

Factors Associated with Consumption of Alcohol and Hookah Smoking Among the Youth of Mumbai, A Cohort Study

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ABSTRACT: The aim of this survey-based study was to find the factors affecting consumption of alcohol and hookah smoking among the youth (15-30 years of age) of Mumbai. The study was conducted by circulating questionnaire among random subjects in the town and suburban areas in Mumbai. The collected data was then subjected to statistical tests like chi-square test, Yule's coefficient of colligation and Z-test (hypothesis testing). The study showed that factors such as individual's gender, their occupation and their educational status are associated with alcohol consumption and hookah smoking.

KEYWORDS: Alcohol, Hookah, Youth, Mumbai.

I. INTRODUCTION

Alcohol is a common psychoactive substance found in beer, wine, etc. Hazardous usage of alcohol is one of the top five reasons for increase in risk of disabilities, diseases and death around the world.[1] Previous reports have stated that, as of 2010, about 30 percent of India's population consumed alcohol regularly. Some 11 percent are moderate to heavy drinkers. The average Indian consumes about 4.3 litres of alcohol per annum, says the report. [1]

Hookah is typically a water pipe that is used to smoke tobacco. Hookah smoking increases carcinogen exposure and is a source of significant nicotine intake.[2]

It is therefore imperative to discover various factors that have association with consumption of alcohol and hookah smoking. Through this study we aim to aid in discovery of various factors associated to alcohol consumption and hookah smoking so that preventive measures can be undertaken accordingly.

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II. RELATED WORK

Joveini H. et. al, in their study 'Factors Associated with Hookah Smoking among University Students' aimed to find factors associated with hookah smoking in students of Sabzevar Azad(Iran) University. Through their study they inferred that there is significant association between hookah smoking and awareness of the resultant complications of smoking hookah.[3]

Author YEH M. in the paper 'Factors associated with alcohol consumption, problem drinking and related consequences among high school students in Taiwan' showed that alcohol consumption was 2.22-2.71-times greater in male adolescents than in female adolescents. Also, some determinants that influence drinking are peer groups and parents.[4]

Another study concludes that relationships within the family influences alcohol use more in female adolescents as compared to male adolescents. The study also concludes that stress-management and building positive self-image will help prevent hazardous alcohol consumption in males and open communication channels with parents should be increased in case of girls.[5]

A Brazilian cross-sectional study aimed to gauge the association between heavy drinking among students aged from 18-27 years. The results of this study showed that following a religion reduces heavy drinking, another finding was that stronger family relationships may also prevent heavy alcohol drinking.[6]

An online survey-based analysis reports that hookah smoking among college students from a Midwest university is due to social reasons and also that students often underestimate the addictiveness of Hookah.[7]

Students at two south-eastern state universities participated in an online survey. The data from this survey indicates that hookah use is associated with being male, to get new experiences, decreased levels of conscientiousness, more frequent alcohol consumption and with a greater search for sensation. [8]

A 2011 survey analyses the role of family members on hookah smoking for 801 adults in southeast Michigan. The results conclude that having a father, mother or sibling smoking hookah at home raises the odds ratio, for individual to smoke hookah, to 9.5, 8.6 and 1.2 respectively. [9]

III. MATERIALS AND METHODS

For the current survey-based study, data was collected through circulation of questionnaire in the city of Mumbai. This questionnaire included two section of questions- one section consisted of questions that were related to alcohol consumption and the other section was pertaining to hookah smoking. Forms that were filled correctly by participants in the age group of 15-30 years were accepted. The data from the 330 correctly filled forms was then analyzed using statistical tools like chi-square test, Z test and Yule's coefficient for colligation for validation of various hypotheses.

Chi-squared test: The test is applied to determine association between any two attributes. For this study chi-squared test was performed at significance level 0.05 and degree of freedom was 1.

Z test: It is used to test population proportion for single sample or compare population proportions if the sample size is too large.

Yule's coefficient of association: The test is used to check the correlation between two attributes. This tool helps in determining the type of association i.e. positive or negative.

Parameters such as individual's sex, their educational status, their occupation, etc. were tested for association with alcohol consumption and hookah smoking.

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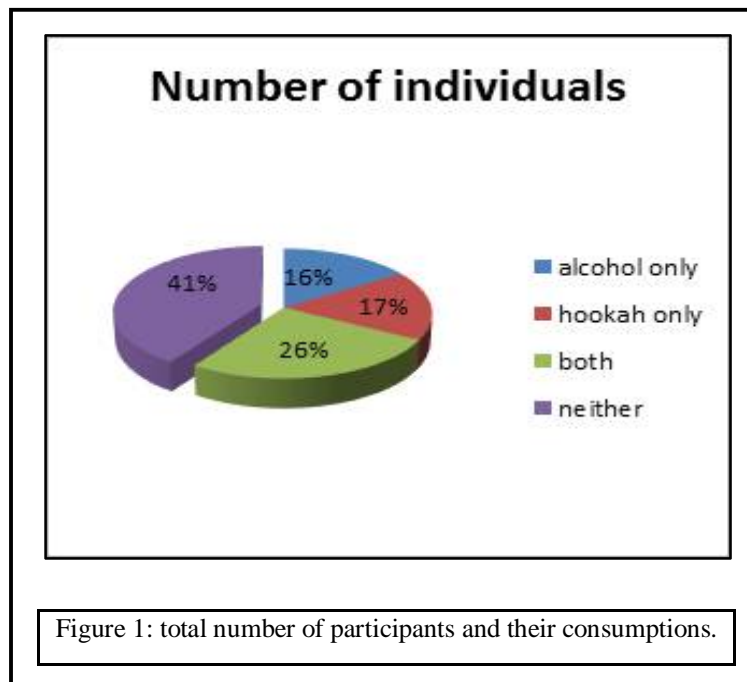
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IV. RESULTS AND DISCUSSION

This study reports the results of 330 participants within the age group of 15 to 30 years with the average age being 19.21 years(SD=3.48 years).

Of these, 196 (59.39%, 95% confidence interval = 59.39 ± 0.035) participants self-reported consumption of alcohol or hookah smoking. With 5% error, it can be concluded that around 60% of the population in this age group consumes alcohol or smokes hookah. From the pie chart (figure 1) it can be inferred that both alcohol and hookah are almost equally preferred in the given age group.



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TABLE 1: TESTING FOR ASSOCIATION OF THE GIVEN FACTORS WITH ALCOHOL CONSUMPTION OR HOOKAH SMOKING:

<u>FACTOR</u>	<u>CHI² VALUE</u>	<u>P value</u>	<u>RESULT</u>	<u>Yule's coefficient of association.</u>
GENDER	26.8056	<0.0001	Association	+0.546
OCCUPATION	6.3064	0.0427	Association	+0.3944
EDUCATIONAL STATUS	7.8715	0.0487	Association	-0.080*
LOCALITY	0.0818	0.7749	No association	0.4

(*)Individual that did not receive university level education v/s Individual that received university level education.

In table 1, Pvalue = <0.05 shows association between the mentioned factor and alcohol consumption and hookah smoking.

Chi-square test establishes association of individual'ssex, their occupation, their educational status with alcohol consumption and hookah smoking(Table 1).

Yule's test shows negative association of educational status with alcohol consumption and hookah smoking.

This shows that educated people understand the ill effects of alcohol and hookah hence consumption of alcohol and hookah is less among educated people.

1. Gender:

The 330 participants consisted of 164(49.69%) males and 166 (50.30%) females.

Of these 164 males, 121(73.78%) consume alcohol or smoke hookah. Further, 24(19.83%) of them consume alcohol only, 34(28.1%) only smoke hookah and 62(51.24%) consume alcohol and smoke hookah. Amongst 166 females, 75(45.18%) consume alcohol or smoke hookah. Moreover, 28(37.33%) of them consume only alcohol, 22(29.33%) only smoke hookah and 25(33.33%) use both alcohol and hookah. The above data suggests that males prefer smoking hookah over consumption of alcohol, and females prefer alcohol consumption over hookah smoking. Z test showed that more males consume alcohol or smoke hookah ($Z_{value}=5.3$, $P_{value}= <0.0001$, $H_0: P_1=P_2$, $H_1: P_1 >P_2$. P_1 = Proportion of males that consume alcohol or smoke hookah. P_2 = Proportion of females that consume alcohol or smoke hookah).

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According to the WHO report of 2014, in India the total alcohol per capita (15+) consumption, in the year 2010 (in litres of pure alcohol) is 32.1litres by males and 10.6 litres by females. The results from our study also concur that male gender is significantly associated with alcohol consumption and hookah smoking. There is significant association between hookah smoking and male gender.[9] Our study showed that more females prefer alcohol compared to smoking hookah, and more males prefer hookah over drinking alcohol.

2.Occupation:

The participants of the study belonged to various occupational backgrounds. The three occupation that the participants are divided into are students, working individual and housewives (home-maker).

Z test revealed that the proportion of people consuming alcohol or smoking hookah is more in working community than the student community ($Z_{\text{value}}= 2.8$ P-value= 0.0027 Ho: $P_1 = P_2$, $H_1 = P_1 > P_2$, where P_1 = Proportion of individuals in the working community that consume alcohol or smoke hookah, P_2 = Proportion of individuals in the student community that consume alcohol or smoke hookah). The survey revealed that more people in the working community consume alcohol or smoke hookah compared to the student community. The 2014 WHO report states that working individuals are ten times more likely to report alcohol abuse in India.

Also, students prefer both hookah and alcohol equally ($Z_{\text{cal}}=1.2$, $P_{\text{value}}= 0.1098$) and working individuals prefer alcohol consumption over hookah smoking ($Z_{\text{cal}}=2.4$, $P_{\text{value}}= 0.0072$)

An analysis of 61 studies from 14 countries representing 333 693 participants concludes that working hours that are longer than recommended standards increases the alcohol intake.[10]

3.Educational status:

The participants belonged to different classes in accordance to their educational status.

Z test reveals that more number of individuals with minimal education (below 12th grade) consume alcohol or smoke hookah compared to undergraduate students. ($Z_{\text{cal}}= 2.3$, $P_{\text{value}}=0.0101$, Ho: $P_1=P_2$, $H_1 : P_1 > P_2$, where P_1 = Proportion of people with below 12th grade qualification that consume alcohol or smoke hookah, P_2 = Proportion of undergraduates consuming alcohol or smoking hookah). Also, more undergraduates consume alcohol or smoke hookah compared to the individuals in the graduate community. ($Z_{\text{cal}}= 1.8$, P-value=0.0372, Ho: $P_1=P_2$, $H_1 : P_1 > P_2$, where, P_1 = Proportion of undergraduates that consume alcohol or smoke hookah P_2 = Proportion of graduates that consume alcohol or smoke hookah). Proportion of graduates that consume alcohol or smoke hookah is equivalent to the proportion of post-graduates doing the same. ($Z_{\text{cal}}= 1.4$, P-value=0.0803, Ho: $P_1=P_2$, $H_1 : P_1 > P_2$, where, P_1 = Proportion of graduates consuming alcohol or hookah or both P_2 = Proportion of post graduates consuming alcohol or hookah or both)

4. The type of consumption (alcohol or hookah) and the age at which the consumption begins:

Chi square test reveals that there is no association between type of product use (alcohol or hookah) and age at which consumption starts i.e. when people start consumption of alcohol and hookah they are not partial to either and consume both without a preference. ($\chi^2_{\text{stat}}=5.5544$, $P_{\text{value}}= 0.0622$, Ho: $P_1= 0.5$, $H_1 = P_1 > 0.5$ where P_1 = proportion of youth(15-20 years) consuming either alcohol or hookah). Our study shows that majority of people start consumption of alcohol and hookah when they are in the age group of 15-20 years. Other reports also state that majority of people have consumed alcohol before the age of 20.[11]

V. CONCLUSION

Through this study we discovered that the factors that are associated with alcohol consumption and hookah smoking amongst the youth of Mumbai are: 1. Gender of the individual, 2. Occupation and 3. Educational status. Furthermore, Males, Working individuals and below graduate level education are significantly associated with alcohol consumption and hookah smoking. Majority of the participants that consumed alcohol or smoked hookah had initiated it before the age of 20.

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Access to higher education for the youth, along with special information camps, for children from the age group of 15-20 years, is the need of the hour to increase awareness about ill-effects of substance use. It is proven that stress management skills and other initiatives help in reducing alcohol abuse among working individuals.[12]

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