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Knowledge on the Dangers of Alcohol Consumption During Pregnancy Among Women of Reproductive Age in Nadowli-Kaleo District, Ghana.

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Abstract – *Alcohol consumption in the reproductive age of women is a public health concern because of its health implications on both mother and baby. The outcome of such action is that frequent drinkers may be unaware they are pregnant until after some weeks of gestation. This study assessed the knowledge of reproductive age women on the dangers associated with alcohol consumption during or in pregnancy in the Nadowli-Kaleo District. The study utilized a descriptive cross-sectional design. A sample size of 294 reproductive-age women were selected through a multi-stage random sampling method for the study. Data was collected through researchers' developed questionnaire. Descriptive statistics was used for the analysis of data collected and chi-square statistics was utilized to test association at a significance level of 95% (0.05). Our findings showed that more than half (56.5%) of the respondents knew that alcohol consumption has some negative effects on human health including the unborn child. Alcohol consumption among women in this study was 62.6%. Low birth weight, attention deficit disorder, mental retardation, and low intelligence quotient were the major dangers identified to be associated with alcohol consumption on the unborn child. Women who had SHS education or were not pregnant were more likely than those who had no level of formal education or pregnant to know that alcohol consumption in pregnancy can cause any of the dangers associated with alcohol consumption during pregnancy. Women generally knew that alcohol consumption has negative effects such as low birth weight, attention deficit disorder, and mental retardation on the unborn child.*

Keywords: *alcohol, consumption, knowledge, reproductive age, Nadowli-Kaleo*

1. INTRODUCTION

Alcohol also known as ethanol is described as a legal, easily accessible, and widely consumed psychoactive drug all over the world especially the western world (Vaca et al., 2016; Zelner & Koren, 2013). Alcohol is a known agent, capable of disturbing the development of an embryo or fetus and causes its malformations which can be minor to severe (Skagerström, 2015). Therefore, it is mostly referred to as a teratogen. Alcohol consumption in reproductive age women, therefore, remains a public health concern because of its associated health effects on both the mother and baby (Adeyiga, Udofia & Yawson, 2014).

In Africa, the highest consumption levels of alcohol are recorded in South Africa and Namibia, with the unfortunate increase in youth and women participation in alcohol consumption (Nketiah-Amponsah et al., 2018).

In Ghana, statistics on alcohol consumption seem to be relatively low (18%) as compared to other African countries. However, according to the Ghana Statistical Service (GSS) the trend of its increasing

consumption especially among females of reproductive age remains a major public health issue (GSS, 2009).

A cross-sectional study conducted in Australia (Peadon et al., 2010) found that 61.5% of women ever heard of some effects of alcohol consumption on pregnancy. In Uganda, (Wakou, 2003) reported that most mothers believed that consuming hard liquor had a more harmful effect on the fetus than beer or wine (78.0%). It was further noted that the fetus is exposed to the harmful effects of alcohol throughout pregnancy (67.8%) and that gin cleaned the baby (61.0%). In the Bosomtwe district in Ghana, (Adusi-Poku et al., 2012) reported that 7.6% of their study respondents believed alcohol has beneficial effects during pregnancy.

This study aimed to determine the knowledge on dangers associated with alcohol consumption during pregnancy among women of reproductive age in the Nadowli-Kaleo District of the Upper West Region of Ghana.

2. MATERIALS AND METHODS

Study site description

The Nadowli-Kaleo District is centrally located in the Upper West region of Ghana. It is bordered to the south by Wa Municipal, west by Burkina Faso, north by Jirapa and Lambussie-Karni Districts, and to the east by the Daffiama-Bussie-Issa District. The population of Nadowli-Kaleo District stood at 61,561 in 2010. Males constitute 46.7% and females are the majority, representing 53.3% (GSS, 2014).

Study population

The population of the study included women of reproductive age (18-49 years), who were residents of the Nadowli-Kaleo district.

Inclusion and Exclusion criteria

Women who were 15 to 45 years and were residents for the past three months in the Nadowli-Kaleo district were recruited into the study. This age group was used because alcohol misuse is the biggest risk factor for death, ill-health, and disability among 15-49 year-olds (Burton & Marsden, 2016). Women who did not reside in the district for the past 3 months before the study and health professionals even if they had stayed in the district for 3 months, were excluded.

Study Design

The researchers adopted a cross-sectional descriptive study design for the study. This design was appropriate as it explored the necessary information on the study objectives.

Sample Size

The desired sample size was obtained using the formula: $n=Z^2pq/d^2$ (Mugwe & Mbaja, 2013), Where n = Desired sample size, Z = standard normal deviation at 95% confidence level, P= prevalence of alcohol consumption of 0.24 among women, q = 1-p, d = degree of accuracy, set at 0.05. $n = (1.96)^2 \times 0.24 \times (1-0.24)/(0.05)^2$, n=280 and non-response rate of 5% was added, making the total sample size of 294.

Sampling method

A multi-stage sampling method was used in this study. The total list of the 20 largest communities in the Nadowli-Kaleo District (GSS, 2014) was considered. A simple random sampling technique was also used, where the first house in each community was selected from 1 to 3 and systematic sampling was then used to select every 3rd house until all the 294 participants were selected. In houses where there was more than one household, simple random sampling was used to select one by balloting YES or NO and the household that picked YES was used for the study. In households where there were more eligible participants, again simple random sampling was used to select one respondent. Balloting for YES OR NO was also used and individuals who picked YES were allowed to participate in this study.

Data collection procedure

A standard set of questionnaires was administered among the women in reproductive age. The nature of the study was explained to the respondents before administering the questionnaire. They were assured of

anonymity and confidentiality regarding their responses. The questionnaire was administered to all women who agreed and were qualified to take part in the study. The questionnaire was administered during the early hours in the morning of each day.

Data analysis

Data was entered into EpiData 3.1 and exported to Stata 12.0 for analysis. Descriptive statistics like percentages and frequencies were calculated and presented in charts and tables. Additionally, cross-tabulation was performed to determine the association between dependent and independent variables. The strength of the association was determined using logistic regression by computing the odds ratio at a 95% confidence interval, and a p-value of <0.05 was considered as statistically significant.

Ethical issues

Ethical approval for the study was sought from the Ethical Review Committee of the University of Health and Allied Sciences (Ref: **UHAS-REC A.4 [44] 18-19**). Local permission was also sought from the District Health Management Team of the Nadowli-Kaleo District.

3. RESULTS

Socio-demographic characteristics and obstetric history of respondents

Table 1 shows that a majority, 136 (46.3%) of the respondents were between the ages of 20 – 29 years and 91 (31.0%) respondents were from 30-39 years. Most of the respondents were married, 202 (68.7%). Majority of the study respondents were Christians, 227 (77.2%), followed by Muslims, 50 (17%).

In this study, most of the respondents had formal education, with 46 (15%) having JHS education and 43 (14.6 %) had primary school education. Majority 146 (49.7%) however, had no formal education qualification. Most of the respondents were farmers, 111 (37.8%), followed by those who were traders, 78 (26.5%).

Moreover, women who lived in the rural area formed the majority group, 261 (88.8%). The results also show that women who were currently pregnant were of the majority, 184 (62.6%).

Table 1: Socio-demographic characteristics and obstetric history of respondents

Variable	Frequency, n=294	Percentage (%)
Age		
<20	38	12.9
20-29	136	46.3
30-39	91	31.0
40-49	29	9.8
Marital Status		
Never Married	64	21.8
Married	202	68.7
Divorced	15	5.1
Cohabiting	13	4.4
Religion		
Christian	227	77.2
Muslim	50	17
Traditional	17	5.8
Ethnicity		
Dagao/Waale	253	86.1

Akan	23	7.8
Others	18	6.1
Educational Status		
None	146	49.7
Primary	43	14.6
JHS	46	15.6
SHS	25	8.5
Vocational	5	1.7
Tertiary	29	9.9
Occupation		
Trading	78	26.5
Government worker	56	19.1
Farmer	111	37.8
Unemployed	27	9.2
Student	15	5.1
Other	7	2.4
Residence		
Rural	261	88.8
Urban	33	11.2
Pregnancy status		
Currently pregnant	184	62.6
Not pregnant	110	37.4

Knowledge of women of childbearing age on the negative effects of alcohol consumption

Figure 1 shows that more than half of the respondents, 56.5% acknowledged that alcohol consumption has negative effects on humans. It was also found that 76.5% of the respondents asserted that alcohol consumption can have an adverse effect on the unborn child.

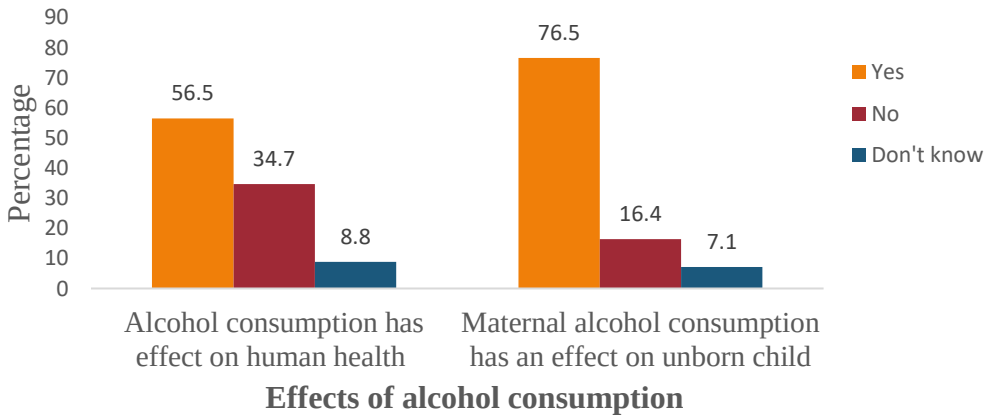

Figure 1: Knowledge of the dangers of alcohol consumption during pregnancy

The effects of alcohol consumption during pregnancy were mostly described by respondents as low birth weight, 193 (85.8%), and attention deficit disorder, 185 (82.2%) respectively in table 2. Also, 146 (64.9%)

and 102 (45.3%) of the respondents noted that mental retardation and low intelligence quotient were some of the negative effects of alcohol consumption during pregnancy on the fetus.

Table 2: Women knowledge on dangers associated with maternal alcohol consumption

Effects	Respond, n=225
	Yes (%)
Low Birth weight	193 (85.8%)
Mental Retardation	146 (64.9%)
Fetal alcohol syndrome	94 (41.8%)
Low intelligence quotient	102 (45.3%)
Delayed Development	92 (40.9%)
Learning disabilities	86 (38.2%)
Behavioral problems	75 (33.3%)
Attention deficit	185 (82.2%)

In figure 2, it was found that majority, 155 (53.1%) of the women have heard about the negative effects of alcohol consumption through the media. Interestingly, 97 (33.2%) and 34 (11.6%) respondents said they knew about the negative effects of alcohol consumption during pregnancy through their personal observations and health workers respectively.

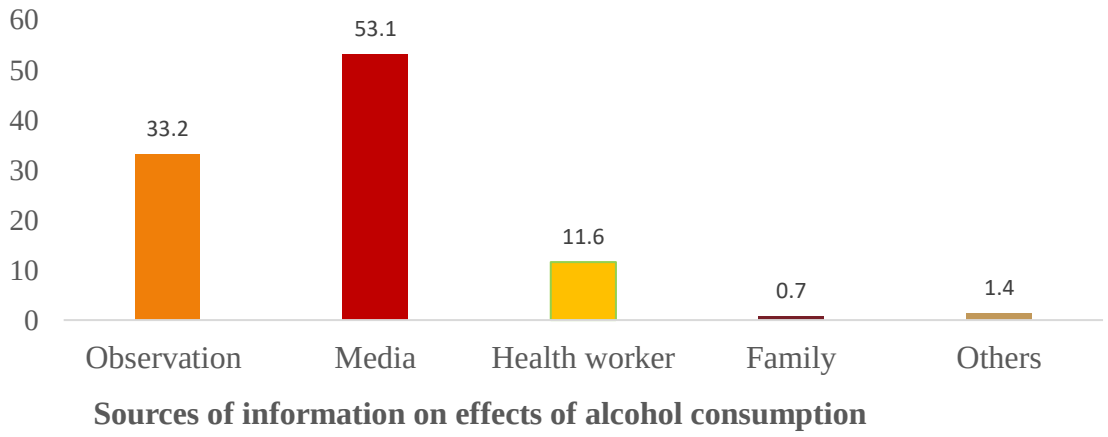

Figure 2: Respondents sources of information about the dangers of maternal alcohol consumption

Prevalence of alcohol consumption among women of child bearing age

Figure 3 shows that 184 (62.6%) of the respondents drank alcohol in the last three months before the interview, with majority of them, 131 (71.6%) not ready to stop drinking.

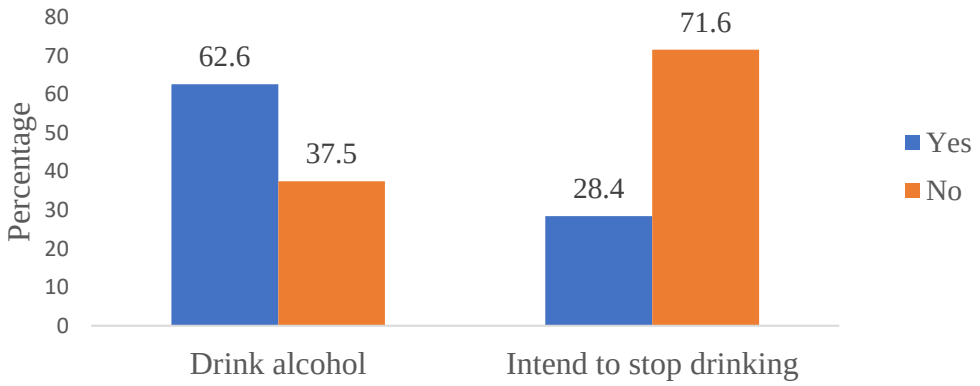

Figure 3: Respondents' alcohol consumption status and intention to stop

From table 3, the most preferred alcoholic beverage consumed was pito, 148 (80.9%). A greater number of the women also indicated that they drank the alcohol daily, 106 (39.3%), followed by some 97 (35.9%) who drank it monthly. Majority of the respondents drank alcohol during occasions like cultural festivals, 81 (44.3%), funerals, 77 (42.1%), and weddings, 61 (33.3%) respectively. Among women who were currently pregnant during this study, many of them reported that they did not consume alcohol in their first trimester, 43 (51.2%) of them.

Table 3: Alcohol consumption among women

Variables	Frequency (%)
Type of alcoholic beverage	**n= 183**
Pito	148 (80.9%)
Illicit gin	22 (12.0%)
Beer	12 (6.6%)
Other	1 (0.5%)
Alcohol consumption frequency	
Daily	106 (39.3%)
Weekly	34 (12.6%)
Monthly	97 (35.9%)
Yearly	19 (7.0%)
Never drank alcohol	14 (5.2%)
Preferred venue to drink* **	
Naming ceremony	51 (27.3%)
Wedding	61 (33.3%)
Funeral	77 (42.1%)
Cultural festival	81 (44.3%)
Consumption of alcohol in the first trimester of pregnancy	
Yes	41 (48.8%)
No	43 (51.2%)
Total	**84 (100.0%)**

***Multiple responses

Factors associated with knowledge on dangers of alcohol consumption in pregnancy (Table 4)

Knowledge was related to education level. Women who had up to senior high school education were more likely than those who had no level of formal education to know that alcohol consumption in pregnancy can cause one or more of the diagnoses resulting from alcohol exposure in pregnancy (AOR= 11.48, 95% CI: 1.01 to 130.64; p=0.049), and to agree that pregnant women should not drink alcohol (AOR= 3.46, 95% CI: 1.02 to 11.82; p=0.047). Also, women who had JHS education were more likely to agree that pregnant women should not drink alcohol than those without any formal education (AOR= 3.78, 95% CI: 1.16 to 12.32; P= 0.028**).** Women who were farmers were less likely to know one or more of the diagnoses resulting from alcohol exposure in pregnancy than government workers (AOR 0.29, 95% CI: 0.11 to 0.79; p = 0.015). Similarly, women who were farmers were less likely than government workers to agree that drinking alcohol during pregnancy can be harmful to the unborn child (AOR= 0.29, 95% CI: 0.12 to 0.69, P= 0.009). The results also showed that women who were not pregnant were more likely to know one or more of the diagnoses resulting from alcohol exposure in pregnancy (AOR= 2.51, 95% CI: 1.16 to 5.42, P= 0.019).

Table 4: Factors associated with knowledge on dangers of alcohol consumption among women of reproductive age at the Nadowli-Kaleo District (n = 294)

	Knew one or more of the diagnoses resulting from alcohol exposure in pregnancy Adjusted OR† (95% CI) P-value	Agree that drinking alcohol during pregnancy can be harmful to the unborn child	Agree that pregnant women should not drink alcohol
Age			
<20	Reference	Reference	Reference
20-29	0.47(0.15 to 1.49)0.202	0.65(0.24 to 1.76)0.392	0.99(0.44 to 2.21)0.984
30-39	0.56(0.17 to 1.87)0.342	0.61(0.21 to 1.77)0.363	1.12(0.47 to 2.67)0.790
40-49	0.27(0.07 to 1.08)0.064	0.45(0.13 to 1.54)0.204	1.88(0.66 to 5.40)0.239
Marital Status			
Single	Reference	Reference	Reference
Married	0.71(0.29 to 1.77)0.466	1.27(0.61 to 2.68)0.522	0.70(0.37 to 1.34)0.285
Divorced	0.45(0.10 to 2.04)0.303	0.61(0.15 to 2.46)0.484	0.60(0.16 to 2.25)0.448
Cohabiting	0.24(0.04 to 1.29)0.096	0.92(0.19 to 4.53)0.922	0.93(0.23 to 3.72)0.914
Religion			
Christian	1.01(0.42 to 2.44)0.986	1.03(0.46 to 2.29)0.947	1.44(0.72 to 2.90)0.303
Muslim	Reference	Reference	Reference
Traditional	1.54(0.34 to 6.96)0.573	1.27(0.31 to 5.24)0.745	0.65(0.17 to 2.45)0.528
Ethnicity			
Dagao/Waale	1.24(0.50 to 3.10)0.640	1.47(0.64 to 3.40)0.362	0.69(0.33 to 1.48)0.343
Akan	Reference	Reference	Reference
Educational Status			
None	Reference	Reference	Reference
Primary	2.31(0.49 to 10.94)0.293	0.73(0.20 to 2.69)0.630	3.09(1.00 to 9.58)0.051
JHS	2.48(0.50 to 12.21)0.264	0.72(0.18 to 2.86)0.642	3.78(1.16 to 12.32)**0.028**
SHS	11.48(1.01 to 130.64)**0.049**	1.35(70.30 to 6.20)0.697	3.46(1.02 to 11.82)**0.047**
Tertiary	0.83(0.21 to 3.31) 0.792	0.81(0.32 to 2.03) 0.653	0.61(0.29 to 1.28) 0.192
Occupation			
Trading	0.47(0.16 to 1.41)0.176	0.81(0.32 to 2.03)0.653	0.61(0.29 to 1.28)0.192
Gov. worker	1.93(0 .55 to 6.83) 0.305	0 .77(0 .22 to 2.68) 0.687	0.72(0 .28 to 1.84) 0.491
Farmer	0.29(0.11 to 0.79)**0.015**	0.29(0.12 to 0.69)**0.009**	0.74(0.36 to 1.52)0.405
Unemployed	Reference	Reference	Reference
Residence			
Rural	0.69(0.19 to 2.53)0.577	1.01(0.38 to 2.70) 0.983	1.30(0.55 to 3.09)0.555
Urban	Reference	Reference	Reference
Pregnancy status			
Pregnant	Reference	Reference	Reference
Not pregnant	2.51(1.16 to 5.42)**0.019**	1.02(0.53 to 1.95)0.949	0.76(0.43 to 1.35)0.353

† Odds ratios for each variable adjusted for sociodemographic variables

4. DISCUSSION

There is a need to research the issue of women's knowledge of alcohol-related effects during pregnancy more thoroughly because of the few existing studies on it. This study provides up-to-date information on women's knowledge about alcohol consumption in pregnancy and its effects on the fetus, as well as the prevalence of alcohol consumption among women of reproductive age in the Nadowli-Kaleo District of the Upper West Region, Ghana.

The findings from this present study showed that more than half (56.5%) of the respondents knew that generally, alcohol consumption has some negative effects on human health including the unborn child. However, women who were farmers were less likely than government workers to agree that drinking alcohol during pregnancy can be harmful to the unborn child. This was in line with (Adeyiga et al., 2014) who

reported that a total of 60.7% of reproductive age women admitted they knew some general effects of alcohol on human health.

This study finding further showed that even though a majority of the women were aware of the effects of alcohol consumption on humans, as many as 62.6% of them drank alcohol before the time of conducting this study. This finding is similar to what was reported in Nigeria by (Ordinioha & Brisibe, 2015) that 59.29% of the respondents had taken alcohol during the index pregnancy. This result is however much higher than the proportion (Baptista et al., 2017) reported in São Carlos that alcohol consumers during pregnancy were 48.3% positive with two points. The high proportion of alcohol consumption among the reproductive age women recorded in this study could be attributed to the poor recognition of the harmful effects of alcohol on the fetus, societal tolerance of alcohol consumption

by pregnant women, and social and religious functions where alcoholic beverages are freely served in unlimited quantities. Most worryingly, a vast proportion (71.6%) of women who drank alcohol in the last three months before the interview were never ready to quit alcohol consumption. This contradicted the finding of (Esposito et al., 2015) who reported that only 27.3% of women who were drinking alcohol during pregnancy had the intention of stopping. Women in this study who had secondary education (JHS and SHS) were more likely to agree that pregnant women should not drink alcohol. This contradicts what (Skagerström, 2015) reported in Sweden that most (93.5%) women, both moderate and hazardous drinkers, reported decreasing alcohol consumption when they became aware of their pregnancy.

Our study also found that the most preferred alcoholic beverage consumed was pito (80.9%). This could be as a result of pito being the most common and affordable drink in the area. On the other hand, the district is noted with pito (locally brewed alcoholic beverage), and this can also contribute to the chunk proportion of women engaged in alcohol consumption. This differed from what (Adeyiga et al., 2014) found, that the main brand of alcohol consumed by Ghanaian women of reproductive age was beer or stout (36.3%). This difference might have resulted from the varying commonality of the various drinks at the two study areas.

There was high knowledge (56.5%) of respondents on alcohol and its effect on women and unborn child; similar to 51.58% recorded in Nigeria by (Ordinioha & Brisibe, 2015). Our study shows that majority (53.1%) of the respondents heard about the negative effects of alcohol consumption during pregnancy through the media, followed by personal observations. This finding differed from what was reported by (Esposito et al., 2015) that two-thirds of women (75.4%) indicated that they had received information from the physician about possible damage to the newborn baby resulting from alcohol intake during pregnancy. Because many of the respondents knew that alcohol consumption has negative effects on humans, this could have translated into their knowledge on its negative effects through their personal observations. This is because knowledge is required to influence attitude and then changes in health behavior (Cole et al., 2014).

Respondents of this present study were able to identify low birth weight, attention deficit disorder, mental retardation, and low intelligence quotient respectively as the major dangers associated with alcohol consumption on the unborn child. This finding agreed with what was reported in Accra by (Adeyiga et al., 2014) that the effects of alcohol consumption were identified as low birth weight, followed by mental retardation. Similar findings were reported by (Peadon et al., 2010) that respondents in their study mentioned some effects of alcohol consumption on pregnancy or the unborn child as Fetal Alcohol Syndrome, low birth weight, and brain damage respectively.

Women who had SHS education or were not pregnant were more likely than those who had no level of formal education or pregnant to know that consuming alcohol during pregnancy can cause one or more of the diagnoses. A similar finding was reported in previous studies (Environics Research Group, 2006). However, women who were farmers in this study were less likely to know that alcohol consumption in pregnancy can cause any effect (s), compared to their unemployed counterparts.

An effective health education campaign should be rollout and or improved by the District Health Management Team on the perceived benefits of alcohol consumption on the pregnant woman and the baby.

5. LIMITATIONS

Respondents tried to shy away from questions about alcohol and this might have led to information bias. To overcome this, the research data collectors ensured that the data was collected between only the respondents

and the data collectors for those who could not read. Study respondents also had to recall how often they drink alcoholic beverages hence subjecting them to recall bias.

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Conflict of Interest

We wish to declare that there is no conflict of interest in this study.

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