

# Prenatal Alcohol Intake and Knowledge of its Effect: A Survey of Pregnant Women Attending a General Hospital in South East, Nigeria

Chisom Joy Mbadugha<sup>1</sup>, Joyce Chinenye Arinze<sup>1</sup>, Nneka Chekwube Odoh<sup>2</sup>, Adaobi Lilian Obiekwu<sup>1</sup>, Ngozi Joy Omotola<sup>1</sup>, Chiamaka Jennifer Okafor<sup>1</sup>

<sup>1</sup>Department of Nursing Sciences, University of Nigeria, Enugu Campus, Enugu, Nigeria, <sup>2</sup>82 Division Military Hospital Enugu, Nigeria

## Abstract

**Background:** Alcohol consumption during pregnancy is a major public health concern due to its noxious effect on both the mother and fetus. **Aim:** The study aim was to determine the prevalence of prenatal alcohol intake, knowledge of its effects, and associated factors among pregnant women attending antenatal clinic, Poly General Hospital, Enugu. **Materials and Methods:** A descriptive cross-sectional survey was adopted and simple random sampling was employed to select 248 pregnant women from the total population. Data were obtained using structured questionnaires, summarized using descriptive statistics, and presented in tables. Statistical analysis for associations between level of educational attainment, occupation of the pregnant woman, and knowledge of the effects of alcohol consumption was performed using Chi-square tests. **Results:** The prevalence of alcohol use during pregnancy was 40.3% with beer (48.8%) and palm wine (48.8%) being the major alcoholic beverages taken. Majority (59.7%) of the participants had good knowledge of the effects of alcohol consumption in pregnancy while less than half (33.9%) had good knowledge of the effect on the unborn baby. Previous drinking habits before pregnancy ( $3.48 \pm 0.84$ ) and unwanted pregnancy ( $3.17 \pm 0.93$ ) were the major perceived factor influencing their alcohol intake. Educational level was not significantly related to knowledge of alcohol effects on pregnancy. **Conclusion:** Regardless of the knowledge of the harmful effect of alcohol on the fetus and maternal health, a significant proportion of mothers continue to consume alcohol during pregnancy. Therefore, there is a need for widespread education of women of childbearing age focused on driving behavioural change with regards to alcohol intake in pregnancy.

**Keywords:** Alcohol consumption, factors, harmful effects, knowledge, pregnancy

## INTRODUCTION

Alcohol, a psychoactive substance with dependence-producing properties has been widely used in many countries for centuries.<sup>[1]</sup> Across the globe, drinking alcoholic beverages is a common feature of social gatherings, religious ceremonies, and traditional medical practices.<sup>[2]</sup> Nevertheless, the intake of alcohol carries a risk of adverse health and social consequences as a result of its intoxicating, toxic, and dependence-producing properties. Existing evidence shows that alcohol intake is the third largest risk factor for disease and disability across the globe with about 5.3% of all deaths attributed to alcohol.<sup>[3]</sup> According to a world health report, Nigeria ranks 27<sup>th</sup> globally in alcohol drinking per liter per year and among the top 10 biggest beer-drinking countries in Africa.<sup>[4]</sup>

Pregnancy is a unique period with series of changes taking place in the woman's organs and system as a result of the

developing fetus. Hence tact and caution are paramount especially in relation to lifestyle habits and intake of substances to evade negative outcomes. Prenatal alcohol intake is the use of alcohol during gestation, including the time before the woman is aware of the pregnancy.<sup>[5]</sup>

Indeed, alcohol use in pregnancy has been confirmed for many years to be associated with negative effects on the mother and the unborn child.<sup>[6]</sup> No amount of alcohol is

**Address for correspondence:** Adaobi Lilian Obiekwu,  
Department of Nursing Sciences, University of Nigeria, Enugu Campus,  
Enugu, Nigeria.  
E-mail: ada.obiekwu@unn.edu.ng

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** WKHLRPMedknow\_reprints@wolterskluwer.com

**How to cite this article:** Mbadugha CJ, Arinze JC, Odoh NC, Obiekwu AL, Omotola NJ, Okafor CJ. Prenatal alcohol intake and knowledge of its effect: A survey of pregnant women attending a general hospital in South East, Nigeria. *Niger J Med* 2022;31:174-81.

**Submitted:** 16-Aug-2021

**Revised:** 27-Dec-2021

**Accepted:** 12-Feb-2022

**Published:** 29-Apr-2022

### Access this article online

Quick Response Code:



Website:  
[www.njmonline.org](http://www.njmonline.org)

DOI:  
10.4103/NJM.NJM\_151\_21

considered harmless during pregnancy and there is no safe time or trimester in pregnancy to drink alcohol.<sup>[5,7]</sup> It is estimated that about 9.8% of women consume alcohol during pregnancy globally and around 14.6 per 10,000 affected by fetal alcohol syndrome.<sup>[8]</sup> However, the effects on the fetus are higher with heavier or binge drinking. The developing fetus is exposed to the alcohol through the placenta and umbilical cord which the body metabolizes slowly when compared to an adult because of re-uptake of alcohol-containing amniotic fluid.<sup>[9]</sup> The effect of alcohol use during pregnancy is evident immediately after birth, during early or later life particularly when it damages the central nervous system (CNS).<sup>[10]</sup> The adverse effect for the mother and the developing fetus includes: spontaneous abortion, structural malformations, pre- and post-natal growth retardation, miscarriage, premature birth, stillbirth, decreased production of breast milk, CNS damage as well as neurodevelopmental abnormalities.<sup>[6,11]</sup>

The need to address prenatal alcohol consumption is pertinent considering the observed increasing trend of harmful alcohol consumption among women with rates varying between countries and within countries. Reports show that the rate of alcohol use in pregnancy ranged from 20% to 80% in Ireland, 40%–80% in Australia, New Zealand, and the United Kingdom.<sup>[12]</sup> Recent studies conducted among sub-Saharan African women show a similar pattern of increasing rates of alcohol consumption from 2.8% to 87%.<sup>[13]</sup> In Nigeria, a study conducted in the south-south region revealed that the prevalence of alcohol use during pregnancy is 59.28%.<sup>[10]</sup> Similarly, a study in south-eastern Nigeria by Onwuka *et al.*,<sup>[2]</sup> found the prevalence of alcohol consumption in pregnancy to be 22.6%. This reflects alcohol use during pregnancy a common phenomenon both globally and locally. Although some countries may not have a written guideline, most countries recommend that alcohol should be abstained from during pregnancy.<sup>[14]</sup>

Few studies<sup>[2,10]</sup> have documented alcohol use during pregnancy in some parts of Nigeria. However, data for maternal alcohol consumption in the eastern part of Nigeria is notably scarce and a study conducted by Onwuka *et al.*<sup>[2]</sup> focused on the prevalence and predictors of alcohol consumption and found lack of awareness of the harmful effects of alcohol as one of the associated factors. To address this gap, the study aimed to assess prenatal alcohol intake, including the knowledge of its effects and factors influencing alcohol consumption among pregnant women in a General Hospital in the Eastern part of Nigeria. It is hoped that the findings of this study will provide insight on present data in a representative population and the need to intensify actions.

## MATERIALS AND METHODS

### Design and study setting

A descriptive cross-sectional survey design was employed to determine the prevalence of alcohol consumption, knowledge of its effects and factors influencing alcohol consumption in pregnancy among pregnant women attending antenatal clinic in

Poly General Hospital Asata, Enugu. Poly Clinic is a prominent General hospital owned by the Enugu state Government, which provides a wide range of health services including antenatal and postnatal care services to a large number of pregnant women. The hospital is centrally located in Enugu metropolis which makes it accessible to many residents and has specialist doctors and nurses who provide those services. It also provides comprehensive, free maternal and child health services.

### Sample and sampling technique

The study population comprises pregnant women attending antenatal clinic in Poly General Hospital Asata, Enugu. The hospital has an average patient load of 148 pregnant women visiting the clinic per week. Considering that data collection will span four weeks, the study population of 592 (148 × 4) was used for the calculation of the sample. The minimum sample size was calculated using Taro Yamane formula which gave a sample size of 262 after considering 10% attrition rate possible from nonresponses and incomplete answers.

Simple random sampling was used to select pregnant women who presented at the hospital on antenatal clinic days which is usually on Mondays and Thursdays. During each visit, 33 pregnant women who met the inclusion criteria and have not been selected on previous visits were randomly selected from the list of registration for each day. On the list, the names are numbered and the numbers of respondents for the study were selected by writing the numbers on paper and picking 33 numbers on each day of the data collection. The clients whose numbers were picked were used for the data collection. The study spanned four weeks and the researchers went to the field eight (8) times on both clinic days (Mondays and Thursdays) in order to achieve the sample size.

### Inclusion and exclusion criteria

Pregnant mothers who are 18 years and above, have had up to two antenatal visits, willing and available at the time of data collection were recruited for the study. Those with mental illness, teenage pregnancy and who did not meet these criteria were excluded from the current study.

### Instrument

Data collection was done using a researcher-constructed questionnaire. The questions were formulated in line with the reviewed literature and research objectives. The questionnaire contained a total of 34 items categorized into five sections which assessed the demographic data of the respondents, prevalence of alcohol consumption, knowledge of the effects of alcohol consumption on the mother, knowledge of the effect on the baby, and factors influencing intake of alcohol in pregnancy. The instrument was validated by 2 experts in Maternal and child health, and two other independent researchers whose inputs were applied in modifying the tool before using the instrument for field testing. To ensure the reliability of the instrument, the questionnaire was pretested through a pilot study by sharing 26 copies of the questionnaire to pregnant women attending Uwani Cottage Hospital who met the

inclusion criteria as stated earlier. The inter-rater reliability test using the Cohen's kappa measure of agreement was used to test the consistency of the instrument and it yielded data between 0.742 and 1.000, thereby confirming that the instrument is reliable. Of the 262 questionnaires distributed, 248 copies were retrieved, making the response rate to be 94.6%.

### Data collection procedure

The researchers administered the questionnaire to the pregnant women present during the antenatal days, which are usually on Mondays and Thursdays. Information related to the aim and significance of the study was provided to the respondents. Explanations on what represents alcohol use in pregnancy were provided which include intake of refined, unrefined alcohol/alcoholic beverages and the locally common brand "palm wine," regardless of the purpose of consumption during any of their pregnancies. The questionnaire was distributed to the respondents by hand and they were given sufficient time to respond to the questions in order to avoid incomplete responses and non-retrieval of instruments which are common in cross sectional surveys. Respondents were encouraged to draw the attention of the researchers if there is a need for clarification on any item. The questionnaires were collected immediately and cross-checked to ensure they were properly filled.

### Data analysis

The raw data were checked for completeness and consistency of response, sorted, categorized, and coded. Questionnaires not correctly filled were excluded from data analysis. Descriptive statistics – frequencies, percentages, means, and standard deviation were used to summarize the items of the questionnaire. Specifically, the responses to the knowledge questions were scored and the responses were graded based on scores. Those who scored above 50% were graded as having good knowledge while those who scored below 50% were graded as having poor knowledge. Furthermore, the mean and standard deviation were used for the 4-point scales items that assessed the influencing factors. Decision was made using a cut-off of 2.5; hence item with a mean (M) >2.5 was judged to be an influencing factor. Bivariate analysis such as Chi-square test of Independence was used to test the hypotheses at 5% level of significance. Hence, significant relationship existed if  $P < 0.05$ , ( $P < 0.05$ ); otherwise, no significance. These statistics were done with the aid of the Statistical Package for the Social Science version 25 (International business machine (IBM) Corporation, Chicago, Illinois USA) and Microsoft Excel 2007.

### Ethics

The study protocol was approved by the ethics committee of the Enugu state ministry of health with a reference number MH/MSD/REC19/074. Furthermore, administrative permit was gotten from the medical director and Nursing Officer in charge of antenatal clinic. Informed consent was obtained from the respondents, with a promise to keep their information confidential and anonymous throughout the research process.

## RESULTS

The age distribution of the respondents ranged from 18 to 41 with a mean and standard deviation of  $27.25 \pm 5.12$ . Majority of the women were married 231 (93.1%), had tertiary 132 (53.2%), and secondary education 100 (40.3%). One-third 83 (33.5%) of the mothers were in their first pregnancy and a little above average 129 (52.0%) were between 28 and 42 weeks' gestational age [Table 1].

As shown in Table 2, the prevalence of alcohol during pregnancy in the present study was 40.3%. Among the respondents who indicated intake of alcohol during pregnancy, the commonest alcohol consumed were majorly beer 48 (48.8%) and palm wine 48 (48.8%), three quarter of the respondents took between 1 and 2 bottles 75 (75.0%) per day. On the frequency of alcohol intake, 58 (58.0%) of respondents reported taking alcohol occasionally.

Findings from Table 3 revealed most (80.2%) of the women knew that alcohol intake has harmful effects on pregnant woman. The known effect was mainly that of spontaneous abortion 172 (69.4%). Knowledge of preterm birth 121 (48.8%), high blood pressure 113 (45.6%), and diabetes in pregnancy 102 (41.1%) were below average while knowledge of other effects was quite lesser. Their source of knowledge was majorly 138 (55.6%) through health workers. In general, majority 148 (59.7%) had good knowledge of the effects of alcohol consumption in pregnancy.

**Table 1: Demographic and pregnancy related characteristics of the women (n=248)**

	Frequency, n (%)	Range	Mean ± SD
Age		18-41	27.25±5.12
≤20	21 (8.5)		
21-25	68 (27.4)		
26-30	92 (37.1)		
31-35	37 (14.9)		
36 and above	15 (6.0)		
Noresponse	15 (6.0)		
Marital status			
Single	12 (4.8)		
Married	231 (93.1)		
Divorced	2 (0.8)		
Separated	1 (0.4)		
No response	2 (0.8)		
Level of education			
Primary	11 (4.4)		
Secondary	100 (40.3)		
Tertiary	132 (53.2)		
No response	5 (2.0)		
Occupation			
Trader/business	88 (35.5)		
Housewife/farmer	58 (23.4)		
Public servant	66 (26.6)		
Student	29 (11.7)		
No response	7 (2.8)		

SD: Standard deviation

As shown in Table 4, greater proportion 183 (73.8%) of the women knew that alcohol intake has harmful effect on the unborn child. The known effects were majorly that of reduced mental ability of the child 137 (55.2%), the child being very

small 137 (55.2%), and looking abnormal 127 (51.2%). Knowledge of other effects was quite lesser. Source of knowledge was mainly from health workers 124 (50.0%). In general, most of the respondents 84 (33.9%) had poor knowledge of the effects.

**Table 2: Prevalence and Frequency of alcohol consumption**

	Frequency, <i>n</i> (%)
Have you ever taken alcohol during pregnancy	
Yes	100 (40.3)
No	148 (59.7)
If yes above, what type of alcohol do you take ( <i>n</i> =100)	
Beer	48 (48.0)
Stout	34 (34.0)
Wine	24 (24.0)
Local gin (ogogoro)	1 (1.0)
Palm wine	48 (48.0)
How many bottles of alcohol can you finish in a day? ( <i>n</i> =100)	
1-2 bottles	75 (75.0)
3-4 bottles	7 (7.0)
>4 bottles	1 (1.0)
No response	17 (17.0)
How often do you take alcohol during pregnancy	
Daily	-
Weekly	9 (9.0)
Occasionally	58 (58.0)
Rarely	28 (28.0)
No response	5 (5.0)

**Table 3: Knowledge of the complications of alcohol in pregnancy (*n*=248)**

	Frequency, <i>n</i> (%)
Knowledge that alcohol intake during pregnancy has harmful effects on pregnant women	
Yes	199 (80.2)
No	49 (19.8)
Known harmful effects of alcohol in pregnancy	
Spontaneous abortion	172 (69.4)
Preterm birth	121 (48.8)
Still birth	90 (36.3)
High blood pressure	113 (45.6)
Nutritional deficiency	85 (34.3)
Diabetes in pregnancy	102 (41.1)
Source of knowledge	
Health worker	138 (55.6)
Television	74 (29.8)
Radio	67 (27.0)
Magazine	22 (8.9)
Newspaper	28 (11.3)
Others- internet	6 (2.4)
No response	
Overall knowledge of the effect	
Good	148 (59.7)
Poor	100 (40.3)

The results in Table 5 shows previous drinking habit before pregnancy ( $3.48 \pm 0.84$ ) as the primary perceived factor influencing alcohol consumption during pregnancy. Unwanted pregnancy ( $3.17 \pm 0.93$ ), unusual pregnancy craving ( $3.16 \pm 0.94$ ), alcohol use by partner ( $3.03 \pm 1.05$ ), and influence of friends ( $3.00 \pm 0.92$ ) also contributed largely as influencing factors. Others factors were to reduce the size of the baby ( $2.88 \pm 1.01$ ) and to relieve depression ( $2.62 \pm 0.96$ ).

Table 6 presents the result of the relationship between educational level and knowledge of the effect of alcohol consumption in pregnancy and on the unborn. Educational level is not significantly related to both the knowledge of the effect on pregnancy ( $P = 0.065$ ) and the knowledge of the effect on the unborn ( $P = 0.288$ ). Hence, educational level is not significantly associated with higher knowledge in both.

Findings in Table 7 show that occupation is significantly related to the knowledge of the effect on pregnancy ( $P = 0.023$ ) but not with the effect on the unborn ( $P = 0.093$ ). For that of effect on pregnancy, the public servants were associated with higher knowledge compared to other occupational groups trader/businesswomen (59.1%), homemaker/farmer (50.0%), public servant (75.8%), and student (55.2%).

## DISCUSSION

The present study revealed a prevalence of alcohol consumption during pregnancy to be 100 (40.3%) The prevalence in our study is favorably compared with that documented by Da Pilma Leketey *et al.*,<sup>[15]</sup> whose findings showed a prevalence of 48% among pregnant women in Accra, Ghana. This study finding is much higher when compared to the overall summary estimate (20.83%) of the prevalence of alcohol consumption during pregnancy in sub-Saharan Africa as reported in a systematic review<sup>[16]</sup> and a study conducted in a tertiary hospital south east Nigeria which reported a prevalence of 22.6%.<sup>[2]</sup> Also Usifo *et al.*,<sup>[17]</sup> reported that more than half 385 (64.2%) of the pregnant women in Edo state, Nigeria, have taken alcohol during pregnancy, 216 (36%) took alcohol before pregnancy while 176 (29.3%) during present pregnancy. Contrary to our finding a lower prevalence (15.1%) was reported in Tanzania and some developed countries such as Canada and Sweden with a prevalence of 12% and 10.8% respectively.<sup>[18-20]</sup> Furthermore, a high prevalence (59.28%) compared to our findings was reported in a research conducted at a tertiary hospital in Port-Harcourt, South-South Nigeria.<sup>[10]</sup> The varied prevalence rate identified in studies may not only be related to the maternal drinking behaviour but can also stem from environmental, policy, genetic, religious differences, and cultural norms. Possible explanation for the relative high rate of alcohol intake in this study may be due to the fact that most pregnancies are



unplanned and also the common belief that consumption of small quantity of alcoholic drinks and beverages is safe.

Meanwhile, beer (48%) and palm wine (48%) were identified as the most common alcoholic beverage consumed by respondents in this study. The authors speculate that the findings may not be different if accessed among other segments of the Nigerian population. Palm wine being one of the commonest alcohol could possibly be due to it being locally tapped and processed in Nigeria. Hence, it is very accessible and affordable to many. Also, beer could be attributed to its availability in every grocery and bar, and is reasonably priced. Similarly a study by Onwuka *et al.*, in 2015<sup>[2]</sup> conducted in South East Nigeria identified beer as the

most common brand of alcohol consumed which validates our study finding.

Majority of the women 199 (80.2%) demonstrated knowledge of the harmful effect of alcohol on a pregnant woman. Spontaneous abortion (69.4%) followed by preterm birth (48.8%) were the commonest effect identified by the respondents. Knowledge revealed may be connected to the health teachings that the pregnant women had received in the course of their antenatal visits. Our study findings are in line with that of Da Pilma Leketey *et al.*<sup>[15]</sup> which indicated that majority of the respondents knew that alcohol use during pregnancy has harmful effects on pregnancy with spontaneous abortion being the most reported effect. However, unlike our study findings, Peadon, *et al.*<sup>[21]</sup> reported a poor knowledge of the effects of prenatal alcohol intake with premature birth, stillbirth and miscarriage stated by 8.7%, 0.3%, and 1.5% of respondents respectively.

Although a significant proportion of the respondents indicated knowledge of the harmful effect of alcohol intake during pregnancy on the unborn baby; their overall knowledge of the possible effects on the baby was poor. The latter finding may be associated with lack of awareness of fetal alcohol syndrome, a disorder common among babies exposed to alcohol *in utero*, characterized by abnormal facial features, growth and mental retardation. According to a study among Lebanese women, they showed a high level of knowledge of harmful effect of alcohol use during pregnancy on the child, although the safety of small amount of alcohol was queried.<sup>[22]</sup> Furthermore, Peadon *et al.*<sup>[21]</sup> in an Australian survey among pregnant women reported that majority had heard about effects of alcohol on the fetus while only 55.5% had heard of fetal alcohol syndrome. On the contrary, Onwuka *et al.*,<sup>[2]</sup> reported that about one-third (35.5%) of their respondents were aware that alcohol is harmful to the fetus which is comparably low in relation to our finding (73.8%). In the same vein, a report from Edo State, Nigeria, revealed that a little over half of pregnant mothers (55.7%) were unaware of the detrimental effect of alcohol, and only a few 22 (3.6%) knew about fetal alcohol syndrome.<sup>[17]</sup> Health workers posed the major source

**Table 4: Knowledge of effects of alcohol consumption on the unborn (n=248)**

	Frequency, n (%)
Knowledge that alcohol intake during pregnancy has harmful effects on the unborn child	
Yes	183 (73.8)
No	65 (26.2)
Harmful effects of alcohol on unborn child	
Abnormal looking baby	127 (51.2)
Very small babies	137 (55.2)
Reduced mental ability	137 (55.2)
Delayed speech	62 (25.0)
Sucking problem	53 (21.4)
Poor attention	77 (31.0)
Sleeping problem	85 (34.3)
Poor vision	92 (37.1)
Hearing problem	52 (21.0)
Source of knowledge	
Health worker	124 (50.0)
Television	78 (31.5)
Radio	59 (23.8)
Magazine	18 (7.3)
Newspaper	21 (8.5)
Overall Knowledge of the effect	
Good (knowledge >50%)	84 (33.9)
Poor (knowledge ≤50%)	164 (66.1)

**Table 5: Perceived factors influencing alcohol consumption (n=248)**

	SD	D	A	SA	Mean ±SD
Poverty	78	108	30	32	2.06±0.98
Homelessness	77	104	35	32	2.09±0.98
Unusual pregnancy craving	18	38	79	113	3.16±0.94*
Alcohol use by partner	29	44	65	110	3.03±1.05*
Previous drinking habit before pregnancy	14	15	58	161	3.48±0.84*
Unwanted pregnancy	18	35	82	113	3.17±0.93*
To reduce to size of the baby	32	46	89	81	2.88±1.01*
Influence of friends	22	37	107	82	3.00±0.92*
To relieve depression	30	88	76	54	2.62±0.96*
For easy delivery	83	101	31	33	2.06±1.00
Social reasons	80	75	55	38	2.21±1.06

SD: Standard deviation, SA: Strongly agree, D: Disagree, A: Agree, \*means accepted

**Table 6: Relationship between Educational level and Knowledge of the Effects of Alcohol Consumption in Pregnancy and on the Unborn Child**

Knowledge of the effect on pregnancy	Knowledge		Total	Chi-Square	P
	Good	Poor			
Educational level				5.459	0.065
Primary	5 (45.5)	6 (54.5)	11		
Secondary	53 (53.0)	47 (47.0)	100		
Tertiary	88 (66.7)	44 (33.3)	132		
Knowledge of the effect on the unborn				2.489	0.288
Educational level					
Primary	2 (18.2)	9 (81.8)	11		
Secondary	30 (30.0)	70 (70.0)	100		
Tertiary	49 (37.1)	83 (62.9)	132		

**Table 7: Relationship between Occupation and Knowledge of the Effects of Alcohol Consumption in Pregnancy and on the Unborn Child**

Knowledge of the effect on pregnancy	Knowledge		Total	Chi-Square	P
	Good	Poor			
Occupation				9.540	0.023
Trader/business	52 (59.1)	36 (40.9)	88		
Housewife/farmer	29 (50.0)	29 (50.0)	58		
Public servant	50 (75.8)	16 (24.2)	66		
Student	16 (55.2)	13 (44.8)	29		
Knowledge of the effect on the unborn				6.424	0.093
Occupation					
Trader/business	26 (29.5)	62 (70.5)	88		
Housewife	18 (31.0)	40 (69.0)	58		
Public servant	31 (47.0)	35 (53.0)	66		
Student	8 (27.6)	21 (72.4)	29		

of information of the possible effects of alcohol on pregnancy. Hence, this suggests the need to adopt other sources such as media and community campaign to sensitize the public on the possible dangers of alcohol during pregnancy.

Previous drinking habit before pregnancy was seen as the primary perceived factor influencing alcohol consumption in pregnancy in the current study. Alcohol consumption is intrinsic in most cultures in southern Nigeria and its an integral component of most social or religious activities, festivals and celebrations.<sup>[23]</sup> Alcohol is believed to have some addictive properties which makes it difficult for some individuals including pregnant women to quit drinking and this may be implicated in the present finding. Other influencing factors identified in this study were unwanted pregnancy, unusual pregnancy craving, alcohol use by partners and influence of friends. This study result is similar to studies conducted in Tanzania and Nigeria which revealed pre-pregnancy alcohol use and influence of relatives as some of the predictive factors for alcohol consumption in pregnancy.<sup>[2,18]</sup> A pooled estimate of meta-analysis and systematic review of studies done in Sub Saharan Africa identified that partners alcohol use, knowledge of its harmful effects and unplanned pregnancy were statistically significant factors with alcohol consumption

during pregnancy.<sup>[16]</sup> In addition, Da Pilma Leketey,<sup>[15]</sup> in a study carried out in James town Accra, Ghana reported that most of the pregnant women who currently consume alcoholic beverage had it from friends, which also agrees with one of the factors implicated in this study. Unlike our study findings, the major reason given by pregnant women in Delta, Nigeria were to prevent spitting, nausea and vomiting and also to make their baby small for delivery.<sup>[17]</sup> Although the latter was also identified in our study as a factor but was not majorly implicated. Furthermore, Desmond *et al.*<sup>[24]</sup> in their study attributed alcohol drinking during pregnancy to social influences like poverty and homelessness, which contradicts the findings of present study.

No significant association was found between educational level and knowledge of harmful effect of alcohol on pregnancy ( $P = 0.065$ ) and the fetus ( $P = 0.288$ ). Suffice to say that educational exposure of women does not culminate to their being informed of risks associated with alcohol intake during pregnancy. This may be attributed to existing general and common knowledge of hazardous effect of alcohol on health and its ability to cause problem in pregnancy. Several studies have tested relationship between level of education and knowledge of effects of alcohol in pregnancy. Ordinioha and Brisibe<sup>[10]</sup> reported similar finding in their study which revealed that no significant relationship

exists between educational status ( $P = 0.15$ ) and knowledge of the effects of alcohol consumption during pregnancy. However, the present study findings are in disagreement with Peadon *et al.*,<sup>[21]</sup> and Maalouf *et al.*,<sup>[22]</sup> which found that women with higher education levels were more likely to know the effects of alcohol consumption in pregnancy.

The current study also revealed that occupation was significantly related to the knowledge of the effect on pregnancy ( $P = 0.023$ ) but not with the effect on the fetus ( $P = 0.093$ ). The public servants were associated with higher knowledge of effect on pregnant mothers compared to other occupational groups. There is no study in line or in contrast to this finding yet. Compared to other category of workers, it is speculated that public servants have greater access to public information through the media (both print and online), interactions in the work place, workshop and conferences where issues with maternal alcohol use may be discussed. Hence, the present finding.

### Strengths and limitations of the study

The study has several strengths such as high response rate (94.6%), heterogeneous sample of pregnant women at different gestational age and parity; and ability of this study to provide information on possible factors that contribute to alcohol use in pregnancy. Nonetheless, the study is limited by a number of factors, first, the previous drinking habit was not elicited from the respondents to allow the authors identify those who quit alcohol during pregnancy and nondrinkers even prior to conception. In addition, the study was delimited to a General Hospital in South East, Nigeria. Hence, may influence the external validity of the prevalence rate due to diverse sociocultural characteristics of Nigerians. Finally, the finding is prone to social desirability and recall bias because alcohol consumption was self-reported with high likelihood that the magnitude of alcohol consumption will be underestimated as the respondents may not provide accurate information concerning their alcohol intake.

### CONCLUSION

Regardless of the considerable knowledge of the harmful effect of alcohol on the fetus and maternal health, a significant proportion of mothers continue to consume alcohol during pregnancy especially the locally brewed palm wine and beer. Previous drinking habits and alcohol use by partners were some of the implicating factors identified. Evidence has shown that limiting alcohol intake during pregnancy is modifiable risk factor for poor pregnancy outcome. Insight from these findings suggest the need for health care worker to bear in mind these factors that influence alcohol intake during pregnancy while providing prenatal education and counseling to mothers. Also, concerted public health campaigns, early literacy programs educating every woman of child bearing age including their partners on the dangers inherent in alcohol consumption in pregnancy is paramount to reduce its incidence and resultant consequences on the mother and baby. Furthermore, pregnant women indulging in alcohol intake should be identified early

through antenatal alcohol screening with appropriate control and treatment measures instituted promptly to curb any possible sequelae.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

### REFERENCES

1. World Health Organization. Management of Substance Abuse; 2017. Available from: <http://www.who.int/healthtopics/alcohol>. [Last accessed on 2021 May 16].
2. Onwuka CI, Ugwu EO, Dim CC, Menuba IE, Iloghalu EI, Onwuka CI. Prevalence and Predictors of Alcohol Consumption during Pregnancy in South-Eastern Nigeria. *J Clin Diagn Res* 2016;10:C10-3.
3. World Health Organization. Alcohol. Geneva: World Health Organization; 2018. Available from: <https://www.who.int/news-room/facts-sheets/detail/alcohol>. [Last accessed on 2018 Sep 21].
4. Abiona O, Oluwasanu M, Oladepo O. Analysis of alcohol policy in Nigeria: Multi-sectoral action and the integration of the WHO "best-buy" interventions. *BMC Public Health* 2019;19:810.
5. Centers for Disease Control and Prevention. Fetal alcohol spectrum disorders: Alcohol use in Pregnancy. USA. U.S. Department of Health & Human Services; 2020. Available from: <https://www.cdc.gov/ncbddd/fasd/alcohol-use.html>. [Last accessed on 2021 Apr 01].
6. Moise IK. Alcohol use, pregnancy and associated risk factors: A pilot cross-sectional study of pregnant women attending prenatal care in an urban city. *BMC Pregnancy Childbirth* 2019;19:472.
7. Adeyiga G, Udofia EA, Yawson AE. Factors associated with alcohol consumption: A survey of women childbearing at a national referral hospital in Accra, Ghana. *Afr J Reprod Health* 2014;18:152-65.
8. Popova S, Lange S, Probst C, Gmel G, Rehm J. Estimation of national, regional, and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: A systematic review and meta-analysis. *Lancet Glob Health* 2017;5:e290-9.
9. Burd L, Blair J, Dropps K. Prenatal alcohol exposure, blood alcohol concentrations and alcohol elimination rates for the mother, fetus and newborn. *J Perinatol* 2012;32:652-9.
10. Ordinioha B, Brisibe S. Alcohol consumption among pregnant women attending the ante-natal clinic of a tertiary hospital in South-South Nigeria. *Niger J Clin Pract* 2015;18:13-7.
11. American Addiction Centre. Dangers of Alcohol during Pregnancy; 2021. Available from: <https://americanaddictioncenters.org/alcoholism/treatment/dangers-pregnancy>. [Last accessed on 201 Jun 07].
12. O'Keeffe LM, Kearney PM, McCarthy FP, Khashan AS, Greene RA, North RA, *et al.* Prevalence and predictors of alcohol use during pregnancy: Findings from international multicentre cohort studies. *BMJ Open* 2015;5:e006323.
13. Culley C, Ramsey T, Mugenyi G, Kiwanuka G, Ngonzi J, Macleod S, *et al.* Alcohol exposure among pregnant women in Sub-Saharan Africa: A systematic review. *Can J Clin Pharmacol* 2013;20:e321-33.
14. Nonacs R. Alcohol and Pregnancy; Attitudes and Patterns of Drinking Vary around the Globe. MGH Centre for Women Mental Health; 2020. Available from: <https://womensmentalhealth.org/posts/alcohol-pregnancy-attitudes-around-globe/>. [Last accessed on 2020 Feb 06].
15. Da Pilma Leketty J, Dako-Gyeke P, Agyemang SA, Aikens M. Alcohol consumption among pregnant women in James Town Community, Accra, Ghana. *Reprod Health* 2017;14:120.
16. Addila AE, Bisetegn TA, Gete YK, Mengistu MY, Beyene GM. Alcohol consumption and its associated factors among pregnant women in Sub-Saharan Africa: A systematic review and meta-analysis' as given in the submission system. *Subst Abuse Treat Prev Policy* 2020;15:29.
17. Usifoh SF, Aika IS, Ogugu ON, Odili VU. Prevalence and knowledge of harmful effects of alcohol consumption among pregnant women in Edo and delta states, Nigeria. *Niger J Pharm Appl Sci Res* 2020;7:25-32.

18. Mpelo M, Kibusi SM, Moshi F, Nyundo A, Ntwenya JE, Mpondo BC. Prevalence and factors influencing alcohol use in pregnancy among women attending antenatal care in Dodoma region, Tanzania: A cross sectional study. *J Pregnancy* 2018;2018:8580318.
19. Comasco E, Hallberg G, Helander A, Orelund L, Sundelin-Wahlsten V. Alcohol consumption among pregnant women in a Swedish sample and its effects on the newborn outcomes. *Alcohol Clin Exp Res* 2012;36:1779-86.
20. Walker MJ, Al-Sahab B, Islam F, Tamim H. The epidemiology of alcohol utilization during pregnancy: An analysis of the Canadian Maternity Experiences Survey (MES). *BMC Pregnancy Childbirth* 2011;11:52.
21. Peadar E, Payne J, Henley N, D'Antoine H, Bartu A, O'Leary C, *et al.* Women's knowledge and attitudes regarding alcohol consumption in pregnancy: A national survey. *BMC Public Health* 2010;10:510.
22. Maalouf D, El Hachem H, Kesrouani A, Hleis S, Rohayem J, Chammai R, *et al.* Awareness and knowledge about risks of drinking during pregnancy in pregnant Lebanese women. *Encephale* 2011;37:94-100.
23. Gureje O, Lasebikan VO. Alcohol beverage type, problem drinking and self-reported health status. *Niger J Psychiatry* 2006;4:4-8.
24. Desmond K, Milburn N, Richter L, Tomlinson M, Greco E, van Heerden A, *et al.* Alcohol consumption among HIV-positive pregnant women in KwaZulu-Natal, South Africa: Prevalence and correlates. *Drug Alcohol Depend* 2012;120:113-8.