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Prevalence and Predictors of Alcohol Consumption during Pregnancy in South-Eastern Nigeria

Obstetrics and Gynaecology Section

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ABSTRACT

Introduction: Alcohol consumption during pregnancy is a major public health problem because of the enormous deleterious effects on a developing fetus. Sub-Saharan Africa (SSA) is among the highest per capita rates of alcohol consumption in the world, thus suggesting a high burden of Fetal Alcohol Syndrome Disorder (FASD) in the sub-region. Despite this, there is limited data on alcohol exposed pregnancies for most SSA countries including Nigeria.

Aim: To determine the prevalence and predictors of alcohol consumption during pregnancy in Enugu, South-Eastern Nigeria.

Materials and Methods: It was a cross-sectional study of 380 consecutive consenting parturients accessing antenatal care at the University of Nigeria Teaching Hospital, Enugu, Nigeria. The information sought for, included the women's socio-demographic characteristics, alcohol use in pregnancy, awareness of the harmful effects of alcohol on the babies including FASD, sources of initial information on awareness, type and quantity of alcohol ingested, reasons for taking alcohol and willingness to stop alcohol ingestion in pregnancy after counseling on the risk of alcohol use in pregnancy. Statistical analysis was both descriptive and inferential at 95% confidence level. A p-value of less than 0.05 was considered statistically significant.

Results: The prevalence of alcohol consumption in pregnancy was 22.6%. The most common brand of alcoholic beverage consumed was stout beer (62.8%, 54/86). A total of 135 (35.5%) respondents were aware that alcohol is harmful to the fetus. Maternal age 30 years or less, nulliparity, less than tertiary education, pre-pregnancy alcohol consumption and lack of awareness of the harmful effect of alcohol on the fetus, were associated with alcohol consumption during pregnancy ($p< 0.05$).

Conclusion: The prevalence of alcohol consumption during pregnancy among women in Enugu, South-Eastern Nigeria is high and lack of awareness of harmful effect of alcohol on fetus was a major predictor. There is need for a concerted public health campaign to improve the awareness of harmful effects of alcohol on the fetus.

Keywords: Fetal alcohol syndrome disorder, Harmful effects, Sub-Saharan Africa

INTRODUCTION

Alcohol consumption during pregnancy is a major public health problem because of the enormous deleterious effects on a developing fetus [1]. There is no quantity or type of alcohol considered safe in pregnancy. However, the effects on the fetus are higher with heavier or binge drinking [1-3].

Previous studies on Alcohol Exposed Pregnancies (AEPs) observed some associations with age, marital status, parity, educational status, occupation, pre-pregnancy alcohol consumption and awareness of harmful effects of alcohol on the fetus [4,5]. Also, certain complications of AEPs have been reported including miscarriage, intrauterine growth restriction, prematurity and Fetal Alcohol Spectrum Disorders (FASD) among others. The most worried concern is the FASD, characterized by some neuro-developmental deficits, birth defects and permanent disabilities [2,6].

According to a World Health Organization (WHO) report [7], Sub Saharan Africa (SSA) is among the highest per capita rates of alcohol consumption in the world, thus suggesting a high burden of FASD in the sub-region [7-9]. In fact, the Republic of South Africa is considered to have the highest incidence of FASD in the world, with a prevalence of 68-89 per 1000 [10,11]. The FASD is no doubt a major public concern because of its enormous social and economic implications [12].

Despite the estimated burden of AEPs and its related complications in SSA, there is paucity of data from the sub-region on the prevalence of alcohol consumption during pregnancy [9]. According to a recent systematic review of alcohol exposure among pregnant women in SSA in 2013, 9 out of the 12 accessible studies included in the review were from South Africa and one from Nigeria [9]. However, Nigeria appears to have a higher per capital alcohol consumption rate than South Africa [7,9]. It was concluded in the review that limited data currently exist on AEPs for the majority of SSA countries including Nigeria; the authors consequently made recommendation for further research in this direction [9].

Currently, there are only 2 accessible reports on AEPs from Nigeria and both studies are from the South-Southern region of the country [6,13]. There are no related studies from the South-Eastern region of Nigeria despite the heavy use of alcohol in the region, for social and religious ceremonies as well as traditional medical practices.

In order to create awareness with regard to reducing the burden of AEPs and its related complications in SSA, it is imperative to identify more specific populations with need for epidemiological research on alcohol exposure during pregnancy [7]. This study aimed at determining the prevalence and determinants of alcohol consumption during pregnancy in Enugu, South-Eastern Nigeria.

MATERIALS AND METHODS

A cross-sectional questionnaire-based study was conducted on consecutive clients attending the antenatal clinic of the University of Teaching Hospital (UNTH), Enugu, Enugu state, Nigeria from January to July 2015. The UNTH is a tertiary hospital located in Ituku Ozalla, at the outskirts of Enugu city. The hospital offers antenatal and postnatal care services to pregnant women in

Enugu state and these women are generally seen monthly until 28 weeks of gestation, fortnightly until 36 weeks and then weekly until delivery. On the other hand, Enugu State is one of the five states in the south-east geopolitical zone of Nigeria, and its capital city is Enugu.

All the Antenatal Clinic (ANC) attendees within the study period were eligible for the study. Using a prevalence rate of 37.5% obtained from a related study from Port Harcourt, Rivers state, South-Southern Nigeria [6] at a confidence level of 95% and error margin of 5%, the calculated minimum sample size was 371. Considering an attrition rate of 10% for possible drop outs or losses to follow-up, a sample of 408 was used for the study.

After counselling of the eligible women, trained medical interns administered pre-tested questionnaires to those who consented to the study. The ethical approval for the study was obtained from the institutional review board of the hospital. The following information was collected; the women's sociodemographic characteristics, alcohol use in pregnancy, awareness of the harmful effects of alcohol on the babies including FASD, sources of initial information on awareness, type and quantity of alcohol ingested, reasons for taking alcohol, and willingness to stop alcohol ingestion in pregnancy after counseling on the risk of alcohol use in pregnancy.

The sociodemographic data obtained included the age, marital status, religion, occupation, parity and educational level of the respondents. Prior to the administration of the questionnaires, the women were reassured that any information provided will be treated with utmost confidentiality. Also, clarifications were made of beverages that contain alcohol, and what constitutes a 'standard drink'. "A standard (unit) drink contains approximately 13g of ethanol and was defined according to a recent study as any of the following: half bottle of beer (330 ml of 5% ethanol); two and half glasses of fresh palm wine (500 ml of 3% ethanol); or one shot of the local gin (ogogoro) (40 ml of 40% ethanol)" [14]. Alcohol use or consumption was defined as intake of any alcoholic beverages in the course of the index pregnancy, while 'binge drinking' was defined as intake of four or more standard units of alcohol in a single occasion, and within 2 hours duration, in the course of the index pregnancy [7]. Any alcohol taken as part of native herbal medication in pregnancy was also quantified and considered as alcohol use in pregnancy.

STATISTICAL ANALYSIS

The Statistical Package for Social Sciences (SPSS) software version 16.0 {SPSS inc. Chicago, Illinois} was used for data analysis. Predictors of alcohol consumption during pregnancy were determined by logistic regression analysis. The level of statistical significance was set at p-value less than 0.05.

RESULTS

A total of 408 questionnaires were administered but 380 were correctly filled, giving a response rate of 93.1%. The socio-demographic data of the respondents are as presented in [Table/Fig-1]. In all, 22.6% (86/380) of the respondents had taken alcohol in the index pregnancy, of which 82.6% (71/86) took alcohol occasionally while 17.4% (15/86) took alcohol on regular basis. More than half (53.5%, 38/71) of the women who drank alcohol occasionally in the index pregnancy were binge drinkers. The average units of alcohol consumed per week by the regular drinkers of alcohol was 5.3 ± 2.71units (equivalent to 68.9 ± 35.23g of ethanol). A total of 135 (35.5%) respondents were aware that alcohol is harmful to the fetus, while 168 (64.5%, 245/380) were unaware. The initial sources of information for this 'aware group' were print media (33.3%, 45/135), health professionals (30.4%, 41/135), electronic media including the Internet (28.9%, 39/135), or friends/colleagues (6.7%, 9/135).

Variables	Frequency (n = (380)	Percent (%)
Age group (Yrs)		
21 – 25	45	11.8
26 – 30	150	39.5
31 – 35	121	31.8
36 – 40	57	15.0
41 – 45	7	1.8
Occupational status		
Employed	275	72.4
Unemployed	105	27.6
Marital status		
Single	9	2.4
Married	371	97.6
Religion		
Catholic	84	22.1
Anglican	47	12.4
Pentecostal	233	61.3
Seventh-day Adventist	10	2.6
Methodist	6	1.6
Tribe		
Igbo	372	97.9
Yoruba	6	1.6
Hausa	2	0.5
Parity		
Nulliparous	73	19.2
Multiparous	276	72.6
Grand multiparous	31	8.2
Educational level		
Primary	7	1.8
Secondary	99	26.1
Tertiary	274	72.1

[Table/Fig-1]: The socio-demographic characteristics of the respondents.

The most common brands of alcoholic beverages consumed by the alcohol drinkers were stout beer (62.8%, 54/86) and lager beer (55.8%, 48/86). Other brands of alcoholic beverages consumed included: red wine (37.2%, 32/86), palm wine (32.6%, 28/86), refined gin/spirit (9.3%, 8/86), and local gin (4.7%, 4/86).

After counseling the women who took alcohol in the index pregnancy on the harmful effects of alcohol on the fetus, 86.0% (74/86) were willing to stop drinking alcohol during pregnancy while 13.9% (12/86) would continue to drink alcohol during pregnancy. The only reason given by the latter group for continuing to drink alcohol during pregnancy despite counselling was that 'they were used to taking alcohol'.

Maternal characteristics that showed significant association with alcohol consumption during pregnancy were: maternal age of ≤ 30 years (OR = 2.08, 95% CI: 1.26, 3.43); nulliparity (OR = 1.94, 95% CI: 1.10, 3.40); secondary level of education or less (OR = 1.89, 95% CI: 1.13, 3.14); history of pre-pregnancy alcohol consumption (OR = 1.94, 95% CI: 1.18, 3.18); and lack of awareness of harmful effect of alcohol on fetus (OR = 3.26, 95% CI: 1.79, 5.97). Details of the association between maternal variables and alcohol consumption during pregnancy are shown in [Table/Fig-2].

DISCUSSION

This study determined the prevalence and determinants of alcohol consumption during pregnancy in South-Eastern Nigeria. The prevalence of 22.6% from the study is high considering the fact that no quantity of alcohol is considered absolutely safe in

Factors	Alcohol consumption in pregnancy		p-value	Adj. OR*	95% C.I. for OR
	Yes (%)	No (%)			
Age group (Yrs)					
≤ 30	56 (28.7)	139 (71.3)	0.004	2.08	1.26 – 3.43
> 30	30 (16.2)	155 (83.8)			
Marital status					
Single	2 (22.2)	7 (77.8)	0.976	0.98	0.19 – 4.79
Married	84 (22.6)	287 (77.4)			
Occupational status					
Employed	67 (24.4)	208 (75.6)	0.193	1.46	0.83 – 2.57
Unemployed	19 (18.1)	86 (81.9)			
Religion					
Catholic	17 (20.2)	67 (79.8)	0.553	0.83	0.46– 1.52
Protestants	69 (23.3)	227 (76.7)			
Parity					
Nullipara	24 (32.9)	49 (67.1)	0.021	1.94	1.10 – 3.40
Multipara	62 (20.2)	245 (79.8)			
Educational status					
≤ Secondary	33 (31.1)	73 (68.9)	0.015	1.89	1.13 – 3.14
Tertiary	53 (19.3)	221 (80.7)			
Pre-pregnancy alcohol					
Consumption					
Yes	39 (30.7)	88 (69.3)	0.008	1.94	1.18 – 3.18
No	47 (18.6)	206 (81.4)			
Awareness of harmful effects of alcohol					
No	71 (29.0)	174 (71.0)	0.000	3.26	1.79 – 5.97
Yes	15 (11.1)	120 (88.9)			

[Table/Fig-2]: Association between alcohol consumption in pregnancy and certain maternal characteristics.
Adj. OR = Adjusted odds ratio; C.I. = Confidence interval
* Multivariate logistic regression analysis

pregnancy [9]. It is similar to a range of 20 – 43% reported by studies from the Western Cape Province of South Africa [9,15-18]; 21.5%-49.5% reported from Tanzania [19]; 24.8% reported from Uganda [20]; 22.7% reported from Spain in Europe [21]; and 29% reported from Australia [22]. The figure is however higher than 2.5% – 6.5% reported by studies from provinces of South Africa other than Western Cape [9,23,24]; 10.2% in the USA [25];and 13.3% in Canada [26]. On the other hand, it is lower than the very high value of 59.3% reported in a recent study from Port-Harcourt, Southern Nigeria [6].

It was observed that as much as 16.9% of the pregnant women drank alcohol regularly while more than half (53.4%) of the occasional alcohol drinkers (83.2%) were binge drinkers. These figures are worrisome considering that the higher the frequency and/or quantity of alcohol intake, the more the associated risks including FASD. The pattern of alcohol consumption in pregnancy obtained from the present study suggests a likely huge burden of FASD in Nigeria even though there is yet a study on prevalence of FASD from Nigeria. This is because countries with relatively lower prevalence and less risky drinking patterns such as USA and Canada have reported a high burden of FASD [6,26,27].

The reported high prevalence of alcohol consumption during pregnancy in this study calls for a concerted public health campaign targeted at any identified drivers of alcohol use in pregnancy. Fortunately, this study identified some modifiable maternal characteristics associated with alcohol use during pregnancy. For instance, it was observed that women who were aware that alcohol is harmful to the fetus were less likely to consume alcohol during pregnancy. This may suggest that improving public awareness on the dreaded effects of alcohol consumption during pregnancy via print/electronic media, workshops, symposiums, etc. could reduce the prevalence of alcohol consumption in the study population. This is of utmost importance since only 35.5% of the respondents were aware that alcohol is harmful to the fetus. Fortunately, 86.4% of the respondents who were not previously aware that alcohol is harmful to the fetus were willing to stop alcohol consumption during pregnancy after counselling, thus underscoring the impact of health education on behavioral modification. A future study on the impact of health education on prevalence of alcohol consumption during pregnancy in the study population is very necessary.

Furthermore, less than tertiary education was identified in this report as a strong determinant of alcohol use during pregnancy. This may be explained by the expected impact of ignorance/poor education on risky behaviors including alcohol consumption. It is expected that the less educated are less likely to appreciate the effect of alcohol during pregnancy and hence more likely to consume alcohol during pregnancy. They may also not be able to read the available information about alcohol in pregnancy and are more likely to have harder social situations with less finances, and family struggles. All these could make them resort to alcohol as a means of escape. The influences of age, occupation and parity on alcohol consumption during pregnancy were as reported in a related study [6].

LIMITATION

The limitation of this study includes the fact that since alcohol is generally considered inappropriate for women to consume in South-Eastern Nigeria, the respondents might not have truthfully or accurately disclosed their alcohol use, thus under-estimating the true prevalence in the study population. The study is also limited by being a hospital based study which could affect generalization of its findings to the entire population. In spite of these limitations, the study is relevant as it has started the process of filling the knowledge gap on alcohol consumption during pregnancy in South-Eastern Nigerian and SSA in general.

CONCLUSION

The prevalence of alcohol consumption during pregnancy in Enugu, South-Eastern Nigeria is high. Maternal age < 30 years, nulliparity, less than tertiary education, pre-pregnancy alcohol consumption, and lack of awareness of the harmful effect of alcohol on the fetus, are factors associated with alcohol consumption during pregnancy. A concerted public health campaign as well as improved efforts at the family, society and government levels is necessary to improve awareness of FASD and discourage alcohol consumption during pregnancy. There is need for a future study on the impact of health education on prevalence of alcohol consumption during pregnancy in the study population.

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