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Research Article

The correlates of substance use among older adults in Ghana during the COVID-19 pandemic

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Background

Evidence suggests that substance use remains one of the negative consequences of the coronavirus (COVID-19) pandemic among older adults. However, not much is known about the prevalence and associated factors of substance use during the COVID-19 pandemic in Ghana.

Methods

Using data from a survey on coronavirus-related health literacy conducted in the Ashanti Region of Ghana among 474 older adults aged 50 years or above, we performed multivariable logistic regression analysis to assess demographic, socio-economic and health-related correlates of alcohol and tobacco use.

Results

We recorded a prevalence of 11.4% alcohol use and 6.8% of tobacco smoking, in addition to 16% prevalence of tobacco smoking and/or alcohol intake during the pandemic. After adjusting for the demographic and socio-economic factors, male participants had higher odds of substance use than their female counterparts. Older adults with tertiary education and those who rated their wealth status as poor had a lower odds of substance use than their counterparts.

Conclusions

Our findings have implications for designing programs and policies to limit substance use among older adults during the COVID-19 pandemic and possible future disease outbreaks.

Globally, the Coronavirus (COVID-19) pandemic has emerged as a public health challenge that health systems are grappling with. Existing evidence shows that the pandemic has resulted in significant health, economic and political crisis.[1] Various global, regional and local reports have demonstrated that COVID-19 has placed an additional burden on the health systems providing care for patients infected with the virus.[2,3] The pandemic has also caused the diversion of health resources from other healthcare needs and services to COVID-19 control and treatment.[2,4,5] Since the declaration of COVID-19 as a pandemic on 11 March 2020 by the World Health Organisation, countries around the world have implemented a host of policies and stringent measures, including lockdowns, wearing of face masks, closure of national borders and limitations on public gathering to control the spread of the pandemic.[6]

The pandemic and its accompanied mitigating measures have several policy implications, especially in older population health and wellbeing. Evidence suggests that older populations are at a higher risk of being infected or dying from the disease, either directly by exposure to the virus or indirectly by measures taken to mitigate the virus' health and economic effects on the aged population.[7] Indeed, the lockdown and social-distancing measures have severely impacted older adults' health through isolation, loneliness and depression.[8,9] As Satre et al.[10] noted, "older people already are vulnerable to the detrimental effects of isolation and face disproportionate adverse consequences from social distancing and shelter-in-place guidelines, which may trigger or worsen anxiety, depression, substance use, and other psychiatric disorders".

In the face of the pandemic and associated restrictions, various studies have reported that many older adults have resorted to substance use, especially alcohol and tobacco, to relieve anxiety and other personal burdens.[11–13] Notwithstanding, inappropriate use of substances, particularly alcohol and tobacco, leads to chronic health conditions, including medical, functional and psychiatric problems for older adults.[10,14] For example, several studies have shown that excessive drinking is associated with cancers, cardiovascular disease, cirrhosis, pancreatitis and gastrointestinal disorders.[15–20]

In Ghana, substance use such as alcohol and cigarettes among older adults remains moderately high with an alcohol per capita of 10 L, especially the locally brewed beverages.[21] In a recent large scale study using data among 3533 Ghanaians aged 50 years and older from the Study on global ageing and adult health (SAGE), the prevalence of lifetime alcohol consumption (history of ever consuming alcohol) was 22.8%. Of these, 93.7% had consumed alcohol within seven days and 100% within 30 days before the study. Among current drinkers, the prevalence of hazardous drinking was 6.2%, and non-hazardous drinking was 93.8%. The prevalence of lifetime alcohol use was significantly higher in men than women.[21] In another study using nationally representative data from the SAGE study, the overall prevalence of current daily smokers among older adults in Ghana was 7.6%. Tobacco use (i.e. ever used tobacco) was associated with older males, older adults residing in rural locations, and older adults who used alcohol.[22] The study also reported that regional differences existed in tobacco use; the three northern regions (Upper East, Northern and Upper West) had higher proportions of tobacco use among older adults in Ghana.[22]

Compared to the general population in Ghana and older adults in some middle and high-income countries, studies suggest that the prevalence of substance use among older adults in Ghana is relatively low.[23–28] However, this trend of substance use among older adults in Ghana is worrying, especially during this current pandemic period. This is because studies suggest that alcohol and tobacco use remain one of the common coping strategies for stress, anxiety and depression associated with the pandemic.[10–12,29,30] It was argued that the disproportionately high rates of COVID-19 health complications and mortality among older adults prompted negative responses such as excessive alcohol drinking and tobacco smoking.[30] Moreover, older people are already vulnerable to the detrimental effects of the COVID-19 response, such as social distancing and shelter-in-place guidelines, which may inadvertently trigger or worsen stress, social isolation, loneliness and depression, which are directly associated with harmful health behaviours as substance use.[11,31–33] For example, a recent survey of adults across Canada found that stress was a major contributing factor among those who reported increased alcohol use during the pandemic.[34]

In line with the preceding evidence, older adults in Ghana may also tend to use drugs, alcohol and tobacco and, in some instances, abuse its use, which has consequences for their health. However, the prevalence and correlates of substance use among the older population during the COVID-19 pandemic remain unknown in Ghana. Drawing on a cross-sectional survey in Ghana, we examine substance use prevalence and its correlations among older adults during the COVID-19 pandemic. This study adds to the growing body of evidence seeking to inform healthcare providers and social workers on how best to provide support services and programmes for older adults to adopt a positive response to the pandemic. This would go a long way in preparing healthcare providers and other key stakeholders who seek to improve the health of older populations to develop evidence-based programmes against substance use to relieve stress, depression and anxiety during and post-COVID-19 pandemic.

METHODS

SAMPLE AND DATA

This paper was generated from a larger study on coronavirus-related health literacy (CHL) conducted between 12 September 2020 and 15 October 2020 in the Ashanti Region of Ghana. The CHL survey was carried out in the Ashanti Region because the region houses the highest percentage (17.5%) of older adults in Ghana coupled with their diverse cultural, social and economic characteristics.[35] The CHL survey employed a cross-sectional design to determine CHL among older adults from the Ashanti Region of Ghana. Considering the World Health Organization's (WHO) study on Global Ageing and Adult Health in five developing countries, including Ghana, we conceptualize an older person as an individual who has attained a minimum of 50 years.[36] Before the actual data collection, we conducted a pilot study to test the survey questions. Participants who took part in the pilot study were not part of the original survey participants. The outcome from the pilot study was used to modify the survey questions and outline.

This study presents part of a larger study that examined CHL among older adults during the COVID-19 pandemic in Ghana. Cluster and simple random sampling techniques were used to select the participants from five communities in the Ashanti Region of Ghana. We used a conservative prevalence of 40% (because the actual prevalence of CHL was unknown in Ghana/or the study areas) among older adults in Ghana. Employing Lwanga and Lemeshow[37] formula for sample size calculation for health research with an alpha value of 0.05, a minimum sample size of 369 was determined but considering a 35% nonresponse rate, the final sample size was approximately 498. Out of the 498 participants targeted, 487 met the inclusion criteria. Of these eligible respondents, 13(2.67%) declined to participate in the study yielding a sample size of 474, representing a response rate of 97.33%.

The data collection instrument used for the study was a questionnaire. The questionnaire was developed in English and later read in the local language (Twi) to ensure better understanding and quality control. We translated the questionnaire into Twi by considering the World Health Organization guidelines for assessments of data collection instruments.[38] We established the validity of the questionnaire

by undertaking a detailed review of related literature on the subject matter to check for language clarity, simplicity, and consulting experts in health literacy, financial support, and substance use, which is consistent with previous studies.[38,39]

Five research assistants from the Department of Planning at the Kwame Nkrumah University of Science and Technology (KNUST) of Ghana were recruited and trained to assist in the data collection process. The training of the research assistants lasted a day. The data collection exercise was monitored and supervised to ensure quality control. The administration of each questionnaire lasted between 25 and 30 minutes.

Given that the research was conducted to assist welfare institutions and health authorities in improving older adults' health during the COVID-19 pandemic, ethical issues were considered. First, the study was approved by the various municipal health directorates in which the study was conducted. In line with the ethical principles, after going through the research proposal and survey instruments, the Municipal Health Research Team granted permission for data collection in the study setting. Secondly, the research participants were briefed on the purpose of the study and their informed consent (oral and written) was obtained. The research participation was voluntary; therefore, the study participants were free to opt-out of the study when they deemed necessary. Confidentiality was also ensured throughout the entire research process. Very importantly, the research was conducted to provide empirical evidence to assist policymakers and planners in improving the well-being and welfare of older adults during the COVID-19 pandemic as there is not much data on substance use during the COVID-19. However, to conduct further analysis of the data to determine the factors associated with substance use among older adults during the pandemic, approval was granted by the Municipal Health directorates.

MEASURES

OUTCOME VARIABLE

In this study, substance use during the COVID-19 pandemic was defined as "started using and/or has increased in the frequency and quantity of alcohol and/or tobacco since the emergence of COVID-19 in Ghana". Thus, substance use was the dependent variable in this study. Substance use was measured as a dichotomous variable indicating "Not started using and/or increased in alcohol and/or tobacco =0) or "started using and/or increased alcohol and/or tobacco use =1)" during the COVID-19 pandemic.

EXPOSURE VARIABLES

The predictor variables were age (years) (1=50-69 years, 2= 70-79, 3= 80 or above), gender (1=female, 2= male), marital status (1=married, 2=single), education (1=none, 2= basic, 3=secondary, 4=tertiary), wealth status (1=average, 2= poor, 3= rich), employment status (1=yes, 0= no), religion (1=Christian, 2= non-Christian), ethnicity (1= Akan, 2= non-Akan), health status (1=good, 2= poor), income (GH¢) (1= ⩽ 500, 2= ›500) and chronic non-communicable diseases (1=yes, 0=no). Details about the measurement, conceptualization and justification of the study variables have been reported elsewhere.[39–46] Gender, marital status, employment status, chronic non-communicable diseases, ethnicity, religion, health status and income were measured as dichotomous variables. Age was measured as ranked variable, wealth status and education were measured as nominal variables.

ANALYTICAL FRAMEWORK

Descriptive and inferential statistics were used to analyze the data. Descriptive statistics such as percentages and frequencies were used to describe the background characteristics and prevalence of substance use during the COVID-19 pandemic among older adults. We used inferential statistics such as binary logistic regression embedded in the Statistical Package for the Social Sciences (version 20) software to estimate demographic, socio-economic and health-related factors associated with substance use among older adults during the COVID-19 pandemic in Ghana. We performed multivariable logistic regression analysis to investigate the demographic, socio-economic and health-related factors associated with substance use during the COVID-19 pandemic.

Using one model, we estimated the factors associated with substance use among older adults during the COVID-19 pandemic. Previous studies used the omnibus chi-square tests of model coefficients, Hosmer and Lemeshow Test, and proportion of correction classification to measure the model fitness.[39,40,46] The robustness of the models was measured, and the outcomes are as follows. The homogeneity outcome (P>0.05) of the Hosmer and Lemeshow test shows that the model fits the data well. The Omnibus Tests of Model Coefficients shows a significant difference between the based model (without explanatory variables) and the current model with explanatory variables (P<0.05) having 84% proportion of correct classification. All tests were considered significant at a p-value of 0.05 or less.

RESULTS

SOCIO-DEMOGRAPHIC AND MEDICAL CHARACTERISTICS OF THE RESPONDENTS

The participants' demographic, socio-economic, and medical characteristics are shown in Table 1. We found that 80.8% of the participants were aged 50-59 years. The majority of the participants (66.7%) were females, 58% were married, and 44.1% had basic education. Most of the participants (61.6%) rated their wealth status as average; 87% earned a monthly income of ›GH¢500, 67.7% were employed, 83.1% were Christians, and 87.8% were Akans. In addition, about 86% of the participants rated their health status as good, and 32.3% had been diagnosed with chronic non-communicable diseases (NCDs) (Table 1).

Table 1. Demographic, socio-economic and medical characteristics of the respondents (*n*=474)

Variables	Category	N	%
Age (years)	50-69	383	80.8%
	70-79	79	16.7%
	80 or above	12	2.5%
Gender	Female	316	66.7%
	Male	158	33.3%
Marital status	Married	275	58.0%
	Single	199	42.0%
Educational level	None	116	24.5%
	Basic	209	44.1%
	Tertiary	43	9.1%
	Secondary	106	22.4%
Wealth status	Average	292	61.6%
	Poor	172	36.3%
	Rich	10	2.1%
Employment Status	Yes	321	67.7%
	No	153	32.3%
Religion	Christian	394	83.1%
	Non-Christian	80	16.9%
Ethnicity	Akan	416	87.8%
	Non-Akan	58	12.2%
Health status	Good	408	86.1%
	Poor	66	13.9%
Monthly income (GH¢)	≤ 500	41	12.8%
	>500	280	87.2%
Chronic NCDs	Yes	153	32.3%
	No	321	67.7%

PREVALENCE OF SUBSTANCE USE AMONG OLDER ADULTS DURING COVID-19 PANDEMIC

We estimated the prevalence of substance use among older adults during the COVID-19 pandemic. We found that 6.8% of the participants consumed tobacco products (Tawa, cigarettes, cigars, pipes, chewing tobacco, or snuff powder) during the COVID-19 pandemic. Also, 11.4% of the participants consumed alcohol during the COVID-19 pandemic. The study revealed that 16% consumed alcohol and/or tobacco (substance use) during the COVID-19 pandemic (Table 2).

PREDICTORS OF SUBSTANCE USE AMONG OLDER ADULTS DURING COVID-19 PANDEMIC

The study found that gender, education and wealth status were significantly associated with substance use among the participants. After adjusting for the demographic and socio-economic factors, male participants were 1.1 times more likely to use substances than female counterparts (adjusted odds ratio, AOR=1.11, 95% confidence interval, 95% CI=0.16-.1.20, *P*<0.05). Older adults with tertiary education were 0.239 times less likely to use substances than their counterparts (AOR=0.24, 95% CI=0.07-0.79, *P*=0.019). Similarly, older adults who rated their wealth status as poor were 0.380 times less likely to use substances than their counterparts (AOR=0.38, 95% CI=0.18-0.79, *P*=0.010) (Table 3).

DISCUSSION

KEY FINDINGS

In this cross-sectional study involving 474 participants, we aimed to examine the prevalence of substance use and associated factors among older adults amid the ongoing COVID-19 pandemic in Ghana. The results showed a relatively moderate prevalence of substance use – consumed alcohol and/or tobacco (16%) among older adults during the COVID-19 pandemic in Ghana. The results also showed that demographic and socio-economic factors, particularly gender, education and wealth status, were associated with substance use. Males were likely to report the use of alcohol and/or tobacco compared to females. Older adults with tertiary education and within poor wealth status were less likely to consume alcohol and/or smoke tobacco than their counterparts with primary and secondary education and within average and rich wealth quintile.

Table 2. Prevalence of substance use among older adults during COVID-19 pandemic

Variables	Category	Count	%
Tobacco consumption during COVID-19 pandemic	No	442	93.2%
	Yes	32	6.8%
	Total	474	100.0%
Alcohol consumption during COVID-19 pandemic	No	420	88.6%
	Yes	54	11.4%
	Total	474	100.0%
Alcohol and/or tobacco consumption during COVID-19 pandemic	Yes	76	16.0%
	No	398	84.0%
	Total	474	100.0%

POSSIBLE INTERPRETATION IN RELATION TO PREVIOUS STUDIES

Our study offers evidence that the pandemic directly affects the risk of substance use, particularly alcohol drinking and tobacco smoking among older populations.[12,46,47] This finding is consistent with a representative panel survey of 5,412 adults in the USA in which 13.3% of the participants had started or increased substance use during the COVID-19 pandemic.[48] Moreover, in an anonymously-completed online self-report survey among 13,829 adults in Australia, Tran et al[49] found that about one in five adults had been drinking more alcohol since the emergence of the pandemic than they used to do. In another study of 1684 Australians aged 18–65 years, participants had increased both their frequency and quantity of alcohol consumption during the pandemic.[50]

Several reports from the media and other sources suggest that sales and consumption of alcohol and tobacco increased in some parts of Canada and the USA at the beginning of the pandemic.[51–53] Despite these results, the studies were not conducted in sub-Saharan Africa (SSA). These results cannot be compared to our study because the settings have distinct cultural, social and economic situations that either promote or hinder substance use. Thus, the current findings may not provide a complete understanding of substance use during the pandemic. To the best of our knowledge, this is the first study to establish the prevalence of substance use and associated factors among older adults during the COVID-19 pandemic in SSA specifically Ghana.

Alcohol and tobacco use remain common coping strategies for stress, anxiety and depression associated with the pandemic.[10–12,29,50] Macdonald et al.[29] argued that the disproportionately high rates of COVID-19 health complications and mortality among older adults prompted negative responses such as excessive alcohol drinking and tobacco smoking. More senior people already are vulnerable to the detrimental effects of the COVID-19 response, such as social distancing and shelter-in-place guidelines, which may inadvertently trigger or worsen stress, social isolation, loneliness and depression, which are directly associated with harmful health behaviours such as substance use.[11,30–32] For example, a recent survey of adults across Canada found that stress was a major contributing factor among those who reported increased alcohol use during the pandemic.[33]

However, alcohol and tobacco use are associated with several chronic medical conditions common in older adults, such as liver disease.[54] Furthermore, growing evidence suggests that substance use puts older adults at a greater risk of COVID-19 related symptoms since severe alcohol consumption and tobacco use associated with reduced immunity to viral infections.[55] For example, data from China, where the COVID-19 first emerged, show that 32% of Chinese COVID-19 patients with a history of smoking (smokers and ex-smokers) had a severe form of COVID-19 pneumonia at the time of hospitalization compared to 15% of non-smokers.[56] In addition, 16% of smokers required hospitalization in intensive care units, compared to 5% of non-smokers.[56] In another study from China on patients diagnosed with COVID-19-associated pneumonia, 27% of smokers' health worsened (including death) within two weeks of hospitalization, compared to 3% of non-smokers.[57] The conclusion is that since alcohol and tobacco-related immune system impairment increases susceptibility to pneumonia and other infectious diseases, minimizing alcohol and tobacco consumption is critical for older adults during the pandemic.[10,58]

Our findings show that socio-demographic and economic factors are important in alcohol and tobacco use among older adults during the pandemic. Males experienced a significantly greater risk of substance use than their female counterparts. In contrast, older adults with tertiary education and within the poor wealth category who experienced significantly lesser risk of the substance may not appear as a surprise but has policy implications. The gender difference may relate well to how males and females respond differently to challenging situations. It is known that men consume alcohol and tobacco more than women,[44] and excessive substance use among men is believed to increase as a response to stress, especially in times of economic crisis.[50,58]

Moreover, the reduced income and financial support for older males may influence them to resort to alcohol and/or tobacco to manage their financial stress.[31] Consistent with our findings, previous studies have also found an association between wealth status and risk of substance use dur-

Table 3. Multivariable Logistic Regression Analysis on factors influencing substance use among older adults during COVID-19 pandemic

Variables	Substance use		
	AOR	95% C.I. for AOR	*P*-value
N	**Age (years)**		
50-69 (ref)	1.00	-	-
70-79	.770	.316-1.873	-
80 or above	4.026	.368-43.983	-
Gender			
Female (ref)	1.00		
Male	1.105	.155-.1.199	.000*
Marital Status			
Married (ref)	1.00	-	-
Single	1.060	.556-2.020	.860
Education			
None (ref)	1.00	-	-
Basic	.638	.256-1.587	.333
Tertiary	.239	.072-.787	.019*
Secondary	.318	.120-.840	.021*
Wealth Status			
Average (ref)	1.00	-	-
Poor	.380	.182-.791	.010*
Rich	.546	.095-3.156	.499*
Employment Status			
Yes (ref)	1.00	-	-
No	1.974	.940-4.145	.072
Religion			
Christian (ref)	1.00	-	-
Non-Christian	.870	.279-2.714	.811
Ethnicity			
Akan (ref)	1.00	-	-
Non-Akan	2.960	.648-13.513	.161
Health Status			
Good (ref)	1.00	-	-
Poor	1.426	.522-3.899	.489
Income (GH¢)			
≤ 500 (ref)	1.00	-	-
>500	2.329	.793-6.840	.124
Chronic NCDs			
Yes (Ref)	1.00	-	-
No	.616	.308-1.229	.169
Model Fitting Information			
Omnibus Chi-Square Tests of Model Coefficients (p-value)	94.716 (0.000)		
Hosmer and Lemeshow Test(p-value)	7.750(.458)		
Proportion of Correction classification	84%		

Italic values indicate significance of *P* value ($P < 0.05$)
CI= Confidence Interval; AOR= Adjusted Odd Ratio
* *P < 0.05.*

ing the pandemic.[11,12] Older adults with higher income are more likely to consume more alcohol and tobacco during the pandemic than those who are poor. On the other hand, older adults with tertiary education are less likely to use a substance during the pandemic. This could be attributed to the fact that they are more likely to know the adverse ef-

fects of substance use on both their physical and mental health.

IMPLICATIONS FOR POLICY AND RESEARCH

The findings of the study have several implications for policy formulation and research. First, our results that 16% of the older adults included in the study used alcohol and/or cigarette during the COVID-19 pandemic in Ghana suggests that many older adults in Ghana are likely to consume alcohol and/or tobacco to cope with the stress and burdens associated with the pandemic. Given that excessive substance use can affect older adults' psychological and physical health, our study offers health authorities and other stakeholders evidence on the prevalence of substance use among older adults in Ghana. Having access to this evidence can aid the development of evidence-informed programmes and measures by health authorities and other stakeholders to support older adults who are resorting to substance use during the current pandemic.

Secondly, this study provides essential findings to community-based organizations that offer different programmes involving medication and behavioural therapy to older adults during the COVID-19 pandemic. Our study has revealed the socio-demographic and economic characteristics of older adults who are more and/or less likely to use a substance during the COVID-19 pandemic in Ghana. This study provides evidence to show that older adults who are males with limited education and high income were more likely to increase substance use. This finding implies that measures and programmes to support older adults in Ghana to reduce or stop substance use should particularly target older adults with these demographic and economic characteristics.

This study also provides findings that can inform stakeholders and appropriate authorities to promote education and awareness of substance use among older adults during the COVID-19 pandemic. Our findings can indicate the general situation of substance use among older adults during the COVID-19 pandemic in Ghana.

In addition, this study contributes to literature and discussion on substance use among older adults. Our findings also imply that a nationally-representative study on substance use during the COVID-19 pandemic in Ghana is required to provide national data and evidence to inform and guide policies and programmes.

LIMITATIONS

Regardless of the strengths of this study, some limitations need to be remarked. The first limitation of the study is the sampling strategy. The data are self-report and not diagnostic, which means recall and social desirability bias may occur. Previous studies conducted in the same and similar settings have noted measurement bias due to social desirability. Most people like to present themselves in a favourable light and do not respond honestly in surveys.[35,36,39]

Also, given the study's cross-sectional nature, the data can only estimate associations and not causal relationships. These and other limitations may affect the veracity of the findings that limit the representation and generalizability of the results. However, we controlled for major confounders, including socio-demographic factors in the analysis, though residual confounding remains challenging that may be common to all observational studies.

CONCLUSIONS

This study offers insights into alcohol consumption and tobacco use among older adults during the COVID-19 pandemic in Ghana. Our study provides evidence that some older adults have resorted to alcohol and/or tobacco as a response to the pandemic. Demographic and socio-economic factors, particularly gender, education and wealth status, played a role in substance use among older adults during the pandemic. Although the prevalence of substance use among older Ghanaian adults was relatively moderate, our findings reveal that the COVID-19 pandemic had contributed to older Ghanaian adults' use of substances such as alcohol, with potentially harmful implications for their physical and psychological health. Consequently, social assistance and kindship care provided to older adults should be intensified to avert any potential health implications.

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AUTHORSHIP CONTRIBUTIONS

The authors completed the Unified Competing Interest form at http://www.icmje.org/disclosure-of-interest/ (available upon request from the corresponding author) and declare no conflicts of interest.

COMPETING INTERESTS

Authors declare that they have no competing interests.

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