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**FACULTY OF HEALTH SCIENCES**

**School of Public Health**

**Division of Social and Behavioural Sciences**

**PROJECT TITLE:**

*An exploration of the experiences of and perceptions about access to antenatal care for rural women who consume alcohol during pregnancy in the Western Cape, South Africa.*

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## PART O: PREAMBLE

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## ABSTRACT

**Background:** Globally, 2,3 billion people currently drink alcohol. South Africans have risky alcohol consumption and binge drinking patterns compared to other African countries. Western Cape rural areas have the highest prevalence of high-risk drinkers. Women's alcohol use during pregnancy has severe health and social consequences for newborns, such as Fetal Alcohol Syndrome (FAS). The prevalence of FAS in Western Cape is among the highest recorded internationally. FAS can be prevented through early interventions targeting women before and during pregnancy, through early antenatal care (ANC) providing screening, monitoring and supporting those with at-risk pregnancy. Basic ANC is freely available; however, it is only fully attended by 63,2% of pregnant women.

**Methods:** The research explored the experiences and perceptions of rural women regarding access to ANC for women who consume alcohol during pregnancy. Face-to-face and virtual semi-structured interviews were conducted. Through purposive sampling, ten women who have experienced pregnancy and childbirth, with varying experience of drinking were recruited through a local Non-Governmental Organisation (NGO) in Stellenbosch, Western Cape, including three key informants from the NGO. Through thematic analysis, a systematic six steps process was followed to organise, analyse and identify themes from the data sets. The themes and key findings were discussed using the framework for access.

**Results:** The experiences and perceptions of the women reflected occasional alcohol use, with six out of nine women drank alcohol during pregnancy. Women received information about the effects of alcohol during pregnancy and ANC, but most still drank alcohol. Even with limited data about reasons for continuing to drink, included relationship challenges, positive and negative treatment of health providers. Social support and module clinics as facilitators for access, physical distance and transport costs were reported as barriers to ANC access.

**Conclusions:** The study reflected access to ANC as non-linear, the factors vary though life stages and during multiple pregnancies. Social acceptance of alcohol use and understanding of health information could relate to alcohol use during pregnancy. These factors and reasons for alcohol use during pregnancy, and interrelation to ANC access should be explored in future research.

**Keywords:** Pregnancy; Women on farms; antenatal care; maternal alcohol use.

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To God, for his faithfulness and provision.

## PART A: PROTOCOL

### **Background and significance of the study**

Globally, about 2,3 billion people currently consume alcohol. The World Health Organisation defined heavy episodic drinking as an alcohol use pattern where 60 grams or more of pure alcohol is consumed at least once a month or at least on one single occasion. Heavy episodic drinking has decreased globally but remains high in Eastern Europe and sub-Saharan African countries where 60% of drinkers reported binge drinking (1). The World Health Organisation recognises the different trends in alcohol consumption, between men and women globally. In most regions (America, Europe and Western Pacific) women are less likely to be drinkers than men, nonetheless the global prevalence of current female drinkers has increased across the world (1). Male and females both engage in risky alcohol drinking patterns (2). However, there are differences in the age of alcohol consumption debut between males and females; males tend to have an earlier alcohol debut (2). Globally, there are about 237 million men and 46 million women who have alcohol use disorders (1).

Alcohol use was linked to seven percent of disability-adjusted life years lost in South Africa in the year 2000 (3). In South Africa, about 30% of the population consume alcohol, the per capita consumption is high among the drinking population, with the majority of drinkers engaging in binge or excessive drinking (4). A study conducted amongst young women in Gauteng and Western Cape in 2010 reported differences between rural Western Cape and urban Gauteng drinking patterns. The Western Cape was found to have a higher prevalence of binge drinkers (5).

There are gender differences in the South African prevalence of alcohol use, the differences were identified in harmful use, burden of alcohol-related disease, frequency and quantity of alcohol consumption (6; 7). The leading factors of death amongst males aged 15-59 years in South Africa is harmful alcohol use. Male deaths attributed to alcohol amounted to 7,6% in 2012, whereas for women they amounted 4% of deaths. The rate of the total burden of disease in men is far greater expressed in disability-adjusted life years, as a result of alcohol (6; 7). The increased burden of disease among men is largely explained by the fact that compared to women, men are less likely to abstain from alcohol, they drink more frequently and in larger quantities (8).

In South Africa, women experience negative effects of alcohol such as Fetal Alcohol Syndrome (FAS), physical harm, sexual assault and psychosocial effects than men (9; 8). Women's vulnerability may be attributed to a wide range of factors (7) ranging from having a higher proportion of body fat, smaller liver capacity to metabolize alcohol and body weight which results in their blood concentrations being higher than that of men who drink the same amount of alcohol. Moreover, women also experience

stigmatisation in their communities, compared to men especially those who engage in problematic alcohol use (10).

Women's susceptibility to harm caused by alcohol use is a major public health concern because more women are consuming alcohol, as a result of being economically empowered and the evolved gender roles (6; 7). Women's use of alcohol during pregnancy has severe health and social consequences for newborns (11). Alcohol use during pregnancy has increased to 9, 8% globally, 6,6% in Southern Africa and 13.2% in South Africa (11; 12).

Alcohol-exposed pregnancy can result in adverse pregnancy outcomes such as premature birth, stillbirth, fetal growth restrictions, low birth weight, spontaneous abortion and child born with FAS (12). FAS is the most severe condition of the Fetal Alcohol Spectrum Disorders (FASD) (13) which causes mental and physical disability in communities worldwide (14). It is associated with adverse consequences for the child of women who consume alcohol such as childhood behavioural and development disorders. There are also children that are misdiagnosed with attention-deficit hyperactivity disorder (ADHD) (15) instead of FAS because of the minor severity of their behavioural and physical disorders, therefore over and above the known prevalence, there may be undiagnosed FASD cases (16).

Globally, it is estimated that 1 in every 13 prenatal alcohol-exposed pregnancies, have resulted in the birth of a child with FASD and in 1000 children and youth, eight of them have FASD in the general population (17). South Africa has a high prevalence of Fetal Alcohol Syndrome Disorder (FASD), of every 1000 live births, 29 to 290 are estimated to have FASD (17). The prevalence of FAS is among the highest recorded internationally in the Western Cape only (18).

Excessive alcohol consumption by mothers has been identified as most detrimental to fetal development, this is because it raised blood alcohol concentration to 0,08 gram percent. Excessive alcohol consumption can be termed binge drinking which can be defined as consuming four or more drinks in less than two hours by an adult woman (19; 20). Cloete and Ramugondo noted that not all maternal alcohol consumption results in FASD; however, any amount of alcohol consumption during pregnancy is thought to be potentially detrimental to the developing fetus (68). The severity of FASD features depends on the amount of alcohol consumed by mothers during pregnancy; other aspects include the frequency of alcohol use and the timing of the consumption in relation to the different growth stages of the fetus (20).

Early interventions such as pregnancy screening, testing and diagnosis, antenatal care (ANC) attendance and proceeding maternal health education can contribute to the prevention of FASD. Early

interventions should be targeted at women who are not pregnant, but at risk of drinking alcohol during pregnancy, including those who inconsistently use contraceptives, because intervening when women are already pregnant may be late (21). Interventions such as promotion of contraceptive uptake where desired and motivational interviewing to address hazardous drinking can be considered in early interventions (21). A randomised controlled trial about motivational interviewing to prevent risk for an alcohol exposed pregnancy in the Western Cape reported a reduced number of risky drinking in the group that was involved in motivational interviewing, during the three and twelve months follow up, compared to the control group (21). The intervention was found to be effective with women at risk of an alcohol-exposed pregnancy (21).

According to the World Health Organisation (22) for a pregnant woman and her fetus to be judged healthy, they must follow a standard risk assessment which involves adequate attendance of at least four antenatal visits, the first attendance should be during the first trimester. Maternal health requires constant interaction with the health care centres. Moreover, screening of all women of reproductive age seeking healthcare services was found to be effective as it provides an opportunity for the health care providers to provide information about fetal alcohol syndrome with women screened positive and who might be at risk of alcohol use during pregnancy (23).

Antenatal care provides an opportunity for screening pregnancy risks, to monitor and support the health care of women who may be vulnerable and at risk of maternal alcohol consumption and potential illnesses such as HIV, anaemia, malnutrition, tuberculosis, and malaria (22). Health care workers reported that early interventions through the screening of women of reproductive age for alcohol use are necessary to provide information regarding the impact of maternal alcohol consumption. However, intervening early rather than during pregnancy remains difficult because women tend to conceal and under-report information about their drinking habits. Factors such as stigmatisation associated with alcohol consumption in their communities, especially in rural areas and amongst health care workers contributes to the difficulties of early intervention (24; 10). Moreover, women may also not be aware of their pregnancy, until late in their pregnancy.

Pregnant women are prescribed attendance of a minimum of four antenatal visits (22), however women do not always attend four or more antenatal care. There are barriers that impact on women's decisions to attending adequate antenatal care. The Saving Mothers Report (12) confirmed that maternal health services, antenatal care included are amongst the most underutilised health care services globally. In South African basic ANC is offered for free, pregnant women are encouraged to attend their first ANC visit before 20 weeks gestation (25). In addition, over 90% of women in South Africa have access to ANC services, however only 63,2% of pregnant women attend ANC (26).

About 88% of women in South Africa have access to professional attendance during birth, however only 40% of these women attend ANC before 20 weeks gestation and a few attend the four minimum recommended ANC visits (26). Women underutilise health care services because of factors surrounding available, access and acceptable health care services, this has resulted in high-risk pregnancy and HIV infection, as prevention of these illnesses is not attended to (27). Moreover, women have reported poor and abusive treatment at health facilities, women residing in remote areas reported limited access to transport, others were turned back and given alternative dates as a result of overcrowding in health facilities (28; 26; 29). Many women, especially migrants and refugees, delay or avoid seeking care.

The research will be conducted in Stellenbosch, Western Cape. The area is prominent in agriculture and wine farming. In these areas, during apartheid, the 'dop' system was practiced whereby large amounts of low-quality wine and tobacco was given to farm workers as a form of payment for their labour (30). The ramifications of the system are still prevalent amongst farm workers in the rural areas of the Western Cape, such as a high prevalence of alcohol use and alcohol-related trauma in the Western Cape (30). Alcohol dependency and problematic alcohol use became part of the generational culture of farm workers, as well as the informal settlement communities (31).

## LITERATURE REVIEW

The literature review will be divided in three sections, outlining the importance of antenatal care attendance to prevent pregnancy, child-birth related complications and FAS, the factors associated with women's poor attendance of antenatal care and the obstacles to access to antenatal care for women that drink alcohol during pregnancy. The section seeks to outline the context relevant for women who drink alcohol, who may or may not have drunk alcohol during their pregnancy.

### **Importance of antenatal care attendance to prevent pregnancy and child-birth complications such as FAS**

It was reported that 33% of perinatal mortality (PNM) that happen at birth result from causes that are avoidable, such as a lack or late attendance of ANC (45). Antenatal care is important for the prevention of fetal alcohol syndrome, maternal health injuries and deaths, other complications. Late antenatal care attendance is identified as a missed or delayed opportunity for the prevention of adverse pregnancy outcomes for mother and baby (46). In a study conducted by Williams et al. (47) it was reported that health care providers acknowledged the substantial need for screening, brief interventions and referral to treatment for mothers consuming substances during pregnancy and they considered such services important to be added into their routine antenatal care.

Late or poor access to antenatal care has adverse effects for women who consume alcohol during pregnancy. By not accessing the relevant information about their alcohol use and the harmful effects to the fetus, they expose their fetus to lifelong disabilities such as fetal alcohol spectrum disorders (48; 11). There are two ways to prevent FAS, firstly no alcohol use during pregnancy and if there is no pregnancy at all (23). Women who consume alcohol have reported unplanned pregnancies, which means primary interventions should be focused on women at risk of using alcohol during pregnancy and those not on contraceptives (21).

Women need to be informed and educated about the factors making them vulnerable to alcohol use during pregnancy and how to prevent FAS, maternal injury and death before pregnancy (49; 23). Therefore, screening of all young women seeking healthcare services such as family planning services, was found to be an effective opportunity for health care providers to provide information about FAS to those screened positive (23). The screening and brief intervention (SBI) could be used to identify and intervene with patients at risk for harmful drinking (83). The screening tool is administered by a health care practitioner, using two instruments, the Alcohol Use Disorders Identification Test (AUDIT) or the Cut Down, Annoyed, Guilty, Eye-Opener (CAGE). Health care practitioners can then follow up patients who score above a specified threshold on either of these brief screeners in a brief 5-to 10-minute intervention (84).

### **Factors associated with pregnant women's poor attendance of antenatal care visits**

The availability, accessibility and utilisation of antenatal care services play a role in the attendance of antenatal care services in South Africa. Factors such as poor to low maternal education, stigmatisation, unplanned pregnancy, cultural and societal factors influence a women's uptake of antenatal care services (37; 27).

Early initiation of antenatal care was associated with socio-economic factors such as employment which increased the likelihood of the women's early initiation compared to unemployment (38). Other aspects related to low socio-economic status included limited physical access to health care centres, for women who reside in remote areas who have to travel long distances and cannot afford the transport costs limiting their access to antenatal care services. Studies conducted in SA reported infrequent transport, long distance to facilities, limited affordability of trips, loss of income and work commitments as limitations to access to attendance of ANC (38; 76). On an individual level, a study conducted in a rural area in Limpopo reported that the majority of women recognised their pregnancy late, had a limited understanding of the benefits of attending ANC, this worsened the late attendance of ANC (39). Women who had planned and wanted pregnancies were reported to be initiated on ANC,

whereas women who had unplanned and unwanted pregnancies were likely to be initiated late or not at all. Sibiyi et al. reported that in South Africa only 50% of pregnancies are unplanned, which is why most women only attend antenatal care after the second trimester of pregnancy (40). Therefore, unplanned pregnancy could play a role in the poor attendance and usage of ANC services.

According to Muhwava and colleagues marital status and the presence of a partner to be contributing factors to early initiation and frequent attendance of ANC visits in Western Cape and Gauteng, urban and rural setting (14). Married women were reported to be more likely to initiate on antenatal care (ANC) compared to unmarried women in rural areas, thus the presence of a partner contributes to the decision to initiate early or not to initiate on antenatal care (41). Moreover, women with partners who engage in heavy alcohol consumption are more likely to be at risk for an alcohol exposed pregnancy (42). Therefore, a partner is important in influencing both risky and healthy behaviour.

Other factors such as women's pregnancy experiences contribute to their antenatal care attendance. Women who have suffered miscarriage in their former pregnancy were also more likely to attend early antenatal care compared to those who had never experienced a miscarriage (41). These factors impacted on the women's decision to attend antenatal care and the frequency of antenatal care visits compared to the minimum of four visits prescribed by the World Health Organisation.

### **Obstacles to access to antenatal care for women that drink alcohol during pregnancy**

Fear is an obstacle to women's access to antenatal care, women have reported being fearful of visiting health care centres when they are pregnant because of the compulsory HIV testing that pregnant women have to undergo. Other factors included fear of tubal ligation and being informed of fertility issues and complications that they would rather avoid early access to antenatal care (39). Moreover, another factor related to fear, culture and belief is that women do not report early for antenatal care because of the fear of disclosing pregnancy in the early stages. Women mentioned that their traditional practices condemn early disclosure of pregnancy, thus making your pregnancy known within six months of the pregnancy. Others mentioned that disclosing their pregnancy early exposes them to witchcraft and being cursed by evil spirits (39).

Stigmatisation of women's alcohol consumption is a major barrier of health care, let alone alcohol consumption during pregnancy. In the factors section at top, it was briefly noted of the scolding, rebuke and abuse that health care workers put women through, this bad treatment was reported to be exacerbated when women's alcohol consumption during pregnancy is revealed (43).

Depending on the women's cultural backgrounds, they are likely to fully disclose their drinking patterns or underreport their drinking patterns. Women whose communities ostracise them for

drinking alcohol during pregnancy may not frequent antenatal care and may not fully disclose the frequency of their drinking. This will result in not receiving the appropriate screening, the right information to protect their fetus from developing FAS and intervention (44). Moreover, women may avoid attending antenatal care because of fear of being stigmatised further.

Women have reported in studies, being mistreated by the mid-wives who are supposed to provide them with information about pregnancy care during their antenatal care visits, based on their unpleasant experiences, they are unlikely to come back for antenatal care visits. Mid-wives were also reported to not have adequate time with mothers to review basic ANC guidelines and the prevention of mother-to-child transmission policy and inform them, which are important in managing pregnancy and labour period (36; 43). Studies have also reported that as a result of shortages of staff and working under pressured environments, mid-wives have scolded, rebuked and abused women who are found to have been initiated late for antenatal care (43).

Moreover, the social stigma in communities and health care centres associated with women of reproductive age consuming alcohol has contributed to the significant underreporting of the amount of alcohol consumed during pregnancy and false results in these women being classified as non-drinkers (44). Women who use alcohol during pregnancy fear that they will be judged negatively by the general public and even by healthcare workers (24). As a result, when self-reporting during antenatal health care visits, they are more likely to minimise their drinking to avoid being stigmatised which results in them not receiving the antenatal care and information they need to protect their fetus from developing FAS.

Knowledge was identified to have an impact on a pregnant women's attitude towards prenatal care and other health issues. There is a correlation between low education levels and poor attendance of antenatal care, therefore women's ability to fully understand health information and especially ANC issues impacts their ability to make an informed decision and choice regarding early use of antenatal care services (39). The department of Health (36) reported that women who did not attend antenatal care and did not experience any complications during their pregnancy, may also encourage new mothers not to book antenatal care and share misinformation with new mothers.

The importance of antenatal care to prevent pregnancy and child-birth complications such as FAS was discussed, followed by the factors and obstacles that affect access to antenatal care services amongst women who consume alcohol during pregnancy which are complex. The experiences of women according to the conducted research vary depending on individual, social, environmental and health system related factors. These were discussed under the themes of rural and urban, marital status, socio-economic status, cultural beliefs, fear, physical access, treatment of health care workers to

name a few. A lot of research has been conducted in the area of general maternal health for women and factors surrounding it, however there is a gap in research surrounding access to antenatal care specifically by women who consume alcohol during pregnancy. Their experiences may provide insight around the challenges that they face, will provide an explanation on the factors surrounding under-utilisation of antenatal care services by women who drink alcohol during pregnancy.

## THEORETICAL FRAMEWORK

This research will use a framework of access to health care authored by Levesque JF, Harris MF and Russell G to understand the experiences and perceptions of women who consume alcohol during pregnancy regarding access to ANC.

Access is defined as “the possibility to identify healthcare needs, to seek healthcare services, to reach the healthcare resources, to obtain or use health care services, and to actually be offered services appropriate to the needs for care” (69). The framework of access to health care provides a multifaceted way of understanding health care access, it suggests dimensions of accessibility, approachability, acceptability, availability, affordability and appropriateness (69) to further unpack access to health care.

These dimensions are understood by looking at the ability to generate access, perceive, seek, reach, pay and ability to engage which are demand-side factors to health care access (69). These will be unpacked and considered in the conceptualisation of the framework of access.

The framework views access as an attribute of health services, the responsibility of access and use is placed on those who require care (72). Other authors view utilisation as realised access, highlighting population characteristics may present as barriers and facilitators of access to health care as well as health systems characteristics such as policy and resources (70; 71). The supply-side factors to access such as location, availability and the cost of services and demand-side factors such as the burden of disease, knowledge, attitudes and skills are products of access to health care (70; 71; 73). Literature reported factors that influence women’s access to ANC, which included physical location of the women, literacy, employment, negative treatment of health care workers, stigmatisation and social support which influenced the women’s ability to perceive and seek ANC services.

Approachability relies on people with health needs’ ability to identify existing services, be able to perceive them as reachable and beneficial to their health (69). Literature highlights and characterised women who are likely to access ANC, these women’s early attendance to ANC highlights that they were aware of the services and their impact of them, such services included ANC. Information regarding available services plays a role in the approachability of those services, however the ability

to perceive the need for care and to recognise the benefits of services such as ANC is influenced by health literacy, knowledge and beliefs about health which goes beyond the availability of information (69). Reported misconceptions about the women's need to attend ANC from other women, poor to low maternal education, stigmatisation, unplanned pregnancy, cultural and societal factors influence a women's uptake of antenatal care and services are related to barriers of access to antenatal care visits (37; 27).

Acceptability of health care determines the likelihood for people to receive the aspects of the service, acceptability is influenced by cultural and social factors, such as the sex, social group of providers, beliefs and appropriateness for the persons to seek care (69). For example, women who reside in communities that ostracise and judge their alcohol use tend to underreport their alcohol use during pregnancy at ANC visits, which impact health care provider's ability to provide relevant interventions (24). Therefore, their ability to accept ANC services is influenced by societal factors. The ability to seek health care relates to a person's freedom and ability to choose self-care, knowledge about health care options and individual rights (69).

Availability and accommodation refer to the service user's ability to physically reach health services timely. It highlights health care buildings accessibility, the duration of services and the characteristics of providers (69). The ability to reach health care relates to the ability to physically go to health facilities, which can be influenced by availability and workplace flexibility (74). Women have reported poor and negative treatment at health facilities, women residing in remote areas far from health facilities reported costly transport fare and others were turned back and given alternative dates as a result of overcrowding in health facilities (28; 26; 29). These factors impact on the women's reach of health services, therefore health services become unavailable to them.

Affordability reflects the economic capacity of health seekers which includes the costs of accessing health services which are considered in relation to opportunity costs such as loss of income or unemployment (75). The economic factors consider travel time, price of care related to patient's income and provider behaviour (75). Late and poor attendance of ANC was associated with socio-economic aspects such as unemployment and high transport costs which decreased the likelihood of the women's attendance of early ANC compared to employed women and those with a high socio-economic status (38).

Appropriateness highlights the fit between services and client's needs, correct treatment and interpersonal quality of services (69). Being able to only use poor quality services is a restriction to access to health care, access goes beyond physical access, it expands to acceptable and effective services (69). The ability to engage in health care suggests that clients participate and are involved in

the treatment and decisions surrounding their health. Health literacy, self-efficacy and self-management are important in actively participating in health care (69). Information about health is one aspect to enable women to actively participate in their health care, women need to be informed and educated about the benefits of ANC, effects of using alcohol during pregnancy and prevention of FAS before pregnancy (49; 23). However, factors such as stigmatisation of alcohol use resulting in significant underreporting of the amount of alcohol consumed during pregnancy which results in them not receiving the antenatal care and information they need to protect their fetus from developing FAS. (44).

Levesque recognise the complexity of exploring access, without limiting your exploration to the availability of services (69). Access to health care is not linear, it is made up of interrelated factors that interact and affect each other at different life stages of an illness and care (69). The literature above outlined factors such as individual, social support and interpersonal factors, health system, socio-economic, environmental and cultural or societal factors influencing women's access to ANC, these factors are interrelated and some influence one another.

The framework of access will be further unpacked in part b discussion section in relation to the key findings surrounding the experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy.

## AIM OF THE STUDY

The aim of the research study is to explore the experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy in Stellenbosch, Western Cape.

### **Objectives:**

1. To explore the experiences and perceptions of access to antenatal care among women who consume alcohol during pregnancy,
2. To explore the perceptions of key informants about factors affecting the access to antenatal care services of women who consume alcohol during pregnancy,

## RESEARCH METHODOLOGY

### **Study Setting**

The research setting will be in Stellenbosch, Western Cape at the Women on Farms Project (WFP) this is a non-government organisation that empowers women on farms for work and residence, they capacitate the women access to their rights and respond to their livelihood needs. The women are supported through human rights case work, social movements, advocacy, lobbying and gender education (55). The organisation has successfully dealt with 38 unemployment insurance fund, 22 unfair dismissals, four water and sewage, 64 climate change, 20 nutrition, 20 feminist and political education, 20 right to food and 20 sectoral determination cases as per the information shared on their website (78).

The participants will be based in Stellenbosch, Western Cape; an area whereby wine agriculture is prominent. The research setting was selected because of the reported correlation between access to alcohol and maternal alcohol consumption. Stellenbosch was one of the areas with an ongoing implementation of the 'dop system', whereby alcohol was used to remunerate workers (30; 56). The research area was selected because of the correlation between easy access to alcohol and women's consumption of alcohol during pregnancy reported by several research studies.

### **Study Design**

The research design will be an exploratory qualitative research inquiry, it will explore the experiences of women, to explain and provide an understanding of their access to antenatal care based on their perspective and the factors that inform their decision to access antenatal care late or not during their pregnancy (57). The process of qualitative research will allow the researcher to focus on learning the meaning of their experiences, the meanings that the participants attach to their antenatal care experiences and interactions with the health care workers, not the researcher's understanding or meanings gathered from the literature and other research (57). The research findings will be discussed with reference to the framework for access.

The researcher will be involved in the process of discovery, whereby she will put herself in a space that will allow her a continuous process of exploration and discovery on the research topic. Exploratory research approach is fitting for this research as the researcher has an immense interest in women's health and this type of research requires some kind of personal concern and interest in the research topic (58). The student is of the opinion that the experiences of women regarding access to antenatal care, especially women who consume alcohol during pregnancy is an area that has not been

exhausted in research, through the research the student believed the area contains elements worth discovering. The student as a researcher will be entering the research area with flexibility, data will be looked at with open-mindedness (58).

The research will be conducted at Women on Farms Project whereby women frequent, thus the women will be in a naturalistic and familiar setting.

### **Population and Sampling**

Participants will be women who consume alcohol and women who did not consume alcohol, based in Stellenbosch, either because of work or by residence who have other characteristics aligned in the criteria.

The Staff members of Women on Farms Project will be interviewed as key informants because of their frequent engagement with the women as well as point for antenatal care related information as well. The organisation does not have a big staff component; therefore, the research will ask those that are interested in participating to join. As experts in their work with women who consume alcohol, the staff will share their experience with women who consume alcohol during pregnancy, in terms of their access to ANC. The staff at Women on Farms will be asked to encourage the women to participate, however, volunteer participation will be encouraged (59). Up to three of the staff who work at Women on Farms Project will be interviewed, there is no set criteria because of the limited number of their staff.

The research sampling will be purposive which is a non-probability sampling technique, as the research participants sampling will be guided by the set criteria with characteristics that will best serve the purpose and achieve the objectives of the study.

Women recruited should have characteristics listed in the sampling criteria, such as having a child and a history of alcohol consumption.

The researcher is aiming to conduct up to 10 interviews with the primary participants, up to 12 to 13 when including key informants.

The following criteria will be followed to select the women:

- Participants should be females, of any age group,
- Participants will include a spread of women - women who consume alcohol and women who do not consume alcohol will be included,
- Only women who have had a child will be included.

Exclusion criteria:

- Women who have been residing or working in farm areas for less than three months,

### **Recruitment Strategy**

The sampling criteria will be used to guide the recruitment process.

The researcher will be introduced to the staff at Women on Farms Project, who will assist with the recruitment of the women who are enrolled on their programs and who engage on their activities.

WFP staff (who are already familiar with the project) will be introduced to the research study, informed about the research study goals and objectives as well as be invited themselves to be part of the study.

The Women on Farms staff will further assist with the recruitment of farm worker women as participants, by inviting women as guided by the selection criteria. The women who are interested in the research study will voluntarily share their contact details and added to a list of potential participants, with contact details. These women will be contacted to be invited for interviews at their convenience. It might be possible to interview participating women who attend WFP workshop as WFP arranges these. If not, the women will be offered a travel reimbursement of R 100 to attend the interview.

Participants who are not able to participate in the face-to-face interviews will be interviewed telephonically using WhatsApp. In this case, women will be offered R50 data to cover the costs of being interviewed.

### **Data Collection**

The data collection method that the researcher will use is in depth interviews. According to De Poy & Gilson (60) interviewing is a method of data collection in qualitative research whereby the researcher seeks information through an exchange with a participant who possesses the knowledge related to the research.

The researcher and the participants will engage in a social relationship designed for the information exchange between them, the researcher's creativity and management of the relationship determines the quantity and quality of the information exchanged (61). In this exploratory research study, the focus of interest is on the participant's experiences, meanings they attach to their experiences and perspectives (62).

The data collection will be conducted ideally through face-to-face, in-depth interviews. However, depending on the COVID-19 lockdown restrictions and depending on guidance issued by the UCT FHS HREC, telephonic interviews may need to be conducted. Face to face interviews will be conducted at the WFP offices, to allow participants to be interviewed in their naturalistic environments, as they would have accessed the offices for services or information.

When conducting the interviews, the researcher will make use of an interview schedule or guide which will contain written questions, to guide the interview; open-ended questions that will leave room for further probing and for the participants to share their experiences (see Appendix 1). The interview guide will be piloted with two first participants and adapted accordingly for the rest of the interviews. The researcher will record the interviews with permission as well as write notes, recordings will be transcribed.

The questions will be asked in English by the researcher; a field assistant fluent in Afrikaans and skilled in interview techniques, will translate the question for participants into Afrikaans, if requested, and will back translate the participants' answer to English for the researcher. This is because the researcher is not fluent in Afrikaans while the target participants predominantly speak Afrikaans. One of the key informants was the interpreter, she was asked by the researcher to assist with interpretation, which she agreed. The interviews will take about 40 to 50 minutes for each. Telephonic interview option will be considered for women who are not able to meet physically with the researcher and the option will be considered should the lockdown restrictions persist.

To adhere with the National Department of Health regulations during the face-to-face interviews, COVID-19 measures will be observed, through administering two screening tools (Appendix 4), scheduling individual interviews rather than in groups, conducting interviews in a well-ventilated open office to adhere to 1,5 meter social distancing, affording participants sanitiser to use upon entering the interview space, providing them with a disposable mask and ensuring that masks are kept on in the during of the interview.

Screening tool A will be used when recruiting potential participants to assess whether they are at risk of contracting and having severe COVID-19 illness. Participants who answer 'yes' to any of the questions below will be considered to have a high-risk level and will be excluded from participating in the study. The WFP staff recruiting women will use this tool as a guide when recruiting participants, but the researcher and the interpreter will, in addition, confirm each participant's eligibility before the interview using this tool. Screening tool B will also be administered prior to interview on entry to the interview venue. Interviews with participants identified to be at risk will be cancelled. Participants will

be given information as to how to manage their situation and the provincial hotline to call if they screen positive (Appendix 5).

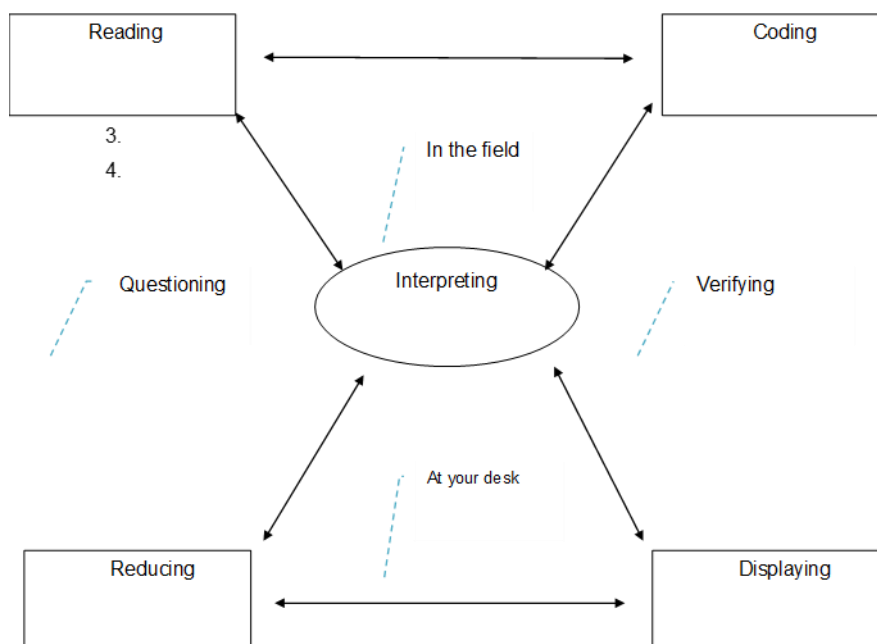
Both the interviewer and the interpreter will also screen daily prior to any interview to check if they have any symptoms of COVID-19. If so, the interviews will be rescheduled and the interviewer and interpreter will follow the guidance of the health department for symptomatic cases (Appendix 5).

### Data Management and Analysis

Qualitative data analysis is defined by Babbie (63) as “the nonnumeric examination and interpretation of observations for the purpose of discovering underlying meanings and patterns of relationships”. Data analysis implies data transformation, whereby the researcher commences data analyses with large volumes of data, processes it through an analytical procedure into manageable, clear, original and trustworthy analysis results (64). Thematic analysis will be used to guide the data analysis process, the researcher will systematically organise and analyse the data sets, identifying themes through careful reading and re-reading of the transcribed data (79; 80). This method of data analysis differs from others in that, it is a method that works both to reflect reality and to unravel the surface of reality (81).

In order to maintain a necessary rigour in the analysis process (79), the study analysis will adopt the step by step data analysis guide below.

Source: Adapted from Huberman and Miles, 1994, p 429 (Qualitative data analysis, step by step)



### Figure 1: Qualitative data analysis steps

The data analysis will follow the steps illustrated in the figure above; these include reading, coding, displaying, reducing and interpreting of data. The researcher will listen to the recorded interview, refer to her notes and transcribed documents to extract emerging themes and attaching codes to the texts that are representative of those themes, the emerging concepts and codes will be entered into a codebook that the researcher will create manually. Emerging themes will be identified informed by the common experiences, descriptions will be provided where necessary, to enhance the meanings provided by the participants.

The last stage of data analysis that the researcher will apply is the interpretation of the study findings, first by displaying thematic areas and their relation to one another in the discussion section, the framework for access will be integrated in the discussion (65). The nature of the exploratory study allows the participants to provide context to their attitudes and experiences through the interviews, the researcher will analyse the research findings and explore the emerging themes from the data and allow the process of discovering the meanings attached to certain behaviours described by the participants.

Data reduction process will be applied during data analysis, which involves condensing information to make the most essential concepts and relationships visible, the researcher will be reducing the data by separating central and secondary themes from primary themes, as well as essential from non-essential data (65). Should there be more themes that could provide meaningful interpretations to the study; the researcher will be open to report them.

### **Rigor and trustworthiness**

In order to produce a rigorous research project, the researcher will be attentive to the dynamics of the researcher-researched relationship, whereby she will observe and record her personal conscious, unconscious reactions to the research and research data in a research diary; this will form as a process of reflexivity (66). This process will help the researcher to acknowledge the potential researcher biases that may take place and minimise the subjectivity of the researcher (66). This process is crucial, especially in an exploratory research study, whereby the researcher needs to be willing to discover the meanings that the participants place on their experiences, without attaching her own meanings based on personal experiences and literature.

To enhance the study's trustworthiness, the staff at WFP as key informants will be interviewed along with interviewing women who consume alcohol and women who do not consume alcohol, this will be another way of strengthening the study finding's usefulness through triangulation (82). The

participants may have similar or different responses and experiences to their access to antenatal care, the different themes will be explored and noted.

One of the key informants was an interpreter, this could influence the detailed experiences that will be shared by the women, because of the presence of someone known to them.

The study findings will be transferable, the results can be used to provide insight about the poor uptake of antenatal care services by rural women who consume alcohol in similar context as the research setting, thus the results can be used in similar contexts. The context referred to is of women residing in rural areas, with a high prevalence of alcohol use, alcohol-related trauma and FAS (5; 18). Additionally, the results may be transferrable to women who experience alcohol dependency and problematic alcohol use, as it became part of the generational culture of women on farms, who also reside in informal settlement communities (31). By making the study findings available, publishing articles and sharing the research findings with Women on Farms Project, the findings will be made available.

The study design is dependable, to achieve dependability the researcher has outlined alternatives to data collection to ensure that should the public health trends in relation to COVID-19, the telephonic methods can be explored. The researcher will be communicating with the supervisors, regarding any changes that may need to take place during data collection and data analysis following the commitments made when proposing the research study, changes that may result from an increasingly refined understanding of the setting. Transparency with the research supervisor is crucial in a qualitative researcher because of the complexity of the social world and research field that might require changes on the research design.

To ensure confirmability of the research, the researcher will keep an audit trail of the process of the research to ensure that the steps that led to the conclusions can be tracked and verified, this will be done through a record of notes, other field materials collected, tape recordings and encoded transcripts and the final report (65). The research supervisors will be involved in the data analysis; They will be able to listen to the recordings and reading transcribed documents to confirm whether they are able to extract similar themes and concepts extracted by the researcher to confirm the study findings.

### **Ethical considerations**

The researcher will apply to UCT Health Science Faculty (HSF) Human Research Ethics Committee (HREC) for ethical approval. Only participants interested in participating in the research study will be enrolled, participants will be provided with information about the research to enable them to make

an informed decision about their participation. Participants will be informed beforehand about the potential impact of the investigation, to give them the freedom to decide whether to participate or not and to withdraw from the research at any point, if they wish to do so. Should the experiences shared with the participants evoke emotions and unresolved conflicts, the researcher will conduct a debriefing session after the interviews. The researcher has a social work qualification and have gained experience in facilitating debriefing sessions with different groups of people in communities. The researcher will provide the participants with information about harms of drinking alcohol during pregnancy and encourage them to seek contraceptive services as the best strategy to maximise possible benefits and minimise possible harm. The researcher is ethically obligated to ensure the protection of participants within all reasonable limits from any form of physical discomfort they may experience as a result of the research project (67). The participants will be compensated with mobile data or airtime, each participant will be given R100 airtime voucher and R50 transport money to appreciate their time spent on the study.

To ensure that the privacy of participants is respected, telephonic interviews will take place in a closed area, the interview data will be stored digitally, protected by password. Secondly, the privacy of the participants will be respected in any publication, the identity of individuals will be protected, names and other identifying details will not be used when using verbatim quotations or information from participants in the report to protect the participants. Other information such as informal conversations that participants do not consent to sharing will not be used.

The researcher will be collaborating with Women on Farms to ensure that the research findings are utilised to advance better health for women on farms as well as provide them with information on maternal health.

## Study period and time frame

Table 1: Study time frame

Months	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sept-21	Oct-21	Nov-21	Dec-21	Jan-22
Research Proposal										
Study approval										
Recruitment & scheduling										
Data Collection										
Data analysis										
Report writing & dissemination.										

## Budget summary

Table 2: Budget

Budget items	Budget amount
Co-field worker <ul style="list-style-type: none"> <li>• Translator</li> <li>• Data collection</li> <li>• Transcribing</li> </ul>	<b>R500</b> <b>R1000</b> <b>R500</b>
Transport to Stellenbosch <ul style="list-style-type: none"> <li>• 1 return trip X 2 people</li> </ul>	<b>R1000</b>
Participation incentive (cash/ airtime) <ul style="list-style-type: none"> <li>• Transport reimbursement- R50 X10</li> <li>• Incentive - R100 X 13</li> </ul>	<b>R500</b> <b>R1300</b>
<b>If telephonic</b>	
Airtime for telephonic interviews	<b>R1000</b>
<b>Total costs</b>	<b>R4800</b>

## Dissemination

Research dissemination is not a one-time event that takes place at the end of the study; however, it is a process throughout the different stages of the research (65). Ulin et al. (65) describe it to be “an ongoing part of the dialogue with stakeholders that characterises applied qualitative research”. In this

project, the researcher will actively disseminate by continuously engaging with civil society organisations such as Women on Farms Project on the purpose, scope and potential impact of the study (65). If WFP wants to organise a webinar or include a report back at one of their meetings, the researcher will present the finding to WFP and the participants who want to attend.

The research findings will also be reported in an academic dissertation and mini thesis that will be submitted and reviewed for assessment; the researcher hopes to publish the research in a peer-reviewed journal, present the research at the School of Public Health on research day and at a conference on sexual and reproductive rights or a related theme. The abstract will be made available to research platforms such as research gate and open access publication online.

The research will be used for conceptual purposes, to shape the knowledge, understanding of the experiences of women who consume alcohol during pregnancy, it will provide insight on some health systems related factors that impact on women's access to antenatal care. Through the research findings, the context of maternal alcohol consumption will be learnt, the nature of the interactions between women who consume alcohol and health care workers will be learnt, inform future interventions aimed at strengthening women's access to health care services. A report will also be submitted to the Winelands Health District management and to the Drakenstein Municipality Health services.

On a community level by providing insight to how women's access to health care rights are threatened by different factors, highlighting and promoting the importance of early interventions targeted at women before pregnancy to prevent harm to the unborn fetus. On a broader level, the findings of this study hope to inform sustainable strategies for promoting the rights of women, designing programmes and interventions for vulnerable groups of women such as women who consume alcohol.

The student will consult with UCT's Research office to find out the best way to make the anonymised data available after the study through UCT's Data Management Plan platforms, based on Figshare.

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PART B: JOURNAL MANUSCRIPT

***An exploration of the experiences of and perceptions about access to antenatal care for rural women who consume alcohol during pregnancy in the Western Cape, South Africa.***

Target journal: BMC Public Health

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## ABSTRACT

**Background:** Globally, 2,3 billion people currently drink alcohol. South Africans have risky alcohol consumption and binge drinking patterns compared to other African countries. Western Cape rural areas have the highest prevalence of high-risk drinkers. Women's alcohol use during pregnancy has severe health and social consequences for newborns, such as Fetal Alcohol Syndrome (FAS). The prevalence of FAS in Western Cape is among the highest recorded internationally. FAS can be prevented through early interventions targeting women before and during pregnancy, through early antenatal care (ANC) providing screening, monitoring and supporting those with at-risk pregnancy. Basic ANC is freely available; however, it is only fully attended by 63,2% of pregnant women.

**Methods:** The research explored the experiences and perceptions of rural women regarding access to ANC for women who consume alcohol during pregnancy. Face-to-face and virtual semi-structured interviews were conducted. Through purposive sampling, ten women who have experienced pregnancy and childbirth, with varying experience of drinking were recruited through a local Non-Governmental Organisation (NGO) in Stellenbosch, Western Cape, including three key informants from the NGO. Through thematic analysis, a systematic six steps process was followed to organise, analyse and identify themes from the data sets. The themes and key findings were discussed using the framework for access.

**Results:** The experiences and perceptions of the women reflected occasional alcohol use, with six out of nine women drank alcohol during pregnancy. Women received information about the effects of alcohol during pregnancy and ANC, but most still drank alcohol. Even with limited data about reasons for continuing to drink, included relationship challenges, positive and negative treatment of health providers. Social support and module clinics as facilitators for access, physical distance and transport costs were reported as barriers to ANC access.

**Conclusions:** The study reflected access to ANC as non-linear, the factors vary though life stages and during multiple pregnancies. Social acceptance of alcohol use and understanding of health information could relate to alcohol use during pregnancy. These factors and reasons for alcohol use during pregnancy, and interrelation to ANC access should be explored in future research.

**Keywords:** Pregnancy; Women on farms; antenatal care; maternal alcohol use.

## BACKGROUND

According to the global report on alcohol and health, in 2011 South Africa (SA) was found to have one of the riskiest patterns of alcohol consumption in Africa (48). Among those who consume alcohol in SA, a study conducted in 2011 using 2008 data reported that current drinkers amount to 27% of the SA population, with 41.5% being males and 17.1% being females (60). A study conducted in an urban part of Gauteng and a rural area of the Western Cape province reported a drinking prevalence of 27% among women in Gauteng, of who 20% were classified as high-risk drinkers; equivalent figures for the Western Cape, were 46% prevalence and 68% high-risk drinkers (2). These findings highlight the prevalence of alcohol use and high risk drinking generally but also amongst women in urban and rural areas (2).

Women's susceptibility to harm caused by alcohol use is a major public health concern, more so, more women are consuming alcohol, as a result of being economically empowered and the evolved gender roles (9). Women's use of alcohol during pregnancy has severe health and social consequences for newborns (6), such as fetal alcohol syndrome (FAS), potential risk for physical harm, sexual assault and psychosocial effects (7; 8). FAS is a preventable childhood disorder (9; 10). Not all maternal alcohol consumption results in FAS; however, any amount of alcohol consumption during pregnancy is thought to be potentially detrimental to the developing fetus. The severity of FAS depends on the amount of alcohol consumed by mothers during pregnancy; other aspects include the regularity and when alcohol was used in the different stages of the fetus (34).

One way of preventing FAS is through early and consistent attendance of antenatal care (ANC), as it provides an opportunity for screening for a range of pregnancy risks, to monitor and support the health care of women. This includes those women who may be vulnerable to and at risk of maternal alcohol consumption and potential related repercussions (11). Despite the free availability of basic ANC services provided by the South African government as part of primary care services, ANC is only fully attended by 63.2% of pregnant women in SA (13; 12).

In SA women may underutilise or present late for ANC for numerous reasons. Women have reported poor treatment by health care providers at health facilities, based on these unpleasant experiences, they may be unlikely to return (13; 19). Health care factors such as inadequate staffing, overcrowding in health facilities and limited human resources have been reported as other health service-related factors for low uptake of ANC (13; 19). At the individual level, evidence from rural Limpopo province stated women not knowing they were pregnant and not understanding the benefits of attending ANC as reasons for late attendance (45). In addition, women who had planned and wanted pregnancies

initiated ANC, whereas women with unplanned and unwanted pregnancies were more likely to initiate late or not at all.

Sibiya et al. (21) reported that in SA almost 50% of pregnancies are unplanned, which may result in many women only attending ANC in their second trimester. Additionally, early initiation of ANC was linked with socio-economic status in SA and women with employment were more likely to report early ANC initiation compared to unemployed women (44). This may relate to the ability to afford access to services. Women residing in remote areas who have to travel long distances reported transport costs as a barrier to ANC (44). Studies conducted in SA reported infrequent transport, long distance to facilities, limited affordability of trips, loss of income and work commitments as limitations to access to attendance of ANC (44; 55).

Other factors associated with poor attendance of ANC that are particularly relevant for communities with problematic alcohol consumption patterns includes societal and cultural factors such as stigmatisation surrounding alcohol use and easy access to alcohol (14; 43). Evidence from rural Limpopo province shows that poor treatment of women by health care providers is exacerbated when women's alcohol use during pregnancy is disclosed (19). Stigmatisation of women's alcohol use is a major barrier to access to health care, especially if alcohol is used during pregnancy. Women's cultural or social backgrounds may determine their likelihood to fully disclose or underreport their drinking patterns (19). Women who are ostracised for drinking alcohol during pregnancy may not attend ANC (19; 46). This will negatively impact the provision of appropriate screening, care and their access to the right information to protect their fetus from developing FAS (46).

In South Africa, the Western Cape province in the Cape Winelands district world renowned for its extensive wine farming industry. Historically, the 'dop' system, where farm workers were paid wages in alcohol was commonly implemented (3). The ramifications of this system are still felt with farm workers experiencing high rates of problematic alcohol use and dependency resulting in possible alcohol-related traumas and negative health effects, this, despite the system having ended in 2003 (49).

This explorative research is aimed at understanding the perceptions and experiences of drinking during pregnancy as well as ANC access and uptake by women from rural farm communities who are exposed to problematic drinking. The results will be examined using a framework of access that highlights specific dimensions of access including approachability, acceptability, availability, affordability and appropriateness (52). There is research that was conducted in the area of general maternal health for women and factors surrounding it, however there is a gap in research surrounding access to antenatal care focused on women who consume alcohol during pregnancy. Their

experiences may provide insight around the challenges that they face, will provide an explanation on the factors surrounding under-utilisation of antenatal care services by women and women who drink alcohol during pregnancy.

## METHODS

The experiences and perceptions of women from a rural farming community were explored through an exploratory qualitative research design which to explain and provide an understanding of their access to ANC.

The study design was selected to enable the researcher to focus on understanding women's experiences of ANC (51). The exploratory approach allowed the research process to be a process of discovery about the research topic (51).

The research was conducted in the Stellenbosch area of the Western Cape Province, SA. The area was selected because of the possible correlation between easy access to alcohol and women's consumption of alcohol during pregnancy reported by several research studies (15; 16). The setting was also selected because of a pre-existing relationship with a non-governmental organisation (NGO) working within the community called Women on Farms. They work with women working on farms to provide services such as psychosocial and advocacy support, empowerment and education about their human rights.

The study purposively sampled women who live on farms within the area. To be included in the research, the women had to have at least one child, to have experiences of access to ANC and to have been based in Stellenbosch for at least three months, either because of work or by residence. The women were sampled to include a spread of women who both consumed alcohol generally, including during pregnancy, and those who did not consume alcohol. Qualifying women were recruited by a staff member working at Women on Farms. The women were informed about the research study, invited to participate and volunteer their participation after a process of informed consent.

Three key informants, who work at Women on Farms Project, were also included in the study in order to triangulate the results. The key informants were purposefully selected to participate because of their frequent engagement with the women as well as being the source of ANC-related information for women farm workers. The project manager at Women on Farms introduced the researcher to the key informants.

Ten face-to-face semi-structured interviews were conducted with farm women by the lead researcher at the women's familiar environment, at one of the women's volunteered home. COVID-19 regulations

were observed through wearing of masks and social distancing. An interview guide with open-ended questions was used to guide the interviews.

The women were asked about their experiences with pregnancy, access to ANC and alcohol use. The interviews lasted 30 minutes on average. Some of the women indicated that they were comfortable with being interviewed in English, while others asked for the interpreter to be present just in case they needed interpretation. The interpreter was one of the key informants at WFP. The questions and responses were in English, interpreted to Afrikaans when the participant or researcher asked. Seven women were interviewed individually, whereas three women requested the other women to remain behind and be present throughout their interviews. The interviews were conducted at one of the women's living room, volunteered by one of the women. Interviews were recorded with the women's permission.

Key informant interviews were conducted virtually by the researcher who is English speaking with a background in social work. The key informant interviews were also guided by a topic guide and focused on their perceptions about the experiences of women in the community with pregnancy and ANC. Two interviews were conducted telephonically as per the key informant's preferences and one was conducted via Zoom.

The researcher transcribed the interviews verbatim and reviewed them alongside her field notes. During the transcription, the researcher cleaned up the data to make it grammatically accessible for the reader. Manual coding using thematic data analysis was used to analyse the data. The data analysis steps included initial familiarisation with the data, this is followed by a comprehensive coding process. Themes were defined and named based on the analysis of codes and are organised and interpreted in the findings section. The framework for access will be reflected on in the discussion section, in relation to the experiences of women.

The researcher received ethical approval from the UCT Human Research Ethics Committee (HREC REF: 497/ 2021). An information sheet was distributed, read to the participants in English and interpreted in Afrikaans and participants provided signed informed consent. Participants volunteered their participation and their privacy was respected. The transcripts datasets were stored digitally and security was protected by passwords. During reporting and publication, the identity of individuals has been protected, with pseudonyms being used. The participants were not compensated for their participation but a snack pack, mask and sanitisers were provided during data collection. Research findings will be shared with the women, through the partner NGO.

To strengthen the trustworthiness and rigor of the research, a field diary was kept. Key informant interviews were conducted to enhance the trustworthiness of results through triangulation. Potential language barriers were eliminated by the presence of an interpreter. The interpreter was one of the key informants. Their presence could have influenced the level of detailed experiences shared by the women, because they are known to the women. However, the women seemed to be comfortable to share their experiences in her presence, thus the presence of a known interpreter could have been a strength considering that the interviewer was an outsider. An audit trail was also kept to ensure confirmability of the research.

## RESULTS

Ten farm women were sampled for inclusion in this study. Their characteristics are summarised in Table 1.

Table 1: **Demographic and other relevant characteristics of rural women sampled** (n = 10).

Demographic characteristic		Number
Age	Between 25 and 35 years	5
	Between 35 and 45 years	3
	Between 45 years and above	2
Marital status	Single	4
	Married	6
Education level	Completed Grade 6	6
	Completed Grade 10	4
Number of children	One child	3
	Two or more children	7
Drinking status	Never drank alcohol	1
	Drank alcohol during pregnancy	6
	Stopped drinking during pregnancy	3

The women were aged between 25 and 50 years of age. The women had their first children between the ages of 14-20 years. Their highest educational level was low, none of the women reported any education beyond grade 10. Nine of the women drank alcohol, one woman never drank alcohol and six of the nine women who drank alcohol reported drinking during their pregnancy/ies.

Table 2: **Characteristics of key informants sampled** (n = 3)

<b>Key informants</b>	<b>Duration of work with WFP</b>	<b>Key role of key informants</b>	<b>Summary of responsibilities</b>
1	11 Months	Health Coordinator	Psychosocial support, case work, activism and advocacy
2	7 years	Field worker	Field education to women on farms, regarding farms living, eviction, labour rights and empowerment
3	10 years	Organiser	Event planning, field education

Three key informants were sampled for the study, the number was influenced by the limited number of staff at the Organisation. The key informant all engage with women on farms on a daily basis in their specific role. Their experience working with women on farms vary, however the key informants have experience working in the farms, within the Organisation and externally.

The following themes emerged from analysis of the data: the first theme relates to the patterns of drinking within pregnancy which also explores the reasons for women’s drinking during pregnancy; the second theme deals with women’s access to information about drinking during pregnancy and ANC. The third theme relates to social, geographical and economic factors that influence access to ANC and the final theme unpacks health-service related factors that affect access to ANC.

### **Patterns of drinking within pregnancy**

Questions were asked to understand the women’s drinking patterns and to explore whether they were able to stop drinking alcohol during their pregnancy and to understand some of the factors that may have influenced their decisions. Of the nine women who drank alcohol, six admitted to drinking alcohol during pregnancy.

The women shared varying experiences of their pregnancies and drinking alcohol within this period. Some women reported not drinking during their first pregnancy and only drinking in their second pregnancy. This was noted in the quote below:

With my first child I was not drinking, but with my second child, I was drinking very much. On weekends and special occasions (Participant 5, 45 current drinker).

Another woman reflected on her reasons for not drinking during her first pregnancy.

I had to stop because I was sick with my first born, but with my son [second pregnancy] I was drinking (Participant 2, 52, current drinker).

Another participant mentioned drinking during her second pregnancy and then ceasing because she was informed by the clinic staff not to drink during pregnancy.

Once in a while, with the second baby, I drank a bit but after a while I was told [by a nurse] that I am not allowed to drink (Participant 6, 48, current drinker).

Women who shared their experiences seemed to not be consistent in their decisions to drink or not drink alcohol during pregnancy. For those who had had multiple births there was no clear pattern either. In their interviews, some of the women reported not drinking within their first pregnancy but drinking within subsequent pregnancies.

Those women who reported drinking during pregnancy talked about their experiences of alcohol consumption during pregnancy. These varied between women although many reported patterns of ad hoc drinking and did not necessarily report consistent consumption. When asked about her drinking during pregnancy one woman responded:

I did not drink every weekend, only fortnightly, when we get paid. (Participant 3, 47, current drinker).

Another women also reported similar ad hoc drinking patterns during her pregnancy.

I was still drinking now and then when I was pregnant, on weekend and maybe Mondays (Participant 10, 38 current drinker).

Another woman highlighted drinking fortnightly when they receive their wages, mentioning that she does not drink on other weekends.

Not every weekend, only fort-night, only when we get paid. We got paid last weekend, I drank and this week we won't be paid and I won't drink (Participant 2, 52, current drinker).

This pattern of fortnightly or weekend drinking during pregnancy was linked to the financial ability to purchase alcohol and may reflect patterns of normal drinking in times where the women are not pregnant and within the community more broadly.

### **Reasons for drinking within pregnancy**

Women also shared some experiences that could be related and interpreted as reasons for their alcohol use during pregnancy. Four of the women were single and six were married. When asked about

their pregnancy experience one woman noted that her drinking alcohol during her pregnancy was linked to an issue within her relationship.

I drank during my second pregnancy, I was going through a lot, my partner had a girlfriend (Participant 7, current drinker).

Another participant reflected on also experiencing relationship stressors that may have influenced her decision to drink alcohol within one pregnancy and not another.

I was still drinking now and then when I was pregnant, I had a lot of family drama with my previous baby daddy (Participant 10, 38, current drinker).

The key informants supported these findings and suggested that women's experiences of relationship problems may influence women's decision to drink in pregnancy.

There are those cases where the women's husbands would want a child and the women would not, so they would drink through their pregnancy (Key informant 2).

The women had relationship issues during their pregnancy which may have influence their drinking.

One key informant alluded to other factors which may motivate alcohol consumption during pregnancy within these communities that suggests the importance of the women's personal circumstances and the impact that this may have on their drinking choices.

Yeah, but it depends now, but now I can see because I am also staying in these communities. It is normal to drink when they're pregnant, they do not stop drinking alcohol when they are pregnant. It also depends on what they are going through ... if you are going through problems you can also be like ... let me take a glass or two. To deal with things that are stressing them, forgetting that they are carrying a child (Key informant 3).

The key informant also highlights other social issues such as the normalisation, gender-based violence and widespread use of alcohol use within in these communities that may have implications for consumption during pregnancy. Although these factors are important to mention as they were reported by the women and key informants, it would be fair to assume that there may be other motivators for drinking during pregnancy but because no direct question was posed, there is no adequate evidence to report.

### **Access to information about drinking during pregnancy and ANC**

Out of the ten women interviews, two out of the women who had one child attended ANC, whereas one did not attend ANC. Out of the seven women who had more than one child, in five pregnancies the women did not attend ANC and in six pregnancies, they attended ANC late and inconsistently.

When asked about their pregnancy and the information they received about taking care of themselves during pregnancy, the participants shared their experiences of accessing information from facilities and providers as part of their ANC. It was important for the researcher to explore where the women received information about safe pregnancy and ANC. The women were therefore asked about their access to knowledge relating to pregnancy care and ANC.

When I went to the clinic for the first time I did not get much information, they checked up on me, gave me pills and told me to come for my check-ups every time. The second one, they did [give me information] but not a lot of information. Only after the child was born, they told me how to care for the child and myself (Participant 10, 38, current drinker).

Another participant mentioned receiving some more information during ANC and some specifically related to alcohol.

They told me to eat healthy, not to smoke and drink (Participant 10, 38, current drinker).

One participant mentioned not being informed about anything, when followed up about whether she used alcohol, the participant said 'yes'.

Nobody told me anything specific, but I heard about these stories of fetal alcohol syndrome in the community (Participant 6, 48, current drinker).

It is interesting that she mentioned hearing information about FAS in her community, but she did not mention that information influenced her decision to drink during pregnancy.

Another participant mentioned being informed about how to take care of herself during her pregnancy and as a result she did not consume alcohol or smoke during her pregnancy.

At the clinic, they gave me information about not drinking or smoking during my pregnancy, that I must not smoke, what to eat and I did not drink alcohol when I was pregnant. The sisters at the clinic, told me how to look after myself during my pregnancy (Participant 4, 41, non-drinker).

The timing of this information is important because this woman received this information in the early stages of her pregnancy and she mentioned not drinking and smoking during her pregnancy as a result.

While limited, the evidence above does suggest that information about pregnancy care, especially the risks of drinking alcohol may have influenced some women's decisions.

To gain a better understanding of the reasons for women's attendance or not at ANC, access to knowledge about ANC amongst the women was explored. One woman responded:

At Tygerberg [hospital], they told me about antenatal care during labor, but it was already late [during delivery] (Participant 8, 50, current drinker)

The participant responded that she only found out about ANC and the benefits during labour. Perhaps she could have decided to attend ANC had she received the information early or even before she was pregnant.

Another participant knew about ANC from her mother.

Yes, my mother told me about ANC in my first pregnancy, she went with me to the clinic for ANC, the second and third pregnancy she did not go with me, I went alone, the last two I was on private, my husband was working in a municipality and I was private. (Participant 4, 41, non-drinker).

As noted above the woman's mother also provided her with support during her pregnancy and accompanied her to attend ANC.

Another one of the respondents had quite a different experience, she reported late for ANC, despite reporting knowing about it.

I knew, but I could not attend because I was underage and needed my mother's consent to attend. So, I only attended at 7 months [pregnant] after telling my mother (Participant 9, 38, current drinker).

The woman did not disclose her pregnancy to her family, at a time where she needed parental consent to receive ANC, as a result she attended ANC late at seven months.

There were varied experiences among the women even those who had more than one pregnancy with regards to their ANC attendance, access to information about ANC and effects of alcohol use during pregnancy. However even when women did attend ANC they did not always receive information about the risks of alcohol consumption.

### **Social, geographical and economic factors that influence access to ANC**

#### **Barriers to access**

The women's experiences with social, geographical and economic access barriers is reported here. Distance to health facilities from the women's residences, cost implications of the trip in light of the women's unemployed status and work-related factors were the first set of barriers that may have influenced women's decisions to attend ANC.

The participants all lived on the farms which are based about 10 Kilometres outside of the central town, where health facilities were located. Women reported using up to four taxis for one trip to the facility and noted that it was costly to travel the distance.

I went to Stellenbosch to go to the clinic, because I was living far with my first born, the taxi was expensive, I used four taxis return (Participant 5, 45 current drinker).

While the average public transport fare amounted to relatively little, for women who were mostly unemployed during their pregnancies, it may have been unaffordable and been a barrier to access. This is supported by a key informant:

Yeah, it is also transport challenges, women stay very far from the clinic, when it is their clinic appointment dates and they do not have transport money, to travel from the farms to the clinic so they end up missing their date (Key informant 2).

Although the sampled women were unemployed at the time of the interviews, some of them mentioned working during their pregnancies. Work was shared as a possible physical challenge to access to ANC.

I was working with my two children. I did attend ANC sometimes because our employers knew that we had to attend antenatal care appointments at the clinic (Participant 6, 48, current drinker).

Although this woman did not experience any difficulties with ANC attendance when she was working the key informants shared their observations and the experiences shared by the women relating to work as a barrier to access.

Sometimes it is very difficult for women, because the distance from the farms to the clinic is very far, especially when it is peak period and farmers needed to harvest sometimes it is very difficult for women to attend clinics while they are pregnant. Sometimes women do not even book into ANC because they are afraid of the farmers to go to the clinic, they would not even book for birth and they experience problems when giving birth because they are not checked on or have nine months booking record, so it is very difficult sometimes (Key informant 2).

The key informant highlighted work pressures experienced by the women during peak harvest periods at the farms and the difficulties of getting time off to attend ANC. Another key informant shared about the women having to choose between earning that day's wages and attending ANC

What I can say is you know when you are not at work, you cannot get paid, now the women would choose not to go to the clinic, rather go to work. Yah because they want that day's money. So, at the clinic facility there is no problem (Key informant 3).

Work factors may have been barriers to women's access to ANC although again the evidence for this in this data is fairly limited.

## Facilitators of access

Facilitators of access reported by the women included support from family. The presence of mobile clinics is another facilitator, which could have potentially addressed physical barriers to ANC access.

Family support was highlighted by one of the respondents who made specific reference to her mother.

Yes, my mother told me about ANC in my first pregnancy, she went with me to the clinic for ANC, the second and third pregnancy she did not go with me, I went alone, the last two I was on private, my husband was working in a municipality and I was private. (Participant 4, 41, non-drinker).

Another participant also reflected on her mother's support, another on her husband's financial support which influenced her to attend ANC.

I knew I had to attend ANC, but I could not attend because I was underage and needed my mother's consent to attend. So, I only attended at 7 months after telling my mother (Participant 9, 38, current drinker).

The presence of social support could be considered a facilitator to the women's access to ANC as she was underage and needed parental consent.

In the previous section, geographic and economic factors were noted as barriers to access to ANC were reported. The introduction of mobile clinics in these farms communities is a potential facilitator to access, addressing these.

With the eldest one I used to travel to the clinic, more than 15 years ago, I used R30 for the trip and with the last child, I would attend mobile clinic that came to the farms (Participant 3, 47, current drinker).

As the women above notes when she attended mobile clinics that came to the farms, she did not need transport money. Therefore, having to walk to mobile clinics facilitated easy access to ANC, eliminated potential affordability limitations.

At the mobile clinic, they call out your name, you go into the van and they attend you from there. They do observations and check-ins, I did not have any problems or felt any discomfort like I do at the clinic (Participant 3, 41, non-drinker)

A key informant also highlighted that the increased presence of mobile clinics is a facilitator for increased access to ANC.

## Health service-related factors that affect access to ANC

Health service-related factors that were barriers to ANC access among these rural women who drink included their treatment by health care providers during ANC. A participant attended the mobile clinic that came to the farms and shared her experience.

Yes, I got bad treatment because I had a child with this man and had another with another man. So, they ask me, next time you will come here with another man's child (Participant 2, 52 current drinker).

It is concerning that the health care providers knew the personal details of the woman, her explanation was that some health care providers from mobile clinics reside in their area and knew the women personally.

When asked of her pregnancy experience and treatment at the clinic in comparison the same participant continued:

No, I was not treated good, I wanted to have an abortion, because I was sick and I did not want the boyfriend anymore, so I was at the clinic and they refused to help me (Participant 2, 52, current drinker)

The participant felt her care was poor because she was denied care by a health care provider, it is hard to know whether this was justified as a result of gestational age (which may be the reason for declining a termination of pregnancy request) or not but regardless she clearly felt the experience was not a positive one.

Other women felt that they may have been treated differently as a result of their drinking. One woman described the nurses' reaction to her disclosure about her drinking during pregnancy.

One sister was very upset, told me that it was irresponsible to drink during my pregnancy (Participant 10, 38 current drinker).

Others reported nurses providing them with similar messages but failed to be clear about how this was received and so it was hard to tell whether it was considered to be mistreatment on behalf of the women.

She just told me I should not drink too much because the child can be affected by the drinking (Participant 5, 45, current drinker).

Despite some evidence for mistreatment generally and specifically as a result of drinking during pregnancy some of the women actually reported disclosing their alcohol use when they attended ANC and in general their experiences seem relatively neutral with some reporting being treated well. When she was asked about how the health care providers responded when she disclosed her alcohol use during pregnancy, one participant noted:

She just told me I should not drink too much because the child can be affected by the drinking (Participant 5, 45, current drinker).

When asked whether she felt she was treated differently after disclosing her alcohol use during pregnancy, the participant continued.

They were fine, we went to a private room and I felt comfortable even after telling her about my alcohol use (Participant 5, 45, current drinker).

Another participant who was a minor during her pregnancy, initially concealed her pregnancy from her mother and only attended ANC during the seventh month of her pregnancy after disclosing to her mother. In contrast to other participants, she did not report experiencing a problem with her treatment by providers:

The nurses were not rude, they were worried. They asked me to come regularly every month. They checked me, on the ultrasound and the baby's heart (Participant 9, 35 non-drinker).

A key informant however supported the suggestion that women were not necessarily well treated within pregnancy by health care providers.

...the treatment is bad overall, because if you miss your date and come another day when you are able to come, they will give you hard time, so it is a lot of challenges (Key informant 1).

This was supported by another key informant

My experience is, it differs from area to area, in one clinic women can say I have been here, the nurses were rude to me, in other clinic they will mention that they just go and they receive help and then go to work so it varies (Key informant 3).

Based on the experiences and perceptions of the women and key informants, women had both positive and negative experiences with health care providers that may in some ways it seems to be exacerbated by drinking alcohol.

## DISCUSSION

The results presented the experiences and perceptions of rural women regarding access to ANC for women who consume alcohol during pregnancy, they reflect a range of patterns and motivating factors for alcohol use, highlighting alcohol use during pregnancy by some of the women, women mostly drinking alcohol on the weekends and when they received their wages. Information as an influencing factor for ANC attendance was explored, women mentioned receiving information about ANC and pregnancy care, whereas most did not stop drinking during their pregnancy and did not frequent ANC, some attended late. Social, geographical and economic factors were explored whereby

distance to health facilities and cost of transportation were reported as possible barriers to access to ANC. In addition, social support and the introduction of mobile clinics were reported as facilitators to ANC access. Lastly, health service-related factors were reported, with a mix of negative and positive experiences, negative experiences may have been exacerbated by the women's alcohol use during pregnancy. The key findings and factors relating to access to ANC will be discussed with reference to the framework for access. The framework for access to health care provides a multifaceted way of understanding health care access, it recognises the complexities surrounding access to health care (52). Access to health care is not linear, it comprises of interrelated factors that influence each other at different times (52), as it is the case with the women's experiences with access to ANC.

### **Patterns of drinking within pregnancy**

In this study, the women reported a pattern of fortnightly or weekend drinking during pregnancy, this also was linked to their financial ability to purchase alcohol. Other studies linked women's vulnerability to alcohol use and alcohol-related harm to a lack of economic empowerment (9). Whereas, in this study the women's economic situation was such that they could only buy alcohol at certain times, like when they had received their wages. Amongst other factors, unemployment status and low socio-economic status was linked to alcohol exposed pregnancy in a study conducted in rural and urban site (42). This could relate to the findings, as the women who drank alcohol during pregnancy reported being unemployed and a low education level.

The women in this study seemed forthcoming about their use of alcohol and use of alcohol during pregnancy. Studies found that depending on the women's cultural backgrounds, they may not fully disclose or underreport their drinking patterns (3; 4). The women's perceived ability to disclose their alcohol use as part of the study but also as reported to providers may be influenced by the socially acceptable nature of alcohol and also problematic alcohol use within the Western Cape winelands normalised through the historical 'dop' system reported by other studies (3; 4). Literature suggests a relationship between acceptability of alcohol use in communities and women's likelihood to fully disclose their alcohol use (39), especially during pregnancy. The social acceptance of alcohol use in this area also be linked to the fact that six out of nine women reported to drinking alcohol during pregnancy.

### **Reasons for drinking within pregnancy**

Some of the women who drank alcohol during pregnancy highlighted that relationship issues may have influenced their alcohol use. Some women attributed their continuation of alcohol use during

pregnancy to relationship stressors and challenges with their partners. Other studies have reported partner drinking as predictive of women being at risk to an alcohol-exposed pregnancy, thus the behaviour of a partner can reinforce positive or negative behaviour in women during pregnancy (20). A study conducted in similar context corroborated that the alcohol abuse behaviour of husbands and partners of women strongly predicts women's drinking behaviour during pregnancy (27).

In a study conducted in a similar context as this study, women reported drinking as a way of coping with their lives, women who drank alcohol during pregnancy reported pressure from friends and family and struggling with quitting alcohol use during pregnancy, because of lack of support and residing in environments that reinforced alcohol use (27). Another study reported that low socio-economic status and educational levels were associated with harmful drinking as well as alcohol problems in family members and exposure to an environment where alcohol use is modelled, accepted and encouraged (59; 2). This is linked to findings discussed in the previous section about social norms and drinking during pregnancy.

Further evidence for women's reasons for alcohol use in this study was limited because there was no direct probing question about reasons for their alcohol use during pregnancy. Future related research should more directly explore the motivating factors surrounding reasons for women's alcohol use in a way that is non-judgemental to the women's decisions.

### **Access to information about drinking during pregnancy and ANC attendance**

Women who drank alcohol mentioned receiving information about pregnancy care and the effects of drinking during pregnancy from health care providers and their mothers. Some of the women had information about ANC and where possible some attended, although some attended ANC late and some did not attend ANC at all.

Two of the women highlighted receiving this information late in their pregnancy. The timing of the information is important in influencing women to attend early ANC and reduce alcohol-exposed pregnancy (34). Studies suggest that early interventions seeking to encourage women to attend ANC and avoid alcohol use during pregnancy should be targeted at women who are not pregnant, but at risk of drinking alcohol during pregnancy. The study further added that intervening when women are already pregnant may be late (34) as suggested by the two women in this study.

For the women in this study, aspects of literacy may have played a role in how the women interpreted the information they were provided. Literacy and comprehension may present potential barriers to access to information and to behaviour change, other studies highlighted a correlation between low education levels and poor attendance of ANC (33). Evidence suggests that to affect behaviour change

more than just information is required and other more in-depth intervention may be required (57). Therefore, limitations in women's ability to fully understand and comprehend health related information and for women in this study, drinking reduction in pregnancy and ANC benefits may influence their ability to make informed decisions (39).

The dimension of approachability makes access to information seem straightforward, however the complexities surrounding literacy as a facilitator or barrier to access should be noted. Other studies in HIV/AIDS reported that South Africa and Zimbabwe have high literacy levels compared to other African countries, however, they are also severely challenged by the HIV/AIDS epidemic (48). This depicts that literacy and health literacy requires more than just education and understanding, motivational interviewing approaches should be explored in behaviour change interventions, especially those targeting women at risk of drinking alcohol during pregnancy (34).

### **Social, geographical and economic factors that influence access to ANC**

The third theme was about the social, geographical and economic factors that influenced the women's access to ANC. Barriers included physical distance to health care facilities and the cost of transport. In this study women resided on farms which are at a distance from urban health facilities. The women in this study reported travelling long distance and incurring high travel costs to reach ANC, highlighting limited physical availability of the services (52). The affordability dimension suggests that the responsibility of access and use of health care services lies on those who require care (52). Although some of the women in the study have, to some extent utilised ANC services, whether they attended late, or attended with some pregnancies and not the other, physical access and affordability presented as barriers to access. Other studies supported these findings, with late and poor attendance of ANC associated with socio-economic aspects such as unemployment and high transport costs (38; 55).

Women's ability to work and therefore afford care and related costs was highlighted by the key informants and not the women, it is therefore worth exploring further in other research. Other occupational factors such as maternity benefits and job security during pregnancy amongst women on farms could also provide further insight in occupational factors as barriers or facilitators of ANC utilisation.

In this study, a facilitatory factor for access to ANC for these women was social support. The two women who were supported by their mothers, attended ANC and highlighted attending because their mothers went with them to the facilities. Social support relates to the participant's ability to seek services when they were supported to do so. Even if the responsibility to seek and utilise ANC services (52) lies with women, social support also positively influenced their access. This is not aligned to other

studies on the psychosocial factors associated with early ANC which reported that there was no significant association between ANC attendance, social support and social capital (20).

### **Health service-related factors that affect ANC**

The fourth theme was about health-service related factors that affect access to ANC. Highlighting women's experience with health care providers when they attended ANC and experiences when they disclosed alcohol use during pregnancy. A mix of positive and negative treatment by health care providers was reported, the women who experienced negative treatment, had shared their alcohol use during pregnancy. Therefore, one could assume that the women's negative experiences may have been exacerbated by their disclosing alcohol use, although the negative experiences were not limited to the women who drank alcohol during pregnancy. Appropriateness of health care services as a dimension of access requires that services be suitable to the needs of service users, this is reflected in the waiting times, correct treatment and interpersonal relationship of providers with clients (52). Some women in this study received appropriate ANC services, they highlighted not waiting long to receive services, being allowed to skip queues because they were pregnant and being comfortable in consultation rooms at health facilities, this was experienced by women who consumed alcohol and those who did not consume alcohol during pregnancy.

Other women in this study had negative experiences, they highlighted being scolded by health providers. Poor quality services restrict access to health care, limited access also encompasses limitations in receiving acceptable and effective services (52). For women who had negative experiences, poor quality services may have restricted them and discouraged their attendance of ANC. In this study, the negative experiences reported by some women, could be linked to the women's disclosure of alcohol use during pregnancy although this was not directly probed for and so it is hard to draw this conclusion based on these limitations in the results. In other studies, women reported being scolded and treated badly by health care providers because the women revealed their alcohol use during pregnancy, which resulted in fear and late attendance of ANC (19). In this study, the scolding of health care providers could also be interpreted in another way, that the women were scolded out of concern for the women's health as they had reported late for ANC, as well as mentioned alcohol use during pregnancy. Nonetheless, scolding is considered negative treatment and can negatively affect women's decision to frequent health facilities for ANC. Stigmatisation of women's alcohol consumption is a major barrier of health care (19), it impacts on the women's accessibility, appropriateness and acceptability of health care services (69).

Another important health-service factor that supported access was the presence of module clinics within the local communities. Other studies support the argument that the introduction of mobile clinics could increase early ANC attendance, remove affordability and physical accessibility barriers (20). For some of the women in this study, the presence of mobile clinics improved their physical access to ANC and eliminated travel time and costs as factors having previously impacted women's physical access to ANC. The approachability of ANC services was then increased by the presence of module clinics (69), as the women in this study were able to reach and benefit from ANC and other health services. This dimension also interrelates to availability and accommodation, as the physical limitations of the women were addressed by the presence of mobile clinics. The mention refers to the service user's ability to physically reach health services timely. Other studies have related long distance travel, costly transport fare and overcrowded health facilities to lack of access to health care services (28; 26; 29). To an extent the research correlates with the women's access to ANC, relating to their utilisation of ANC services.

Although module clinics became facilitators of access to ANC for the women, there were still women in this study who reported late for ANC and those who did not attend ANC. The framework for access suggests that it is because of the women's inability to perceive those services as important for their pregnancy care which may have limited their access (69). Literacy and limitations to access to information as explored in the section above remains relevant in this section.

## LIMITATIONS

Language barriers potentially presented a limitation; however, the presence of an interpreter should have eliminated possible loss of meaning in translation and comprehension barriers. The familiarity of the interpreter with the respondents could have potentially limited women's willingness to share their experiences in detail, as she is a staff at WFP. However, the women seemed comfortable to share their experiences in the presence of the interpreter, which helped as the interviewer was an outsider.

A further exploration on the reasons for women's alcohol use during pregnancy is recommended for future research and is a limitation of this research with minimal adequate probing to answer this question. There were also other limitations relating to the interview guide, there were not enough probing questions on key areas that came up during the interviews. This resulted in limited findings to report on, in areas such as the women's reason for drinking or not drinking in pregnancy and also the impact of drinking on the access and experiences of ANC. The sampling also presents a potential limitation with the inclusion of women who drank alcohol and those who did not drink alcohol during pregnancy, therefore the results may not provide clear enough evidence to draw clear conclusions about the impact of drinking on pregnancy and ANC experiences. This limitation may also be related

to the aim of the study, as the inclusion of women who did not drink did not meaningfully contribute to addressing the aim of the study. The women's report of multiple pregnancies experiences also presented limitations as some pregnancies happened years ago. Another limitation was recruiting only one woman who did not drink alcohol, this and the small sample size limited the findings related to the experiences of ANC access for women who did not drink alcohol. Lastly, relating to the methodology section, confirmability checking with the research participants during data collection was not conducted.

## CONCLUSION

The study provided explorative insights into the experiences of women, pertaining to their alcohol use during pregnancy and experiences of access to ANC, from a unique setting with a complex history surrounding alcohol use.

The research was conducted in Stellenbosch, Western Cape, an area prominent in agriculture and wine farming where the participants reside. The history of the same area involved low-quality wine and tobacco given to farm workers as payment for their labour (30), although the 'dop' system ended the legacy is reflected in the living conditions, problematic alcohol use and trauma. The research study highlighted experiences that relate to the generational culture of the farm workers. The relationship between the women's cultural backgrounds, social acceptance of alcohol (3;4) relates to the fact that six out of nine women reported drinking alcohol during pregnancy. The experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy were explored. Although some limitations around the reasons for alcohol use and limited exploration on the participant's responses were noted, the study results provided the experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy and those who did not.

Furthermore, the study findings reflected that access to ANC is not a linear process, the factors influencing women's access vary through life stages as seen in women's different experiences during multiple pregnancies, the findings also presented other intersectionality around women who use alcohol during pregnancy and experiences related to the rural setting. This can be seen in the women who received information about ANC and effects of alcohol use during pregnancy, but persisted with alcohol use during their pregnancy as well as did not attend ANC early, with some not attending ANC during their pregnancy. In addition, mobile clinics and the treatment of health care workers as potential facilitators for access should be explored as an area to improve physical access limitations. Beyond the explored factors surrounding access to ANC, a further exploration may provide additional

valuable insight to the reasons for women to use alcohol during pregnancy and factors impacting their access to ANC.

The inclusion of key informants provided insight, some of which supported the experiences of women, although some of their perceptions were not synonymous with the women's experiences, it was based on the key informant's observations and work with women on farms. Through the framework of access to health care authored by Levesque JF, Harris MF and Russell G, the experiences of the women were discussed in relation to available literature and research, access to ANC for the women was reflected broad interrelated factors that influence each other at different times (52) as suggested by the framework.

The dimensions most related to the findings were approachability, affordability, appropriateness and availability of ANC services, dimensions of acceptability of health care could be explored in future research related to rural women and access to ANC. Nonetheless, the findings may be transferable to areas with similar settings and context, with careful considerations of the mentioned limitations of this study.

#### **List of abbreviations**

ANC: ANC; FAS: Fetal Alcohol Syndrome; SRH: Sexual and Reproductive Health; UCT: University of Cape Town; HSF: Health Science Faculty; HREC: Human Research Ethics Committee.

## **DECLARATIONS**

#### **Ethics approval and consent to participate.**

This study received ethical clearance from Health Sciences Human Research Ethics Committee at the University of Cape Town.

#### **Consent for publication**

The participants signed a consent form outlining request for consent to participate, the use of data and dissemination plans.

#### **Availability of data and materials**

The dataset used during the current study are available from the corresponding author at reasonable request.

#### **Competing interests**

The authors declare that they have no competing interests.

**Funding**

Not applicable

**Authors' contributions**

KM was involved in the data collection, transcription, data analysis and initial manuscript Writing. LL and LK were involved in the research design, literature and reviews of all sections.

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**Footnotes**

The footnotes 1-57 full reference is listed under references. Vancouver reference style was used.

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## PART C: APPENDICES

### Appendix A: Informed Consent

**Principle Investigator** : Kgahliso Mangoale

**Research Supervisors** : Prof Leslie London and Prof Lucia Knight

**Title and description of Research** : To explore the experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy in Stellenbosch, Western Cape. The research study seeks to gain an understanding of women's attendance of antenatal care, through the experiences of women gain insight unto the experiences of women who consume alcohol, from the women who consume alcohol and those who do not consume alcohol.

#### Letter of Consent

I, \_\_\_\_\_, agree to participate in the MPH research entitled exploration of the experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy in Stellenbosch, Western Cape to be undertaken by student **Kgahliso Mangoale** under the supervision of **Prof Leslie London** and **Prof Lucia Knight**, and certify that I have received a copy of this letter of consent.

I acknowledge that the research has been explained to me and I understand what it entails, as follows:

1. My name and contact details will not be used in the research findings report.
2. Pseudonyms will be used to conceal my identity, the information disclosed in the interviews will be confidential.
3. Audiotapes and transcripts will be kept securely stored during the research and after the research has been completed;
4. There will be one interview, which is expected to take no more than 45 minutes.
5. The interview will be audio taped, and transcribed for analysis by the researcher.
6. I have the right to withdraw my assistance from this project at any time without penalty, even after signing the letter of consent.
7. I have the right to refuse to answer one or more of the questions without penalty and may continue to be a part of the study.
8. I am free to share my experiences and will not be coerced into providing information that I am not comfortable with sharing.

9. The research study will not expose participants to any harm, the only potential harm could be bad experiences that may evoke negative emotions; the researcher is a qualified social worker and will be in a position to debrief the participant after the research.
10. The research findings and report will be shared with the Women on Farms Project, for participant's access.
11. Participants will receive R50 transport costs reimbursements after the interview.
12. The Faculty of Health Sciences of the University of Cape Town, Human Research Ethics Committee of the University approved this project.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

### **Appendix B: Information Sheet**

**Research project:** An exploration of the experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy in Stellenbosch, Western Cape.

**PI Contact Information: Leslie London; 0214066524**

My name is Kgahliso Mangoale and I would like to invite you to be a part of a research project as part of the Master of Public Health (MPH) programme in the UCT School of Public Health and Family Medicine. I will explain the research process, any risks and benefits, and your rights as a participant so you have all the information before you make your decision.

#### *About the study*

The purpose of this study is gain insight onto the experiences and perceptions of rural women regarding access to antenatal care for women who consume alcohol during pregnancy in Stellenbosch, Western Cape. You have been invited to participate in this study and share your experience as a woman who have attended antenatal care, reside or work in Stellenbosch.

If you agree to participate in the study, you will be asked to give your consent. A printed copy of the consent form will be given to you to keep in English. The consent process and the interview will be recorded and transcribed to assist with reference, putting the study findings in the research report and for confirmation of the study.

Please note that the study is voluntary, your consent at the time of the interview will be requested. If you do not wish for the interviews to be recorded this will be respected do not feel pressured to take

part in this research study. Even if you agree to participate, you are free to withdraw at any point, there will not be any consequences.

#### *Risks and Benefits*

The research study will not expose participants to any harm, the only potential harm could be bad experiences that may evoke negative emotions; the researcher is a qualified social worker and will be in a position to debrief the participant after the research; COVID-19 related risks will be addressed according to global guidelines and standards. **You will be given hand sanitiser and a disposable mask at the start of the interview. The interview site will be properly ventilated and large enough so we can all be seated 2 metres apart. Participants will be scheduled to be interviewed one at a time.**

There are no direct benefits associated with your individual participation in this study.

The research will be used for conceptual purposes, to shape the knowledge, understanding of the experiences of women who consume alcohol during pregnancy, it will provide insight on some health systems related factors that impact on women's access to antenatal care. Through the research findings, the context of maternal alcohol consumption will be learnt, the nature of the interactions between women who consume alcohol and health care workers will be learnt, inform future interventions aimed at strengthening women's access to health care services.

On a community level by providing insight to how women's access to health care rights are threatened by different factors, highlighting and promoting the importance of early interventions targeted at women before pregnancy to prevent harm to the unborn fetus. On a broader level, the findings of this study hope to inform sustainable strategies for promoting the rights of women, designing programmes and interventions for vulnerable groups of women such as women who consume alcohol.

#### *Confidentiality*

To ensure that the privacy of participants is respected, telephonic interviews will take place in a closed area, the interview data will be stored digitally, protected by password. Secondly, the privacy of the participants will be respected in any publication, the identity of individuals will be protected, names and other identifying details will not be used when using verbatim quotations or information from participants in the report to protect the participants. Other information such as informal conversations that participants do not consent to sharing will not be used

#### *After the study*

The research findings will be reported in an academic dissertation and mini thesis that will be submitted and reviewed for assessment; the researcher hopes to publish the research in a peer-reviewed journal, present the research at the School of Public Health and Family Medicine on research day and at a conference on sexual and reproductive rights or a related theme. The abstract will be made available to research platforms such as research gate and open access publication online. The researcher will be sharing the findings with Women on Farms Project organisation.

The researcher will be collaborating with Women on Farms to ensure that the research findings are utilised to advance better health for women on farms as well as provide them with information on maternal health.

#### *Contact Information*

If you have any questions or concerns about the study, feel free to contact any of the following research staff:

Name	Email	Phone number
`Kgahliso Mangoale	<a href="mailto:mngkga004@myuct.ac.za">mngkga004@myuct.ac.za</a>	0818183995
Leslie London	<a href="mailto:leslie.london@uct.ac.za">leslie.london@uct.ac.za</a>	0214066524
Lucia Knight	<a href="mailto:Lucia.knight@uct.ac.za">Lucia.knight@uct.ac.za</a>	0216501098

If you have any concerns about the ethics of this study, you can contact UCT Health Faculties Human Research Ethics Committee.

Email address: [hrec-enquiries@uct.ac.za](mailto:hrec-enquiries@uct.ac.za)

Phone number: 021 650 1236

## Appendix C: Interview guide for women on farms (Participants)

The interview guide has two sections, questionnaire for women who are the primary participant of the research and the second section is the staff at WFP as key informants.

Participant ID:

Date of Interview:

	Thematic areas	Questions
<b>Interviews with the Women</b>		
<p>Interviewer: Good day. My name is Kgahliso Mangoale. I am a student at University of Cape Town, studying Public Health.</p> <p>Thank you for agreeing to participate in the research study. In this research, I am interested to know about your experiences when you were pregnant visiting the hospital or clinic for antenatal care.</p> <p>I have a few questions that I would like to ask you about your experiences, please note that you are welcome to not comment if you are not comfortable with answering a specific question. Feel free to express yourself, as I will not use your real name so people will not relate your answers to you. The research findings will be presented, if you would like to see the text of what you have said, I will share the transcriptions (the text of what you have said) with you. <b>Can I continue with the interview?</b></p>		
<b>A.</b>	Background of the women	How long have you been a farm worker? or stayed in this area XXX
<b>B.</b>	Socio-economic status	Tell me about your educational background? What was the highest grade you passed? Where?
<b>C.</b>	Pregnancy history and experience	Do you have children, how many do you have? Where you in a relationship during your pregnancy? Single or married? How was did you experience your last pregnancy? Probe: Did you have any complications? Were you able to deliver a healthy baby?

<b>D.</b>	Knowledge of ANC, SRHR & Services	When you were pregnant, did you feel like you had enough information about family planning, taking care of yourself when pregnant, lifestyle changes needed when you're pregnant?
<b>E.</b>	Alcohol consumption	Do you drink alcohol? <i>Probe:</i> Do you have any history of alcohol consumption?
		If yes, how much of alcohol would you say you drink? <i>Probe:</i> is it 5 beers or more or 5 glasses of wine or more, etc
		Were you able to stop drinking alcohol when you were pregnant?
		If not, why not? <i>Probe:</i> Did anyone give you any information about drinking when pregnant? what kind of information did you receive?
<b>F.</b>	Access to Antenatal Care (ANC) services	When you were pregnant with your child/ children, did you attend antenatal care? (Visits to the clinic for check-ups)
		How long did you travel to access Antenatal care?
		How much did you spend on one return trip to the clinic? Where you able to receive the Antenatal care on the same day or did you have to come back the next day?
		Were you working at that time, did you need to take leave from work to attend Antenatal care?
<b>G.</b>	Experiences of ANC services	The first time you went to clinic pregnant, for antenatal care services, what information were you provided with?
		When you attended ANC, were you provided with information about the importance of attending ANC and about healthy lifestyle choices to ensure healthy pregnancy? What kind of questions were you asked about your lifestyle?
		Have you felt in your access to ANC services the need to ask to be treated with more respect than you were treated, raised your issues around waiting times and differential treatment if there was any?
<b>H.</b>	Treatment of women by HCW	How did you experience that period of attending Antenatal care at the clinic?
		How was your experience with health care workers or the hospital staff?
		Did you feel that you were treated with equality, dignity and respect?

		<p>Did you ever feel you were treated differently because you drink alcohol?</p> <p><i>Probe:</i> Please explain</p> <p><i>Probe:</i> Have you ever felt treated with disrespect.</p> <p><i>Probe:</i> Did you feel safe talking to the health worker about your alcohol consumption, and why?</p>

#### Appendix D: Interview guide for key informants

Participant ID:

Date of Interview:

Interviewer: Good day. My name is Kgahliso Mangoale. I am a student at University of Cape Town, studying Public Health.

Thank you for agreeing to participate in the research study. In this research, I am interested to know about your experiences when you were pregnant visiting the hospital or clinic for antenatal care.

I have a few questions that I would like to ask you about your experiences, please note that you are welcome to not comment if you are not comfortable with answering a specific question. Feel free to express yourself, as I will not use your real name so people will not relate your answers to you. The research findings will be presented, if you would like to see the text of what you have said, I will share the transcriptions (the text of what you have said) with you. Can I continue with the interview?

		<b>Interview with WFP Staff</b>
	About their work & interactions with health care workers	<p>In your work, what are the reported challenges that your beneficiaries face in regard to accessing antenatal care in primary health care centers?</p> <p><i>Probe:</i> What are the obstacles faced by women farm workers in accessing antenatal care services?</p> <p><i>Probe:</i> Have women reported bad interactions with health care workers at antenatal care?</p> <p><i>Probe:</i> What sorts of bad experiences?</p>

		<i>Probe:</i> Do you think the health services discriminate against women who drink when they attend for ANC? Please explain
	Patients' rights knowledge	<i>Probe:</i> Do you think that farm worker women know their rights? such as patient's rights? the right to health information? being treated with dignity; access to reproductive health care; non-discrimination?
		In your beneficiaries, have you encountered women who consume alcohol during pregnancy?
	Efforts to improve access to ANC	What do you think could be done to improve access to ANC for farm worker women? particularly if they have a drinking problem

#### Appendix E: Summary Budget

<b>Budget items</b>	<b>Budget amount</b>
Co-field worker <ul style="list-style-type: none"> <li>• Translator</li> <li>• Data collection</li> <li>• Transcribing</li> </ul>	<b>R0</b>
Transport to Stellenbosch <ul style="list-style-type: none"> <li>• R3, 16 @ 50 KMs X 2</li> </ul>	<b>R316</b>
Participation refreshments X 13	<b>R700</b>
<b>Telephonic – Key informants</b>	
Airtime for telephonic interviews	<b>R300</b>
<b>Total costs</b>	<b>R1316</b>

#### Appendix F: Ethics Approval



UNIVERSITY OF CAPE TOWN  
Faculty of Health Sciences  
Human Research Ethics Committee



Room G50- Old Main Building  
Groote Schuur Hospital  
Observatory 7925  
Telephone [021] 406 6492  
Email: [hrec-enquiries@uct.ac.za](mailto:hrec-enquiries@uct.ac.za)

Website: [www.health.uct.ac.za/fhs/research/humanethics/forms](http://www.health.uct.ac.za/fhs/research/humanethics/forms)

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19 October 2021

**HREC REF: 497/2021**

**Prof L London**  
School of Public Health & Family Medicine  
Falmouth Building -FHS  
Email: [Leslie.london@uct.ac.za](mailto:Leslie.london@uct.ac.za)  
Student: [Mngkqa004@myuct.ac.za](mailto:Mngkqa004@myuct.ac.za)

Dear Prof London

**PROJECT TITLE: TO EXPLORE THE FACTORS AFFECTING ACCESS TO ANTENATAL CARE SERVICES FOR WOMEN WHO CONSUME ALCOHOL DURING PREGNANCY IN STELLENBOSCH, WESTERN CAPE-MASTERS CANDIDATE-MS KGHALISO MANGOALE**

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee (HREC) for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

**This approval is subject to strict adherence to the HREC recommendations regarding research involving human participants during COVID -19, dated 17 March 2020; 06 July 2020 & 01 July 2021.**

**Approval is granted for one year until the 30 October 2022.**

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.

(Forms can be found on our website: [www.health.uct.ac.za/fhs/research/humanethics/forms](http://www.health.uct.ac.za/fhs/research/humanethics/forms))

*The HREC acknowledges that the student: Ms Kgahliso Mangoale will also be involved in this study.*

**Please quote the HREC REF 497/2021 in all your correspondence.**

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

HREC/REF 497/2021sa

Yours sincerely

Signed by candidate

**PROFESSOR M BLOCKMAN**

**CHAIRPERSON, FACULTY OF HEALTH SCIENCES HUMAN RESEARCH ETHICS COMMITTEE**

Federal Wide Assurance Number: FWA00001637.

Institutional Review Board (IRB) number: IRB00001938

NHREC-registration number: REC-210208-007

This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use: Good Clinical Practice (ICH GCP), South African Good Clinical Practice Guidelines (DoH 2006), based on the Association of the British Pharmaceutical Industry Guidelines (ABPI), and Declaration of Helsinki (2013) guidelines. The Human Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

## **Appendix G: BMC Public Health Submission Guidelines**

### **Research article**

#### Criteria

Research articles should report on original primary research or new experimental or computational methods, tests or procedures. Manuscripts reporting results of a clinical trial must conform to CONSORT 2010 guidelines. Authors of randomized controlled trials should submit a complete CONSORT checklist alongside their manuscript, available at [www.consort-statement.org](http://www.consort-statement.org). Research articles may also report on systematic reviews of published research provided they adhere to the appropriate reporting guidelines which are detailed in our editorial policies. Please note that non-commissioned pooled analyses of selected published research and bibliometric analyses will not be considered. Studies reporting descriptive results from a single institution or region will only be considered if analogous data have not been previously published in a peer reviewed journal and the conclusions provide distinct insights that are of relevance to a regional or international audience.

#### **Data sharing**

BMC Public Health strongly supports open research, including transparency and openness in reporting. Further details of our Data availability policy can be found on the journal's About page.

#### **Professionally produced Visual Abstracts**

BMC Public Health will consider visual abstracts. As an author submitting to the journal, you may wish to make use of services provided at Springer Nature for high quality and affordable visual abstracts where you are entitled to a 20% discount. Click [here](#) to find out more about the service, and your discount will be automatically be applied when using this link.

#### **Preparing your manuscript**

The information below details the section headings that you should include in your manuscript and what information should be within each section.

Please note that your manuscript must include a 'Declarations' section including all of the subheadings (please see below for more information).

#### Title page

The title page should:

present a title that includes, if appropriate, the study design e.g.:

"A versus B in the treatment of C: a randomized controlled trial", "X is a risk factor for Y: a case control study", "What is the impact of factor X on subject Y: A systematic review"

or for non-clinical or non-research studies a description of what the article reports

list the full names and institutional addresses for all authors

if a collaboration group should be listed as an author, please list the Group name as an author. If you would like the names of the individual members of the Group to be searchable through their individual PubMed records, please include this information in the "Acknowledgements" section in accordance with the instructions below

indicate the corresponding author

### **Abstract**

The Abstract should not exceed 350 words. Please minimize the use of abbreviations and do not cite references in the abstract. Reports of randomized controlled trials should follow the CONSORT extension for abstracts. The abstract must include the following separate sections:

Background: the context and purpose of the study

Methods: how the study was performed and statistical tests used

Results: the main findings

Conclusions: brief summary and potential implications

Trial registration: If your article reports the results of a health care intervention on human participants, it must be registered in an appropriate registry and the registration number and date of registration should be stated in this section. If it was not registered prospectively (before enrollment of the first participant), you should include the words 'retrospectively registered'. See our editorial policies for more information on trial registration

Keywords

Three to ten keywords representing the main content of the article.

### **Background**

The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

### **Methods**

The methods section should include:

the aim, design and setting of the study

the characteristics of participants or description of materials

a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses

the type of statistical analysis used, including a power calculation if appropriate

## **Results**

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

## **Discussion**

This section should discuss the implications of the findings in context of existing research and highlight limitations of the study.

## **Conclusions**

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

## **List of abbreviations**

If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations should be provided.

## **Declarations**

All manuscripts must contain the following sections under the heading 'Declarations':

Ethics approval and consent to participate

Consent for publication

Availability of data and materials

Competing interests

Funding

Authors' contributions

## Acknowledgements

### Authors' information (optional)

Please see below for details on the information to be included in these sections.

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

### Ethics approval and consent to participate

Manuscripts reporting studies involving human participants, human data or human tissue must:

include a statement on ethics approval and consent (even where the need for approval was waived)

include the name of the ethics committee that approved the study and the committee's reference number if appropriate

Studies involving animals must include a statement on ethics approval and for experimental studies involving client-owned animals, authors must also include a statement on informed consent from the client or owner.

See our editorial policies for more information.

If your manuscript does not report on or involve the use of any animal or human data or tissue, please state "Not applicable" in this section.

### Consent for publication

If your manuscript contains any individual person's data in any form (including any individual details, images or videos), consent for publication must be obtained from that person, or in the case of children, their parent or legal guardian. All presentations of case reports must have consent for publication.

You can use your institutional consent form or our consent form if you prefer. You should not send the form to us on submission, but we may request to see a copy at any stage (including after publication).

See our editorial policies for more information on consent for publication.

If your manuscript does not contain data from any individual person, please state "Not applicable" in this section.

## **Availability of data and materials**

All manuscripts must include an 'Availability of data and materials' statement. Data availability statements should include information on where data supporting the results reported in the article can be found including, where applicable, hyperlinks to publicly archived datasets analysed or generated during the study. By data we mean the minimal dataset that would be necessary to interpret, replicate and build upon the findings reported in the article. We recognise it is not always possible to share research data publicly, for instance when individual privacy could be compromised, and in such instances data availability should still be stated in the manuscript along with any conditions for access.

Authors are also encouraged to preserve search strings on searchRxiv <https://searchrxiv.org/>, an archive to support researchers to report, store and share their searches consistently and to enable them to review and re-use existing searches. searchRxiv enables researchers to obtain a digital object identifier (DOI) for their search, allowing it to be cited.

Data availability statements can take one of the following forms (or a combination of more than one if required for multiple datasets):

The datasets generated and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS]

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

All data generated or analysed during this study are included in this published article [and its supplementary information files].

The datasets generated and/or analysed during the current study are not publicly available due [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

The data that support the findings of this study are available from [third party name] but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of [third party name].

Not applicable. If your manuscript does not contain any data, please state 'Not applicable' in this section.

More examples of template data availability statements, which include examples of openly available and restricted access datasets, are available here.

BioMed Central also requires that authors cite any publicly available data on which the conclusions of the paper rely in the manuscript. Data citations should include a persistent identifier (such as a DOI) and should ideally be included in the reference list. Citations of datasets, when they appear in the reference list, should include the minimum information recommended by DataCite and follow journal style. Dataset identifiers including DOIs should be expressed as full URLs. For example:

Hao Z, AghaKouchak A, Nakhjiri N, Farahmand A. Global integrated drought monitoring and prediction system (GIDMaPS) data sets. figshare. 2014. <http://dx.doi.org/10.6084/m9.figshare.853801>

With the corresponding text in the Availability of data and materials statement:

The datasets generated during and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS].[Reference number]

If you wish to co-submit a data note describing your data to be published in BMC Research Notes, you can do so by visiting our submission portal. Data notes support open data and help authors to comply with funder policies on data sharing. Co-published data notes will be linked to the research article the data support (example).

### **Competing interests**

All financial and non-financial competing interests must be declared in this section.

See our editorial policies for a full explanation of competing interests. If you are unsure whether you or any of your co-authors have a competing interest please contact the editorial office.

Please use the authors initials to refer to each authors' competing interests in this section.

If you do not have any competing interests, please state "The authors declare that they have no competing interests" in this section.

### **Funding**

All sources of funding for the research reported should be declared. The role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript should be declared.

### **Authors' contributions**

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Please use initials to refer to each author's contribution in this section, for example: "FC analyzed and interpreted the patient data regarding the hematological disease and the transplant. RH performed the histological examination of the kidney, and was a major contributor in writing the manuscript. All authors read and approved the final manuscript."

### **Acknowledgements**

Please acknowledge anyone who contributed towards the article who does not meet the criteria for authorship including anyone who provided professional writing services or materials.

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Always use footnotes instead of endnotes.

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