Alcohol Use and Associated Factors among Pregnant Mothers in West Arsi, Southern Ethiopia, 2021

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ABSTRACT

Background: Alcohol consumption during pregnancy is a major public health issue in both developed and developing countries. Prenatal exposure has been linked to an increase in miscarriages, stillbirths, brain damage, birth defects, growth restriction, social, and behavioral deficits, data on the extent of use of alcohol by women during pregnancy in the study setting is unknown. Therefore, the aim of the study was to assess the prevalence of alcohol use and associated factors among pregnant women in study area. **Methods:** A community-based cross-sectional study was conducted among pregnant women in the Arsi Nagele district from September 23 to October 23, 2021. A cluster sampling technique was used to select 759 pregnant women. A pre-tested interviewer-administered questionnaire was used to collect data. Bivariable and Multivariable logistic regression was used to identify the independent predictors of alcohol use during pregnancy. Statistical significance was declared by using odds, a p-value of <0.05 and at 95% confidence intervals. **Results:** The prevalence of alcohol consumption during pregnancy was found to be 36.3% (95% CI: 34.7%, 37.97%). The study revealed that pregnant women who live urban [AOR = 1.48; 95% CI 1.34-3.85], alcohol use prior to pregnancy [AOR = 4.06: 95% CI 2.77-5.99], partner uses alcohol [AOR = 2.97: 95% CI 2.03-4.33], have low level of knowledge about harmful effects of alcohol consumption during pregnancy [AOR = 3.95: 95% CI 2.63-5.95] and poor preventive attitude toward alcohol consumption during pregnancy [AOR = 3.02; 95%CI: 2.71-5.96] were significantly associated with alcohol consumption during pregnancy. **Conclusion:** Alcohol use during pregnancy is prevalent in the study area. Findings underscore the need for targeted alcohol use screening and intervention for pregnant women. Residence, pre-pregnancy alcohol use, partner alcohol use, knowledge and attitude about harmful effects of alcohol use during pregnancy factors significantly associated with alcohol use.

Keywords: Alcohol Use, Pregnancy, Fetal Alcohol Spectrum Disorder, Nagele Arsi.

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INTRODUCTION

The use of substances such as alcohol, tobacco, and other illicit drugs is becoming a growing problem in all segments of the population, as well as a growing public health and socioeconomic concern, due to the enormous social and economic implications [1]. Alcohol is the most commonly used psychoactive substance, and it has been linked to a number of negative health effects for both the mother and the developing fetus during pregnancy [2].

Alcohol has long played a role in culture in terms of social connectedness and relaxation [2]. However, harmful alcohol consumption globally causes about 3 million deaths each year and contributes about 5.1% of the global burden of disease according to WHO 2018 report [3]. Prenatal alcohol exposure is the leading preventable cause of intellectual disability in the United States and is seen as a leading cause of intellectual impairment in the world [3]. The United States, alcohol misuse costs about 250 billion dollars with 5.5 billion dollar (2.2%) related to alcohol use during pregnancy [4].

In Sub-Saharan Africa, alcohol use is the leading modifiable risk factor for disability and death [5]. In Ethiopia, both locally produced and manufactured alcoholic beverages are consumed. People drink homemade beverages that are easily accessible and culturally acceptable, each with different estimated alcohol content 2–4% for tella, 7–11% tej and up to 45% for areke in part of appreciation, ceremonies, relaxation after work, and leisure activities or even in daily family meals [6].

Alcohol is estimated to be consumed by 10% of pregnant women worldwide, with one in every 67 of these women giving birth to a child with fetal alcohol syndrome. Alcohol exposure during pregnancy ranged from 2.2–87 percent in Sub-Saharan Africa, and it is becoming a growing problem among pregnant women [7]. In Ethiopia a study done in Addis Ababa city showed that about 37.1% of pregnant women use alcohol during pregnancy [8].

Alcohol consumption during pregnancy is harmful to both the mother and the developing fetus because it easily crosses the placenta and reaches the maternal level after two hours of consumption, has a teratogenic effect on the developing fetus, and causes fetal alcohol spectrum disorders (FASDs) and fetal alcohol syndrome (FAS) [9]. FASD is associated with a wide range of physical, behavioral, and learning issues, including growth impairments, facial abnormalities, brain function issues, and developmental delays [10].

Stillbirth, miscarriage, prematurity, birth deformities, growth restriction, developmental delay, and cognitive, social, emotional, and behavioral problems are all associated to prenatal alcohol consumption. The social and behavioral problems associated with alcohol consumption during pregnancy may become more apparent later in life. Low IQ, lack of attention, impulsivity, aggression, and problems with social interaction are some of the intellectual and behavioral characteristics of pregnant women who have been exposed to alcohol [11].

Alcohol exposure during the intrauterine period has long-term consequences and imposes a financial burden; thus, the cost of correction and health care for a person with FASD, for example, is estimated to be more than $1 million in North America [12].

Alcohol is frequently consumed in a harmful manner and has been underappreciated in developing countries such as Africa, including Ethiopia [8]. Because of the weak regulatory strategies of alcohol production, promotion, and drinking pattern, it is available in every grocery and bar in Africa [13].

There is a scarcity of published studies and evidence-based information on burden of FASD in Africa as a whole, with the majority of African countries' literatures coming from South Africa. FASD is most likely a common and largely undiagnosed neurodevelopmental disability in Africa [14]. The risk of FASD is significant in South Africa, and it is the most commonly reported in the globe. FASD rates range from 17 to 23%, while FAS rates range from 5.9 to 7.9% during childhood, according to epidemiological research conducted in a high-risk region in the Western Cape Province [15].

A several numbers of pregnant women consume alcoholic beverages as a result of increased marketing of industrially produced various branded beverages over time, as well as the growing purchasing power of Ethiopian society [8,13]. Similarly, traditional homemade alcoholic beverages (Tella, Tej, and Areke) are well-known and widely used, with no restrictions on who can consume them [16]. While the risks of drinking alcohol during pregnancy have received little attention in the country's health policies.

Nagele Arsi is well-known for brewing Areke, which is widely consumed and in high demand throughout the country, with approximately 87.3 percent of the population directly supporting their lives through areke distillation, and empirical evidence shows that several pregnant women in the study area consume traditional produced and known alcoholic beverages [17].

However, there is a scarcity of evidence on the determinants

of alcohol consumption during pregnancy in Ethiopia generally that, and no recent study on the topic in this study area, where the majority of the population supports his life through Areke distillation. As a result, this study could make a unique contribution to filling these gaps within the prevailing literature and informing future policy efforts in Ethiopia.

METHODS AND MATERIALS

Study area and period

Nagele Arsi district is located in the Oromia Regional State's West Arsi zone. The district is located about 225 kilometers south of the capital, Addis Abeba. According to the district health office, the projected population of Woreda is 350115 (177838 female and 172276 male). There were 30200 pregnant women among those. There are 3 urban kebeles and 36 rural kebeles in the district. The district has one primary hospital and nine health centers. The district is usually known by its distillation and business of Areke (Katikala).

A study was carried out from September 23 to October 23 2021 in West Arsi Zone Nagele Arsi district.

Study design and Study population

Community based cross sectional study was employed. All pregnant women who have been residing for at least six months in Arsi Nagele district, southern Ethiopia during the study period. were source population while randomly selected pregnant women was study population.

Inclusion criteria

- Pregnant women living in selected kebeles during study period
- Permanent residents (lived for at least 6 months)

Exclusion criteria

- Pregnant mothers who are not well communicated due to any disability or illness were excluded from the study.

Sample Size Determination and Sampling Procedure Sample size was determined by using single population proportion formula considering P= prevalence of alcohol use among pregnant women in Bahardar city which was 34%[18], 95% confidence level, 5% desired degree of accuracy, 2 times design effect. By considering 10% non-response rate, the final sample size was 759. Because the availability of alcohol varies depending on where they live, pregnant women were selected using a cluster sampling. The district has three urban and 36 rural kebeles (small administrative unit in

Ethiopia). From all these kebeles the list of pregnant women was obtained from health extension workers registration book with their respective address including the town house number. The determined sample size (N=759) was proportionally allocated to these kebeles based on the total number of pregnant women in each kebeles. Systematic random sampling technique was employed to select the study participants. It has been determined that the pregnant women were selected every 5th interval (i.e., by dividing the total number of pregnant women to the calculated sample size). The first pregnant woman interviewed was randomly selected using lottery method for each kebeles and continued every sampling interval. In the absence of eligible women in that household after three visits the next nearby higher house hold was interviewed

Data collection procedures and instruments

After reviewing the relevant literature, the tool was developed and adopted. Data was collected using a structured pretested questionnaire that included socio-demographic characteristics, obstetrics-related characteristics, substance-use-related characteristics, and personal and social factors.

The tool contained Alcohol Use Disorder Identification Test-Consumption (AUDIT-C) (13,19). The foremost widely used shortened version of the 10-item AUDIT, which incorporates items for assessing alcohol consumption across cultures and identifying hazardous drinkers. Each item's response options range from 0 to 4, for a total possible score of 40. A total score of 1–7 indicates that you are drinking socially. A score of 8–15 denotes "dangerous drinking." A score of 16–19 indicates "harmful drinking," while a score of 20 or higher indicates probable alcohol dependence, with 94.1 percent sensitivity and 91.7 percent specificity [19,20].

Levels of social support were assessed by using Oslo-3 item Social Support Scale having a maximum sum score of 14. The sum scores were categorized as poor (3-8), moderate (9–11) and strong (12–14) [20]. Edinburgh Postnatal Depression Scale (EPDS) which has 10 items scored on a scale of 0–3; the score ranging from 0–30 and we used a cut-off point of 13 and above on the scale to identify women with depressive symptoms [12,21]. Knowledge about alcohol consumption during pregnancy was assessed using 11 questions of 3-point Likert scales [22,23]. And overall knowledge was categorized using original Bloom's cut-off point (13). as good if the score was between 80 and 100% (8-11points), moderate if the score was between 60 and 79% (5–7 points), and poor if the score was less than 60% (< 4 points) of a correct answer.

Ten questions were used to assess attitudes toward alcohol consumption during pregnancy. The 5-point Likert scale from strongly agree to strongly disagree questions were scored with an agreement scale of 1 (strongly agree and agree) or 2 (strongly disagree and disagree) (neutral, disagree, and strongly disagree [23,24]. Using the original Bloom's cut-off point, the overall level of attitude toward alcohol consumption during pregnancy was classified as positive if the score was 80–100 percent (8–10 points), neutral if the score was 60–79 percent (6–7 points), and negative if the score was less than 60 percent (<5 points).

Data Quality Assurance

The questionnaire was written in English first, then translated to Afan Oromo to facilitate understanding, and then back translated to English to ensure consistency. Data were collected by 8 BSc. midwives who were supervised by 2 MSc. midwives. Two day of training was provided for data collectors and supervisors to ensure data quality. Before the 1-week actual data collection, a pretest was conducted on 76 pregnant mothers (10% of the total sample size) in Shashemene town, which is 22.4km from the study area, to assess the questionnaire's simplicity, flow, and consistency. The internal consistency of knowledge and attitude measurement was ensured by computing the Cronbach alpha coefficient for the pilot study, which was 0.86 and 0.79 for knowledge and attitude, respectively.

Data analysis

First, the collected data was checked for completeness and consistency. To ensure the quality of the data for analysis, the data was cleaned and entered into Epi-data V.4.2. The data was then exported and analyzed using the Statistical Package for Social Science (SPSS-25). Negatively worded questions for knowledge and attitude were reverse coded (recoded) prior to analysis to align all questions in one direction. Following that, the findings were summarized and presented in the form of tables and charts. To identify significant predictors of alcohol use, bivariable and multivariable binary logistic regression were used. In the bivariable analysis, variables with p-values of 0.25 were considered as candidates for multivariable regression to control for potential confounders. Variables with p-values of 0.05 were considered to have a statistically significant association with alcohol use at a corresponding 95 percent confidence interval in the final model.

The presence of multicollinearity among explanatory variables was checked using the Variance Inflation Factor (VIF) at a cut-off point of 10 for predictors variables, so VIF greater than 1 and less than 5. The model fitness for multivariate binary logistic regression was evaluated using the Hosmer and Lemeshow test.

RESULTS

Socio-demographic characteristics of respondents

The study included 759 participants, with 739 completing the interview at a response rate of 97.36%. The mean age (± SD) of the pregnant mothers was 26.62(±4.6), with the age ranging from 18 to 41 years and age 25-29 years dominated the entire group. 98% pregnant mothers are married and more than half (50.9%) of them have family members of five and above. Three hundred seventy-seven (50.7%) pregnant mothers were no formal education. The average monthly income of respondents was 1025 in ETB (Table 1).

Table 1. Socio-demographic characteristics of the included pregnant mothers in Nagele Arsi district, West Arsi Zone, Oromia, 2021 (n = 739)

Socio-demographic Characteristics	Frequency	Percentage (%)
Age of respondents		
15-19	116	15.7
20-24	129	17.5
25-29	297	40.2
30-34	131	17.2
35 and above	66	8.9
Marital status		
Married	724	98
Single/widowed/divorced	15	2

Family members		
1-2	162	21.9
3-4	201	27.2
>5	376	50.9
Religion		
Orthodox	322	43.6
Muslim	235	31.8
Protestant	141	19.1
Wakefeta	41	5.5
Ethnicity		
Oromo	547	74
Amhara	116	15.7
Tigre	25	3.4
Kembata	23	3.2
Others	28	3.7
Educational status		
No formal education	377	51
Primary education	215	29.1
Secondary education	105	14.2
Tertiary education	42	5.7
Husband educational status		
No formal education	337	45.6
Primary education	164	22.2
Secondary education	146	19.8
Tertiary education	92	12.4
Occupation		
Student	54	7.3
Merchant	241	32.6
Employed in any organization	50	6.8
Farmer	87	11.8
Housewife	307	41.5
Residence		
Urban	291	39.1
Rural	448	60.6
Average monthly income(quintile)		
<500	217	29.4
500-1500	392	53
>1500	130	17.6

Key: Others; Sidama/Hadiya/Gurage

Obstetrics, substance use, and psychosocial support characteristics of respondents

Regarding the obstetric characteristics of respondents, 375(50.7%) of the pregnant mothers had planned their current pregnancy, 467 (63.2%) of the pregnant mothers are multipara, and 411 (55.6%) were in the third trimester of pregnancy. Furthermore, 145 (19.6%) of the pregnant mothers reported that they experienced abortion in their previous pregnancy. Sixty-four (8.7%) chew khat during pregnancy and 27(3.7%) smoke cigarettes during pregnancy. 238 (32.2%) were had poor social support (Table 2).

Table 2. Obstetric, substance use, psychosocial support of the pregnant women in Nagele Arsi district, West Arsi Zone, Oromia, 2021 (n = 739)

Variables	Frequency	Percentage
Gestational age		
First trimester	7	0.9
Second trimester	321	43.4
Third trimester	411	55.6
Parity		
Nullipara	134	18.1
Has one child	138	18.7
Has two child and above	467	63.2
Pregnancy		
Planned	379	51.3
Unplanned	360	48.7
History of abortion		
Yes	227	30.7
No	512	60.3
Chew khat during pregnancy		
Yes	64	8.7
No	675	91.3
Smoke during pregnancy		
Yes	27	3.7
No	712	96.3
Social support		
Strong	245	33.2
Moderate	256	34.6
Poor	238	32.2
Other substances		
Yes	9	1.2
No	730	98.8
Alcohol use prior pregnancy		
Yes	366	49.5
No	373	50.5

Key: Other substances: cannabis, cocaine, sleeping pills

Prevalence of alcohol using during pregnancy

The prevalence of alcohol use during pregnancy was screened by using the AUDIT-C questionnaire, and mothers who take any amount of alcohol during pregnancy, irrespective of trimester and frequency, are considered as having alcohol use behavior.

Of all respondents, 268 (36.3%) used alcohol and 113 (42%) reported they were drink alcohol 2-4 times per month. 112 (41.8%) of the participants had 1-2 drinks per occasion and 34 (12.7%) were used six or more drinks per single time. Alcohol use disorder (AUDIT score), 71(26.5%) had Hazardous drinking (AUDIT-C score of 8–15) behavior, 33(12.3%) had Harmful drinking (AUDIT-C score of 16–19) behavior and 20 (7.9%) Dependency (AUDIT-C score 20 and above) disorder. As more than one-third of the study participants were used alcohol for relaxation, 89 (33.2%) reported using alcohol for socialization, and 19 (7.1%) stated

they have used alcohol to relieve stress. One hundred six (39.6%) of the study participants used tella, and 68 (25.4%) respondents were used Arake during pregnancy.

Attitude and Knowledge about the harmful effect of alcohol use during pregnancy

From all respondents, one hundred forty seven (19.9%) had good knowledge about the harmful effects of alcohol consumption during pregnancy, scored 80-100% (9-11 score) questions correctly regarding the harmful effect of alcohol consumption on fetuses. Among those who have good knowledge (scored more than mean), only 23 (8.6%) consumed alcohol.

A total of 739 pregnant mothers, 471(63.73%) had a poor preventive attitude towards alcohol consumption during pregnancy, scored less than 60% questions. but for those who have a positive preventive attitude only 27(10.1%) have had consumed alcohol (Table 3).

Table 3. Maternal depression, source of information, socio-cultural factors of the pregnant women in Nagele Arsi district, West Arsi Zone, Oromia, 2021 (n = 739)

Variables	Frequency	Percentages
Maternal depression		
Yes	237	32.1
No	502	67.9
Partners drink alcohol		
Yes	338	45.7
No	401	54.3
Partner encourage to drink alcohol		
Yes	90	12.2
No	649	87.8
The perception that alcohol use is culturally acceptable		
Yes	186	25.2
No	553	74.8
Ever heard of the risk of alcohol drinking during pregnancy		
Yes	245	33.2
No	494	66.8
Source of information(N=245)		
Health personnel	64	43.7
TV/radio/newspaper	181	56.3
Informed risk of alcohol consumption at ANC visit		
Yes	118	16
No	621	84

Maternal depression, source of information, socio-cultural characteristics of respondents

Two hundred thirty (32.1%) are positive for antepartum depression, and 90(12.2%) pregnant mothers are encouraged to drink alcohol by their partner. One hundred eighty-six (25.2%) perceived alcohol consumption during pregnancy culturally and socially acceptable. 245(33.2%) pregnant mothers heard about the harmful risk of alcohol consumption during pregnancy, among those 64(43.7%) heard information from health personnel.

Factors associated with alcohol use during pregnancy

In the bivariate analysis mother educational status, family monthly income, pre-pregnancy alcohol use, partner alcohol use, attitude, and knowledge of the harmful effects of alcohol consumption during pregnancy were statistically associated with alcohol use (Table 4).

In the multivariable analysis, the prevalence of alcohol use was higher significantly among a woman who lives urban.

[AOR = 1.48; 95% CI 1.34-3.85]. The odds of using Women who live in urban 1.48 times more likely to use alcohol than those who lives in rural during pregnancy alcohol during pregnancy increases by fourfold in pregnant women who uses alcohol prior to pregnancy when compared to pregnant women who does not use alcohol before pregnancy [AOR = 4.06: 95% CI 2.77-5.99]. Those pregnant women who their partner uses alcohol were 2.97 times more likely to use alcohol when compared to those who their partner does not use alcohol [AOR = 2.97: 95% CI 2.03-4.33].

Pregnant mothers with negative knowledge of the harmful effects of alcohol consumption during pregnancy on the fetus were 3.95 times more likely to use alcohol than those with good knowledge [AOR = 3.95: 95% CI 2.63-5.95]. Finally, respondents who had a poor preventive attitude toward alcohol use during pregnancy were three times more likely to use alcohol than those who had a good preventive attitude toward the risk of alcohol consumption during pregnancy [AOR = 3.02; 95%CI: 2.71-5.96] (Table 4).

Table 4. Bivariable and multivariable binary logistic regression analysis showing association between factors and alcohol use among pregnant women in Nagele Arsi district, West Arsi Zone, Oromia, 2021 (n = 739)

Variables	Alcohol status		COR (95% CI)	AOR (95% CI)
	Yes	No		
Educational status				
No formal education	181	196	0.38(0.18-0.78)	0.343(0.13-0.90)
Primary	49	166	1.20(0.56-2.56)	0.88(0.32-2.35)
Secondary	27	78	1.02(0.45-2.31)	1.26(0.44-3.59)
Tertiary and above	11	31	1	1
Residence				
Urban	149	207	1.59(1.18-2.16)	**1.48(1.34-3.85)***
Rural	119	264	1	1
Average Monthly income (in ETB)				
<500	89	128	0.55(0.34-0.88)	0.64(0.34-1.20)
500-1500	143	249	0.66(0.43-1.03)	0.85(0.47-1.52)
>1500	36	94	1	1
Pre-pregnancy alcohol use				
Yes	191	175	4.19(3.03-5.80)	**4.06(2.77-5.99)***
No	77	296	1	1
Partner alcohol use				
Yes	169	169	3.05(2.23-4.16)	**2.97(2.03-4.33)***
No	99	302		1
Knowledge				
Low	227	262	4.09(2.38-7.01)	**3.95(2.63-5.95)***
Moderate	18	85	2.34(1.64-5.43)	1.34(1.03-3.94)

Good	23	124	1	1
Attitude				
Poor-preventive attitude	219	252	3.31(2.01-5.48)	**3.02(2.71-5.96)***
Neutral	22	84	1.76(1.25-4.95)	1.29(1.12-3.45)
Good-preventive attitude	27	135	1	1

NB. 1.00 -reference, the variables in AOR were identified on the basis of p-values ≤0.0

Chi square = 10.2, df = 7, Hosmer lemshow test = 0.459

DISCUSSION

The current study aimed to assess the prevalence of alcohol use and identify associated factors in a sample of pregnant mothers in Ethiopia.

The prevalence of alcohol use during pregnancy in this study was 36.3%, suggesting a higher risk of alcohol use among pregnant mothers despite complete abstinence of alcohol recommended during pregnancy. This figure was significantly higher when compared to other studies conducted in Korea 21.4% [25], Zambia 20.1% [26], Tanzania 15% [27], and Ethiopia Gedeo zone 8.1% [28], Butajira 10% [29]. The possible explanation for this difference due to geographical location, sample size differences, study conducted in Zambia uses T-ACE (Tolerance, Annoyance, Cut Down and Eye Opener) screening tool and Study in Gedeo zone southern Ethiopia was institutional based.

However current study's findings were consistent with those of previous studies conducted in Brazil 32.4% [30], Uganda 33% [31], Geneva 36.3% [32], Ethiopia Addis Ababa public health facilities 37.1% [8], and Bahirdar-city 34.1% [18]. However, the current study was less than the studies conducted in Argentina 75.2% [19], Australia 49% [33], and Ghanian 48% [34]. The possible explanation for the difference could be study period, design of study which cohort design for study in Austria, tools used, sample size, geographical locations, cultural differences, and information provided by health care providers.

According to multivariate logistic regression, alcohol use during pregnancy has a statistically significant association with residence, pre-pregnancy alcohol use, partner alcohol use, knowledge and attitude about the harmful effects of alcohol consumption during pregnancy.

When compared to their rural counterparts, pregnant women who live in urban areas are 2.58 times more likely to use alcohol during their pregnancy. This could be because those who live in urban areas may have easier access to alcohol than those who live in rural areas and their life styles differences. This finding was supported by studies conducted in Sub-Saharan Africa [7], and South Africa [35]. This study revealed that pre-pregnancy alcohol consumption predicts during pregnancy alcohol consumption, pregnant mothers with a history of pre-pregnancy alcohol consumption had 4.06 times the odds of using alcohol as their counterparts. This finding was consistent with previous research conducted in Tanzania [27], South Africa [36], Ethiopia Addis Ababa [8]. This could be because mothers who were exposed to alcohol use prior to their pregnancy may have continued to use alcohol as a result of the development of alcohol abuse, or because the majority of women who used alcohol prior to becoming pregnant; over time, it may have developed into habits that are difficult to break during pregnancy, making it difficult to stop once pregnant.

Mothers whose partners drank alcohol were nearly three times more likely to drink during pregnancy than women whose partners did not drink alcohol. These studies are supported by studies conducted in Tanzania [27], Uganda [37], Bahirdar [18] and Addis Ababa Ethiopia [8]. The most likely explanation is that many couples who live together have similar substance-related behaviors, lifestyle experiences, and partners play a major role for spouses who decide to drink, and they may be invited to drink, making it difficult for them to refuse the invitation.

Pregnant women with a low level of knowledge about the harmful effects of alcohol use while pregnant were 3.92 times more likely to drink alcohol than pregnant women with a high level of knowledge. This finding was supported by studies conducted in Nigeria [38], South Africa [39]. This could be because being aware of the risks of alcohol consumption during pregnancy influences people not to drink alcohol and contributes to their decision-making process. It is also true that knowledge for specific activities is a critical factor in the beginning and maintaining consistent behavior.

Finally, this study revealed that women's attitudes toward alcohol consumption were related to their alcohol consumption. Pregnant women with a poor attitude toward the harmful effects of alcohol consumption during pregnancy were 4.2 times more likely to consume alcohol than mothers with a good attitude. This finding supported by studies conducted in Gondar Ethiopia [13]. This could be because participants' attitudes toward alcohol use were heavily influenced by their understanding of the harmful effects of alcohol consumption. It is possible that as their knowledge grows, the women will become more negative about alcohol use.

LIMITATION OF STUDY

Participants may underreport their alcohol consumption due to social desirability bias, which is the tendency for them to answer questions in a socially acceptable manner. There was also a possibility of recall bias in terms of frequency and amount. Estimating the amount and frequency of alcohol consumed is difficult due to a lack of understanding of alcohol units, and it is dependent on glass size and drink strength.

CONCLUSION

The alcohol use during pregnancy in the Nagele Arsi district West Arsi zone, Oromia regional state, Ethiopia is prevalent. This study revealed that residence, pre-pregnancy alcohol use, partner alcohol use, attitude and knowledge about harmful effects of alcohol use during pregnancy were significant predictors of alcohol use during pregnancy.

RECOMMENDATION

Because alcohol use is prevalent, women of reproductive age who intend to become pregnant, as well as pregnant women, should receive comprehensive and integrated services to alleviate the burden of the problem from antenatal care, adolescent and youth Reproductive health.

A significant effort should be made to improve women's understanding of the negative effects of alcohol use during pregnancy. During antenatal visits, women should be informed about the harmful effects of alcohol use, and support should be provided to abstain from drinking as part of routine women's health care.

Integrating screening pregnant women for alcohol consumption at ANC services is a critical activity for directing specific interventions.

Arsi Nagele district health office was recommended to improve the knowledge and attitude of women about the adverse effect of alcohol use during pregnancy.

Future researchers; should focus on burden of FASD because there is a paucity of evidence in Africa as general.

CONSENT FOR PUBLICATION

Not applicable

CONFLICTS OF INTEREST

The authors declare that they have no potential conflict of interest.

AUTHOR'S CONTRIBUTIONS

WDK was involved in the project's conception and design. EYR assisted with data curation, and supervision, ATY and GTW engaged in investigation, and project administration, and WDK participated in writing up, review & editing the manuscript. All authors participated in funding acquisition, resource mobilization, and validation. WDK and GGB were involved in methodology, and software, and handled data analysis, interpretation, and writing the original draft. In addition, DNG contributed to the visualization. All of the authors agreed to submit to the current journal and gave final approval of the published version; they also solely agreed.

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