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To Study the Prevalence of Alcohol and Tobacco Among Youth and to Check Association with the Consumption Pattern and Their Mental Health (Stress, Anxiety, Depression)

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ABSTRACT

Background: Alcohol and tobacco are a key risk factor to non-communicable and mental health diseases. Harmful use of alcohol leads to 1.7 million deaths due to non-communicable disease. Also smoking a high-risk factor to poor mental health and higher disability score. In India there are 16 crore alcohol drinkers, and 5.7 crores are problem drinkers and 2.9 crores dependent users and for 1-woman consuming alcohol 17 men are there consuming alcohol. GATS report the prevalence of tobacco in India is 42.4% with 10% are using tobacco in smoke form. In Punjab 51.7% people drink alcohol and men contributes to 28.5% and 27% people are problem drinkers. Tobacco use disorder in Punjab as per mental health report is 5.50%. Studies have reported poor mental health score with alcohol consumption and alcohol is associated with suicidal ideations and suicide attempts.
Method: The study is a cross-sectional quantitative study with participants studying in different universities in Punjab. Participants were selected through convenience purposive sampling. Online and face to face survey was done on 496 students from different background of study (Medical, Non-Medical, Humanities) using AUDIT, FNDT and DASS21 questionnaire to access their drinking, tobacco and Mental health status and analysis was done using STATA 15.1 software.
Results: The prevalence of alcohol and tobacco consumption was 15.73% and 3.83% respectively. Alcohol harmful/hazardous use was reported in 17.95% individuals and 68.75% were of low dependency of nicotine. The stress and depression were significantly associated with alcohol drinking and nicotine consumption and those who have severe and extreme depression have higher odds (AOR 7.96(2.6, 24.16), 2.06 (0.4, 8.9)) of consuming alcohol and also significantly associated p value 0.007, and participants with extreme stress have higher odds AOR 4.0 (0.9.17.4) of consuming alcohol p value 0.34.

Keywords: Substance abuse, mental health, alcohol, Tobacco, Non- Communicable disease, Disability, Punjab

INTRODUCTION

Alcohol leads to disability and poor health and also a reason for 3 million death globally and responsible for 5.1% of the global burden of disease, both males and females account for the global burden of disease 7.1% and 2.2% respectively also, among the age group of 15 to 49 alcohol is the main reason for

premature mortality and disability and also accounting for 10% of all deaths in the age group.(*WHO EMRO* 2018). The pattern of alcohol use and depression has been shown in a number of studies but yet unclear how these two affect each other and strong evidence is found between anxiety and alcohol use. (*WHO EMRO NCDs*, 2019)

Alcohol is used in almost every part of India and is available in every state of India even where there is a ban on alcohol sales., Tripura, Arunachal Pradesh, Punjab, Chhattisgarh, and Goa are the top 5 states where the prevalence of alcohol use is reported.

('Magnitude_Substance_Use_India_REPORT. 2019)

Tobacco kills more than 8 million people and is one of the biggest public health threats with 7 million deaths due to direct tobacco consumption and 1.2 million due to secondhand smoke.(*Tobacco*, 2020). Globally, 1 in 10 adolescent <15 years uses tobacco and in some areas this number is much higher.(*Adolescent and young adult health*, 2021)

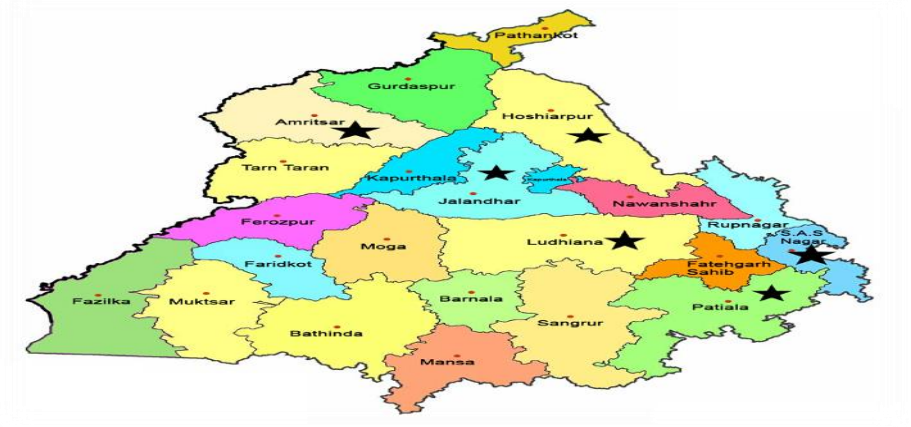
Smoking increases the risk of death by 12 times for those having chronic lungs. It is also a risk factor for diabetes and is responsible for 12% of diabetes incidence in the USA. Tripura, Mizoram, and Meghalaya are the top 3 states with tobacco consumption at 64.5%, 58.7%, and 55.1% respectively('GATS2 (Global Adult Tobacco Survey) Fact Sheet, India, 2016-17) In Birbhum West Bengal 26% of women and 22% of men use smokeless tobacco, bidi smoking was reported in 4% of women and 46% of men with increase income the odds of smoking bidi and smokeless tobacco are higher in men and women respectively. (Barik *et al.*, 2016). In a study in college-going students in Kerala was found that males have a higher prevalence (38%)of alcohol use than female (12%) low-risk alcohol drinkers have more mental health issues than high-risk drinkers and experiencing numerous negative correlates. (Jaisoorya *et al.*, 2018)

In Punjab, the alcohol use disorder and tobacco use disorder was shown in NIMHNS report of mental health 7.90% and 5.50% (Chavan *et al.*, 2019) A study conducted in rural of Jalandhar, Punjab showed prevalence 41.8% and 21.3% of alcohol and tobacco use (Sharma *et al.*, 2017). In a community setting in Faridkot, Punjab showed 38.3% and 34.5% tobacco and alcohol prevalence with 59% reason to initiate drug use is peer pressure (Kaur, Maheshwari and Sharma, 2018). Study in Punjab and Haryana region showed a prevalence of 30% and 33% of tobacco and alcohol consumption(Singh *et al.*, 2019)

MATERIALS & METHODS

Study setting and population.

The study was performed among college students in the state of Punjab in different cities Jalandhar, Hoshiarpur, Amritsar, Ludhiana, Patiala, and Chandigarh/Mohali as shown in fig (Star marked cities). Students from diverse study backgrounds were approached in various colleges of Punjab in the mentioned cities.



Sample size-

Considering the average overall prevalence in India of substance consumption is ~30% from Magnitude of substance Use 2019 and GATS 2 we will need a precision of 5% to obtain relevant results with 95% confidence from our sample.

As this is a cross-sectional prevalence study, and both the total population of India and the target population of 19- to 35-year-old is quite large to be considered unlimited we shall calculate the required sample size using the following formula:

$$n = \frac{Z^2 * P * (1-P)}{d^2}$$

This gives us a required sample size of 484 to obtain significant results. By disseminating the survey through various social media available at this time it was aimed to reach around 500 respondents while taking into consideration loss due to unwillingness to take part in the survey, incomplete surveys, and errors in responses to the survey.

Sampling Method.

Students of different fields in medical, non-medical, and humanities were selected from different universities in Punjab. There are three medical, twelve engineering, and eight universities offering humanities courses. Out of these five universities were selected purposively to include students from medical, engineering, and humanities field studying in undergraduate and postgraduate courses. The researcher reached out to student groups and authorities in each university and tried to get the list of contact details (Phone number or email id) of students studying and reached those students with due permission from the students and authorities and data was collected. All participants from the list obtained were reached out through mail or in-person from the university. The data was collected through a self-administered questionnaire. The students contacted from the list on mail, two weeks was given to the participants to fill the form. To ensure a response from participants, reminder mail was sent to the participants.

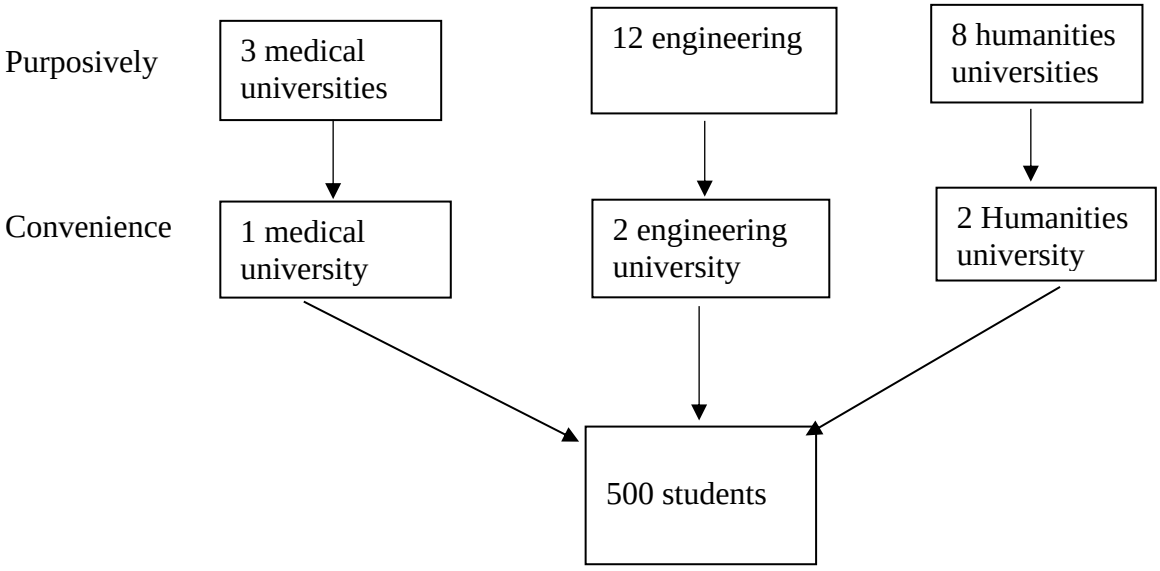


Figure 2 Sampling technique

Data collection

All participants from the list obtained were reached out through mail or in person, The students contacted from the list on mail and WhatsApp groups, two weeks was given to the participants to fill the form. In case mail ids of students were not available class representatives were approached and an online form was circulated in the class group and students were requested to fill in the questionnaire through a self-administered questionnaire. To ensure a response from

participants, reminder mail was sent to the participants. Due to lockdown and examination, the data collection was hampered, the response rate was very low through online data collection and most of the data was collected through face-to-face self-administered questionnaire from those colleges which were open (Medical and dental colleges). Participants were reached directly in college and with due permission of authorities and with the consent of students the responses were collected.

Tool used

Three different tools were used to collect the data.

The AUDIT is The Alcohol Use Disorders Identification Test a 10-item self-report questionnaire with a sum score of 8 or more being associated with harmful or hazardous drinking, and a score of 13 or more in women and 15 or more in men, being likely to indicate alcohol dependence (Saunders *et al.*, 1993)

FNDT test The Fagerström Test for Nicotine Dependence is a standard instrument for assessing the intensity of physical addiction to nicotine. The test was designed to provide an ordinal measure of nicotine dependence related to cigarette smoking. It contains six items that evaluate the quantity of cigarette consumption, the compulsion to use, and dependence. (Heatherton *et al.*, 1991)

DASS 21 The DASS 21 is a 21 item self-report questionnaire designed to measure the severity of a range of symptoms common to both Depression, Anxiety, and Stress. In completing the DASS, the individual is required to indicate the presence of a symptom over the previous week. Each item is scored from 0 (did not apply to me at all over the last week) to 3 (applied to me very much or most of the time over the past week). ("A Guide to the Depression, Anxiety and Stress Scale (DASS 21 | tauseef ahmad - Academia.edu,")

STATISTICAL ANALYSIS

The data collected from the online survey was exported to MS excel sheet. This data was then cleaned; double entries and participants who refused to consent were then removed from this sheet. The data was then coded and exported to Stata 15.1 for further analysis.

The data obtained from the population was described in terms of percentage and frequencies for categorical variables and mean with standard deviation for continuous variables. For some variables, multiple categories were collapsed to create meaningful groups. For variable, which was captured as continuous variable, like alcohol consumption, tobacco and mental health was categorized as per tool. Prevalence of alcohol and tobacco consumption was also estimated and reported. To assess the association of alcohol and tobacco with other independent factors, bivariate analysis was carried out taking dependent variable as binary. Chi square or Fisher exact test were carried out between each independent variable and the alcohol and tobacco consumption category. Final model of multivariable logistic regression included the significant finding from the bivariate analysis and the important independent variables with borderline significance were also included. However, the model thus prepared showed some collinearity, so few variables were excluded from the final model. The variables with significant association after adjusting for other factors were reported.

RESULT

A total of 530 responses was collected, data of 34 respondents were dropped due to not meeting the inclusion criteria or other reasons 496 responses were used for analysis.

The demographic characteristics are described in table 1. As shown in the table below with the majority of respondents were females (64.11%) who had a medical background (68.55%). Most of the study participants were taking undergraduate courses (84.68%) in on-campus classes (63.51%) and 1st professional year of their college life (38.31%).

Table 1 Demographic characteristics of participants (N=496)

Characteristic	**n (%)**
Age in years Mean SD	20.86 (2.51)
Gender	
Male	176 (35.48)
Female	318 (64.11)
Others	2 (0.40)
Course enrolled	
Medical	340 (68.55)
Non-medical	65 (13.10)
Humanities	11 (2.22)
Others	80 (16.13)
Presently in the class of study in college/University	
Sr. Sec school	5 (1.01)
Vocational/Diploma	1 (0.20)
Undergraduate	420 (84.68)
Post-Graduate	68 (13.71)
PhD	2 (0.40)
Year/ semester presently studying	
1st year	190 (38.31)
2nd year	135 (27.22)
3rd year	75 (15.12)
4th year	44 (8.87)
5th year	52 (10.48)
Currently living with	
With family	251 (50.60)
Away from family	245 (49.40)
Studies being conducted now	
On-campus	315 (63.51)
Online	145 (29.23)
No classes	36 (7.26)
Prefer the mode of examination	
Offline	252 (50.81)
Online	244 (49.19)
Rising covid cases a cause worry	
Yes	410 (82.66)
No	86 (17.34)
Had any symptoms of Covid-19 in recent times (2-3 days back)	
Yes	
No	27 (5.44)
Prefer not to say	450 (90.73)
	19 (3.83)
Close contact with anyone presenting Covid-19 symptoms (Fever, cough, breathlessness)	
Yes	65(13.10)
No	365 (73.59)
Don't Know	66 (13.31)

The prevalence of alcohol was found to be 15.73% (95% CI 12.7%,19.21%). The major reason cited to initiate drinking was for enjoyment and just to try / experimental 34.62% and 33.33%. The low-risk group as per AUDIT scoring were 79.49% of drinkers and 2.56% reported dependency on alcohol.

Table 2 Alcohol consumption (N=496)

	n (%)
Alcohol Consumption	
Yes	78 (15.73)
No	418 (84.27)
Age of initiation (years) Mean (sd)	19.75 (2.38)
Reason to start drinking	
Peer pressure	4 (5.13)
Just to try/ Experimental	26 (33.33)
Emotional stress	4 (5.13)
Enjoyment	27 (34.62)
Social drinking	17 (21.79)
AUDIT SCORE mean sd	5.05 (4.35)
AUDIT Category	
Low risk	62 (79.49)
Harmful use/Hazardous use	14 (17.95)
Dependence	2 (2.56)
Craving for drinking	
Yes	6 (7.69)

No	72 (92.31)
Drinking pattern when under pressure, stress, depressed	
Increase	
Decrease	26(33.33)
No change	6 (7.69)
	46 (58.97)
Efficiency after drinking	
Increases	13 (16.67)
Decreases	31 (39.74)
No change	34 (43.59)
Drinking injurious to health	
Yes	31 (39.74)
No	47 (60.26)

Tobacco prevalence was found to be 3.83% (95% CI 2.4%,5.9%) and all reported smoking as tobacco consumption with a mean age of initiation to be 20 years and all tobacco consumers were using the smoke form of tobacco and reason cited to initiate tobacco use is experimental and emotional trauma 35.84% and 31.58% respectively. Based on the Faggerstorm test 68.75% of tobacco consumers are in the low to moderate dependency category and 18.75% are in the moderate dependency category.

Table 3 Tobacco consumption (N=496)

Characteristic	**N (%)**
Tobacco consumption	
Yes	19 (3.83)
No	477 (96.17)
Age started smoking (years) Mean (sd)	20 (2.9)
Preference for tobacco product	
Smoke	19 (100)
Smokeless	0
Reason to start smoking	
Peer pressure	3 (15.79)
Just to try/ Experimental	7 (36.84)
Emotional trauma	6 (31.58)
Enjoyment	2 (10.53)
Social smoking	1 (5.26)
Efficiency after tobacco consumption	
Increases	5 (26.32)
Decreases	1 (5.26)
No change	13 (68.42)
Tobacco Consumption behavior change when under pressure, angry or depressed	
More than usual	
No change	15 (78.95)
	4 (21.05)
Is smoking injurious to health	
Yes	12(63.16)
No	7(36.84)
FNTD test mean sd	1.57 (2.0)
Dependency	
Low dependency	11 (68.75)
Low-Moderate	2 (12.50)
Moderate	3 (18.75)

Table 4 shows the mental health condition of participants depression, anxiety, and stress. The majority were having normal mental conditions of depression, anxiety, and stress 61.72% 46.69%, and 72.34% respectively. Approximately 11% are suffering from severe to extreme depression, 20% from severe to extremely severe anxiety, and 8% from severe to extremely severe stress.

Table 4 Mental health status

Category	***n (%)***		
	Depression	***Anxiety***	***Stress***
Normal	308 (61.72)	233 (46.69)	361 (72.34)
Mild	46 (9.22)	63 (12.63)	44 (8.82)
Moderate	88 (17.64)	101 (20.24)	51 (10.22)
Severe	28 (5.61)	39 (7.82)	24 (4.81)
Extremely Severe	29 (5.81)	63 (12.63)	19 (3.81)

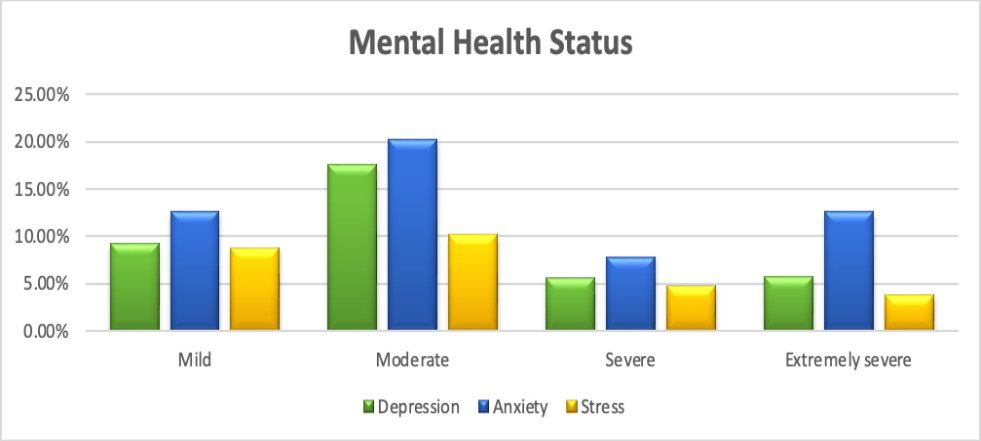


Figure 3 Mental health

Bivariate analysis: -

Table 5 Association of socio-demographic and other factors with alcohol consumption

N=496	Alcohol consumption No N (%)	Alcohol consumption Yes N (%)	p-value
Gender			
Female (n=318)	282 (88.68)	36 (11.32)	0.001
Male (n=176)	134 (76.14)	42 (23.86)	
Other (n=2)	2 (100)	0 (0)	
Age (years) (Mean, SD)	20.51 (2.33)	22.71(2.63)	<0.001
Course			
Humanities (n=91)	78 (85.71)	13 (14.29)	0.006
Medical (n=340)	294 (86.47)	46 (13.53)	
Non-medical(n=65)	46 (70.77)	19 (29.23)	
Qualification			
Undergraduate (n=426)	375 (88.03)	51 (11.97)	<0.001
Post-graduate (n=70)	43 (61.43)	27 (38.57)	
Study year			
First (n=190)	168 (88.42)	22 (11.58)	<0.001
Second (n=135)	116 (85.93)	19 (14.07)	
Third (n=75)	66 (88.0)	9 (12.00)	
Fourth (n=44)	27 (61.36)	17 (38.64)	
Fifth (n=52)	41 (78.85)	11 (21.16)	
The current mode of education			
On campus (n=315)	272 (86.35)	43 (13.65)	0.009
Online (n=145)	122 (84.14)	23 (15.86)	
No classes (n=36)	24 (66.67)	12 (33.33)	
Living mode			
Away from family (n=251)	216 (86.06)	35 (13.94)	0.270
With family (n=245)	202 (82.45)	43 (17.55)	
Worry about rising COVID-19 cases in Punjab			
Yes (n=410)	357 (87.07)	53 (12.93)	<0.001
No (n=86)	61 (70.93)	25 (29.07)	
Preferred mode of examination			
Offline (n=252)	204 (80.95)	48 (19.05)	0.039
Online (n=244)	214 (87.70)	30 (12.36)	
Symptoms of COVID-19			
Yes (n=27)	24 (88.89)	3 (11.11)	0.129
No (n-450)	381 (84.67)	69 (15.33)	
Prefer not to say (n=19)	13 (68.42)	6 (31.58)	
Contact with anyone presenting COVID-19 symptoms			
Yes (n=65)	54(83.08)	11(16.92)	0.579
No (n=365)	311(85.21)	54(14.79)	
Don't know (n=66)	53(80.30)	13(19.70)	
Depression			
Normal (305)	272 (89.18)	33 (10.82)	<0.001
Mild (46)	40 (86.96)	6 (13.04)	
Moderate (88)	71 (80.68)	17 (19.32)	
Severe (28)	14 (50)	14(50)	
Extremely severe(29)	21 (72.41)	8 (27.59)	
Stress			

Normal (358)	313 (87.43)	45 (12.57)	0.002
Mild (44)	37 (84.09)	7 (15.91)	
Moderate (51)	39 (76.47)	12 (23.53)	
Severe (24)	18 (75)	6 (25)	
Extremely severe (19)	11 (57.89)	8 (42.11)	
Anxiety			
Normal (230)	200 (86.96)	30 (13.04)	0.408
Mild (63)	51 (80.95)	12 (19.05)	
Moderate (101)	86 (85.15)	14 (14.85)	
Severe (39)	32 (82.05)	7 (17.95)	
Extreme (63)	49(77.78)	14 (22.22)	

Associations between various social demographic factors were assessed with alcohol consumption shown in table 5. 23.8 percent of male respondents did consume alcohol. Students pursuing non-medical courses (29.23%), post-graduates (38.57%), and fourth-year students (38.64%) were more likely to consume alcohol. Respondents who were pursuing their current education without classes (33.33%) and those who do not worry about rising covid cases (29.07%) in Punjab and having preferred mode of the exam as offline were more likely to consume alcohol. Students who were in the mildly depressed category (55.26%) and who were in the mild stress category (19.05%) the more likely to consume alcohol. All these independent associations were statistically significant a p-value less than 0.05.

Table 6 Association of socio-demographic and other factors with tobacco consumption

N=496	**Smoking No N (%)**	**Smoking Yes N (%)**	**p-value**
Gender			
Female (n=318)	311 (97.80)	7 (2.20)	0.036
Male (n=176)	164 (93.18)	12 (6.82)	
Other (n=2)	2 (100)	0 (0)	
Age (years) (Mean, SD)	20.71 (2.38)	24.63 (2.62)	<0.001
Course			
Humanities (n=91)	87 (95.60)	4 (4.40)	0.873
Medical (n=340)	328 (96.47)	12 (3.53)	
Non-medical (n=65)	62 (95.38)	3(4.62)	
Qualification			
Undergraduate (n=426)	417 (97.89)	9 (2.11)	<0.001
Postgraduate (n=70)	60 (85.71)	10 (13.29)	
Study year			
First (n=190)	185 (97.37)	5 (2.63)	
Second (n=135)	129 (95.56)	6 (4.44)	0.457
Third (n=75)	73 (97.33) 42(95.45)	2 (2.67)	
Fourth (n=44)	48 (92.31)	2 (4.55)	
Fifth (n=52)		4 (7.69)	
Current mode of education			
On campus (n=315)	307 (97.46)	8 (2.54)	<0.001
Online (n=145)	140 (96.55)	5 (3.45)	
No classes (n=36)	30 (83.33)	6 (16.67)	
Living mode			
Away from family (n=251)	244 (97.21)	7 (2.79)	0.221
With family (n=245)	233 (95.10)	12 (4.90)	
Worry about rising COVID-19 cases in Punjab			
Yes (n=410)			
No (n=86)	397 (96.83)	13 (3.17)	0.095
	80 (93.02)	6 (6.98)	
Preferred mode of examination			
Offline (n=252)	241 (95.63)	11 (4.37)	0.529
Online (n=244)	236 (96.72)	8 (3.28)	
Symptoms of COVID-19			
Yes (n=27)	26 (96.30)	1 (3.70)	0.673
No (n-450)	432 (96)	18 (4)	
Prefer not to say (n=19)	19 (100)	0 (0)	
Contact with anyone presenting COVID-19 symptoms			
Yes (n=65)			
No (n=365)	63(96.92)	2(3.08)	0.864
Don't know (n=66)	350(95.89)	15(4.11)	
	64(96.97)	2(3.03)	

Depression			
Normal (305)	298 (97.70)	7 (2.30)	0.067
Mild (46)	45 (97.83)	1 (2.17)	
Moderate (88)	82 (93.18)	6 (6.82)	
Severe (28)	25 (89.29)	3 (10.71)	
Extremely severe (29)	27(93.10)	2 (6.90)	
Anxiety			
Normal (230)	224 (97.39)	6 (2.61)	0.481
Mild (63)	61 (96.83)	2 (3.17)	
Moderate (101)	95 (94.06)	6 (5.94)	
Severe (39)	38 (97.44)	1 (2.56)	
Extremely severe (63)	59 (93.65)	4 (6.35)	
Stress			
Normal (465)	349 (97.49)	9 (2.51)	0.054
Mild (21)	40 (90.91)	4 (9.09)	
Moderate (10)	47 (92.16)	4 (7.84)	
Severe (24)	22 (91.67)	2 (8.33)	
Extremely Severe (19)	19 (100)	0 (0)	

In table 6 Associations between socio-demographic factors and smoking were assessed in the bivariate analysis. 6.28% of respondents consuming tobacco were males. Post-graduate students (13.29%) and fourth-year students (38.64%) were more likely to consume smoke tobacco. Respondents who were pursuing their current education without classes (16.67%) those who did not worry about rising covid cases (6.98%) and students with severe depression (10.71%) and mild stress (9.09%) were more likely to smoke tobacco. All these independent associations were statistically significant.

Table 7 Factors associated with Alcohol consumption.

Characteristic and association with alcohol consumption	**Crude OR (95% CI) p-Value**	**Adjusted OR p-Value**
Depression		
Normal	Ref	Ref
Mild	1.2 (0.4, 3.1)	1.71 (0.60, 4.8)
Moderate	1.9 (1.0, 3.7)	1.85(0.81, 4.22)
Severe	8.2 (3.6, 18.7)	7.96(2.6, 24.16)
Extremely severe	3.1 (1.2, 7.6)	2.06 (0.4, 8.9)
	<0.001	0.007
Stress		
Normal	Reference	Reference
Mild	1.3 (0.5, 3.1)	1.2 (0.4, 3.3)
Moderate	2.1 (1.0, 4.3)	1.3 (0.4, 3.7)
Severe	2.3 (0.8, 6.1)	0.9 (0.2, 4.0)
Extremely severe	5.0 (1.9, 13.2)	4.0 (0.9.17.4)
	0.004	0.343
Gender		
Female	Reference	Reference
Male	2.4 (1.5, 4.0)	2.3 (1.3, 4.3)
	<0.001	0.005
Age	1.3 (1.2, 1.4)	1.3 (1.2, 1.5)
	<0.001	<0.001
Course stream		
Medical	Reference	Reference
Humanities	1.0 (0.5, 2.0)	1.8 (0.7, 4.1)
Non medical	2.6 (1.4, 4.8)	1.8 (0.8, 3.9)
	0.0075	0.130
Exam mode preferred		
Online	Reference	Reference
Offline	1.6 (1.0, 2.7)	1.8 (0.9, 3.4)
	0.040	0.068
Rising covid cases a worry		
Yes	Reference	Reference
No	2.7 (1.5, 4.7)	1.8 (0.9, 3.5)
	<0.001	0.081

Multivariable analysis

As the prevalence for smoking was very less and the numbers reported are low only bivariate analysis is reported for smoking. For alcohol consumption in table 7 it was found that those who are in severe category

of depression after adjusting for age, gender, course stream, preference for exam mode and rising cases of covid-19 the AOR 7.96 with CI 2.6, 24.16 and extremely severe depression people are likely to drink 2.06 times with 95% CI 0.4, 8.9 compared to alcohol than normal depression score with a significant p value 0.007. The stress level on running crude analysis was found that severe and extremely severe stressed people are 2.3 and 5.0 time more likely to drink alcohol with 95% CI 0.8, 6.1 and 1.9, 13.2 respectively and significant p- value 0.004 but after adjusting with age, gender and other variables is not statistically significant. Talking about gender male were AOR 2.3 times more likely to consume alcohol than women and with age there are 1.3 times more likely to increase in alcohol consumption with 1 year increase in age with CI 1.2, 1.5 with highly significant p value <0.001.

It is found those who are not worried about rising covid-19 cases in Punjab are AOR 1.8 times likely to drink more than those who are worried about rising cases p-value 0.081. Students in non-medical stream are 1.8 times higher likely to drink alcohol 95%CI 0.8, 3.9 than students in medical stream p value 0.130.

DISCUSSION

The study found self-reported alcohol consumption prevalence among college students about 16%. Among these 19.33% were in the category of harmful use. Tobacco use was found among 3.83% of youth with 68% as a low dependency. Alcohol consumption was found to be significantly associated with depression and stress. In comparison to a study by Chavan *et al* analyzing the mental health report the weighted prevalence of alcohol use disorder was 7.9% with 4.8% as dependency and harmful use as 3.1%, tobacco prevalence is 6.5% and 3.5% have low to moderate and 2% have significant dependence and common mental disorder with substance use was depression (5.7%) followed by stress disorder (2.2%). (Chavan *et al.*, 2019).

The reason to start using tobacco was reported was just to try and emotional trauma 36.84% and 31.58% respectively and for start using alcohol was recreational and just to try 34.62% and 33.33 and trends in Punjab showed peer pressure (59%) friends recommendation (62.5%)are mostly responsible for the initiation of substance use followed by experimental or curiosity (39%). (Kaur, Maheshwari and Sharma, 2018)

The current study shows the overall prevalence of mental health status of population

Our study finding showed that most of the smokers admit that smoking is injurious to their health as per their consumption pattern in contrast most of the current drinkers believe it is not injurious to health as per their consumption pattern. Participants' mean age to start consuming alcohol 19.28 sd 2.38 and smoking is 20 sd 2.9 which is higher than reported in colleges in Karnataka 16 years. (Mohanan *et al.*, 2014)

As this study reports increasing odds of drinking with the increase in depression and anxiety similar findings were reported in Madhya Pradesh which showed the increase in depression was associated with increases in alcohol consumption (Rathod *et al.*, 2015).

The study also studies the context of pandemics like those who are not worried about rising cases in Punjab are more likely to consume alcohol.

Strength of the study

The study has certain its strength as it collects data from students in Punjab studying in colleges spread in 5 districts which have very limited research so far. The study was conducted during pandemic and reflective of the mental health status of students during the pandemic and their perception toward substance use as it will lead to further research on their perceptions and explore their behavior of substance use.

Limitations of the study

There are high chances of introducing respondent bias in this study, the measurement tool used to collect the data

was standardized but was self-reported and there are high chances of underreporting about their consumption pattern or have hesitated to respond to admit their consumption. Also, the tool was only in English language so any difficulty with the language might have affected the response. Given that this study was carried out in the middle of a raging COVID-19 pandemic, the mental status of respondents while answering the questionnaire may have influenced the responses which are beyond the control of the researcher. Questions related to substance use might have received some altered responses due to the attitude and perception attached to it. Though the study was able to capture a number close to the estimated sample size the non-response rate from the overall number of students was very high. Non-random methods of data collection also introduce selection bias. There was no good number of respondents that can substantiate the multivariate analysis for tobacco use and, also large confidence interval in the alcohol multivariate analysis show lack of respondents in their respective categories.

CONCLUSION

COVID-19 pandemic has taken a toll on mental health on everybody, and alcohol and tobacco consumption has increased as we have seen in news reports. Reported prevalence of alcohol and tobacco consumption in the studies reported Is 19% and 3% and this consumption was significantly associated with depression and stress. There are higher odds of consuming alcohol with increasing level of depression and stress. Multiple factors are also associated with substance consumption as shown in the study, but further studies are needed to check the association between mental health and substance use and with better research methodology and better association finding to be done because it can be a two-way process more drinking, or smoking leads to bad mental health or bad mental health leads to increased consumption of substance use.

Declaration by Authors

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