Brief Report

Determinants of Alcohol Use Among Pregnant Women at George Health Centre in Lusaka District, Zambia

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Abstract

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

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

Method: A mixed convergent method study an analytical cross-sectional design recruited 255 pregnant women from which 24 participated in 4 focused group discussions from women who gave a history of drinking alcohol.

Results: The study showed that 4 in every 10 pregnant women had a history of alcohol consumption prior to and during pregnancy. Significant factors associated with alcohol use included smoking and marital status. Pregnant women's likelihood to drink alcohol was 63% lower among those of high socioeconomic status (SES) compared to the lower classes. The results also found a behavioural gap between high levels of awareness on harmful effects of alcohol compared to the high prevalence rate recorded.

Conclusion: The findings suggest a great need for assessment, identification and management of prenatal alcohol consumption among pregnant women attending antenatal care in health facilities in order to ensure early treatment.

Keywords: Alcohol use, prenatal, culture, pregnant women, perceptions

INTRODUCTION

Alcohol is a recognized teratogen in utero, and it is believed to have an impact on specific areas of the developing foetal brain causing defects in neuronal proliferation and migration, hypoxia, and cell death (Addis N, 2019). Pregnancy alcohol usage is one of the primary causes of preventable birth malformations and neurodevelopmental disorders around the world. This can result in a variety of cognitive, developmental, and behavioral issues that can last a child's entire life and have permanent consequences.

Growth restriction, distinctive facial deformities, and neurobehavioral dysfunction are only a few of the lifelong issues. The term "foetal alcohol spectrum disorder" describes this set of symptoms (Anderson AE, 2014). These findings have consistently demonstrated that severe forms of FASD can occur when the central nervous system is damaged leading to mental health disorders such as anxiety, attention-deficit/hyperactivity disorder (ADHD), mood, and depression. WHO estimates that 1 in 10 women globally consume alcohol during pregnancy with a 20% of them being binge drinkers (consuming 4 or more alcoholic

drinks on one occasion) which is a direct cause of FASD, and is associated to unplanned pregnancies due to lack of awareness (WHO, 2018). Assessment of pregnant women in antenatal clinic is very cardinal in revealing risky alcohol use behaviour as conducted in Ethiopia which revealed 16.1% of attendees, and was associated with several factors such as depression, anxiety, poor social support, history of abortion and family mental illness (Baptista FH, 2017). Therefore, early detection and management of prenatal alcohol use and its associated factors can lead to a decrease in the prevalence of alcohol consumption and its consequences. Knowledge, socioeconomic, perceptions, and cultural impacts are some of the factors that have been identified to influence pregnant women's alcohol consumption.

METHODS

The study used a mixed method convergent parallel approach. This approach prioritized both quantitative and qualitative methods equally, analyzed them separately and integrated the results (Bitew T, 2019). Figure 2 below shows a flow chart on how the approach was undertaken. (Figure: 1). Data collection was conducted in a period of two weeks concurrently for both methods

Data Entry and Analysis

Quantitative data was analyzed using SPSS version 21.0 software. Cross tabulations between the dependent and independent variables were done to establish association using the chi-square test on SPSS software. The level of statistical significance was set at 5%. Therefore, only p values of 0.05 or less were considered statistically significant. The qualitative data transcribed, coded and analyzed using thematic analysis.

Ethics consideration: In order to commence with the study, the research was granted ethical approval by University of Zambia Biomedical Research Ethical Committee (Ref: 1440-2021) and National Health Research Authority (Ref: NHRA000010/22/04/2021) before any contact with the participants. Permission from Lusaka District Health Office (LDHO), Matero hospital and George health center was obtained. All respondents in this study gave consent before participating.

RESULTS

The study findings revealed a high prevalence rate of 40.4% of pregnant women consumed alcohol prior to pregnancy recognition and during pregnancy. shows that the prevalence of alcohol use among pregnant women during pregnancy was 40.4% (103) and 59.6% (152) of them did not consume alcohol. Shows the respondents knowledge on the harmful effects of alcohol to the unborn baby. A total of 175 (68.6%) had knowledge and 80 (31.4%) had no knowledge. The relationship between alcohol use and the above selected variables (marital status and smoking status) was found to be statistically significant (Figures 2-3).

Factors associated with alcohol use among pregnant women

The binary logistic regression adjusted for age, education, marital status, religion, socioeconomic status, emotional support, knowledge, pregnancy planning, number of times pregnant and smoking status. Shows that smoking status is an important determinant of alcohol use among pregnant women. The odds of alcohol use among women who smoke is 11.24 times higher compared to non-smokers. Therefore, smoking status was statistically significant with p-value of 0.028. The odd of taking alcohol among single pregnant women was likely to increase by 39% compared to the married pregnant women. The odds of pregnant women taking alcohol is 63% lower among women in
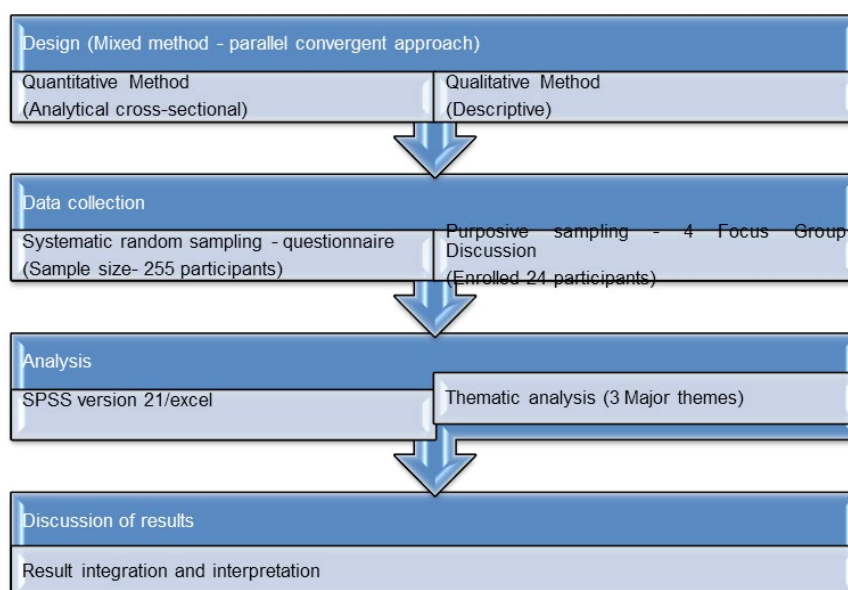

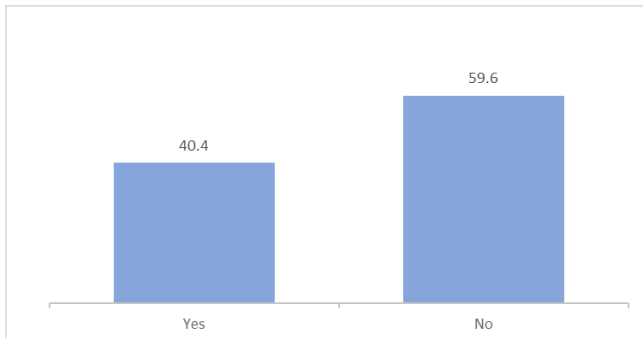**Figure 1.** Mixed method using convergent parallel approach.

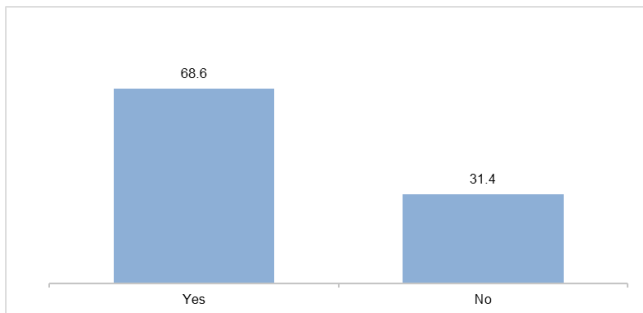**Figure 2.** Alcohol use among respondents (n=255).

Figure 3. Respondent's knowledge on the harmful effects of alcohol to the unborn baby.

high socioeconomic status compared with women in low socioeconomic status. Meanwhile the odds of pregnant women drinking alcohol reduces with a factor of 0.505 (49.5%) among women with one or two pregnancies compared to those with three or more pregnancies. However, variables such as knowledge, pregnancy planning, emotional support, religion, education, socioeconomic status, marital status and age were not statistically significant (Tables 1-2).

Qualitative data results

The qualitative approach aimed to understand pregnant women's perception and cultural influences surrounding their alcohol use during pregnancy. A total of 24 women with a history of consuming alcohol were interviewed using a focus group discussion guide in 4 focused group discussions in which each group consisted of 6 participants. Thematic saturation was considered achieved as no new themes emerged in the data after approximately 4 focused group discussions in each sample. The focused group discussions were audio recorded, transcribed verbatim and translated. Data was analyzed using thematic analysis as described below. the above figure shows the major themes identified in the qualitative data. The three major themes identified include type of alcohol rather than alcoholic content, societal pressure and belief in perceived benefits (Figure 4).

DISCUSSION

The quantitative study revealed that 76% of participants were married out of which 54% of them consumed alcohol.

Table 1. Association between alcohol use and selected independent variables.

Variables	Alcohol use		P-value
	Yes	No	
Marital Status			
Married	71(27.8)	124(48.2)	0.019
Single	32 (12.5)	28(10.9)	
Smoking status			0.003
Smoker	8(3.1)	1(0.4)	
Non smoker	95 (37.2)	151(59.2)	

Table 2. Associated factors of alcohol use among pregnant women.

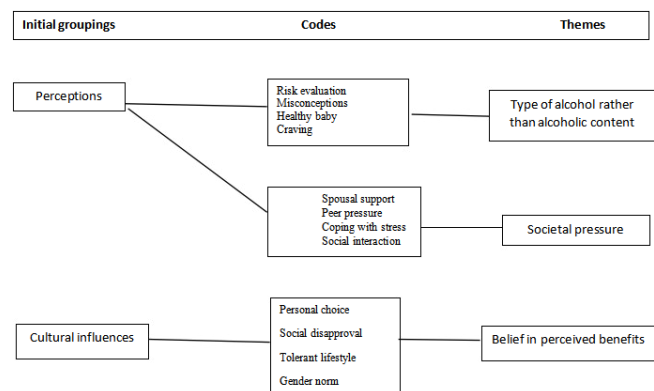| Variable		Odds ratio	p-value	Confidence interval
Socioeconomic status (SES)	Low	1		[1,1]
	Mod	0.619	0.285	[0.257, 1.492]
	High	0.372	0.068	[0.129, 1.075]
No. of times pregnant	One/two	1		[1,1]
	Three/more	0.665	0.154	[0.379, 0.164]
Marital status	Married	1		[1,1]
	Single	1.394	0.315	[0.729, 2.665]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

Figure 4. Thematic map of major themes identified.

This result was found statistically significant with a p-value of 0.019. The low attendance of single women at the facility could be attributed to married women being freer to access health care services at health facilities due to the policy that supports male participation in antenatal care, hence disadvantaging the single women whose partners may not be ready for those services (Chiodo LM, 2019). Another study suggested that married women consumed more alcohol as a sign of dissatisfaction in their marriages as well as coping with their marital distress (Creswell J, 2007). Meanwhile, the qualitative result of the study has shown that married women's alcohol consumption is influenced by their spouses sponsoring their alcohol. The women indicated that their spouses, supported the behavior as long as they drunk alcohol from home together. This result conflicts with the study suggesting that alcohol consumption in pregnancy is associated with women having unstable

partners as they reported marital satisfaction contributing to their low alcohol consumption (Jorda M, 2021). The study results have revealed a 40.4% prevalence rate of alcohol use among pregnant women attending antenatal visits. This study does not agree with previous study conducted in Zambia with a similar geographic characteristic indicating a prevalence rate of 21.2% in the periconceptional period and during pregnancy (Lees B, 2020). Similarly, this prevalence rate is more than triple as recorded in the African region around the same time of study which indicated a prevalence of 10% (Moise IK, 2019). These variations show an increase of alcohol use among pregnant women which could be akin to the qualitative study results associating it to a more tolerant environment that allows women to continue with the behaviour. It could also be attributed to the differences in community settings where alcohol is as easily accessible as observed in the location under study of George Township. Participants expressed that the environment in which they leave is very tolerant to women consuming alcohol, such as traditional beliefs prescribing certain traditional brews (including Katata, and commercially brewed traditional beers such as waka beer and Sheki-Sheki beer) believed to increase breast milk production thereby encouraging them to drink alcohol prenatally in order to prepare for breastfeeding. However, it was found that this may not apply to all tribes because some only prescribed traditional energy drinks (such as munkoyo) in preparation for breastfeeding This result was supported by a study stressing the need to understand women's culture as some have harmful beliefs and practices such as those that prescribe alcohol for breastfeeding (Nwagu EN, 2017). The study has shown that women's smoking status influences their alcohol consumption as the result was found to be statistically significant with a p-value of 0.003. This is supported by studies indicating that decreasing smoking during pregnancy is very difficult and hence women continue smoking and drinking alcohol which is hazardous to the unborn child (Onwuka CI, 2016). Studies have showed that majority of women continue to smoke during pregnancy up to 74.6% while a drop is observed in which those who continue to drink concurrently with smoking are up to 35.4% and this was associated to education status, income level and living with someone (Peltier MR, 2019). This could also be attributed to the fact that drinking has been found to increase craving for smoking (Popova S, 2021). Conversely, the qualitative results indicated that women that have been drinking for a long time continued craving alcohol during pregnancy making it hard to stop. This could be attributed to the dopaminergic reward system that thrives to maintain the pleasurable effects of alcohol. Meanwhile, the quantitative study results further asserts that most of the pregnant women were not in formal employment instead they thrived on their relations to maintain the behaviour. Despite their low to middle income status, most women still had easy access to alcohol on a regular basis. They explained that they had no stable sources of income

but their drinking adventures were mainly as a result of spouses and friends who acted as sponsors in sustaining the behaviour. This is in agreement with another study indicating that pregnant women engaged in beer drinking for purposes of socialization because their drinking was supported mostly by relations (Popova S, 2021). Both the quantitative and qualitative studies have further showed agreement that socioeconomic status of pregnant women contributed to their levels of alcohol consumption. Some of the constraints to changes in alcohol use observed in the qualitative study suggested financial incapacitation forcing them to change the type of alcohol, frequency and for some completely stop drinking alcohol. Some women pointed out that the current economic status was too expensive to maintain the family and continue drinking bottled alcohol. This prompted them to consume traditionally brewed alcohol as it proved to be a cheaper option and still able to keep them drunk. While other women felt that stopping alcohol or reducing the frequency and the type was good for the wellbeing of the unborn child, those who completely stopped argued that all forms of alcohol are detrimental to the health of the unborn child despite the type and amount. The quantitative study results revealed that 72% of pregnant women who consumed more alcohol were in the moderate socioeconomic status. This is supported by a study done on assessing low middle income countries that showed women in the high socioeconomic status were unlikely to consume alcohol during pregnancy compared to those in the lower socioeconomic status and this was attributed to high income and education level (Wubetu AD, 2019). Another study further indicated that women in employment had their own money to spend on alcohol despite them being low consumers (Lim AWY, 2019). This could be attributed to their busy schedules at work and having access to knowledge on the dangers of alcohol use in pregnancy. Despite the SES not being statistically significant, study results indicated a 62.8% reduction in alcohol use among women of high SES compared to those in the moderate SES. Additionally, it is supported by a study showing that the diagnosis of FASD is unlikely to be made in women of a higher socioeconomic status despite their ability to abuse alcohol.

LIMITATION

The study was conducted at the facility and among pregnant women who may have experienced difficulties in disclosing their true levels of alcohol consumption during pregnancy for fear of victimization from peers as well as health professionals making self-reported alcohol use less accurate. This was mitigated by isolating the participants in a private room in order to promote openness. Social desirability bias was reduced by forced choice itemization of responses so that participants were able to choose the most relatable option through a structured questionnaire. This was helpful because participants did not have to struggle explaining themselves. When undertaking focused group discussions, pregnant women were grouped as alcohol users in order

to encourage openness. Drinking was reported over a past period of 12 months which lead to miscalculations due to recall bias. The study was conducted in one location, there is need to conduct a study in a high socioeconomic status location in order to get a clear picture what these results on SES suggest in this study.

CONCLUSION

The study explored the determinants of alcohol use among pregnant women attending antenatal care. The various factors identified in the study will provide useful information on how to improve the early identification and management of both maternal and foetal mental wellbeing. The study has showed a 40.4% prevalence of alcohol use among pregnant women, this serves as a warning mark to strengthen the public health strategies being provided in order to minimize the preventable harm attributed to its use. This result indicates a high likelihood of prenatal alcohol exposure associated with lack of pregnancy planning accounting for 68.9% of pregnancies. This situation has potential to increase mental health burden through management of various mental health problems associated to prenatal alcohol use such as depression, anxiety, mood, ADHD and FASD. The study has shown that there is no relationship between levels of knowledge and women's levels of alcohol consumption. This observation has revealed that women still continue to drink despite their awareness of harmful effects of alcohol; this indicates the need to re-strategize the models for information delivery in this cohort. The different and unhealthy perceptions held by these women could be based on their experiences of associated complications leading to moral conflicts and uncertainty. The study has showed that 72% of pregnant women who consumed alcohol were in the moderate socioeconomic status. Despite the low levels of employment and education, most women continued drinking alcohol under the sponsorship of their relations such as peers and family through socialization. This indicates that the environment is more tolerant of such a behavior hence the need to engage communities in the management of this problem in order to provide a supportive environment that encourages abstinence during pregnancy. The study showed that 54% of married women consumed alcohol indicating that the continued behavior was supported by their spouses. This indicates the need to intensify the policy on male participation in antenatal care so that couples are counselled together and offered appropriate health education that can help deter the behavior. The study has also showed that there was statistical significance between smoking status and alcohol use in pregnancy. It has revealed that association between smoking increases craving for alcohol. This signifies the need for counselling and application of models that should reduce smoking in order to minimize its effects on alcohol consumption.

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