Past Month Alcohol Intake and Subjective Cognitive Complaints Amongst Men and Women in Ghana

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Abstract

Background: Alcohol is widely used globally, and its intake has deleterious effects on cognitive functions. The relationship between alcohol intake and cognition has received extensive scientific investigation elsewhere but with little to no research coming from Ghana. The study examined the relationship between past-month alcohol intake and subjective cognitive complaints (SCCs) amongst men and women controlling for the effects of covariates.

Methods: Data of 4358 men and 12483 women aged 18 to 49 years from the Ghana Multiple Indicator Cluster Survey Six (GMICS 6) collected between 2017 and 2018 was used. Participants responded to self-report single-item questions measuring past month alcohol use and cognition difficulty levels. Ordered logistic regression models were built separately for men and women in Stata 14.

Results: After adjusting for age, education levels, insurance, marital status, rural-urban residence, and region of residence, it was found that past-month alcohol intake was related to high levels of SCCs. However, the size of the odds ratio indicated a slightly higher effect in men [APOR=1.38, 95% CI:1.07, 1.79] than in women [APOR=1.24, 95% CI: 1.06, 1.46]. Other significant relationships between covariates and SCCs are reported.

Conclusion: Past month alcohol intake is related to high levels of SCCs of Ghanaian men and women. This finding highlights the need to implement and enforce policies to regulate the harmful use of alcohol amongst Ghanaians.

Background

Alcohol is one of the most widely used substances globally. Reported estimates from 2016 suggest that an annual global average of 6.4 litres of alcohol or 53 bottles of wine was consumed per person older than 15 years (1). In Ghana, about 2.8 litres of alcohol is used annually per person with past 12 months prevalence of 49.88% in men and 28.47% in women aged 25–70 years (1, 2). Harmful alcohol consumption, often defined by volume, frequency, and quality of alcohol consumed ranks amongst the leading cause of many health complications including cancer, cardiovascular disease, Korsakoff syndrome and mental health problems (3, 4). Alcohol intake is also associated with lifelong disability and mortality, with the World Health Organization (WHO) showing that about 3 million people die every year from harmful alcohol use (5).

Aside from its negative implications on the physical health of consumers, increasing alcohol use is also known to affect individual cognitive functioning. Cognition comprises mental functions such as attention, decision-making, concentration, memory, and reasoning that supports the processing and internal representation of stimuli from the environment (6). Any impairment in cognition implies a loss in these functions which may in turn precipitate distress, poor mental health, and reduced quality of life (7). Subjective cognitive complaints (SCCs) are cognitive concerns commonly reported by the elderly with or without objective evidence of impairment (6). Estimates of cross-sectional studies from the UK, Spain

and Vietnam indicate SCCs prevalence rates ranging from about 10–60% (8–11). SCCs are often assessed using self-report questions and serve as an indicator for the onset of mild cognitive impairment (MCI) and dementia especially in the elderly (12–14). Even though the relationship between SCCs and objective measures of cognition have come under scrutiny (15), reports of SCCs can provide substantial preliminary information to guide further objective measurement and diagnoses (16, 17). Several variables including depression, alcohol use, older adults, low education, and females are reported as correlates of SCCs (10, 18, 19).

Alcohol's impact on cognition has received extensive scholarly attention, especially in high-income countries. Investigations on the subject have taken various forms, but it is consistently revealed that harmful alcohol consumption affects cognitive functions (20). For example, a nationwide longitudinal study amongst 5157 South Korean adults found that problematic drinking behaviour at baseline was related to a faster decline in cognitive function during 6 years of follow-up (21). Awofala and Ogundele (18) also reported a positive association between alcohol intake and SCCs amongst Nigerians after adjusting for covariates with additional findings showing more prominence of this association in men than in women, but the existing findings show some inconsistencies. For example, other studies on gender variations have shown females to be more susceptible to the cognitive impact of alcohol than males (22–26). Regardless of this gender variation, harmful consumption of alcohol is noted to affect critical neural functions such as spatial memory, working memory and reward-related learning (25, 27) as well as neural structures including reduced prefrontal cortical and hippocampal volume (28, 29). It is also noted to increase the risk of MCI and dementia (30).

The worrying impact of alcohol use and its effects has compelled many stakeholders to introduce policies and programmes to combat the increasing use of alcohol by targeting risk factors such as age, gender, unemployment, and low socioeconomic status (31–34). For instance, the government of Ghana recently released a 33-page policy document, detailing intentions to regulate the production, distribution, sale, advertisement, and consumption of alcohol (35). To support the full implementation of such policies within the Ghanaian context, more context-specific scientific evidence about the deleterious effects of alcohol use on health outcomes especially cognition is needed (36–38).

The lack of context-specific studies examining the association between alcohol intake and cognition, the closest being a study on alcohol and sleep deprivation (39) and another on socioeconomic status and cognition (40), makes it reasonable to examine this association into more details. The focus of this present study, therefore, was to investigate the relationship between alcohol intake and subjective cognitive complaints using nationally representative data. Given the overwhelming evidence about the adverse effect of alcohol on cognition, we expect that alcohol intake would be associated with SCCs amongst men and women in Ghana.

Methods

Data source

Data used for the current study was drawn from the women and men datasets of 2017/2018 Ghana Multiple Indicator Cluster Survey Six (GMICS 6). The MICS 6 is a cross-sectional survey conducted by Ghana Statistical Service in collaboration with other government agencies such as the Ghana Health Service, Ministry of Health, and the Ministry of Education (41). The survey received funding and technical support from United Nations International Children's Emergency Fund (UNICEF) and other international donors (41). The MICS Programme collects internationally comparable household data from children and women on a variety of indicators to be used by countries for national development plans, policies, and programmes (41).

The MICS 6 relied on a multi-stage, stratified cluster sampling to sample participants in urban and rural areas from the previous 10 administrative regions in Ghana: Western, Central, Greater Accra, Volta, Eastern, Ashanti, Brong Ahafo, Northern, Upper East, and Upper West. In the first stage of the data collection process, enumeration areas (EAs), based on Ghana's 2010 Population and Housing Census, were identified, and chosen as primary sampling units (PSUs). In the second stage, a list of households was created and sampled using systematic random sampling from each selected EAs. As a result, a total of 13202 households were selected for data collection. In this study, data of 4358 men and 12483 women aged 18 to 49 years was analysed.

Measures

Outcome variable

The outcome variable for this study is subjective cognitive complaints. This variable was measured using a single item question enquiring participants about their abilities to remember or concentrate. Participants were specifically asked, “Do you have difficulty remembering or concentrating?” and responded on a 4-point ordinal scale namely, “0=No difficulty”, “1=Some difficulty”, “2=A lot of difficulty”, and “3=Cannot remember at all”. Responses of the latter two categories (i.e., “A lot of difficulties” and “Cannot remember at all) were combined into a single category following the cut-off recommendations by Cappa et al., (2018). The recategorized variable has the following value-labels: “0=No difficulty”, “1=Some difficulty”, “2=A lot of difficulty/Cannot remember at all”.

Predictor variable

Past month alcohol intake was the main predictor variable for this study. This variable was measured using a single-item question that was related to alcohol use. Both men and women were asked, “During the last one month, on how many days did you have at least one drink of alcohol?” and responded by selecting the option, “Did not have one drink in last one month” or indicated the number of days they had a least one drink. For ease of interpretation, the variable was dichotomized by collapsing responses on “Did not have one drink in last one month” including those who had never drunk alcohol into “No=0” and all other responses representing past month alcohol use as “1”.

Control variables

Age, education, marital status, health insurance status, household wealth index, rural-urban residence, and region of residence were selected as control variables for this study. The selection of these variables as covariates was based on findings from previous studies (10,18,42) and their availability in the datasets.

Data preparation and Analysis

Data analysis began by recoding the variables in both men and women data files in Stata version 14. Next, the “svyset” complex survey command was activated to correct for clusters, stratification, and sample weights that are common in secondary datasets collected with complex survey designs. West, Sakshaug, and Aurelien (43) suggested that such corrections are necessary for secondary datasets collected with complex survey designs to account for possible analytical errors and make appropriate inferences. Univariate analyses were then performed by computing frequencies and percentages for the study variables. Following that, bivariate and multivariable analyses were conducted with ordered logistic regression in two steps. First, the predictor and covariates were separately regressed on the outcome variable as seen in the unadjusted models (POR: proportional odds ratio) in Table 2. Lastly, the predictor variable together with the covariates was regressed onto the outcome variable as seen in the adjusted (APOR: Adjusted proportional odds ratio) columns in Table 2. These processes were applied on both men and women datasets.

Results

Summary Characteristics of the sample

Table 1 shows the detailed distribution of SCCs, past month alcohol intake and socio-economic characteristics of respondents before the survey. Overall, 4.47% of the respondents had severe SCCs, however, with gendered differences. There was a slightly higher proportion of males (4.83%) having severe SCs than females (4.34%). Although 17.11% of the respondents had drunk alcohol in the past month, there were significant gendered differences with a higher proportion in males (31.55%) than in females (12.07%). Most of the respondents were aged 20–29 (34.62%); more males (33.95%) compared to females (34.85%) were found in this age group. The larger proportion (37.14%) of the respondents had attained JSS/JHS/Middle education, with more males (38.23%) compared to females (36.76%) attaining this educational level. Generally, a higher proportion (62.69%) were currently married with gendered differences. More females (65.37%) were currently married compared to males (55.03%).

Most of the respondents (51.54%) had health insurance, although the proportion was significantly higher among females (56.28%) compared to males (37.98%). Also, a larger proportion of the respondents (24.23%) belonged to the richest wealth quintile, with more males (25.03%) being in this richest quintile compared to females (23.95%). A slightly higher proportion of the respondents (50.45%) were urban residents, with more females (50.96%) compared to males (48.99%) being urban dwellers. Lastly, most of the respondents (23.98%) resided in Ashanti Region, with the proportion of males (24.57%) being higher than their female counterparts (23.77%).

Table 1 Summary statistics of study variables

Study Variables	Males	Females	Total
	n = 4,358 (25.88%)	*n* = 12,483 (74.12%)	*N* = 16841 (100%)
Dependent variable			
Subjective Cognitive Complaints			
None	3345 (76.76)	9557 (76.56)	12902 (76.61%)
Some	802 (18.41)	2385 (19.10)	3187 (18.92%)
A lot/Cannot at all	211 (4.83)	541 (4.34)	752 (4.47%)
Independent variable			
Drunk alcohol in the past month			
No	2983 (68.45)	10976 (87.93)	13959 (82.89%)
Yes	1375 (31.55)	1507 (12.07)	2882 (17.11%)
Control variables			
Age (years)			
< 20	522 (11.98)	1039 (8.32)	1561 (9.27%)
20–29	1479 (33.95)	4351 (34.85)	5830 (34.62%)
30–39	1265 (29.02)	4080 (32.69)	5345 (31.74%)
40+	1092 (25.05)	3014 (24.14)	4106 (24.38%)
Education			
Pre-primary or None	504 (11.58)	2652 (21.24)	3156 (18.74%)
Primary	450 (10.33)	2169 (17.38)	2619 (15.55%)
JSS/JHS/Middle	1666 (38.23)	4588 (36.76)	6254 (37.14%)
SSS/SHS/Secondary	1234 (28.31)	2242 (17.96)	3476 (20.64%)
Higher	503 (11.54)	831 (6.66)	1334 (7.92%)
Marital status			
Currently married	2398 (55.03)	8160 (65.37)	10558 (62.69%)
Formerly married	197 (4.53)	1353 (10.83)	1550 (9.20%)
Never married	1762 (40.44)	2970 (23.80)	4732 (28.10%)
Health Insurance			
Yes	1655 (37.98)	7025 (56.28)	8680 (51.54%)

Study Variables	Males	Females	Total
No	2703 (62.02)	5458 (43.72)	8161 (48.46%)
Wealth Quintile			
Poorest	749 (17.19)	2060 (16.50)	2809 (16.68%)
Poorer	666 (15.29)	2262 (18.12)	2928 (17.39%)
Middle	871 (19.98)	2507 (20.08)	3378 (20.06%)
Richer	981 (22.50)	2665 (21.35)	3646 (21.65%)
Richest	1091 (25.03)	2990 (23.95)	4081 (24.23%)
Urban-rural residence			
Urban	2135 (48.99)	6362 (50.96)	8497 (50.45%)
Rural	2223 (51.01)	6121 (49.04)	8344 (49.55%)
Region of residence			
Western	446 (10.23)	1237 (9.91)	1683 (9.99%)
Central	352 (8.09)	1183 (9.48)	1535 (9.11%)
Greater Accra	578 (13.26)	1703 (13.64)	2281 (13.54%)
Volta	340 (7.81)	949 (7.61)	1289 (7.65%)
Eastern	565 (12.97)	1497 (11.99)	2062 (12.24%)
Ashanti	1071 (24.57)	2967 (23.77)	4038 (23.98%)
Brong Ahafo	378 (8.68)	1145 (9.17)	1523 (9.04%)
Northern	390 (8.95)	1156 (9.26)	1546 (9.18%)
Upper East	132 (3.03)	361 (2.89)	493 (2.93%)
Upper West	105 (2.41)	286 (2.29)	391 (2.32%)
Note. JHS: Junior High School; SHS: Senior High School			

Summary of bivariate and multivariate analyses

In both unadjusted and adjusted models, drinking alcohol in the past month was positively associated with SCCs among both males and females (see Table 2). In the adjusted model, however, the magnitude of the association was slightly higher among males [APOR = 1.38, 95% CI: 1.07, 1.79] than females [APOR = 1.24, 95% CI: 1.06, 1.46] (Table 2). This confirmed the study's hypothesis that past month alcohol intake would be associated with high levels of SCCs in Ghanaian men and women. Furthermore, in the

multivariable model, gendered differences were seen in the association between the control variables and SCCs (Table 2).

Age was a significant correlate of SCCs among females but not among males. Specifically, compared to females below 20 years, females who were 40 years and above had a higher likelihood of reporting SCCs [APOR = 1.71, 95% CI: 1.31, 2.24].

Although formal education was a significant correlate of SCCs in both male and female models, some differences exist in their contribution to the model. In the male model, men with pre-primary or none [APOR = 2.36, 95% CI: 1.36, 4.09] and primary [APOR = 2.65, 95% CI: 1.390, 5.05] education were more likely to report severe experiences of SCCs compared to their male counterparts with higher education. In the female model, females with pre-primary or none [APOR = 2.64, 95% CI:1.90, 3.65], primary [APOR = 2.76, 95% CI:1.99, 3.83], JSS/JHS/Middle [APOR = 2.28, 95% CI:1.71, 3.03] and SSS/SHS/Secondary [APOR = 1.56, 95% CI:1.16, 2.11] education were more positively associated with SCCs compared than their female counterparts with higher education (Table 2).

Health insurance had a significant correlation with SCCs among males but not females. Males without health insurance were more likely to have SCCs compared to insured males [APOR = 1.40, 95% CI:1.07, 1.82]. The urban-rural residence was also a significant correlate of SCCs, although this was found in males and not females. Specifically, rural men were less likely to report SCCs compared to urban men [APOR = 0.60, 95% CI: 0.38, 0.95].

Lastly, region of residence was a significant correlate of SCCs but with some gender differences. Compared to their Greater Accra counterparts, males residing in Central [APOR = 2.39, 95% CI:1.26, 4.54], Volta [APOR = 3.27, 95% CI:1.77, 6.06], Eastern [APOR = 4.01, 95% CI:2.16, 7.43], and Ashanti [APOR = 5.30, 95% CI:2.67, 10.53] regions were more likely to report SCCs. On the other hand, compared to their Greater Accra counterparts, women residing in the Western [APOR = 0.67, 95% CI:0.50, 0.91], Ashanti [APOR = 0.50, 95% CI: 0.37, 0.68], and Northern [APOR = 0.45, 95% CI: 0.32, 0.65] regions were less likely to report SCCs (see Table 2). Marital status and wealth quintile were statistically non-significant correlates of SCCs.

Table 2 Drinking alcohol regressed on SCCs amongst men and women, controlling for other covariates.

Study Variables	Males		Females	
Independent variable	POR [95% CI]	APOR [95% CI]	POR [95% CI]	APOR [95% CI]
Past month alcohol intake				
No	Ref.	Ref.	Ref.	Ref.
Yes	1.45* [1.07, 1.97]	1.38* [1.07, 1.79]	1.41*** [1.20, 1.66]	1.24** [1.06, 1.46]
Control variables				
Age (years)				
< 20	Ref.	Ref.	Ref.	Ref.
20–29	1.21 [0.92, 1.60]	1.31 [0.95, 1.81]	0.99 [0.81, 1.23]	1.07 [0.85, 1.35]
30–39	0.96 [0.71, 1.30]	0.98 [0.66, 1.47]	1.17 [0.94, 1.44]	1.21 [0.94, 1.54]
40+	1.15 [0.82, 1.61]	1.12 [0.71, 1.76]	1.80*** [1.44, 2.25]	1.71*** [1.31, 2.24]
Education				
Pre-primary or None	1.77** [1.16, 2.69]	2.36** [1.36, 4.09]	3.01*** [2.27, 3.98]	2.64*** [1.90, 3.65]
Primary	2.63*** [1.53, 4.52]	2.65** [1.39, 5.05]	3.43*** [2.59, 4.56]	2.76*** [1.99, 3.83]
JSS/JHS/Middle	2.13** [1.25, 3.64]	1.70 [0.91, 3.18]	2.62*** [2.02, 3.42]	2.28*** [1.71, 3.03]
SSS/SHS/Secondary	1.73* [1.05, 2.84]	1.62 [0.94, 2.79]	1.62** [1.21, 2.16]	1.56** [1.16, 2.11]
Higher	Ref.		Ref.	Ref.
Marital status				
Currently married	0.99 [0.81, 1.21]	1.06 [0.77, 1.46]	1.27** [1.10, 1.46]	0.85 [0.72, 1.02]

Study Variables	Males		Females	
Formerly married	2.05*	1.52	1.78***	1.09
	[1.14, 3.70]	[0.76, 3.05]	[1.45, 2.18]	[0.86, 1.37]
Never married	Ref.	Ref.	Ref.	Ref.
Health Insurance				
Yes	Ref.	Ref.	Ref.	Ref.
No	1.69***	1.40*	1.15*	0.99
	[1.33, 2.16]	[1.07, 1.82]	[1.02, 1.30]	[0.87, 1.12]
Wealth Quintile				
Poorest	1.46	1.74	1.68***	1.26
	[0.99, 2.16]	[0.98, 3.10]	[1.40, 2.02]	[0.97, 1.65]
Poorer	1.50*	1.48	1.50***	1.13
	[1.05, 2.16]	[0.85, 2.59]	[1.22, 1.84]	[0.89, 1.42]
Middle	1.48*	1.18	1.56***	1.19
	[1.05, 2.09]	[0.78, 1.78]	[1.29, 1.89]	[0.96, 1.48]
Richer	1.44	1.07	1.21*	1.03
	[0.93, 2.23]	[0.69, 1.65]	[1.02, 1.44]	[0.86, 1.24]
Richest	Ref.	Ref.	Ref.	Ref.
Urban-rural residence				
Urban	Ref.	Ref.	Ref.	Ref.
Rural	0.86	0.60*	1.28**	1.04
	[0.53, 1.40]	[0.38, 0.95]	[1.09, 1.50]	[0.87, 1.25]
Region of residence				
Western	0.67	0.69	0.78	0.67**
	[0.33, 1.34]	[0.34, 1.43]	[0.58, 1.04]	[0.50, 0.91]
Central	2.42**	2.39**	1.17	0.99
	[1.30, 4.50]	[1.26, 4.54]	[0.89, 1.52]	[0.74, 1.31]
Greater Accra	Ref.	Ref.	Ref.	Ref.

Study Variables	Males		Females	
Volta	3.66***	3.27***	1.65**	1.28
	[2.04, 6.56]	[1.77, 6.06]	[1.22, 2.23]	[0.92, 1.79]
Eastern	3.95***	4.01***	1.49**	1.25
	[2.14, 7.28]	[2.16, 7.43]	[1.13, 1.98]	[0.94, 1.67]
Ashanti	5.00***	5.30***	0.56***	0.50***
	[2.50, 10.00]	[2.67, 10.53]	[0.42, 0.76]	[0.37, 0.68]
Brong Ahafo	1.66	1.59	0.87	0.73
	[0.93, 2.98]	[0.88, 2.89]	[0.64, 1.19]	[0.51, 1.04]
Northern	0.66	0.55	0.62**	0.45***
	[0.34, 1.30]	[0.27, 1.13]	[0.44, 0.88]	[0.32, 0.65]
Upper East	1.31	1.16	1.59***	1.21
	[0.71, 2.40]	[0.60, 2.25]	[1.22, 2.06]	[0.90, 1.63]
Upper West	0.79	0.63	1.23	0.893
	[0.41, 1.52]	[0.32, 1.24]	[0.93, 1.61]	[0.66, 1.21]
Model details				
Strata		20		20
PSUs		660		660
Population size		4358		12483
Design *df*		640		640
$F(25, 616) =$		8.52		12.04
Prob > F		0.0001		0.0001

Note. JHS: Junior High School; SHS: Senior High School; PSU: Primary sampling units; POR: proportional odds ratio; APOR: adjusted proportional odds ratio; 95% CI: 95% Confidence interval. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Discussion

In this study, we examined the relationship between alcohol intake and subjective cognitive complaints (SCCs) using a nationally representative sample from Ghana. It was found that alcohol usage in the past month was positively associated with SCCs among both males and females even after adjusting for covariates. Covariates such as age, educational status, health insurance coverage, place and region of

residence were associated with SCCs with notable gender variations. Taken together, the findings extend what is currently known about alcohol usage and SCCs by adding evidence from one more context. Thus, they offer more contextual insight into potential groups of persons who may benefit from health promotion activities targeting a reduction in alcohol consumption.

Past month alcohol intake was related to high levels of SCCs of both men and women in Ghana. This relationship was however more pronounced in men than in women. Although earlier studies have reported a higher risk of alcohol-related cognitive impairment in women (22–26), others have reported higher risk in men (18, 21, 44). Our result indicating greater susceptibility in men, therefore, mirrors these latter group of studies. Generally, harmful alcohol consumption is related to SCCs through alcohol-related nutritional deficiencies or the damaging effects of neurotoxins in ethanol (22, 45). More specifically, men are greatly affected perhaps because of prolonged use and excessive drinking that is more common among Ghanaian men (30, 46). Furthermore, it is plausible the alcohol-related cognitive impairment in men is mediated by other risk factors. For example, personal and social factors including life dissatisfaction, depression, economic, financial and relational stressors which are associated with alcohol use among Ghanaian men (47, 48) are likewise enduring correlates of SCCs (10, 15, 49, 50). Although more research is required for a better understanding of the relationship between alcohol and SCCs in the Ghanaian context, our results affirm the need for public health intervention to target the reduction in alcohol consumption in both males and females (46).

Furthermore, previous studies have highlighted that socio-demographic characteristics such as age, educational status, health insurance, place of residence and region of residence are associated with SCCs (10, 12, 18, 19). The current study offers unique insight into these factors and their association with SCCs, highlighting this association from a gendered perspective. Age emerged as a significant predictor of SCCs among females and not males. Specifically, women aged 40 years and older were more likely to report severe forms of SCCs compared with women lesser than 20years. This is in line with previous studies reporting greater cognitive impairment in older adults than younger (8). Also, both men and women with lower levels of education were more likely to report severe experiences of SCCs than their counterparts with higher educational status. This finding is consistent with a study published amongst older Ghanaians which revealed that lower education was associated with poor cognitive functioning (40). Higher education serves as a direct and indirect path to adopting healthy lifestyle practices and protection against reduced health outcomes. Consistent with literature showing that healthcare noncoverage increases the odds of SCCs, we found that men without health insurance coverage were more likely to experience severe SCCs than those with health insurance coverage (51).

The current study unexpectedly observed that men in rural Ghana were less likely to report SCCs which contradicts a recent study reporting greater mild cognitive impairment in rural dwellers (52). Even though SCCs may still be present, rural men could be underreporting its occurrences because of low health literacy or simply because they do not regard SCCs as a problem. Another finding worth mentioning in the current study is the regional variations associated with SCCs which is like studies reporting regional differences in cognitive performance (53, 54). Males residing in Central, Volta, Eastern and Ashanti

regions of Ghana were more likely to report SCCs when compared to their counterparts in the Greater Accra region. For females, those residing in Western, Ashanti and Northern regions were less likely to report SCCs when compared to those from the Greater Accra region. Explanations for these findings are not fully known to the authors and more research is recommended to examine these peculiar gender effects in the regional distribution of SCCs.

The current study's findings call on the government of Ghana and other stakeholders to expedite the implementation of the policies towards controlling the consumption and accessibility of alcohol in Ghana. The study, therefore, suggests that the Ghana Health Service, in collaboration with the media, develop and implement programs to create awareness on the harmful effects of alcohol consumption. The health services must also enhance the availability, accessibility, and affordability of quality treatment services for individuals and families at risk of, or affected by, alcohol-use disorders and associated conditions. Community-based interventions may be of immense benefit in this regard (55). This form of public health intervention is essential as long-standing alcohol-induced SCCs may predispose an individual to cognitive and neurodegenerative impairments such as dementia in the long term. Other non-governmental organizations and support groups aimed at reducing alcohol exposure and providing quality intervention services, can also use information from this study to guide their advocacy and programs.

One strength of this study is that separate models were run for men and women which provides a grander exploration of the effects of alcohol intake and covariates on SCCs. Also, the sample size used was large and representative, enabling generalizability of the results to the greater population of Ghanaians. Moreover, the survey employed robust methodologies and data collection procedures that reduce errors. However, the study has some limitations worth mentioning. First, the use of cross-sectional design makes it difficult to make inferences about the causal relationship between alcohol and subjective cognitive complaints. Second, the use of a pre-existing dataset made controlling for other potential covariates difficult. As a result, the variables controlled in this study may not be exhaustive, preventing a detailed assessment of the effects of other associated factors in the subjective cognitive complaints model. Future studies in Ghana should, therefore, make efforts to control for variables measuring certain chronic health conditions. Another limitation is the use of single item question to measure subjective cognitive complaints. The authors are aware that a single item measure has its limits in capturing the full spectrum of a construct such as subjective complaints; however, in large scale nationally representative surveys covering several population health outcomes, the use of single item measures can be given serious consideration when the objective is to have a general understanding of the condition and to determine the population who might benefit from universal interventions. Moreover, data collection relied on self-report measures. Although validated by the MICS, it is possible participants underreported or overreported their drinking behaviours as well as SCCs status.

Conclusions

Our research presents findings suggesting a positive association between alcohol consumption and subjective cognitive complaints. After controlling for other covariates, men and women with a high alcohol intake were found to be more likely to report subjective cognitive complaints. Age, educational status, health insurance coverage, rural area and region of residence were observed to be associated with SCCs. In order to reduce the health impact of alcohol, the government of Ghana is encouraged to expedite the full implementation and enforcement of the alcohol policy. The findings of this research serve as a springboard recommending more research into the health implications of alcohol use among Ghanaians. Lastly, the findings are useful for practitioners in optimizing advocacies and interventions against alcohol-related cognitive impairments.

Abbreviations

APOR: Adjusted Proportional Odds Ratio

CI: Confidence Interval

EAs: Enumeration Areas

GMICS: Ghana Multiple Indicator Cluster Survey

GSS: Ghana Statistical Service

JHS: Junior High School

MICS: Multiple Indicator Cluster Survey

POR: Proportional Odds Ratio

PSU: Primary Sampling Unit

SCCs: Subjective Cognitive Complaints

SHS: Senior High School

UNICEF: United Nations International Children's Emergency Fund

Declarations

Ethics approval and consent to participate

The MICS team of UNICEF-Ghana, The Ethical Review Board of the Ghana Health Service, and the Ghana Statistical Service approved the study. Before collecting primary data, enumerators obtained child assent and parental/adult consent from participants. Apart from that, participants were guaranteed anonymity and confidentiality.

Consent for publication

Not applicable

Availability of data and materials

To access the dataset, permission was sought and granted by the UNICEF at https://mics.unicef.org/surveys.

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

PA & NEYD conceived the study and analyzed the data. PAD & PA interpretated the data. NEYD, KOA, PAD & JB drafted the first version of the manuscript. ED substantively revised the manuscript. All authors read and approved the final manuscript.

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