

Alcohol consumption by pregnant women attending antenatal clinics in two Mont-Amba health facilities, Kinshasa (DRC)

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ARTICLE INFO

Received: 08 March 2025

Accepted: 02 May 2025

Published: 30 May 2025

Keywords:

Pregnant women, alcohol, consumption, Mont-Amba, Kinshasa, DR Congo

Peer-Review: Externally peer-reviewed

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To cite:

Katumpa, B. K., Muzinga, A., Mazoba, T. K., Lukunku, K. A., Zalagile, P. A., & Mbanzulu, P. D. (2025). Alcohol consumption by pregnant women attending antenatal clinics in two Mont-Amba health facilities, Kinshasa (DRC). *Orapuh Journal*, 6(5), e1250
<https://dx.doi.org/10.4314/orapj.v6i5.50>

ISSN: 2644-3740

Published by [Orapuh, Inc. \(info@orapuh.org\)](http://Orapuh, Inc. (info@orapuh.org)

Editor-in-Chief: Prof. V. E. Adamu
Orapuh, Inc., UMTG PMB 405, Serrekunda,
The Gambia, editor@orapuh.org.

ABSTRACT

Introduction

Alcohol refers to any beverage containing ethanol. Its consumption represents a sociocultural phenomenon and is often associated with celebration and sharing. Prenatal exposure to alcohol can cause various disorders in the developing fetus.

Purpose

This study aimed to determine the prevalence of alcohol consumption and its associated sociodemographic factors among pregnant women in Kinshasa.

Methods

A survey was conducted among 527 pregnant women attending antenatal clinics in the Mont-Amba Health District (Kinshasa).

Results

Of the participants, 21.4% reported consuming alcohol during pregnancy. Among these, 53.1% consumed alcohol for pleasure, and 7.1% did so with the belief that it would make their baby vigorous. Additionally, 4.4% of respondents rejected the idea of weaning off alcohol. Single women were the primary consumers, and beer was the most commonly consumed alcoholic beverage. Women from all religious denominations reported alcohol consumption in varying proportions.

Conclusion

In this study population, alcohol consumption during pregnancy was common. Many pregnant women were unaware of the harmful effects of alcohol on the fetus. Alcohol consumption was observed across all religious affiliations, and few participants expressed willingness to abstain.

INTRODUCTION

Drinking alcohol is a sociocultural phenomenon. It is regarded as a symbol of celebration, sharing, and success. Alcohol often accompanies key life events such as births, weddings, birthdays, and even funerals. It is perceived as an element of conviviality, joy, and pleasure (Audet et al., 2005; Beck et al., 2010; Besson et al., 2004). Given its frequent presence in diverse aspects of life, it is often difficult for individuals to accept alcohol as a harmful and dangerous substance. However, alcohol is indeed harmful due to its adverse impacts on physical and mental health (Beck et al., 2010; Cogordan & Goussat, 2007).

The danger of alcohol affects anyone exposed to its effects, including the fetus. It is now widely accepted that prenatal alcohol exposure can have serious consequences for both pregnancy and fetal development. Occasional or chronic alcohol consumption during pregnancy may cause a range of complications, including permanent disabilities. Such damage is described using terms like fetal alcohol syndrome (FAS) and fetal alcohol effects (FAE) (Beck et al., 2010; Com-Ruelle et al., 2021; INSERM, 2023).

Alcohol passes through the placenta and reaches the fetal bloodstream. Unfortunately, neither the critical dose nor the specific type of alcohol that produces harmful effects during pregnancy has been definitively identified. Therefore, as a precautionary principle, alcohol consumption is not recommended during pregnancy (Audet et al., 2005; Beck et al., 2010; Cogordan & Goussat, 2007).

This preliminary study explores alcohol consumption among pregnant women in two health facilities. The primary aim is to assess the prevalence of alcohol use and its associated factors among this population. The specific objectives are:

- (a) to determine the prevalence of alcohol consumption among pregnant women attending antenatal care (Audet et al., 2005),
- (b) to analyse their general and gynaecological-obstetric characteristics (Beck et al., 2010), and
- (c) to identify factors associated with alcohol consumption (Besson et al., 2004).

METHODS

Type of Study

This was a cross-sectional analytical study. It reported the relative (hospital-based) prevalence of alcohol consumption among pregnant women in the study settings. The analytical component allowed for the comparison of proportions and measurement of associations between variables and alcohol consumption.

Study Period and Setting

The study was conducted from May to September 2023 in Kinshasa, Democratic Republic of Congo (DR Congo), specifically in the Mont-Amba Health District. It involved two health facilities: Hôpital Mère et Enfant de Ngaba (Ngaba Mother-Child Hospital) and the Kinshasa University Hospital. These facilities were selected based on two criteria: a high volume of antenatal clinic attendees and their accessibility.

Data Collection Strategy

The study targeted all pregnant women receiving antenatal care in the selected facilities. Participants were interviewed by trained personnel using a structured questionnaire. A convenience sample of 527 pregnant women was formed by consecutively and exhaustively including those who gave informed consent.

The study analysed the following variables:

- General characteristics: age, marital status, occupation, level of education, and religion;
- Gynaeco-obstetric characteristics: parity, gravidity, and history of abortion;
- Alcohol-related variables: type of alcoholic beverage consumed, frequency and quantity of consumption, reasons for drinking, knowledge of harmful effects, and willingness to withdraw.

Inclusion criteria: Pregnant women who consented to participate and were receiving antenatal care in the selected facilities during the study period. Women affected by any form of alcohol consumption were included.

Exclusion criteria: Pregnant women whose questionnaires had insufficient or incomplete responses were excluded from the study.

Data Processing and Analysis

Data were initially entered using Microsoft Excel 2016 and then exported to IBM SPSS Statistics software, version 24.0, for processing and analysis. Means and standard deviations were calculated for normally distributed continuous variables, while absolute (n) and relative (%) frequencies with confidence intervals were used for categorical variables. Pearson’s chi-squared test was employed to compare proportions, and Student’s t-test was used to compare means. Logistic regression with odds ratio (OR) estimation was performed to determine the strength of association with alcohol consumption during pregnancy. Statistical significance was set at $p < 0.05$ with a 95% confidence interval.

Ethical Considerations

All data were collected, processed, and presented in accordance with the principles of the Declaration of Helsinki. Patient anonymity and confidentiality were strictly maintained. The research protocol was submitted to the Ethics Committee of the Kinshasa School of Public Health and approved under reference number ESP/CE/44/2024.

RESULTS

Out of the 527 pregnant women surveyed, 113 reported consuming alcoholic beverages, resulting in a prevalence rate of 21.4%. The mean age of the participants was 29.3 ± 2.7 years.

Table 1:
General characteristics of pregnant women surveyed

Variables	Whole group (n = 527)	Alcohol consumers (n = 113)	Non-consumers (n = 414)	p-value
Age range (years)				0.048
Mean ± SD	29.3 ± 2.7	29.2 ± 3.7	28.3 ± 2.1	
<18	7	2	5	
18–34	347	24	263	
>35	173	27	146	
Marital status				<0.001
Single	122	73	49	
Married	403	38	365	
Widowed	2	0	2	
Occupation				<0.001
Housewife	476	90	386	
Trader	36	16	10	
Student	13	7	6	

Variables	Whole group (n = 527)	Alcohol consumers (n = 113)	Non-consumers (n = 414)	p-value
Others	2	0	2	
Education level				<0.001
Primary	48	34	14	
Secondary	358	78	280	
Higher education	121	1	120	
Religion				1.000
Revivalist church	226	47	179	
Catholic	116	60	56	
Protestant	61	4	57	
Jehovah’s Witness	28	0	28	
Branhamist	16	1	15	
Kimbanguist	13	1	12	
Islam	6	0	6	

Table 2:
Obstetrical and gynaecological characteristics of respondents

Variables	Whole group (n = 527)	Alcohol consumers (n = 113)	Non-consumers (n = 414)	p-value
Parity				0.031
Nulliparous	18 (3.4%)	7 (6.2%)	11 (2.7%)	
Primiparous	214 (40.6%)	52 (46.0%)	162 (39.1%)	
Multiparous	295 (56.0%)	54 (47.8%)	241 (58.2%)	
Number of pregnancies				0.034
Primigravida	128 (24.3%)	40 (35.4%)	88 (21.3%)	
Multigravida	399 (75.7%)	73 (64.6%)	326 (78.7%)	
History of abortion				0.280
0	334 (63.4%)	79 (69.9%)	255 (61.6%)	
1	131 (24.9%)	23 (20.4%)	108 (26.1%)	
≥2	62 (11.8%)	11 (9.7%)	51 (12.3%)	
Knowledge of alcohol-related harm				<0.001
Yes	36 (6.8%)	0 (0.0%)	36 (8.7%)	
No	491 (93.2%)	113 (100%)	378 (91.3%)	

Table 3:
Alcohol consumption patterns among pregnant women

Variable	n	%
Type of alcoholic beverage		
Beer	113	100.0
Others	0	-
Frequency of consumption		
Weekly	9	8.0
Occasionally	104	92.0
Quantity consumed		
< 50 ml	8	7.1

Variable	n	%
50 ml	75	66.4
> 50 ml	30	26.5
Reason for consumption		
Pleasure	60	53.1
Aperitif	45	30.3
To 'wake' the fetus	8	7.6

Awareness of alcohol-related harm (among non-drinkers who were aware)

Table 4:
Awareness of alcohol-related harm

Variable	n	%
Type of harm		
Malformations	34	94.4
Abortion	2	5.6
Source of information		
Medical personnel	33	91.7
Media	3	8.3

Additional findings:

- Among the 113 pregnant women who consumed alcohol, none were aware of its risks during pregnancy.
- Among the 414 non-drinkers, 36 women (8.7%) were aware of the harmful effects.
- While 4.4% of women refused to stop drinking alcohol, the majority (95.6%) agreed to discontinue consumption once informed of the potential harm.

Multivariate and Univariate Analysis

Table 5:
Multivariate and Univariate Analysis

Variable	Univariate analysis		Multivariate analysis	
	p	OR [95% CI]	p	Adjusted OR (aOR) [95% CI]
Age ≥ 21 years	0.831	1.501 [0.09–2.976]	0.987	1.601 [0.09–2.976]
Marital status	0.012	1.3 [1.1–1.97]	0.135	0.8 [0.06–1.61]
Religion (other)	0.020	0.3 [0.6–0.789]	0.331	0.9 [0.070–0.63]
Education (sec+high)	0.590	1.1 [0.6–1.9]	0.074	2.669 [0.910–7.83]
Parity (multi/pauci)	0.523	1.1 [0.6–4.3]	0.099	2.318 [0.847–7.60]
Trimester 2/3	0.073	0.132 [0.091–0.99]	0.062	0.321 [0.066–0.96]

Interpretation:

- In univariate analyses, marital status and religion were associated with alcohol consumption.

- However, after adjusting for confounding variables, neither variable remained statistically significant.
- Married pregnant women were more likely to consume alcohol than single women.
- Women affiliated with non-Christian religions (e.g., Islam) were less likely to consume alcohol than followers of revivalist churches or Catholics.

DISCUSSION

Prevalence

In this study, among 527 pregnant women interviewed, 113 consumed alcohol, giving a prevalence of 21.4%. This rate is comparable to the 22.6% found in Lubumbashi in a hospital study by Tshikongo et al. (2014). However, our rate is lower than those found by Yao Koffi et al. (2014) in Abidjan (37.8%) and by Adeyiya et al. (2014) in Accra (37.6%). Despite differences in sample sizes among these studies, alcohol consumption during pregnancy remains a significant public health issue in many African cities.

Civil Status

Single women in this study were more likely to consume alcohol, accounting for 64.6% (73/113) of those who drank. This finding contrasts with Tesfaye et al. (2020), who found that 92.6% of pregnant women in their Addis Ababa (Ethiopia) study were married. In our context, the abundance of festive events—such as weddings, graduations, birthdays, and childbirth celebrations—provides opportunities for alcohol consumption, especially among young, single individuals. Our finding aligns with an American study published by INSERM (2023), which noted that single women are more exposed to social events where alcohol is consumed. Alcohol is often perceived as a symbol of conviviality, socialisation, joy, and pleasure, potentially explaining the increased consumption among single pregnant women. However, since this is a hospital-based study focusing on alcohol use, the findings may not be generalisable to the broader population. Further research is therefore needed to confirm these observations.

Religion

In general, alcohol consumption is permitted only among members of the Catholic Church in the religious landscape of our country. In this study, approximately 53% (60/113) of pregnant women who consumed alcohol identified as Catholic. It is, however, surprising that alcohol

consumption also occurred among followers of other denominations, such as Protestant, Kimbanguist, Muslim, revivalist, and traditional churches, despite prohibitions. This could be attributed to personal hypocrisy, peer influence, societal pressures, especially during festive occasions, and a lack of effective sensitisation by religious leaders.

Nature of Alcoholic Beverages

This study revealed that beer was the alcoholic beverage consumed by all pregnant women who drank (100%). This result aligns with findings from Tshikongo et al. (2014) in Lubumbashi. In contrast, French studies have shown that pregnant women more frequently consume strong liquors (Beck et al., 2010; Goussat et al., 2004). These differences may be influenced by cultural factors and purchasing power. In Kinshasa, many women have limited financial resources and tend to consume locally brewed beer, which is more affordable than imported liquors.

Reasons for Alcohol Consumption

Three primary reasons were cited by pregnant women for consuming alcohol. The most common was pleasure (53.1%, or 60/113). Alcohol is widely known to produce sensations of relaxation and euphoria (Audet et al., 2005; Beck et al., 2010; Besson et al., 2004), which may help women temporarily forget the stress associated with pregnancy. The second most cited reason was to stimulate appetite. Other authors, such as Tandu et al. (2011), have also noted that some pregnant women consume alcohol to prevent nausea and vomiting. Additionally, 7.1% (8/113) of respondents believed alcohol could help "wake the fetus." In some cases, women in our environment mistakenly believe that alcohol not only stimulates fetal movement but can also cleanse the fetus. However, alcohol crosses the placenta rapidly and can reach the fetal brain, causing harm. The fetal movements these women perceive are more likely the result of toxic effects (Beck, 2013; Gay et al., 2009). This underscores the urgent need for effective health education and community sensitisation to prevent this dangerous behaviour.

Withdrawal

Only 4.4% of pregnant women in this study rejected the idea of alcohol withdrawal when it was suggested. This contrasts sharply with findings by Brahic et al. (2015) in Canada, where 86% of pregnant women were willing to

stop drinking during pregnancy. The resistance to withdrawal in our sample may be explained by the habitual nature of alcohol use and its addictive properties.

CONCLUSION

This study on alcohol consumption among pregnant women receiving antenatal care in two facilities in the Mont-Amba Health District revealed the following key findings: alcohol consumption is not uncommon but rather a widespread practice; it poses a significant public health concern. Many pregnant women are unaware of the risks associated with alcohol use. Beer is the most commonly consumed beverage. Religious affiliation does not necessarily predict alcohol abstinence, and only a small proportion of pregnant women are willing to stop drinking. Broad community involvement is necessary to combat this harmful behaviour. Further research is essential to better understand the problem and support the development of prevention strategies.

Perspectives

This study, which provides only a snapshot of alcohol consumption among pregnant women receiving prenatal care in part of Kinshasa, has certain limitations:

- It is difficult to generalise the findings nationally;
- The study did not establish a causal link between alcohol consumption and the occurrence of malformations.

To address these limitations, future research should cover a broader national territory and employ experimental designs to investigate the cause-effect relationship between prenatal alcohol exposure and congenital anomalies.

Given that many women are unaware of the risks linked to alcohol consumption during pregnancy, it is crucial that public authorities:

- Organise more accessible and targeted awareness campaigns, especially in prenatal clinics and community settings;
- Involve religious leaders in sensitisation efforts, given the influence of religious beliefs on behaviour;
- Establish psychological and social support programmes for pregnant women who consume

alcohol, helping them manage stress and other contributing social factors.

Ethical Approval: Ethical clearance approval was obtained from the Ethics Committee of the Kinshasa School of Public Health and approved under reference number ESP/CE/44/2024.

Conflicts of Interest: None declared.

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