suggest that because these women did not smoke previously, they did not consider starting to smoke. However, this may not be related to their knowledge of the negative effects of smoking or the education they received during ANC, but rather to their individual decision to abstain from smoking. These results are supported by Gorniaczyk et al. (2017) who revealed that despite the fact that 15% of the women smoked before conception, 100% declared absolute tobacco abstinence once they learned about their pregnancy. On the contrary to these study findings, Gorniaczyk et al., (2017) revealed that despite the fact that a majority of the women in the study said they had stopped smoking after finding out

that they were pregnant, roughly 36% were still exposed to passive smoking and had no idea of the dangers of maternal passive smoking to the foetus.

5.11 Intention of pregnant women to quit smoking

The findings of the study revealed that only a small number of the respondents (18.1%), are willing to quit smoking tobacco. This may be because they are aware of the negative effects, such as preterm birth, and have made the decision to stop smoking. However, the low percentage indicates that more education and counselling were still needed to persuade pregnant smokers to give up because of the harmful effects smoking has on the unborn child. These results are similar to that of Vivilaki et al. (2016) who revealed that out of 119 women who tried to reduce or quit smoking because of their pregnancy, only 45.1% succeeded and 38.7% continued to smoke during pregnancy. In addition, Bianchini et al. (2020) revealed that pregnant women talked about their smoking habits and expressed the desire to cut down or stop. Justification for a change in habit was the health of the baby and the mother. The main strategy employed by pregnant women was a gradual reduction in the number of cigarettes smoked. On the contrary to these study findings, Rozman et al., (2018) revealed that despite knowing and being informed about all of the problems smoking poses to the pregnancy and the foetus, about 66 percent of women continued to smoke during pregnancy.

5.12 Practices of pregnant women towards the use of cigarette smoking during pregnancy

The study revealed that 76.2% of the respondents had low to moderate severity of smoking for those who were smokers, while 23.8% had heavy severity of smoking. This implies that radical approaches to educate pregnant women on smoking still need

to be applied as there is a high percentage of heavy smokers. The study results are contradictory to the study of Vu et al., (2020) who revealed that both smoking and non-smoking women had moderate to poor knowledge of KAPs throughout pregnancy. The subsequent scores corroborated this: knowledge (mean score 4.19/10, SD = 2.12) and practise (mean score 4.30/10, SD = 2.39) with a relatively high attitude towards tobacco smoking (7.45/10, SD = 3.05).

The study findings revealed that the levels of knowledge of smoking did not correlate with any demographic factor. Other demographic factors, with the exception of marital status, were not linked to attitudes about alcohol and tobacco use. The study's results also showed that, other than educational levels, no other demographic factors were related to the practice of drinking alcohol and smoking tobacco. These findings imply that pregnant study respondents were not impacted by any demographic factors while learning about the negative health impacts of alcohol and cigarette use. The findings also imply that educational levels and marital status had a substantial relationship with the use of cigarettes and alcohol. This may be because people are more aware of the risks these behaviours provide to unborn children, the more education they have. The study results are similar to that of Leketey et al., (2017) who revealed that pregnant women continue to drink during pregnancy due to having disposable income, marital problems and low levels of education on the consequences of alcohol to the unborn child.

5.13 Summary

The chapter presented results and discussion of the study. The discussion was based on the levels of knowledge, attitudes and practices of the use of alcohol and smoking tobacco. The next chapter concludes and gives recommendations.

CHAPTER SIX

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

6.1 Introduction

The previous chapter presented the study results; this chapter summarises the research findings. The conclusion section is presented based on the research findings. Additionally, recommendations for this study are presented along with further areas of research.

6.2 Conclusion

The main aim of the study was to determine the knowledge, attitudes and practices of pregnant women attending antenatal care at Mariental clinic regarding the use of tobacco and alcohol in pregnancy. The study was quantitative in nature, and three designs were used to reinforce the results: descriptive, cross-sectional, and analytical. The study received a response rate of 94 percent, which was judged a success. To analyse the data acquired, descriptive and analytical statistics were performed with the help of SPSS version 27. The following is a summary of study outcomes depending on objectives.

6.2.1 Objective 1: To assess the knowledge of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic Hardap region.

The study concludes that the 78.7% of respondents had high levels of knowledge on the effects of alcohol and in addition, 87% agreement that drinking alcohol has negative effects on the unborn child, such as producing low birth weight, shows that pregnant women at Mariental Clinic have high levels of knowledge about the impacts of alcohol intake. The study concludes that the highest level of knowledge 87.7% was

on drinking alcohol during pregnancy can harm in the unborn child. The study also comes to the conclusion that the nurses at the clinic were the ones who taught them, which is why they had such high levels of awareness about the dangers of drinking during pregnancy.

The study also concludes that participants' degrees of knowledge about the effects of tobacco use ranged from high (70.1%) to minimal (1.9%). The fact that 85.5% of respondents agreed that smoking hurts the unborn child and that all tobacco products, including snuff, endanger the life of the child, demonstrated the participants' high levels of knowledge about the consequences. The study concludes that the highest level of knowledge 85.5% was on pregnant women being aware that smoking harms the unborn baby. The study comes to the conclusion that nurses have informed expectant mothers about the dangers of smoking.

6.2.2 Objective 2: To determine the attitudes of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic, Hardap region.

The study concludes that while 21.8% of respondents had a negative attitude regarding drinking alcohol, 78.2% had a good attitude. The study concludes that the highest level on attitude 84.8% was on pregnant women to stop drinking alcohol. The study came to the conclusion that women were aware of the harm alcohol can do to an unborn child, and that it is best for women to abstain from alcohol while pregnant. Furthermore, a significant portion of respondents confirmed getting the information from health professionals, and that it is the health professionals' responsibility to advise women on the dangers of drinking.

The study also found that 93.3% of the respondents had a positive attitude towards smoking, while only 6.2% had a negative one. Furthermore, the study concluded that

87.2% of the participating women believed that smoking tobacco while pregnant can harm the unborn baby's health, that it was unacceptable for pregnant women to smoke, that smoking should be avoided, and that it may harm the unborn child. It was also determined that health professionals should educate pregnant women on the benefits of quitting smoking.

6.2.3 Objective 3: To determine the practices of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic, Hardap region.

The study concludes that pregnant women are aware of the effects of alcohol consumption, and they should avoid using alcohol during pregnancy. Furthermore, the study concludes that drinking alcohol during pregnancy is harmful to the health of the unborn baby. The study also deduced that the 70.14% of the respondents had good practices with regards to alcohol consumption.

The study concluded that the highest level on practice was 90% of respondents were not smokers. The study surmised that a higher percentage of women did not smoke, and those who were smoking had the intention of stopping.

6.2.3 Objective 4: To determine the levels of association of level of knowledge on alcohol and tobacco use/consumption during pregnancy with demographic characteristics.

The study's findings conclude that none of the demographic factors were related to knowledge of drinking and smoking during pregnancy. The study also found that, with the exception of marital status, which was significantly associated with alcohol intake, there was no association between demographic factors and attitudes towards smoking cigarettes and drinking alcohol. Moreover, the study found that with the exception of educational levels, no other demographic factors were connected with alcohol intake.

Similar to this, smoking exhibited a substantial correlation to marital status and levels of education, but other demographic factors had no correlation to smoking.

6.3 Limitations

The study was conducted at Mariental clinic and the study results cannot be generalised to other hospitals in Namibia. The nature of the study was sensitive to some respondents which posed a challenge to the researcher, and to circumvent such challenges the researcher had to assure the respondents that the study was only for academic purposes and their names were not going to be mentioned in this study. This gave many respondents confidence to participate. One of the challenges encountered during the research was the limited proficiency of some potential respondents in reading and writing in English. This posed a limitation as the research was conducted in English and required respondents to have a good understanding of the language in order to participate in the study. To address this limitation, the researcher had to extend the recruitment process to find suitable respondents who were proficient in English. This prolonged the research process, but it was necessary to ensure that the research findings were valid and reliable.

6.4 Recommendations

6.4.1 Recommendation to Ministry of Health and Social Services

The Ministry of Health and Social Services should develop guidelines and policies on preventative measures and awareness programs on the use of tobacco and alcohol in pregnancy. In addition, the clinic should strengthen education on the dangers of smoking and alcohol in order to transform pregnant women who are still drinking and smoking.

6.4.2 Recommendation to Mariental Clinic

The Mariental clinic may introduce an awareness campaign that involves community participation in creating awareness on the dangers of alcohol and tobacco. Moreover, they may add information and educational materials, to be distributed at the clinic as well as conducting mass media campaigns.

6.4.3 Recommendations to the Community

The community may be empowered to educate other women who may show signs of ignorance on the risks associated with alcohol and smoking. Additionally, the community may use gatherings in their communities to sensitise people on the effects of alcohol and smoking during pregnancy, especially on passive smoking.

6.4.4 Recommendation to pregnant women on smoking and alcohol consumption

Smoking during pregnancy can have harmful effects on both the mother and the developing fetus. Therefore, it is recommended that pregnant women quit smoking as soon as possible. If quitting smoking is difficult, pregnant women should seek support from their healthcare provider or a smoking cessation program. Alcohol consumption during pregnancy can also have harmful effects on the developing foetus, leading to foetal alcohol spectrum disorders (FASD). Therefore, it is recommended that pregnant women avoid alcohol completely during pregnancy.

Pregnant women should also talk to their healthcare provider about any medications or supplements they are taking, as some may not be safe during pregnancy. Additionally, maintaining a healthy diet and exercise regimen, getting regular prenatal care, and managing stress levels are all important for the health of the mother and developing foetus.

6.5 Future Research

The researcher recommends other researchers to focus on:

- Factors contributing to the use of tobacco and drinking alcohol during pregnancy
- One possible direction for future research could be to investigate the knowledge, attitudes, and practices (KAPs) related to alcohol and tobacco use in other districts of Namibia. This could provide a more comprehensive understanding of the prevalence and patterns of substance use across the country and help identify specific regions or populations that may require targeted interventions or resources.
- In addition, future research could explore the factors that contribute to the differences in KAPs related to alcohol and tobacco use across different regions or populations in Namibia. For example, it may be useful to investigate the cultural, social, economic, or environmental factors that influence substance use behaviours and attitudes in different areas.
- Furthermore, qualitative research methods, such as in-depth interviews or focus group discussions, could be used to gain a more nuanced understanding of the experiences, perceptions, and attitudes of individuals regarding alcohol and tobacco use. This could help identify potential barriers to behaviour change and inform the development of culturally appropriate and effective prevention and intervention strategies.

6.6 Summary

This chapter detailed the research's findings, conclusion, limitations, and recommendations. The data were summarised in accordance with the research

objectives, and recommendations were made for key stakeholders to take action regarding alcohol and tobacco use during pregnancy.

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**ANNEXURE A: Ethical Clearance Certificate from the University of Namibia
(UNAM)**



ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: SON/594/2020

Date: 16 December, 2020

This Ethical Clearance Certificate is issued by the University of Namibia Research Ethics Committee (UREC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the Faculty/Centre/Campus Research & Publications Committee sitting with the Postgraduate Studies Committee.

Title of Project: Knowledge Attitude And Practice Of Pregnant Women Regarding Tobacco And Alcohol Use In Pregnancy At Mariental Clinic, Hardap Region

Researcher: SELMA HAMUTENYA

Student Number: (201302351)

Supervisor: *Dr E. Nghitamwa (Main) Ms M. Sankombo (Co)*

Campus: School of Nursing

Take note of the following:

- (a) Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the HREC. An application to make amendments may be necessary.
- (b) Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the HREC.
- (c) The Principal Researcher must report issues of ethical compliance to the UREC (through the Chairperson of the Faculty/Centre/Campus Research & Publications Committee) at the end of the Project or as may be requested by HREC.
- (d) The HREC retains the right to:
 - (i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,
 - (ii) Request for an ethical compliance report at any point during the course of the research;
 - (iii) Cognizance and the observation of Namibia's Research Science and Technology Act, 2004 which makes it compulsory for Non-Namibian based researchers to obtain the compulsory Research Permit from the National Commission on Research Science and Technology (NCRST), FIRST, BEFORE the research can commence.

HREC wishes you the best in your research.

Dr. J.E. de Villiers HREC Chairperson

A handwritten signature in black ink, appearing to be 'J. de Villiers', written over a horizontal line.

Ms. P. Claassen: HREC Secretary

A handwritten signature in black ink, appearing to be 'P. Claassen', written over a horizontal line.

**ANNEXURE B: Permission letter from Ministry of Health and Social Services
(MoHSS)**



REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Private Bag 13198
Windhoek
Namibia

Ministerial Building
Harvey Street
Windhoek

Tel: 061 – 203 2537
Fax: 061 – 222558
E-mail: itashipu87@gmail.com

OFFICE OF THE EXECUTIVE DIRECTOR

Ref: 17/3/3/SH

Enquiries: Mr. A. Shipanga

Date: 03 March 2021

Ms. Selma Hamutenya
PO Box 1021
Mariental
Namibia

Dear Ms. Hamutenya

Re: Knowledge, Attitude and practice of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic, Hardap region.

1. Reference is made to your application to conduct the above-mentioned study.
2. The proposal has been evaluated and found to have merit.
3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**
 - 3.1 The data to be collected must only be used for academic purpose;
 - 3.2 No other data should be collected other than the data stated in the proposal;
 - 3.3 Stipulated ethical considerations in the protocol related to the protection of Human Subjects should be observed and adhered to, any violation thereof will lead to termination of the study at any stage;
 - 3.4 A quarterly report to be submitted to the Ministry's Research Unit;
 - 3.5 Preliminary findings to be submitted upon completion of the study;
 - 3.6 Final report to be submitted upon completion of the study;
 - 3.7 Separate permission should be sought from the Ministry for the publication of the findings.
4. All the cost implications that will result from this study will be the responsibility of the applicant and not of the MoHSS.

Yours sincerely,

BEN NANGOMBE
EXECUTIVE DIRECTOR



"Your Health Our Concern"

ANNEXURE C: Respondent consent form

February 2022

Dear Participant

REQUEST FOR CONSENT FROM RESPONDENTS TO CONDUCT RESEARCH PROJECT

I Selma Hamutenya, doing a master's degree in Nursing Science wish to conduct a research project entitled: "Knowledge, attitude and practice of pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic, Hardap region". The study will be conducted under the supervision of Dr E. Nghitanwa as the main supervisor alongside the co-supervisor Mrs M. Sankombo, Faculty of Health Sciences, at University of Namibia.

The objectives of this research are to assess the knowledge, attitude and practices of the pregnant women regarding tobacco and alcohol use in pregnancy at Mariental clinic in Hardap region.

With your permission, you will be given questionnaires to answer the questions regarding the knowledge, attitude and practice of using tobacco and alcohol during pregnancy. The questionnaire will take about 15-20 minutes to complete. The researcher will only share the information with the main supervisor and co-supervisor of the study. Your input in this research will be highly appreciated. In this study, I vouch to safe guard your anonymity by omitting the use of names when conducting the interviews.

Should you agree to participate, please sign your consent with full knowledge of the nature and purpose of the procedure below.

You have rights to withdraw at any stage during the phase of answering the questionnaire. It is clearly understood that you are under no obligations to participate in this research project. Participation will be voluntary. The date and time will be arranged as soon as you give your consent.

Your participation will therefore provide a wide perspective into the understanding of the knowledge, attitude and practice of pregnant women on the use of tobacco and alcohol in pregnancy.

If you have any question, please call Selma Hamutenya at **0818279241**

I agree to participate in the research project proposal above.

Signature of participant

.....

Date.....

Signature of researcher

.....

.....

ANNEXURE D: Data collection tool

DATA COLLECTION INSTRUMENT

BY: SELMA HAMUTENYA

RESEARCH TOPIC: KNOWLEDGE ATTITUDES AND PRACTICES OF PREGNANT WOMEN REGARDING TOBACCO AND ALCOHOL USE IN PREGNANCY AT MARIENTAL CLINIC, HARDAP REGION

Read the following instructions before answering the questionnaire:

1. Do not write your name on the questionnaire.
2. Please make sure you sign the consent form first before you start answering the questions
3. Write with a black or blue pen.
4. Answer all the questions.
5. Remember, this is not an examination; therefore there is no wrong answer.

SECTION A: DEMOGRAPHIC DATA

Tick one appropriate box for each question.

1. Age as of last birthday.....
2. How many children do you have? Please specify number.....
3. How old is your pregnancy? Please specify months.....
4. Indicate your marital status.

a) Single	
b) Married	
c) Divorced	

5. Are you employed?

a) Yes	
b) No	

6. What is the highest level of education you attended?

a) No education	
b) Primary education	
c) Secondary education	
d) Tertiary education	

SECTION B1

Knowledge on alcohol use during pregnancy

Indicate whether you disagree, not sure or agree.

No	Statement	Disagree 1	Not sure 2	Agree 3
1.	I have read about the dangers of using alcohol during pregnancy.			
2.	I have received information from the nurse on the possible harms of using alcohol in pregnancy.			
3.	Drinking alcohol while pregnant can harm the unborn baby.			
4.	The amount of alcohol a woman takes when she is pregnant affects the outcome of her pregnancy.			
5.	Alcohol consumption in pregnancy results in life long disabilities in children.			
6.	Damages to the baby depend on the amount and frequency of alcohol consumption.			
7.	Drinking alcohol while pregnant causes low birth weight.			
8.	Home- made alcohol can also affect the unborn baby.			
9.	Women who consume alcohol before pregnancy are more likely to continue drinking alcohol during pregnancy.			
10.	It is difficult for the pregnant woman to quit alcohol if her partner/friends drink alcohol.			

SECTION B2

KNOWLEDGE ON TOBACCO USE DURING PREGNANCY

Indicate whether you disagree, not sure or agree.

No	Statement	Disagree 1	Not sure 2	Agree 3
1.	I am aware that smoking tobacco in pregnancy can harm the unborn baby.			
2.	I have received health education on the effects of tobacco during pregnancy.			
3.	I am aware that smoking tobacco in pregnancy causes miscarriages.			
4.	Tobacco smoking in pregnancy increases the deliveries of low birth weight babies.			
5.	Smoking tobacco affects the pregnant woman's health.			
6.	Pregnant women who smoke tobacco are at risk of delivering premature babies.			
7.	Other forms of tobacco such as snuff put the life of the unborn baby at risk.			
8.	Even taking one cigarette per day in pregnancy can cause harm to the unborn baby.			
9.	Exposure to second hand smoke also put the pregnant woman and her unborn child in danger.			
10.	Incomplete antenatal care is associated with tobacco use in pregnancy.			

SECTION C1

ATTITUDES ON ALCOHOL USE IN PREGNANCY

Indicate whether you disagree, not sure or agree

No	Statement	Disagree 1	Not sure 2	Agree 3
1	I think it is not permissible for a pregnant woman to be intoxicated.			
2.	I believe it is safe to take at least one or two glasses of alcohol daily when you are pregnant.			
3.	I feel it is shameful for a pregnant woman to drink alcohol.			
4.	I believe it is advisable for pregnant women to stop drinking alcohol.			
5.	I believe most pregnant women are aware of the effects that alcohol can have on the unborn child.			
6.	I feel that health care workers are responsible to give health education on the effects of alcohol use in pregnancy.			

SECTION C2

ATTITUDES ON TOBACCO USE IN PREGNANCY

Indicate whether you disagree, not sure or agree.

No	Statement	Disagree 1	Not sure 2	Agree 3
1.	I think it is not acceptable for a pregnant woman to smoke cigarettes.			
2.	I believe it is not permissible for pregnant women to use any other forms of tobacco.			
3.	I think that tobacco smoking puts you at risk of drinking alcohol while pregnant.			
4.	I believe smoking tobacco while pregnant can harm the unborn baby's health.			
5.	I believe that nurses provide pregnant women with information on smoking during pregnancy during antenatal visits.			
6.	I feel that it is the responsibility of health care workers to advise pregnant women to stop smoking.			
7.	I believe the harms of smoking tobacco in pregnancy are less compared to other risks that pregnant women face.			
8.	I think it is harder to quit smoking when			

	pregnant than any other times.			
9.	I think smoking tobacco should be avoided during pregnancy.			

SECTION D1

PRACTICE OF ALCOHOL USE IN PREGNANCY

Please tick in the appropriate box.

1. Are you currently drinking alcohol? If NO go to question 6, if Yes please continue with question 2.

a) Yes	
b) No	

2. What type of alcohol do you take?

a) Non-home made	
b) Homemade	
c) Both	

3. Frequency of alcohol use?

a) Every day	
b) Less than once a week	
c) 1-3 times a week	
d) 4 or more drinks a week	

4. Number of alcohol glasses consumed per occasion

a) 1-2 glasses per occasion	
b) 3-4 glasses per occasion	
c) 5 or more glasses per occasion	

5. Do you intent to quit alcohol?

a) Yes	
b) No	

6. Were you drinking alcohol before you got pregnant?

a) Yes	
b) No	

7. Is your partner drinking alcohol?

a) Yes	
B) No	

SECTION D 2

PRACTICE OF TOBACCO USE IN PREGNANCY

1. Are you currently smoking tobacco? If NO go to question 6. If yes continue with question 2.

a) Yes	
b) No	

2. How many times do you smoke per day? Specify.....

3. How many cigarettes do you smoke per day?

a) 1-9 cigarettes daily	
b) More than 10 cigarettes daily	

4. How long have you been smoking? Specify.....

5. Do you intend to quit smoking?

a) Yes	
b) No	

6. Were you smoking before you got pregnant?

a) Yes	
b) No	

THANK YOU FOR YOUR TIME.....

ANNEXURE E: Language editor's letter

9 November, 2022

Dear Sir/Madam,

I hereby acknowledge that I have edited Ms. Selma Hamutenya's thesis submitted in fulfillment of the requirements for a Master's degree in Nursing Science titled "Knowledge, Attitudes and Practices of pregnant women regarding tobacco use in pregnancy at Mariental Clinic."

The editing focused on the following areas: grammar; sentence order; clarity of ideas; punctuations; repetition of ideas/findings; and the overall organisation of the paper.

I trust you will find this in order.

Yours Sincerely,



Saara Mupupa

+264 812 855 125