

Effect of COVID-19 Lockdown on Alcohol Consumption Among the Youths in Kampala, Uganda. A Cross-Sectional Study

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Background: The COVID-19 pandemic led to increased loneliness, emotional stress, and idleness due to job losses and school closures which can drive substance use among vulnerable populations like youths. Uganda has been identified as one of the countries with the highest alcohol consumption in Africa. Alcohol predisposes to a number of health concerns including mental health disorders, cardiovascular diseases among others. This study assessed the impact of the COVID-19 lockdown on alcohol consumption among youths in Kampala, Uganda.

Methods: A quantitative cross-sectional study among randomly selected youth aged 18–35 years living in the five divisions of Kampala. Participation was strictly after informed consent was obtained. 381 youths were interviewed, both students and non-students were included in the study. The AUDIT-C questionnaire was used to measure the frequency and quantity. Frequent was defined as six or more drinks a week.

Results: We enrolled 381 participants in the study with a mean age of 26±4.6 years. More than half (60%) of the participants were male. 71% lived with family during the lockdown. Of the 64% that were employed before the lockdown, 54% lost their jobs. At least 42.5% of the participants reported alcohol consumption during the lockdown. Males consumed twice as much alcohol as females. Generally, the level of alcohol consumption decreased during the COVID-19 pandemic as the percentage of participants consuming alcohol dropped from 47.5% to 42.8%. Despite the overall decrease in the number of participants consuming alcohol, there was an increase in the frequency and amount of alcohol consumed on occasion during the pandemic.

Conclusion: Fewer youths consumed alcohol during the COVID-19 lockdown in Kampala, Uganda. However, those who did significantly increased their drinking amount and frequency. Male youths, those living with friends, and those with poor self-perceived mental health were more likely to increase their alcohol intake. Further investigation into increased alcohol consumption among youths post-COVID is necessary to understand the extent and long-term health implications.

Keywords: alcohol consumption, COVID-19 lockdown, youths, mental health

Introduction

In March 2020, the World Health Organization (WHO) declared COVID-19 a global health emergency,¹ urging countries to implement measures for containment, including active surveillance, early detection, isolation and case management, contact tracing and prevention of the onward spread of the virus.² Consequently, many nations, including Uganda, instituted lockdowns, banned public transport and gatherings, closed schools, and enforced residential changes to curb the virus' spread.³ These public health interventions, though crucial, drastically altered daily life,⁴ and heavily regulated social interactions, and income leading to widespread emotional distress and increased risk for psychiatric conditions.⁵ The perceived threat to safety and wellbeing in the community led to a range of emotional reactions ranging from social unrest, loneliness, depression, and harmful substance abuse to suicidal attempts.⁶

Alcohol, one of the most consumed substances globally, is particularly prevalent among youths, with over a quarter of individuals aged 15–19 years being current drinkers.⁷ Alcohol is a psychoactive substance that is commonly used and it affects the central nervous system and alters one's consciousness, thinking, perception and behavior in response to their surroundings.⁸ The WHO Africa Region report estimates Uganda to have among of the highest alcohol consumption per capita of 12.2 liters of alcohol per person annually which is much higher than the African region average of 6.8 liters.^{9,10} Social influences, such as bonding with friends, seeking enjoyment and meeting partners, primarily drive alcohol consumption among the youth.¹¹ In Uganda, factors contributing to high alcohol consumption may be unique, including widespread domestic production, loose regulatory policies, strategic marketing and easy access to alcoholic beverages, especially in slum areas.¹² Previous studies have shown a higher likelihood of harmful alcohol consumption among youths and adolescents especially among the males.¹³

Generally, harmful alcohol use is responsible for 5.1% of the global burden of disease, accounting for 7.1% and 2.2% for males and females, respectively.⁷ Heavy drinking is linked with numerous long-term health problems, including cardiovascular diseases, neuropsychiatric diseases, cancers, infectious diseases, liver and pancreas disease, and intentional and unintentional injury.¹⁴ These contribute to approximately three million deaths per year globally.⁷ Additionally, alcohol consumption may increase the risk of sexually transmitted diseases through risky sexual behavior.¹⁵ Young people are vulnerable to the social and biological immediate and long-term effects of alcohol consumption. Alcohol consumption affects brain function in such a way that it impairs verbal learning, visual-spatial processing and results in deficits in central nervous development. These result in increased anxiety, reduction in cognitive flexibility, disinhibition and risk taking.¹³

Statistical reports from different geographical areas have indicated varying trends in alcohol consumption during the COVID-19 pandemic. In Australia, a decrease in harmful drinking was observed, attributed to social distancing measures and the closure of licensed premises.¹⁶ Similarly, White et al, observed a significant decrease in alcohol consumption among students staying with their parents compared to those who stayed alone.³ However, in settings where alcohol is readily available, these trends may differ. Moreover, studies show that young people are more depressed, more stressed, more anxious and lonelier during the pandemic,¹⁷ which exposes them to risk behaviors such as excessive alcohol intake. This study provides insights into the unique socio-economic and mental health challenges faced by Ugandan youths during the pandemic, contributing valuable data to inform targeted interventions and public health strategies.

Methods

Study Design and Setting

This study employed a quantitative cross-sectional design to evaluate the impact of the COVID-19 pandemic on alcohol consumption among youth in Kampala, Uganda.

The study was carried out in Kampala, the capital city of Uganda, comprised of five divisions: Central, Kawempe, Makindye, Nakawa, and Rubaga divisions. These divisions are characterized by both urban and slum areas. Data collection took place between August and October 2022.

Participant Selection Criteria

381 youths aged 18–35 years residing in any of the five divisions of Kampala were included in the study. Only participants willing to provide informed consent were enrolled in the study. Individuals who were debilitated or had an unsound mind were excluded.

Sample Size Estimation

Sample size estimation was performed using Kish Leslie's formula for cross-sectional studies. Using a reliability coefficient (Z) of 1.96 at the 95% confidence level, an assumed prevalence (p) of 40% for alcohol consumption among the youth in Kampala, a desired precision (d) of 5%, and a 10% nonresponse rate, the estimated sample size was 400 participants.

Sampling Procedure

A stratified random sampling technique was employed to select participants for this study. Each of the five divisions (Central, Makindye, Nakawa, Kawempe, and Rubaga) served as an independent stratum, from which 80 participants were sampled. The study team approached potential participants at their respective places of work. Random screening was conducted to assess eligibility based on the established criteria. Eligible individuals who provided informed consent were then enrolled in the study. The youths interviewed included students and non-students. These individuals were approached randomly during their daily activities either at work or between school activities.

Measurements

Alcohol consumption was measured in terms of frequency (number of times per week) and quantity (number of bottles per day). Frequent was defined as six or more bottles per day. Heavy alcohol consumption was determined by combining frequency and quantity metrics. Alcohol use was defined as any instance of alcohol consumption, while nonuse was defined as never having consumed alcohol.

Data Collection

Data were collected using the AUDIT-C questionnaire, which assesses three parameters: frequency of alcohol consumption, number of drinks taken per occasion and number of occasions with more than six drinks. These parameters were assessed for the periods before and during the pandemic.

Analysis

Upon completion of data collection, the final dataset was downloaded in .xls format, and data curation, coding and scoring were performed in Microsoft Excel 2019. The AUDIT-C questionnaire has three questions, each with a maximum score of four, resulting in a total score of 12. This tool was used to assess alcohol consumption before and during the lockdown. A difference between scores (“during” minus “before” scores) and percentage change (obtained difference divided by the “before” score) were calculated. Those who had a 50% change in scores were categorized as having either increased or decreased alcohol consumption practice with those in between considered maintained practice. The final dataset was then imported into Stata Corp College Station, Texas, USA software version 15.0 for analysis. Descriptively, the linear variables were summarized into means and standard deviations, while categorical variables were summarized into frequencies and percentages. The difference in average monthly income before and during the lockdown was calculated using a paired *t* test. Initially, crosstabulations were performed between dependent and independent variables with Chi-squares or Fischer’s exact test as the measure of association. The variables whose *p* values were less than 0.1 were carried into binary logistic regression, and a *p*<0.05 was considered statistically significant.

Results

Characteristics of Study Participants

A total of 381 participants were interviewed in this study, and their characteristics are summarized in [Table 1](#). The mean age of the participants was 26±4.6 years. More than half of the participants (60%) were male, with a good distribution across the five divisions of Kampala. A great majority (72%) had attained at least secondary level education, belonged to either Catholic (38%) or Anglican (30%) faith, Baganda (45%) and were predominantly single (61%).

During the lockdown, the majority of participants (71%) reported staying with their families. Although several of those who did not stay with their families reported having been far away from them (76%), the majority of these (80%) stayed in contact. Out of the 243 (64%) participants who were employed before the lockdown, 54% lost their jobs during lockdown, and a vast majority (82%) reported a significant decline in their average monthly income. Statistically, a significant difference between average monthly income among participants before and during the lockdown was noted (ie, 397,191.6 ± 947,150.2 Ugandan Shillings (UGX) vs 184902.9 ± 519,855.8 UGX, respectively, *p*<0.001). Using a mental health self-rating scale, approximately 51% reported excellent mental health during the lockdown, with a mean score of 7.3 ± 1.9.

Table 1 Characteristics of Participants in the Study

Characteristic	Study Participants (N=381)	
	n	%
Age		
26–36 years	195	51.2
18–25 years	186	48.8
Gender		
Male	230	60.4
Female	151	39.6
City division of residence		
Central	92	24.2
Makindye	77	20.2
Kawempe	76	20.0
Rubaga	72	18.9
Nakawa	64	16.8
Highest level of education		
Secondary	174	45.7
Primary	107	28.1
Tertiary	100	26.3
Marital status		
Single	233	61.2
Married	141	37.0
Others	7	1.8
Religion		
Catholic	145	38.1
Anglican	114	29.9
Muslim	66	17.3
Pentecostal	41	10.8
Others	15	3.9
Tribe		
Baganda	172	45.1
Others	114	29.9
Banyakitala	58	15.2
Basoga	37	9.7
People the respondent lived with during the lockdown		
Family	272	71.4
Alone	72	18.9
Friend	37	9.7
Distance from family during lockdown (N=109)		
Far away	83	76.2
Near them	26	23.8
Contact with family during lockdown (N=109)		
Yes	87	79.8
No	22	20.2
Employment status before lockdown		
Employed	243	63.8
Unemployed	138	36.2

(Continued)

Table 1 (Continued).

Characteristic	Study Participants (N=381)	
	n	%
Employment status during the lockdown (N=243)		
Job lost	130	53.5
Job retained	113	46.5
Effect of lockdown on personal monthly income (243)		
Decreased income	200	82.3
Neutral	32	13.2
Increased income	11	4.5
Perceived mental health status during lockdown		
Excellent	193	50.7
Fair	159	41.7
Poor	29	7.6

Alcohol Consumption Among the Youths During the COVID-19 Lockdown

During the COVID-19 lockdown, 163 (42.5%) of participants reported having consumed alcohol at some point (Table 2). Participants aged 26–35 years consumed twice as much alcohol as those 25 years or younger (OR: 2.1, 95% CI: 1.4–3.3, $p<0.001$). This also holds true for male vs female (OR: 2, 95% CI: 1.3–3.0, $p=0.002$). Statistically, participants from the Makindye and Nakawa divisions showed higher odds of consuming alcohol than those in the Central Division during the lockdown [(OR: 2, 95% CI: 1.1–3.9, $p<0.035$) and (OR: 15.3, 95% CI: 6.7–34.7, $p<0.001$), respectively], while those with lower education attainment were less likely to consume alcohol during lockdown [(OR: 0.4, 95% CI: 0.2–0.7, $p=0.001$) and (OR: 0.3, 95% CI: 0.1–0.4, $p>0.001$) for secondary and primary leavers, respectively].

Table 2 Factors Associated with Alcohol Consumption

Factor	Consumption During the Lockdown			
	Consumers [163(42.8)]	Non-Consumers [218(57.2)]	OR (95%CI)	p value
Age of the participant				
25 or less	62(33.3)	124(66.7)	Reference	<0.001
Above 25	101(51.8)	94(48.2)	2.1(1.4–3.3)	<0.001
Gender				
Female	50(33.1)	101(66.9)	Reference	0.002
Male	113(49.1)	117(50.9)	2(1.3–3)	0.002
Kampala Division				
Central	24(26.1)	68(73.9)	Reference	<0.001
Kawempe	28(36.8)	48(63.2)	1.7(0.9–3.2)	0.135
Makindye	32(41.6)	45(58.4)	2(1.1–3.9)	0.035
Rubaga	25(34.7)	47(65.3)	1.5(0.8–3)	0.232
Nakawa	54(84.4)	10(15.6)	15.3(6.7–34.7)	<0.001
Highest level of education				
Tertiary	62(62)	38(38)	Reference	<0.001
Secondary	70(40.2)	104(59.8)	0.4(0.2–0.7)	0.001
Primary	31(29)	76(71)	0.3(0.1–0.4)	<0.001

(Continued)

Table 2 (Continued).

Factor	Consumption During the Lockdown			
	Consumers [163(42.8)]	Non-Consumers [218(57.2)]	OR (95%CI)	p value
Tribe				0.05
Baganda	66(38.4)	106(61.6)	Reference	
Banyakitala	21(36.2)	37(63.8)	0.9(0.5–1.7)	0.769
Basoga	15(40.5)	22(59.5)	1.1(0.5–2.3)	0.806
Others	61(53.5)	53(46.5)	1.8(1.1–3)	0.012
People the participant lived with during the lockdown				0.017
Family	104(38.2)	168(61.8)	Reference	
Friend	19(51.4)	18(48.6)	1.7(0.9–3.4)	0.129
Alone	40(55.6)	32(44.4)	2(1.2–3.4)	0.009
Employment status before the lockdown				0.017
No	48(34.8)	90(65.2)	Reference	
Yes	115(47.3)	128(52.7)	1.7(1.1–2.7)	0.013
Job retained during lockdown				0.093
Yes	60(53.1)	53(46.9)	Reference	
No	55(42.3)	75(57.7)	0.6(0.4–1.1)	0.094
Self-rated Mental Health status during lockdown				<0.001
Excellent	56(29)	137(71)	Reference	
Fair	88(55.3)	71(44.7)	3(2–4.7)	<0.001
Poor	19(65.5)	10(34.5)	4.6(2–10.6)	<0.001

Among the factors attributable to lockdown itself, participants who lived alone during this period were more likely to consume alcohol than those who lived with their families (OR: 2, 95% CI: 1.2–3.4, $p=0.009$). Likewise, those who were employed before the lockdown had higher odds of consuming alcohol during the lockdown (OR: 1.7, $p=0.013$). There was also a positive correlation between perceived poor mental health and alcohol consumption during lockdown [(OR: 3, 95% CI: 2–4.7, $p<0.001$) and (OR: 4.6, 95% CI: 2–10.6, $p<0.001$) for fair and poor mental health, respectively].

Trends in Alcohol Consumption Before and During the Lockdown

Out of the 381 participants in this study, 181 (47.5%) were alcohol consumers before the lockdown. During the lockdown, this number dropped to 163 (42.8%). At least 50 (13.1%) of the participants stopped consuming alcohol, while 32 (8.4%) started consuming alcohol during the lockdown. Although there was an overall decrease in the number of consumers, there was an observed increase in the frequency and amount of alcohol consumed on occasion during the lockdown (Figures 1–3).

Factors associated with increased alcohol consumption (Table 3) included gender ($p=0.044$), the person one shared time with ($p=0.04$) and perceived mental health ($p=0.012$). Males were twice as likely to increase their alcohol consumption during lockdown compared to females (OR: 2, 95% CI: 1–3.9, $p=0.038$), while those who lived with friends were also highly likely to increase this practice (OR: 2.6, 95% CI: 1.1–5.9, $p=0.027$). Participants who perceived their mental health as fair had a statistically significant likelihood of increasing their alcohol consumption during the lockdown (OR: 2.1, 95% CI: 1.1–3.9, $p=0.019$).

Discussion

The COVID-19 lockdown had profound effects on the alcohol consumption among youths in Kampala, Uganda. Our study reveals that despite an overall decrease in the number of individuals consuming alcohol during the lockdown, there was a notable increase in the frequency and quantity of alcohol consumption among those who continued to drink.

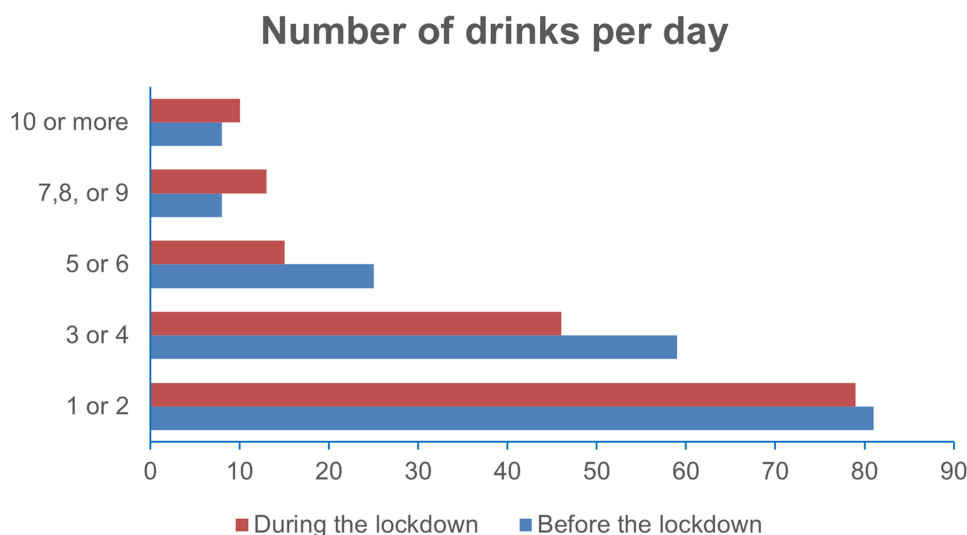


Figure 1 Comparing the frequency of alcohol consumption during and after the lockdown.

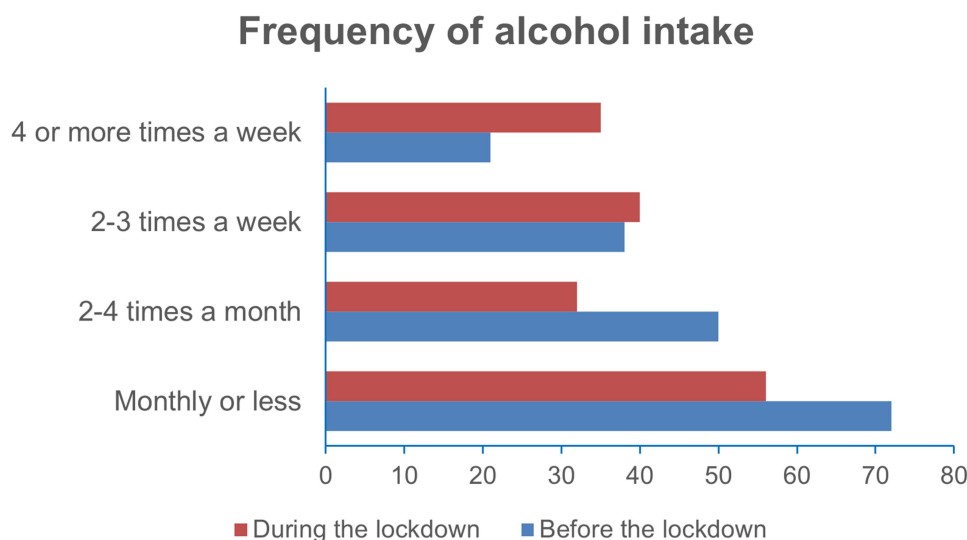


Figure 2 Comparing the frequency of alcohol consumption during and after the lockdown.

A total of 42.5% ($n = 163$) of the participants reported consuming alcohol during the COVID-19 lockdown (Table 2). This suggests that a significant proportion of the population in Kampala engaged in alcohol consumption despite the restrictions imposed during the pandemic. Several factors were found to be associated with alcohol consumption during the lockdown.

Young adults aged 26–35 years had higher odds of consuming alcohol, and males had higher odds of drinking alcohol than females, which aligns with previous research that highlighted that these demographic groups are more prone to risky alcohol behaviors.¹⁸ This finding underscores the need for targeted interventions to address alcohol consumption among these high-risk populations.

Geographical differences were also observed, with participants from the Makindye and Nakawa divisions having higher odds of alcohol consumption during the lockdown than those from the Central Division. This observation indicates that alcohol consumption patterns may vary across different areas within Kampala, potentially influenced by specific social or environmental factors contributing to increased alcohol consumption, warranting further investigation.

Having six or more drinks on one occasion

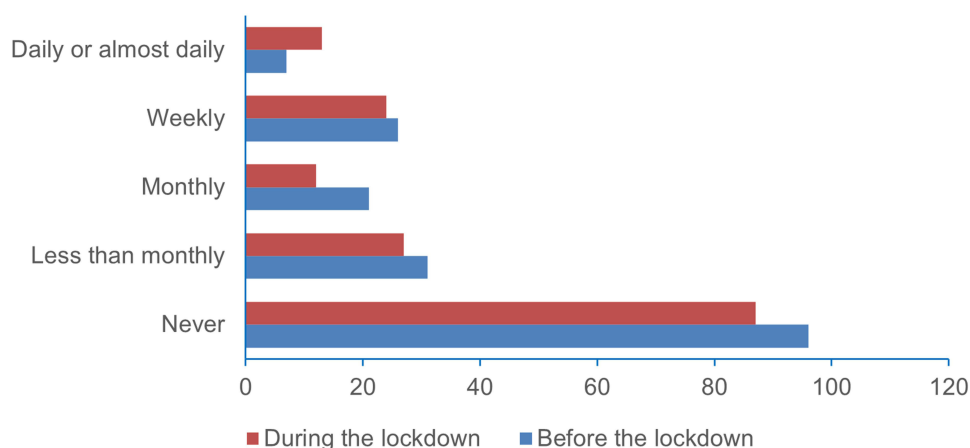


Figure 3 Comparing the frequency of alcohol consumption during and after the lockdown.

Contrary to expectations, individuals with lower education levels (primary and secondary) were found to be less likely to consume alcohol than those with tertiary education. This relationship between educational attainment and alcohol consumption during the lockdown was unexpectedly inverse, disagreeing with studies conducted elsewhere that indicated higher odds of alcohol consumption in those with lower education levels and income status.¹⁹ Possible explanations for our observation in the context of a pandemic include social restrictions, higher exposure to alcohol consumption in social circles among those with higher education, the use of alcohol as a coping mechanism for stress associated with higher education, the affordability of alcohol due to higher income levels, and cultural/religious norms surrounding alcohol consumption. Our study stresses the importance of considering socialization, stress, income, and cultural factors in the context of the pandemic when examining the relationship between education and alcohol consumption patterns.

The study also revealed that living arrangements during the lockdown were associated with alcohol consumption. Participants who lived alone were more likely to consume alcohol, which may be attributed to feelings of isolation, boredom, or stress during the lockdown period. A similar study in the Netherlands reported a relative increase in drinking throughout tight lockdown periods among those living alone.²⁰ This finding highlights the significance of social support

Table 3 Factors Associated with Increased Consumption During Lockdown

Factor	Consumption During the Lockdown			
	Increased Consumption [52(13.7)]	Did not Increase [329(86.3)]	OR (95%CI)	p value
Gender				
Female	14(9.3)	137(90.7)	Reference	0.044
Male	38(16.5)	192(83.5)	2(1–3.9)	0.038
People the participant lived with during the lockdown				
Family	32(11.8)	240(88.2)	Reference	0.040
Friend	10(27)	27(73)	2.6(1.1–5.9)	0.027
Alone	10(13.9)	62(86.1)	1.2(0.6–2.6)	0.638
Self-rated Mental Health status during lockdown				
Excellent	20(10.4)	173(89.6)	Reference	0.012
Fair	31(19.5)	128(80.5)	2.1(1.1–3.9)	0.019
Poor	1(3.4)	28(96.6)	0.3(0–2.3)	0.239

systems in reducing alcohol consumption and addressing the mental health implications of social isolation. Furthermore, participants employed before the lockdown had higher odds of alcohol consumption during the lockdown, indicating a potential relationship between economic instability and increased alcohol consumption.

Additionally, we identified a positive correlation between perceived poor mental health and alcohol consumption during the lockdown. Participants who rated their mental health as fair or poor were more likely to increase their alcohol consumption. This aligns with a number of previous studies demonstrating the bidirectional relationship between mental health and alcohol consumption, where individuals may use alcohol as a coping mechanism or experience worsened mental health due to excessive alcohol use,^{21–23} thereby highlighting the importance of integrating mental health support and alcohol use prevention strategies, particularly during crises and lockdowns.

Trends in Alcohol Consumption Before and During the Lockdown

Examining the trends in alcohol consumption before and during the lockdown, the present study revealed a decrease in the overall number of alcohol consumers from 47.5% before the lockdown to 42.8% during the lockdown. A meta-analysis of observational studies in Europe noted a decrease rather than an increase in alcohol use during the pandemic, agreeing with our findings.²⁴ This could be explained by unemployment, as disclosed by the results, as more than half of the formerly employed participants lost their jobs during the lockdown. Other studies have also explained this as a result of reduced working hours following the curfew, which resulted in income reductions for most people and hence tighter budgets, resulting in a decrease in alcohol use. This corresponds with our findings, which showed that the majority of those who retained their jobs had experienced a decline in their average monthly income. It can also be attributed to the restrictions in the lockdown, which included the closure of bars and other premises that favor alcohol consumption.

However, it is noteworthy that although at least 13.1% stopped, approximately 8.4% of participants started consuming alcohol during the lockdown. The initiation of alcohol consumption by certain participants could be linked to the negative effect of the lockdown on psychological wellbeing, which may lead to substance use, as noted in a similar study conducted in Germany by Anne Koopman et al.²⁵ This raises concerns about the potential long-term effects of the pandemic on alcohol behaviors.

There was also a significant increase in the frequency and amount of alcohol consumed per occasion among those who continued consuming alcohol during the lockdown (Figures 1–3), which could be attributed to negative psychological changes such as stress, hopelessness, loneliness, and idleness. This suggests a potential shift toward more hazardous drinking patterns during the lockdown, which may have detrimental health and social consequences.

Similar to a study conducted in Canada that explored the gender differences and role of emotional distress in the changes in alcohol consumption during the COVID-19 pandemic, males were found to be twice as likely to increase their alcohol consumption compared to females.²⁶ Although it was anticipated that females would experience heightened emotional distress concerning gender roles, they displayed a decreased inclination to augment their alcohol intake. On the other hand, males exhibited a greater propensity to increase their alcohol consumption, which could be attributed to the adverse consequences of the pandemic, such as job loss, coupled with the obligation to provide for their families, leading them to resort to alcohol. Additionally, the availability of more idle time might have provided males with opportunities to socialize with friends and engage in drinking activities.

Conclusion

Our study revealed that a significant proportion of participants consumed alcohol during the COVID-19 lockdown in Kampala, Uganda. Male gender, living with friends and mental health perception as fair were associated with increased alcohol consumption. Of concern, individuals who continued drinking during the lockdown exhibited a trend of heightened frequency and quantity of alcohol consumed per occasion. Targeted interventions and educational programs should be put in place by policy makers to address alcohol consumption among high-risk populations. Integrating mental health support and considering social and economic factors is crucial to mitigate the adverse impacts of alcohol-related behaviors during crises. Since alcohol is an addictive substance, the increased frequency and quantity of alcohol consumption among youths needs to be further investigated in the post-COVID era to better inform the extent of the problem. With the anticipation of the bigger problem of addiction problem, policy makers should embrace the treatment options of alcohol addiction as one of the major ways of mitigating the problem.

Abbreviations

AUDIT- C, Alcohol Use Disorders Identification-Consumption; COVID-19, Coronavirus Disease 2019; SARS- COV2, Severe Acute Respiratory Syndrome Coronavirus 2; WHO, World Health Organization.

Ethics Approval and Consent to Participate

This study complies with the Declaration of Helsinki. The study was approved by the Mulago Hospital Research Ethics Committee with Approval number: MHREC 2225. Participation in this study was voluntary and all participants and all participants provided written consent after fully understanding the study before they were interviewed.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests.

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