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Effect of Lockdown on Alcohol, Tobacco, and Other Substance Use Among College Students

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1. INTRODUCTION

With the emergence of second wave of Covid 19, the number of COVID positive cases started to rise drastically. Government imposed the second lockdown from 11th May, 2021 in Tamil Nadu & Pondicherry. In an attempt to control the spread of infection, there was restricted movement throughout the country and most of the businesses were shut down. Only the essential services staffs were allowed to leave home and the rest were allowed only to access health care or buy essential items. Alcohol and tobacco products were not in the list of essentials during the lockdown. This meant non-availability of these substances through authorized vendors. An unintended consequence of this dry period could be an increase in the incidence of severe alcohol withdrawal syndrome.

According to the nation-wide survey published in 2019, an estimated 160 million (14.6%) people in India consume alcohol and 29 million (2.7%) were dependent on it.[1]Among the SEAR countries, India had the highest yearly per capita alcohol consumption of 5.7 liters.[2] In the last 2 decades, the proportion of young drinkers goes from 2% to 14%, and the age of initiation declined from 19 years to 13 years.[3] All these factors together have made alcohol consumption a serious public health threat. The threat is multiplied by multinational corporations targeting India's emerging market of young drinkers.[4] These corporations have fueled a steady change in the level of acceptance and attitude towards alcohol from a culture of abstinence to ambivalence to covertly permissive.[3,5]

One of the features of addictions is a self-perpetuating cycle of substance use leading to social isolation which in-turn leads to more substance use. The lockdown and physical distancing due to COVID-19 is going to exacerbate the isolation and increase the risk of alcohol consumption and also lead to relapses in those who have recovered.

This isolation also had an impact on nicotine dependents. In many countries, there was an increased consumption of tobacco to relieve stress and negative emotion. Smokers' daily smoking rates increased above 50% during the first lockdown in western countries. It has been shown that smoking increases in the phase of various environmental stressors. However, this period of self-isolation could be used by some as an opportunity to quit smoking, but

realistically, only a minority of people will achieve cessation. For the majority, the increased stress of a potentially fatal disease, possibility of loss of employment, feelings of insecurity, confinement and boredom could increase the desire to smoke.
This situation could have precipitated a similar condition for the consumption of other substances as well. But there were hardly any reports regarding the addiction behavior of Indian students. Hence, in this study, we appraised the changes in alcohol, tobacco and other substances during the second nation-wide lockdown in India.

Aim
The aim of the study is to investigate changes in the consumption of alcohol, tobacco and other substances before and during lockdown due to the second wave of the COVID pandemic.

2. METHODS

2.1. Participants
A cross-sectional survey was carried out over a brief period of time (20 days, between 1st May, 2021 to 20th May, 2021). This included 10 days before the initiation of second lockdown and 10 days during the lockdown. A questionnaire was circulated through online social media (WhatsApp). The target population included college students, irrespective of age, living area or current substance use. Students older than 18 years and living or residing in the UT of Pondicherry during the second COVID-19 lockdown were asked to fill in the survey online. There were no formal exclusion criteria, except those who were not willing to participate were excluded from the study. The ethics committee of Vinayaka Mission's Medical College & Hospital, Pondicherry, approved this study. Informed consent was taken and participants were briefed regarding the confidentiality of the study.

2.2. Data Collection
A questionnaire with 17 questions regarding demographics, vaccine status, alcohol use, cigarettes smoked, other substances and factors influencing substance use during lockdown. This was attached with AUDIT questionnaire for before & during lockdown. The questionnaire was made available in English.

2.3. Parameters/ Measures
Demographics questions include the parameters such as age, gender and COVID-19 vaccine status. For questions regarding alcohol use, alcohol consumption was compared before and during lockdown by converting it to alcohol units per day. A standard drink (1 alcohol unit) was defined as 10g of pure alcohol. Participants were asked how much alcohol he/she drank in a day for average for the duration of 10 days before the lockdown. This was compared to the amount of alcohol he/she drank in a day for average for the duration of 10 days during the lockdown. The AUDIT score was also compared before and during the lockdown. The participants were also asked the reason for the change in the consumption. For questions regarding smoking, the number of cigarettes smoked were asked before and during the lockdown. Participants were asked how many cigarettes he/she smoked in a day for average for the duration of 10 days before the lockdown. This was compared to the number of cigarettes he/she smoked in a day for average for the duration of 10 days during the lockdown was imposed. The participants were also asked for the reason of change in their

consumption. The participants were also asked regarding the consumption of any other substances. Their name and quantity were asked in grams.

2.4. Statistical analysis

Descriptive statistical analysis has been carried out in the present study. Linear variables were presented as mean +/- SD where applicable. Fisher's exact test has been used to find the significance of study parameters on categorical scale between two groups. All analyses were two tailed and P <0.05 was considered significant. SPSS version 16.0 was used for data analysis. Categorical variables were reported using the number of observations and the percentage of observation.

3. RESULTS

3.1. Descriptive statistics for age and gender

Table 1 - Descriptive Statistics

Total = 157 participants		N	%
Age, years	(Mean)	23.03 years	+/- 0.17
Gender	Male	84	53.50%
	Female	73	46.50%
Ever consumed alcohol?	Yes	64	40.76%
	No	93	59.24%
Did you consume 10 days before the second lockdown?	Yes	39	60.93%
	No	25	39.06%
Did you consume alcohol 10 days during the lockdown?	Yes	27	42.19%
	No	37	57.81%
Ever smoked cigarettes?	Yes	38	24.2%
	No	119	75.8%
Did you smoke any cigarettes 10 days before the second lockdown?	Yes	25	65.8%
	No	13	34.2%
Did you smoke any cigarettes 10 days during the lockdown?	Yes	22	57.89%
	No	16	42.1%
Did you consume any other substances?	No	157	100%

3.2. Comparison of consumption during lockdown

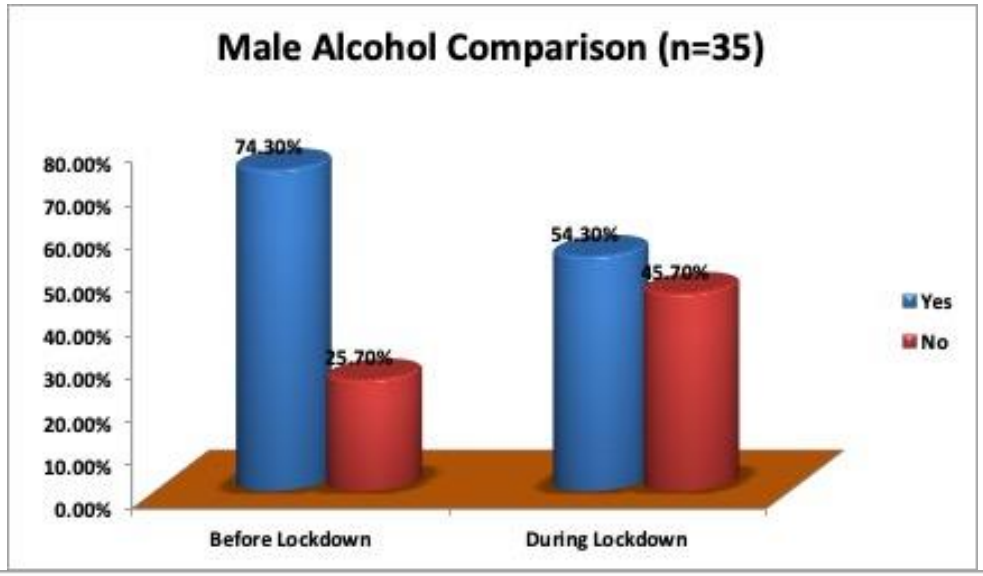
3.2.1. Alcohol

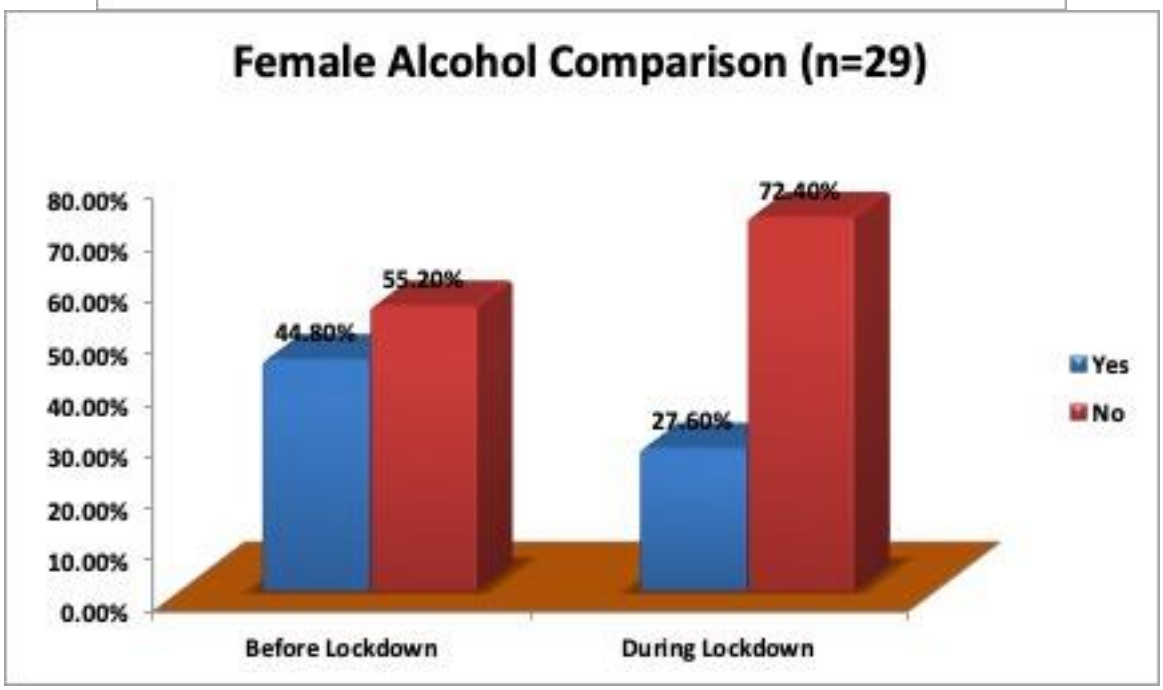
In total, 40.8% (N=64) of respondents reported ever consumption of alcohol. Out of which, 22.3% (N=35) were male and 18.5% (N=29) were female. Regarding alcohol consumption during lockdown, both men and women had a decline in level of overall consumption compared to pre-lockdown period. Fisher's exact test was done and the reduction in consumption was found to be significant in both males and females. Among the reasons, 'non-availability' was the highest ranked.

Table 2 - Gender-wise alcohol distribution

N = 64	Total	**Alcohol**

		Ever Consumed?		Before lockdown?		During lockdown?	
Male	84	Yes	35	Yes	26	Yes	19
				No	9	No	16
		No	49	**Fisher's Exact Test: p value: 0.0001 (P<0.05)**			
Female	73	Yes	29	Yes	13	Yes	8
				No	16	No	21
		No	44	**Fisher's Exact Test: p value: 0.0001 (P<0.05)**			





4.2.2. Cigarettes

In total, 24.2% (N=38) of respondents reported ever smoking a cigarette. Out of which, 18.47% (N=29) were male and 5.73% (N=9) were female. Regarding smoking during lockdown, there was a decline in the number of men and women smoking during lockdown. However, the total number of cigarettes smoked were increased during lockdown. Fisher's exact test was done and the decline in the number of males smoking during the lockdown was found to be significant. Among the reasons, 'tension' was highly ranked, which was followed by 'non-availability'.

Table 3 - Gender wise smoking distribution

N = 38	Total	**Cigarettes**					
		Ever smoked?		Before lockdown?		During lockdown?	
Male	84	Yes	29	Yes	22	Yes	20
				No	7	No	9
		No	55	**Fisher's Exact Test p value: 0.0001 (P<0.05)**			
Female	73	Yes	9	Yes	3	Yes	2
				No	6	No	7
		No	64	Fisher's Exact Test p value: 0.083 (P>0.05)			

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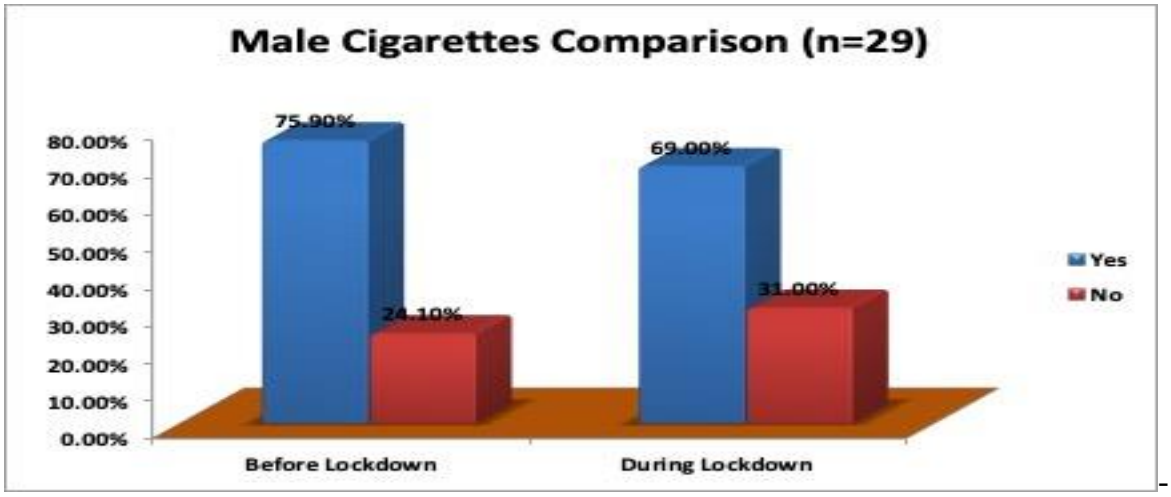

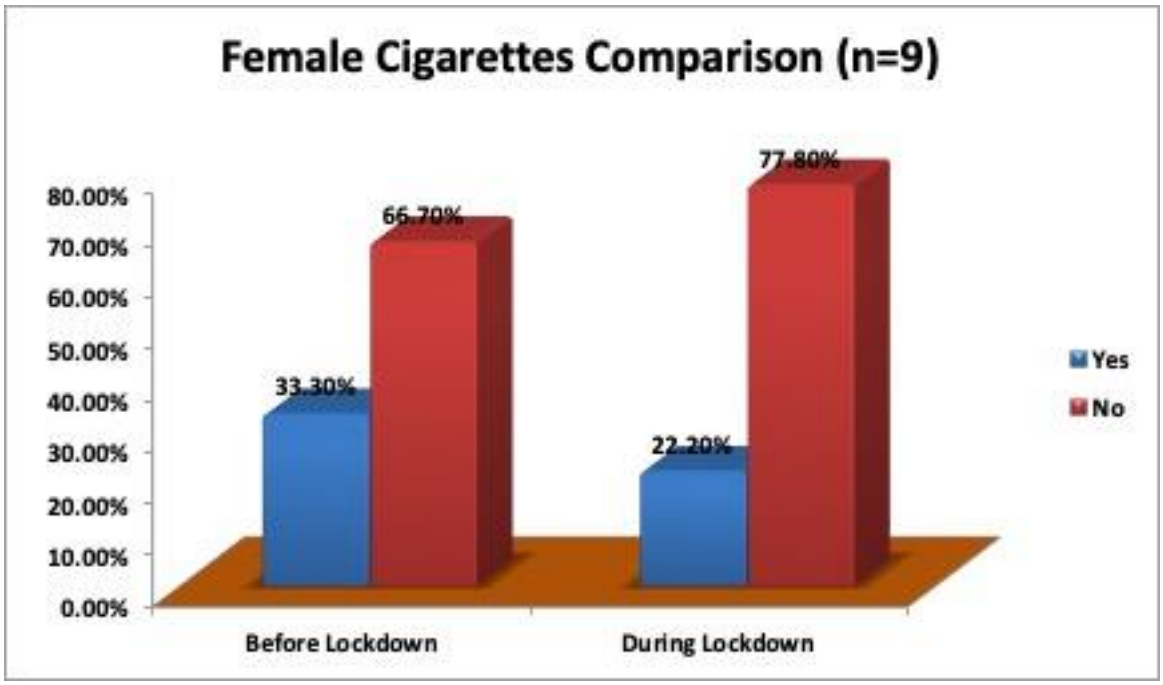

3.2.3. Other substances

There were no responses for them.

3.2.4. Quantities consumed

Table 4 - Quantities consumed

	Before lockdown	During lockdown	Change	P value
Alcohol units consumed	2152.2	1392.7	35.3% decrease	**0.018***
AUDIT Score	343	145	57.7% decrease	4.23
Cigarettes	108	116	7.4% increase	0.69

*- significant

Paired t test was performed on the alcohol units that were consumed before and during the lockdown, and the decrease was found to be statistically significant (P <0.05). However, the change in the number of cigarettes was not found to be significant.

A total of 157 students participated in the study. Out of which 53.5% were male and 46.5% were female. There was almost an equal distribution of gender among the participants.

Alcohol

40.8% (N=64) of the total participants ever consumed alcohol. Out of which 22.3% (N=35) were male and 18.5% (N=29) were female. Hence, the number of males who consumed alcohol was slightly higher. Before lockdown, 74.3% (N=26) of the male participants were consuming alcohol, which reduced to 54.3% (N=19) during the lockdown. Among the female participants, 44.8% (N=13) were consuming alcohol before lockdown, which reduced to 27.6% (N=8) during the lockdown. Hence, an 20% decrease in frequency of males and 17.2% decrease in frequency of females were seen during lockdown for alcohol consumption. When the overall alcohol units were compared, there was a 35.3% decrease in the consumption during the lockdown. Paired-t test was done on the alcohol units consumed and the decrease was found to be statistically significant. When the AUDIT scores were compared, there was a 57.7% decrease during the lockdown. Fisher's exact test was done and the reduction in consumption was found to be significant in both males and females. Among the reasons, 'non-availability' was the highest ranked.

Cigarettes

24.2% (N=38) of the participants ever smoked a cigarette in their lifetime. Out of which, 18.47% (N=29) were male and 5.73% (N=9) were female. Before lockdown, 75.9% (N=22) males smoked cigarettes, but 69% (N=20) were smoking during lockdown. Before lockdown, 33.3% (N=3) females smoked cigarettes, but 22.2% (N=2) were smoking during lockdown. Male smokers and female smokers both decreased during the lockdown in frequency by 6.9% and 11.1% respectively. However, the total number of cigarettes smoked during the lockdown were increased by 7.4%. Fisher's exact test was done and the decline in the number of males smoking during the lockdown was found to be significant. Among the reasons, 'tension' was highly ranked, which was followed by 'non-availability'.

4. DISCUSSION

The ultimate aim of this study was to assess the changes in the consumption of alcohol, tobacco and other substances before and during lockdown due to the second wave of the COVID pandemic. Our results on changes in drinking behavior show a significant decline (20% in males and 17.2% in females) in alcohol consumption during the early phase of the crisis in both male and female participants. There was a decline (6.9% in males and 11.1% in females) in the number of male and female smokers in our study. The following studies have similar results.

A study was done in Italy on the consumption of alcohol during lockdown, 53.1% of the participants stated a decrease in the consumption of alcohol.[11] The finding for this study is in accordance to the results found in our study as the consumption of alcohol by the participants is significantly reduced.

A study was done by Birgurman Singh et al in India, which concluded that there was a significant decrease in the consumption of junk food, alcohol and smoking in the Indian population during lockdown. They hypothesized a number of factors for this change. Firstly, inaccessibility to local shops due to lockdown. Secondly, discouragement from smoking in the presence of immediate family members and thirdly, fear of increased risk to contract a respiratory disorder and increased mortality in smokers.[6]

Another study by Himanshu A. Gupte et al,[11] is on par with our results, in which they have mentioned that, the lockdown enforced by the government can be considered as an opportunity to quit tobacco. Thus, it is important to offer cessation services that are accessible to tobacco users during the pandemic. This positive change of behavior supports the theory that raising tobacco taxes and banning certain tobacco products can help in the reduction of tobacco use.

The following studies had results against our study.
A study was done 2 months after the first lockdown period in UK, which reported that lockdown was a risk factor for increasing alcohol consumption in people with alcohol use disorder and relapse for those who were previously abstinent.[12] Another study was done in Belgium during lockdown, where individuals reported a slight increase in the consumption of alcohol and cigarettes.[8]
Our results were contrary with the French study with 11,391 participants using an online survey during a similar phase of COVID-19 lockdown. It reported that 35.6% of individuals increased their tobacco use and 24.8% increased alcohol consumption. The results of multivariable analysis found that female gender, having no partner, working outside the home and having intermediate or low educational attainment were associated with increases in tobacco use whereas being 30–49 years, obtaining a high level of education and undergoing current psychiatric treatment was associated with increases in alcohol. Reduced mental well-being and greater overall stress were shared risk factors for an increase in both behaviors.[8]
Another study mentioned that COVID 19 pandemic and its psychosocial associates created a vicious cycle which starts with stress, depression, social isolation, anxiety, excess leisure time with cheap internet services leading to surge of behavioral addictions which in turn results in mood changes, irritability, anxiety and stress.[7]
According to Ciara M E Reynolds et al., psychological factors like worry, anxiety and sadness were significantly associated with increases in tobacco use, with women potentially more vulnerable than men. Among drinkers, increased consumption was more directly related to socio-demographic and environmental factors like unemployment, urban living and stress from confinement. Younger people were more vulnerable than older age groups. This study provides useful insights into smokers and drinkers vulnerable to increased tobacco and alcohol consumption during periods of lockdown.[9]
A UK study of 20, 558 adults aged 16 years and older found that the prevalence of high-risk drinking increased from 25.1% before lockdown to 38.3% during lockdown.[10] From these results, it is clear that addiction behavior varies upon the regions of the world based on lockdown rules and availability of sources.

A limitation of this analysis is that the consumption of alcohol for 10 days cannot describe the dependence in an individual. Neither can the consumption for 10 days during the lockdown predict the future consumption of the individual. The potential public health effects of long-term isolation on alcohol and tobacco use and are unknown. However, due to the current situation, an economic crisis could be predicted in the near future, which could lead to increased unemployment and a paradoxical increase in the consumption of alcohol.
This study, like others carried out during COVID-19 lockdown, is an online study. The findings that are elicited by an in-person interview cannot be replaced by an online questionnaire.
There is a possibility of minimization of answers by the students due to apprehension as the study was conducted by their institute itself. However, the confidentiality regarding the

responses were explained thoroughly to all the participants and participation was not mandatory.

5. CONCLUSION

With the imposition of the second lockdown, the overall frequency of alcohol consumers among college students was found to be significantly decreased (20% in males and 17.2% in females) during the first 10 days of the lockdown compared to 10 days prior to lockdown. Frequency of tobacco consumers were also significantly decreased by the male participants (20%). The quantity of alcohol consumption was also significantly decreased (35.3%). This forced abstinence throws some light on the fact that if alcohol and cigarettes were not that easily available in the country, there would be a decrease in their consumption. Creating an atmosphere where alcohol and tobacco products are less readily available can aid in the decrease of tobacco and alcohol use. A period of lockdown or epidemic may prove to be an excellent opportunity to decrease alcohol and tobacco usage. Further research with larger population size across various parts of India is needed for the generalization of the results throughout the country. Appropriate measures to encourage and assist alcohol and tobacco users in their efforts to stop must be implemented and the sales of alcohol and tobacco should be made firmer in order to make it difficult to obtain and less socially and culturally acceptable.

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