

## A STUDY OF COMORBID MENTAL HEALTH DISORDERS AMONG ALCOHOL AND NICOTINE DEPENDENTS

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Received : 16/05/2023  
Received in revised form : 25/07/2023  
Accepted : 26/08/2023

**Keywords:**

Substance use, mood disorders, anxiety disorders, personality disorders & psychosis.

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DOI:10.47009/jamp.2023.5.5.4

Source of Support: Nil.

Conflict of Interest: None declared

*Int J Acad Med Pharm*  
2023; 5(5); 15-21



### Abstract

**Background:** Alcohol, a substance that causes many symptoms in the body is a chemical often paired with cigarettes and cigars. People who smoke are more likely to abuse alcohol; many times, it is by availability of alcohol. Individuals can easily yield to the temptation of alcohol whenever they go to these areas. Studies confirm this link between alcohol and tobacco, noting 80 to 90% of alcoholics use tobacco products. Theories as to why range include the increase of neurological chemicals released when the substances attach to brain receptors. Since alcohol and nicotine increase dopamine in the brain, the combination of both substances can make a puff feel more addictive. Psychosocial factors responsible for the beginning of substance use should also be taken into consideration along with biological factors. **Materials and Methods:** In the present study we explored the psychological comorbidities that are prevalent in alcohol and nicotine addicts and which one psychiatric comorbidity is more prominent among the rest. Also, the psychosocial precipitating factors were looked and analyzed. For the study data was collected from a sample of 50 male participants from rehabilitation centers in Dwarka, Delhi NCR, using different psychological scales and basic case history. After scores were taken, they were calculated using different statistical analysis tools, i.e., descriptive statistic and correlational statistic. **Result:** There is a significant correlation between alcohol use and nicotine use, presence of at least one psychological comorbidity in alcohol and nicotine dependents. Anxiety disorder came out to be the most prominent among the other comorbid disorders. **Conclusion:** We can conclude from this study that there is a significant relationship between alcohol and nicotine. In addition to biological aspects, psychosocial factors that contribute to addiction were taken into account. Along with both substance abuse and mental illness, there may be one or more comorbid disorders. Anxiety disorder stands out among the others.

## INTRODUCTION

Going to a psychologist is still frowned upon in India since there is still a lack of awareness of psychology in that country. As a result, a lot of people endure their suffering in secret and resort to unhealthy behaviours or different forms of self-defense. One such step is using drugs or alcohol, which first feels wonderful and euphoric before the "body" starts "needing" it rather than "wanting" it. Alcohol is a chemical that interacts with tobacco products like cigarettes and cigars and produces a number of symptoms in the body. Numerous "substance-s" such as heroin, cocaine, alcohol, cigarettes, and even caffeine fall under the category of drug usage. But majorly I wanted to study

alcoholism, with which I found out that there is always a comorbidity with the use of tobacco as "it gives an extra high" (stated by many patients). There is considerable evidence that the development of tobacco dependence (TD) and that of alcohol use disorder (AUD) are intertwined.<sup>[1,2]</sup> Although some people who become tobacco dependent do not develop alcohol use disorder, and vice versa, overall, drinkers are more likely to smoke and smokers are more likely to drink, and individuals who are dependent on one substance are often dependent on the other.<sup>[3]</sup>

This research paper will study the comorbid mental health disorders among alcohol and nicotine dependents.

### **Alcohol Dependence**

Alcohol dependence is a previous (DSM-IV and ICD-10) psychiatric diagnosis in which an individual is psychologically or physically dependent upon alcohol (also chemically known as ethanol).

In 2013, it was reclassified as alcohol use disorder in DSM-5, which combined alcohol dependence and alcohol abuse into this diagnosis.

Alcohol use disorder is among the leading causes of morbidity and mortality worldwide,<sup>[4]</sup> an estimated 95 million people live with alcohol dependence globally. Alcohol use disorder refers to impaired control over alcohol use, leading to physiological dependence and tolerance, and detrimental psychological, social, and physical consequences.<sup>[5]</sup>

### **Nicotine dependence:**

Nicotine dependence [Nicotine dependence is also variously known as cigarette dependence, tobacco dependence, or tobacco use disorder. is a state of dependence upon nicotine.<sup>[6]</sup> Nicotine dependence is a chronic, relapsing disease defined as a compulsive craving to use the drug, regardless of social consequences, loss of control over drug intake, and emergence of withdrawal symptoms.<sup>[7]</sup> Tolerance is another component of drug dependence. (U.S. Department of Health and Human Services, 1988) Nicotine dependence develops over time as a person continues to use nicotine. The most commonly used tobacco product is cigarettes, but all forms of tobacco use and e-cigarette use can cause dependence. Nicotine addiction is now referred to as tobacco use disorder in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).

### **Psychological comorbidity:**

#### **Anxiety disorder:**

The group of disorders classified as anxiety disorders (eg, generalised anxiety disorder, social anxiety, and panic disorder), and alcohol use disorder, are among the five most prevalent psychiatric diagnoses in the USA.<sup>[8]</sup> Comorbid alcohol use disorder and anxiety disorder is a common dual diagnosis; the estimated prevalence of alcohol use disorder among people with anxiety disorders in epidemiological surveys across countries ranges from 20% to 40%.<sup>[9]</sup>

#### **OOD disorders – depression and bipolar disorder:**

The DSM-5 outlines the following criterion to make a diagnosis of depression. The individual must be experiencing five or more symptoms during the same 2-week period and at least one of the symptoms should be either (1) depressed mood or (2) loss of interest or pleasure.

1. Depressed mood most of the day, nearly every day.
2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day.
3. Significant weight loss when not dieting or weight gain, or decrease or increase in appetite nearly every day.

4. A slowing down of thought and a reduction of physical movement (observable by others, not merely subjective feelings of restlessness or being slowed down)
  5. Fatigue or loss of energy nearly every day.
  6. Feelings of worthlessness or excessive or inappropriate guilt nearly every day.
  7. Diminished ability to think or concentrate, or indecisiveness, nearly every day.
  8. Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.
- To receive a diagnosis of depression, these symptoms must cause the individual clinically significant distress or impairment in social, occupational, or other important areas of functioning. The symptoms must also not be a result of substance abuse or another medical condition. Lifetime prevalence of alcohol use disorder in those with lifetime MDD ranges from approximately 27% to 40% across epidemiological studies in the USA with a median prevalence of 30% across 35 studies.<sup>[10,11]</sup> The prevalence of MDD in people with current alcohol use disorder (past 12 months) ranges from 4% to 22%.<sup>[12]</sup>

### **The Types of Bipolar Disorder according DSM-5 (APA;2013A):**

#### **There are different types of bipolar disorder:**

- Bipolar I Disorder: consists of manic episodes that last for a minimum of seven days and occur for most of the day, or when the symptoms require hospital care due to their severity. People with Bipolar I will experience depressive episodes lasting two weeks or longer; then they will have periods of normal mood.
- Bipolar II Disorder: characterized by depressive and hypomanic episodes. The symptoms of mania are not as severe or long-lasting as with Bipolar I.
- Cyclothymic Disorder: hypomanic and depressive symptoms that are persistent but not intense enough or do not last long enough to qualify as hypomanic or depressive episodes. These symptoms can last for at least two years in adults, and for one year in kids and adolescents.
- Other Specified and Unspecified Bipolar and Related Disorders: this category includes bipolar disorder symptoms that do not match any of the types previously mentioned.

Overall, evidence suggests that patients with bipolar disorder with current or past history of comorbid alcohol use disorder show more severe or more widespread neurocognitive deficits than patients without bipolar disorder, although information on the long-term health effects of this comorbidity is still scarce.<sup>[13]</sup>

#### **Schizophrenia and psychotic disorder:**

Alcohol use disorder is the second most frequent form of comorbidity in patients diagnosed with schizophrenia, after nicotine dependence.<sup>[14]</sup> Diagnostic Criteria for Schizophrenia DSM-5 295.90 (F20.9) The following criteria, as outlined by

the DSM-5, must be met in order for schizophrenia to be accurately diagnosed:

- The individual experiences two or more of the following for a significant portion of time during a 1-month period. And at least one of these must be (1), (2), or (3)
  1. Delusions
  2. Hallucinations
  3. Disorganized speech (incoherence or derailment)
  4. Completely disorganized or catatonic behavior
  5. Negative symptoms, such as diminished emotional expression
- For a significant amount of time since the disturbance began, level of functioning in one or more major areas (e.g., work, interpersonal relations, or self-care) is clearly below the level achieved prior to onset. 0. In children or adolescents, there is a failure to achieve the expected level of interpersonal, academic, or occupational functioning.
- Signs of the disturbance continue for 6 months or longer. This period must include at least 1 full month of symptoms that meet the first criteria and may include periods of residual symptoms. During these residual periods, the signs of the disturbance may be manifested only by negative symptoms or by two or more symptoms outlined in the first criteria, only in a lesser form.
- The disturbance cannot be better explained by schizoaffective disorder, depressive or bipolar disorder because either:
  1. No major depressive or manic episodes have occurred concurrently with the active-phase symptoms or...
  2. If mood episodes have occurred during active phase symptoms, it's been for a minor amount of time.
- The disturbance cannot be attributed to the physiological effects of a substance (e.g., a drug of abuse or medication) or another medical condition.
- If the individual has a history of autism spectrum disorder or communication disorder of childhood onset, the additional diagnosis of schizophrenia is only made if delusions or hallucinations as well as the other required symptoms of schizophrenia are present for a month or more.

#### **Personality disorders:**

The DSM-5 organizes personality disorders into three groups, or clusters, based on shared key features.<sup>[15]</sup> Studies exploring the longitudinal association between personality disorders and alcohol use disorder are lacking, although personality traits of antisocial personality disorder and borderline personality disorder generally precede alcohol use disorder.<sup>[16]</sup>

#### **Aim and Objective**

To explore the comorbid mental health disorders in alcohol and nicotine dependents.

#### **Objective**

1. To find out mental health disorder comorbidities in alcohol and nicotine dependents.
2. To find out one mental health disorder comorbidity that is prominent in alcohol and nicotine addicts/dependents

## **MATERIALS AND METHODS**

#### **Research Design**

The following research is an Exploratory Research (within and between group designs). Exploratory research design involves many qualitative data collections e.g.: in-depth interviews, projective techniques etc. It focuses on collecting either secondary and primary data using unstructured format or informal procedures to interpret the data collected. This type of research is used to investigate a problem, but it does not provide any conclusive result. It is conducted to have better understanding of existing problem. Research would be started by general idea and issues will be further identified. Primary exploratory methods are used while doing the study. The problem was identified first and the suitable hypothesis were formed for the study.

#### **Sample**

The sample size comprises of 50 male participants. The age range of the participants is from 18 to 35 (younger adults). Purposive sampling was used.

#### **Inclusion Criteria**

Young male adults i.e. 18 to 35 years who were diagnosed with alcohol and tobacco use has been included in the study from rehabilitation centers.

#### **Exclusion Criteria**

Other substance use, their socio-economic status, family income, demographic

**Variables:** Alcohol use, tobacco use, anxiety, depression, psychosis.

**Procedure:** The participant was informed about the study and their consent was taken. The data was collected via offline mode in rehabilitation centers. After the data was collected, the scoring was done using the manual of respective scales. After scoring those scores were analyzed through using different statistical analysis tools.

**Statistical analysis:** Descriptive statistic has been used to study the types of comorbidities in alcohol and nicotine dependents. Correlation has been used to study the relationship among all the diagnosed comorbid disorders and to find out which one was more prominent.

## **RESULTS**

**Age Wise Distribution of Participants:** The mean age of the participants is  $30.66 \pm 5.62$ . Out of Total Participants (N=50), 3 (6.00%) were from the age 20 and below years, followed by 20 (40.00%) were from the age group of 21-30 years and 27 (54.00%) were from the age group of 31-40 years.

Type of Tobacco Use wise Distribution: Out of Total Participants (N-50) in the present study, 28 (56.00%) were consuming smoking form of tobacco whereas 22 (44.00%) were consuming smokeless form of tobacco. [Table 2]

Frequency of Alcohol Use and severity Use wise Distribution: Out of Total Participants (N-50) in the present study, 7 (14.00%) were form the mild consumers of Alcohol, followed by 33 (66.00%) were from the moderate level of severity of alcohol consumers and 10 (20.00%) were from the severe level of severity of alcohol consumers participated. [Table 3]

Level of Anxiety wise Distribution of Participants: Out of Total Participants (N-50) in the present study, 6 (12.00%) were suffering mild level of anxiety, followed by 11 (22.00%) were suffering moderate level of anxiety, 12 (24.00%) were suffering severe level of anxiety and 21 (42.00%) were suffering Very severe level of anxiety during the time of the present study. [Table 4]

Level of Depression wise Distribution of Participants: Out of Total Participants (N- 50) in the present study, 8 (16.00%) were suffering mild level of depression, followed by 20 (40.00%) were suffering moderate level of Depression, and 22 (44.00%) were suffering severe level of depression during the time of the present study. [Table 5]

Type of Psychiatric Disorders wise Distribution of Participants: Out of Total Participants (N-50) in the present study, 7 (14.00%) were suffering Anxiety disorder, followed by 21 (42.00%) were suffering Anxiety with Depression disorder, 2 (4.00%) were

suffering Anxiety with Somatoform disorder, 1 (2.00%) was suffering Anxiety with Depression with Somatoform of disorders, 1 (2.00%) were suffering Anxiety with Psychosis of disorders, 4 (8.00%) were suffering depression disorder, 1 (2.00%) were suffering depression with Psychosis disorder and 13 (26.00%) were suffering psychosis disorders during the time of the present study. [Table 6]

Inter correlation between Alcohol consumption, Tobacco Use, Anxiety, Depression and Psychosis: The Inter correlation between Alcohol consumption and Tobacco use indicates a positive correlation ( $r=0.242$ ). The Inter correlation between Alcohol and Anxiety indicates a positive correlation ( $r=0.238$ ). The Inter correlation between Alcohol and Depression indicates a positive correlation ( $r=0.151$ ). The Inter correlation between Alcohol and Psychosis indicates a positive significant correlation ( $r=0.283^*$ ). The Inter correlation between Tobacco use and Anxiety indicates a positive significant correlation ( $r=0.281^*$ ). The Inter correlation between Tobacco use and Depression indicates a positive correlation ( $r=0.095$ ). The Inter correlation between Tobacco use and Psychosis indicates a positive correlation ( $r=0.166$ ). The Inter correlation between Anxiety and Depression indicates a positive significant correlation ( $r=0.464^{**}$ ). The Inter correlation between Anxiety and Psychosis indicates a positive significant correlation ( $r=0.461^{**}$ ). The Inter correlation between Depression and Psychosis indicates a positive significant correlation ( $r=0.384^{**}$ ). [Table 7]

**Table 1: Age Wise Distribution of Particip.**

S. No.	Age group in years	Frequency	Percentage(%)
1	Below 20	3	6.0
2	21-30	20	40.0
3	31-40	27	54.0
	Total	50	100.0

**Table 2: Type of Tobacco Use Wise Distribution of Participants.**

T. No.	Type of Tobacco use	Frequency	Percentage(%)
1	Smoking	28	56.0
2	Smokeless	22	44.0
	Total	50	100.0

**Table 3: Frequency of Alcohol Use and severity Wise Distribution of Participants.**

U. No.	Range	Severity	Frequency	Percentage(%)
1	0-20	Mild	07	14.0
2	21-30	Moderate	33	66.0
3.	31-40	Severe	10	20.0
	Total		50	100.0

**Table 4: Level of Anxiety wise Distribution of Participants.**

V. No.	Range	Severity	Frequency	Percentage(%)
1	Below 17	Mild	06	12.0
2	18-24	Moderate	11	22.0
3.	25-30	Severe	12	24.0
	More than 30	Very Severe	21	42.0
	Total		50	100.0

**Table 5: Level of Depression wise Distribution of Participants.**

V. No.	Range	Severity	Frequency	Percentage(%)
1	Below 17	Mild	08	16.0
2	18-24	Moderate	20	40.0
3.	25-30	Severe	22	44.0
Total			50	100.0

**Table 6: Type of Psychiatric Disorders wise Distribution of Participants.**

X. No.	Type of Psychiatric Disorders	Frequency	Percentage(%)
1	Anxiety	07	14.0
2	Anxiety +Depression	27	42.0
3	Anxiety + Somatoform	2	04.0
4	Anxiety + Depression + Somatoform	1	02.0
5	Anxiety +Psychosis	1	02.0
6	Depression	4	08.0
7	Depression + Somatoform	1	02.0
8	Psychosis	13	26.0
	Total	50	100.0

**Table7: Intercorrelation between Alcohol consumption, Tobacco Use, Anxiety, Depression and Psychosis**

Variables	Alcohol	Tobacco	Anxiety	Depression	Psychosis
Alcohol	1	0.242	0.238	0.151	0.283*
Tobacco		1	0.281	0.095	0.166
Anxiety			1	0.464**	0.461**
Depression				1	0.384*
Psychosis					1

## DISCUSSION

The World Health Organisation (WHO) European Region is projected to miss its targets for tobacco-use reduction by 2025. Considering people with mental health conditions consume 44% of all cigarettes in western countries, addressing the needs of this group of people reveals unrealized potential in tobacco control and would contribute significantly to the movement towards a tobacco-free world. Tobacco use is a major risk factor for many chronic diseases, including cancer, lung disease, cardiovascular disease and stroke. It is one of the major causes of death and disease in India and accounts for nearly 1.35 million deaths every year. India is also the second largest consumer and producer of tobacco. A variety of tobacco products are available at very low prices in the country. Nearly 267 million adults (15 years and above) in India (29% of all adults) are users of tobacco, according to the Global Adult Tobacco Survey India, 2016-17. The most prevalent form of tobacco use in India is smokeless tobacco and commonly used products are khaini, gutkha, betel quid with tobacco and zarda. Smoking forms of tobacco used are bidi, cigarette and hookah. In India, the prevalence estimates from the survey were not published, the authors calculated a prevalence rate of tobacco consumption of any form of tobacco consumption at 51.3% for men and 10.3% for women 15 years and older, which was lower than that estimated by WHO and other small studies based on special population groups in small geographical areas.

According to WHO (2011), tobacco use kills nearly six million people worldwide each year. According to the World Health Organization (WHO) estimates,

globally, there were 100 million premature deaths due to tobacco in the 20th century, and if the current trends of tobacco use continue, this number is expected to rise to 1 billion in the 21st century have estimated that around 1 million deaths a year in India will be attributable to smoking by the early 2010s,<sup>[18]</sup> have estimated the tobacco-attributable mortality among Indian men and women from their Mumbai cohort study. Based on these estimates, nearly 23.7% of the deaths among men (527,500) and 5.7% of the deaths among women (83,000) aged 35–69 years are due to tobacco-attributable illnesses. Another cohort study (Ramadas, Sauvaget, Thomas, Fayette, Thara, & Sankaranarayanan, 2010) from southern India reported mortality risks of 0.98 (0.86–0.94) and 1.22 (1.04–1.44) for all-cause and tobacco-related cancer mortality, respectively, for tobacco chewing, while with smoking, the respective mortality risks were 1.31 (1.24–1.39) and 1.68 (1.36–2.08). The lifespan of people with severe mental conditions is a remarkable 15–20 years shorter than people in the general population. A large proportion of this excess mortality is due to the co-occurrence of other NCDs, all of which can be exacerbated by smoking. Smoking is believed to be one of the main causes of excess mortality among people with severe mental health conditions, who are more likely to smoke than the general population; two thirds are current smokers and smoke more on average (20–30% smoke more than one pack per day, which is approximately double that of the general population).

The brain relies on a delicate balance of chemicals and processes. Alcohol is a depressant, which means it can disrupt that balance, affecting our thoughts, feelings and actions – and sometimes our long-term mental health. This is partly down to



neurotransmitters, which are chemicals that help to transmit signals from one nerve (or neuron) in the brain to another. For example, the relaxed feeling we can experience if we have a drink is due to the chemical changes alcohol has caused in the brain. A drink can make some people feel more confident and less anxious, as the alcohol begins to suppress the part of the brain associated with inhibition. As we drink more, the impact on our brain function increases. And regardless of the mood we're in, with increasing alcohol consumption, it's possible that negative emotions will take over, leading to a negative impact on mental health. Alcohol can be linked to aggression and some people report becoming angry, aggressive, anxious or depressed when they drink. For someone experiencing anxiety, a drink might help them feel more at ease, but this feeling is short-lived. The so-called 'relaxed' feeling somebody may say they experience after having a drink is due to the chemical changes alcohol causes in the brain. But these effects wear off fast. Relying on alcohol to mask anxiety could also lead to a greater reliance on it to relax. A likely side-effect of this is the increased risk of building up a tolerance to alcohol. Over time you will need to drink more alcohol to get the same feeling. And, in the medium to longer term, this pattern often leads to alcohol dependence. Drinking heavily and regularly is associated with symptoms of depression, although it can be difficult to separate cause and effect. This means it's not always clear whether drinking alcohol causes a person to experience symptoms of depression. It is observed that alcohol affects several nerve-chemical systems within our bodies which are important in regulating our mood. Studies show that depression can follow on from heavy drinking. And that reducing or stopping drinking can improve mood. As numbers of studies confirmed the link of substance use, alcohol consumption with different mental health such as anxiety, depression, and psychosis.<sup>[19]</sup> Alcohol can cause people to lose their inhibitions and behave impulsively, so it can lead to actions they might not otherwise have taken – including self-harm and even suicide. There is a strong association between drinking heavily (either chronic or acute alcohol misuse) and suicidal thoughts, suicide attempts, and death from suicide. Extreme levels of drinking (such as drinking more than 30 units per day for several weeks) can occasionally cause psychosis, which is a severe mental illness where hallucinations and delusions – of persecution, for example – occur. Psychoses can be caused by both acute intoxication and withdrawal, and can be more common in cases when drinkers who are dependent on alcohol suddenly stop drinking.<sup>[20]</sup> In this context, as very few studies, conducted to see the comorbidity of alcohol and Tobacco with mental health issues such as anxiety, depression and psychosis, the researcher was aimed to explore the comorbid mental health disorders in alcohol and nicotine dependents. Reviewing different literature and objective of the present

study, the researcher formulated two hypotheses- (1) Individuals with Substance use disorder (alcohol and nicotine) will have one or more mental health disorder comorbidities; and (2) Anxiety will be more prominent in the individuals suffering from substance use disorder (alcohol and nicotine).

The present study was conducted on a total of (N=50) Alcohol users having the addiction of tobacco. Out of the total participants, n1=28 were smokers and n2=22 were smokeless tobacco user from Delhi NCR. A correlational research design was follow for the present study and each and every participant's data will be collected individually. For the collection of information related to the main objectives of the present study, hamilton Anxiety Scale, Hamilton Depression Scale, Brief Psychiatry scale, fagerstorm Scale for substance use and Alcohol consumption scale. The entire data were collected using the ethical guidelines, for human Research.

The co-relational results of the present study affirmed that The Intercorrelation between Alcohol consumption and Tobacco use indicates a positive correlation ( $r= 0.242$ ). The Intercorrelation between Alcohol and Anxiety indicates a positive correlation ( $r= 0.238$ ). The Intercorrelation between Alcohol and Depression indicates a positive correlation ( $r= 0.151$ ). The Intercorrelation between Alcohol and Psychosis indicates a positive significant correlation ( $r= 0.283^*$ ). The Intercorrelation between Tobacco use and Anxiety indicates a positive significant correlation ( $r= 0.281^*$ ). The Intercorrelation between Tobacco use and Depression indicates a positive correlation ( $r= 0.095$ ). The Intercorrelation between Tobacco use and Psychosis indicates a positive correlation ( $r= 0.166$ ). The Intercorrelation between Anxiety and Depression indicates a positive significant correlation ( $r= 0.464^{**}$ ). The Intercorrelation between Anxiety and Psychosis indicates a positive significant correlation ( $r= 0.461^{**}$ ). The Intercorrelation between Depression and Psychosis indicates a positive significant correlation ( $r= 0.384^{**}$ ). The study confirmed a positive correlation between alcohol consumption, tobacco use with Anxiety, Depression and Psychosis. In this context, the hypothesis 1 and 2 are accepted. The study of also affirmed a strong positive relationship of alcohol and tobacco use with mental health issues like anxiety,<sup>[21]</sup> depression and psychosis. Further, the comparison results revealed that, the mental health issues are more with smokeless tobacco user than to the smokers although its not significant.

## CONCLUSION

Through this study, we can say that alcohol and nicotine are strongly correlated. Apart from biological factors, psychosocial factors responsible for addiction were also taken into consideration. There are one or more comorbid disorders along

with both substance use, and there is one disorder that is more prominent among the rest i.e., anxiety disorder.

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