



Comparative Study of Attention and Anxiety Levels in Smokers and Alcoholics

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ABSTRACT

The study explored the connection between attention and anxiety levels, two important psychological factors and drug use problems. It specifically contrasts the anxiety and attentional functioning of people with alcohol and smoking use problems. The study recruited people from both clinical and non-clinical settings using a comparative approach. Standardized cognitive activities were used to test attention, while validated self-report questionnaires were used to quantify anxiety. The purpose of this study's findings was to further our knowledge of the ways in which various drugs affect anxiety and attentional processes. These understandings might lead to the development of treatment plans that are specifically designed to meet the requirements of those who suffer from alcohol and/or smoking problems.

Keywords: *Attention Level, Anxiety Level, Alcoholics, Smokers*

INTRODUCTION

Comparing the attention and anxiety levels of smokers and alcoholics sheds light on the cognitive and psychological impacts of substance use on people's anxiety and attention processes. Two of the most common drug use behaviors in the world have a big impact on public health and wellbeing: smoking and drinking alcohol. Treatment, intervention, and preventive strategies for drug use disorders and related mental health conditions can benefit from an understanding of the attentional functioning and anxiety variations between smokers and alcoholics.

The cognitive function of attention enables people to selectively focus on stimuli and ignore unimportant information. Studies reveal that drug abuse, such as alcohol and tobacco use, can affect how the attention system works, which can result in problems with focus, attention span, and cognitive function. There may be attentional processing abnormalities between smokers and alcoholics, including a decreased capacity for sustained attention, an increased propensity to become distracted, and compromised executive functioning.

Anxiety is a typical psychological reaction that is typified by trepidation, anxiety, and fear. Anxiety levels have been related to substance use, with people turning to alcohol and tobacco as coping strategies to lessen stress and anxiety. Substance abuse, however, can also aggravate anxiety symptoms and play a role in the emergence of anxiety disorders, including social anxiety disorder and generalized anxiety disorder. Anxiety levels can change between smokers and alcoholics, as can the type, intensity, and presentation of anxiety symptoms.

Addiction processes are tightly associated with attention and anxiety, which impact cravings, relapse, and substance use behaviors. Addicts frequently exhibit attentional biases, which are the propensity to preferentially attend to cues connected to substances. These biases may increase cravings and make it harder to avoid substance usage. Stress and worry also contribute significantly to the propensity to addiction, since people frequently turn to drugs as

a coping mechanism for unpleasant emotional states. Among the most common drug use problems worldwide, drinking and smoking have a major impact on public health. Smoking is a major preventable cause of death in the globe and a known risk factor for several illnesses, including respiratory disorders, cardiovascular disease, and lung cancer. Similarly, alcoholism has been linked to a host of physical health difficulties, such as cancer, neurological impairments, and liver disease, in addition to social and economic ramifications like decreased production, legal troubles, and impaired social functioning. Considering how much drinking and smoking affect both the health of the person and society, it is essential to comprehend the psychological mechanisms behind these disorders to create effective preventative and treatment programs. Studies that compare the attention and anxiety levels of smokers and drinkers can shed light on possible distinctions and parallels in the cognitive and affective processes of these two populations. Attentional biases and anxiety levels in smokers and drinkers can be compared to help researchers find both shared and distinct underlying processes for each substance use disorder.

Effective preventive, intervention, and treatment methods depend on an understanding of the cognitive and emotional profiles of people with alcohol and smoking use disorders. Researchers can learn more about the distinct cognitive and emotional consequences of alcoholism and smoking by comparing the attention and anxiety levels of these two substance abusers. This comparative analysis can also help develop tailored interventions to meet the needs of everyone. To examine possible variations and parallels in cognitive functioning and emotional distress between smokers and alcoholics, this study will compare the attentional and anxiety profiles of these two populations. Using standardized attention and anxiety measures, this study compares the performance of alcohol and smokers to non-alcohol and non-smoking control groups to shed light on the psychological and cognitive aspects of substance use disorders and provide guidance for evidence-based interventions aimed at helping people

overcome addiction and enhance their general well-being. The body of research demonstrating the interaction between drug addiction, cognitive function, and emotional regulation provides support for the focus on attention and anxiety in smokers and alcoholics. Smoking and drunkenness have both been linked to attentional control deficiencies, which include problems with sustained attention, reaction inhibition, and cognitive flexibility, according to prior studies. These attentional deficiencies lead to problems focusing, deciding, and controlling behavior, which can negatively impact people's productivity and day-to-day functioning.

The comparative study looked at smokers' and alcoholics' attentional biases towards substance-related signals and anxiety symptoms to answer the following research questions:

- a) Do smokers and alcoholics have different attentional biases towards stimuli linked to smoking and alcohol consumption?
- b) Are there differences in the anxiety levels and the degree of drug usage between smokers and alcoholics?
- c) In smokers and alcoholics, is there a link between attentional biases, anxiety, and the intensity of drug use mediated by any clinical or demographic factors?

Attention and Anxiety

Substance misuse can have an impact on attention and anxiety, two psychological concepts that are strongly related. The cognitive process of focusing on some inputs or activities while disregarding others is referred to as attention. On the other hand, concern, uneasiness, or apprehension are the psychological states that define anxiety. Both anxiety and attention are crucial for mental health and have a big influence on a person's ability to think clearly, feel emotionally stable, and live a good life.

Effects of Smoking on Anxiety and Attention

Studies have repeatedly shown that smoking can negatively impact one's ability to pay attention and think clearly. The main psychoactive component of tobacco, nicotine, stimulates the central nervous system and temporarily improves attentional functions. On the other hand, persistent smoking is linked to deficits in cognitive flexibility, working memory, and sustained attention. Additionally, when smokers try to stop, the symptoms of nicotine withdrawal, such as irritation, anxiety, and difficulty concentrating, can make cognitive deficiencies worse.

Alcohol Abuse's Effect on Attention and Anxiety

Abuse of alcohol is linked to problems with attention and cognitive function, especially in heavy drinkers who have a long drinking history. Acute alcohol intoxication can decrease executive functioning, information processing speed, and reaction time by interfering with attentional processes. Long-term alcohol misuse can alter the structure and function of the brain, shrinking the areas responsible for memory and attention. Furthermore, high levels of stress and anxiety are frequently experienced by people with alcohol use disorder (AUD), which can worsen cognitive deficiencies and impair attentional function.

Comparative Studies of Attention and Anxiety in Alcoholics and Smokers

Although a large amount of study has been done on how drinking and smoking affect attention and anxiety on their own, not many studies have specifically evaluated the impact of these conditions on smokers and alcoholics. Comparative research can illuminate the underlying processes causing attentional and anxiety-related deficits as well as the distinct cognitive and psychological characteristics of people with various drug use disorders.

Justification for the Study

Comparative study is necessary to better understand the parallels and differences in cognitive and psychological functioning between these two groups, especially given the high incidence of smoking and drunkenness and their considerable effects on attention and anxiety. Researchers can find similarities and differences in cognitive performance, emotional regulation, and neural functioning between smokers and alcoholics by comparing their attention and anxiety levels. These findings may help develop more focused interventions and treatment plans for people with substance use disorders.

REVIEW OF LITERATURE

The debate may be resolved by “meta-analysis of 26 longitudinal studies,” by Taylor et al. (2023) which predominantly showed positive rather than negative effects of abstinence. When compared to continuous smoking, abstinence was linked to higher declines in stress, anxiety, and depression as well as increases in positive affect and quality of life. The primary finding remained unchanged after controlling for variables such as duration of follow-up (months versus acute treatment time), research sample type (clinical or community-based), “presence or absence of prior mental illness, psychological intervention, and techniques for determining abstinence status.”

The authors Polo et al. (2021) hypothesized that, within a sample of regular tobacco smokers, acute nicotine administration might act to normalize deficits of visual–spatial skill and attention associated with alcoholism and illicit stimulant abuse. A secondary hypothesis predicted that, based on previous research, illicit stimulant abusers might exhibit decreased cognitive efficiency relative to other groups.

Consistent with previous studies Hanson et al. (2020) documented cessation effects in adolescent smokers' cessation of tobacco use for 24 hours was associated with robust increases in symptoms of nicotine withdrawal in adolescent daily tobacco smokers. In addition, symptoms of depressed mood increased, and, in females, anxiety increased. Increased symptoms of depression during tobacco cessation have frequently been observed in adult smokers.

Withdrawal from chronic intake of alcohol or nicotine decreases the release of dopamine in the nucleus accumbens. It has been suggested that such decreased mesolimbic activity causes a lack of ability to experience pleasure (i.e., anhedonia) and that this effect is involved in drug dependence. However, a simple decrease in mesolimbic activity would be expected to lower the ability of drugs to produce rewarding effects. In contrast, recent evidence indicates that changes in the mesolimbic system continue beyond the acute phase of withdrawal, at least in the case of alcohol. It is possible that a decrease in baseline activity of this system could occur in conjunction with increased activation in response to drugs; such an alteration could be involved in relapse to drug taking (Diana et al., 2010).

Conversely, nicotine withdrawal may be associated with measurable cognitive impairment following abstinence periods as short as 4 h. This issue is particularly important given the high rates of smoking among alcoholics and illicit stimulant abusers. Hence, effects of nicotine withdrawal may confound experimental results obtained via protocols in which participants are denied adequate access to nicotine throughout the testing session. Furthermore, substance abuse studies in which control groups are recruited without regard to smoking status could introduce significant bias, particularly given that alcoholics are three times more likely than the general population to be heavy smokers (Pickworth et al., 2010).

Another group of brain chemicals thought to be intimately involved in mechanisms of reward and possibly of reinforcement are the endogenous opiates (e.g., enkephalins). Alcohol

consumption in both laboratory rodents and alcoholics is decreased by administration of an opiate antagonist, such as the medication naltrexone, which has some efficacy in the treatment of alcoholics (Volpicelli et al., 2009).

Tolerance to the pleasant effects of a drug, which develops at least with alcohol, also may result in the drug being taken in larger doses to achieve the same effect. Furthermore, cross-tolerance between the behavioral effects of alcohol and nicotine has been seen in experimental studies—that is, animals that develop tolerance to the effects of one drug may also become tolerant to the effects of the other drug—but the situation is complex and depends on the measurement and the strain of rodent (Collins et al, 2006).

METHODOLOGY

Aim

The aim of this research is to conduct a comparative study of Attention and Anxiety Levels in Smokers and Alcoholics.

Research Objectives

The following are the objectives of the study:

- a)** To compare attentional processes and anxiety levels between smokers and alcoholics.
- b)** To identify potential differences and interactions in attention and anxiety between the two groups.
- c)** To explore the relationship between smoking behavior, alcohol consumption, attentional processes, and anxiety levels.

Hypothesis

- **H1:** There will be significant differences in attentional performance between smokers, alcoholics, and non-smoking, non-drinking controls, with smokers and alcoholics exhibiting lower attentional accuracy and slower reaction times compared to controls.
- **H2:** Anxiety levels will be significantly higher in smokers and alcoholics compared to non-smoking, non-drinking controls, as measured by self-report questionnaires such as the State-Trait Anxiety Inventory (STAI) and the Beck Anxiety Inventory (BAI).
- **H3:** Dual users (individuals who smoke and drink alcohol concurrently) will exhibit the poorest attentional performance and highest levels of anxiety compared to smokers, alcoholics, and controls, suggesting a synergistic effect of smoking and alcohol consumption on cognitive functioning and emotional well-being.
- **H4:** There will be significant correlations between attentional performance and anxiety levels within each group, with poorer attentional performance associated with higher levels of anxiety. This relationship may be particularly pronounced in dual users, reflecting the potential impact of co-occurring smoking and alcoholism on attention and anxiety.
- **H5:** Smoking behavior and alcohol consumption patterns, such as frequency, quantity, and duration of use, will be associated with variations in attentional performance and anxiety levels across groups. For example, heavier smokers and drinkers may exhibit more pronounced deficits in attention and higher levels of anxiety compared to lighter users.

Sample

In this study, the data was collected from 100 adults of age group 18-60 years old adults, who are addicted to smoking and alcohol by distributing the questionnaire.

Sampling

The sample is selected to represent the population on which research will happen. Since it is not feasible to study the entire population, a sample will be selected from some percentage of the population. The sample selection process depends on the objective and nature of the study. In this research Purposeful sampling which is a part of non-probability sampling will be used.

Non-Probability Sampling: Non-probability sampling technique is defined as a sampling technique in which the sample is selected not on random basis but on the subjective judgement of the researcher. In this technique all members don't get an equal chance for selection.

Purposeful Sampling: It is a non-probability sampling technique where researchers intentionally select individuals or cases based on specific criteria relevant to the research question.

For the current study, questionnaire was distributed containing the two tests mentioned below. The form was distributed amongst the population, and they were asked to fill their responses as per their experiences. Data will be collected from 100 adults of age group 18-60 years young adults, who are dating or married.

Inclusion criteria included participants who are young adults aged between 18 to 60 years can participate, they must be either smoker or alcoholic, they should have completed the questionnaire provided for data collection and should also be fluent in the language of the questionnaire.

Variables of the Study

The Beck Anxiety Inventory (BAI) is a widely used self-report questionnaire designed to measure the severity of anxiety symptoms experienced by individuals over the past week. Developed by Aaron T. Beck and his colleagues, the BAI is considered a reliable and valid tool for assessing anxiety levels in both clinical and research settings. The BAI consists of 21 items

that assess various symptoms of anxiety, including physiological symptoms, cognitive symptoms, and behavioral symptoms. Each item describes a specific symptom of anxiety, such as "unable to relax" or "fear of losing control," and respondents are asked to rate the severity of each symptom on a four-point Likert scale ranging from 0 (not at all) to 3 (severely - it bothered me a lot).

Attentional Control Scale (ACS) rather than "ATTC." The Attentional Control Scale (ACS) is a self-report questionnaire designed to measure individual differences in attentional control, which refers to the ability to focus attention, resist distractions, and regulate attentional resources effectively. Each item on the ACS describes a situation or scenario related to attentional control, and respondents are asked to rate how well each statement describes them using a Likert scale ranging from 1 (almost never) to 4 (always). The ACS yields two subscale scores: attentional focusing and attentional shifting, as well as a total score reflecting overall attentional control. The Attentional Control Scale provides valuable insights into how individuals regulate their attentional processes and cope with cognitive demands in everyday life. By assessing attentional control, researchers and clinicians can better understand cognitive functioning and develop targeted interventions to improve attentional skills and address attention-related difficulties.

Research Design

A framework of research procedures or strategies that is suggested and integrates all the study's components in a logical and cohesive way to handle the research issue is known as the research design. To comprehend the research gaps in the previous and current literature, an exhaustive literature assessment was conducted. For this research, Purposeful Sampling was used to gather the said data of (N-100 individuals) adults of age group 18-60 years old adults,

who are addicted to Smoking or Alcohol. To measure the variables under study, quantitative tools of measurement were employed of Descriptive Statistics and statistical processes of SPSS were applied for scoring and interpretation. A T-test research design was used for the study, which looks at relationships between variables without changing or modifying any of them. To compare any two group T test is used.

Statistical Design

After collecting data, we will use Microsoft Excel to tally responses. The tallies of all responses were then exported into the Statistical Package for the Social Sciences (SPSS) 26.0 for Windows. Analyzing the Attention level and Anxiety level of Smokers and Alcoholics were examined primarily with the help of SPSS. In this research for data analysis in SPSS, T test was used to check the relations between the variable, to compare the anxiety level and attention levels of smokers and alcoholics. T test analysis is done to assess the difference between the two variables.

RESULT

Table 1

Descriptive statistics of study variables

		Mean	Standard Deviation
1.	Attention	50.55	5.82
2.	Anxiety	28.01	13.22

Table 1 represents the descriptive statistics (mean and standard deviation) of all the study variables – Attention and anxiety.

T test

Table 2

T test between smokers and liquor drinkers across study variables

	Mean	SD	T	Sig. (2 tailed)	Result
Attention					
Smokers Liquor	50.87	6.94	.54		NS
Drinkers	50.24	4.51		.59	
Anxiety					
Smokers	24.66	13.00	2.60	.01	S
Liquor Drinkers	31.36	12.70			

NS-Not significant, S-Significant

Table 2 represents the t statistics between smokers and liquor drinkers on Attention and anxiety. There is no significant difference in the Attention between the two sample groups. There is a significant difference in the anxiety between the two sample groups with smokers having a higher score than drinkers.

T-Test:**Group Statistics**

	Substance use	N	Mean	Std. Deviation	Std. Error Mean
Attention	S	49	50.8776	6.94512	.99216
	A	50	50.2400	4.51555	.63860
Anxiety	S	50	24.6600	13.00645	1.83939
	A	50	31.3600	12.70025	1.79609

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
Attention	Equal variances assumed	4.664	.033	.543	97	.589	.63755	1.17503		-1.69456	2.96967
	Equal variances not assumed			.540	82.190	.590	.63755	1.17991		-1.70958	2.98468
Anxiety	Equal variances assumed	.035	.851	-2.606	98	.011	-6.70000	2.57085		-11.80177	-1.59823
	Equal variances not assumed			-2.606	97.944	.011	-6.70000	2.57085		-11.80181	-1.59819

Descriptive:**Descriptive Statistics**

	N	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
		Statistic	Std. Error			Statistic	Std. Error	Statistic	Std. Error
Attention	99	50.5556	.58537	5.82434	33.923	.195	.243	2.665	.481
Anxiety	100	28.0100	1.32249	13.22493	174.899	-.613	.241	-.733	.478
Age	100	29.1700	.86422	8.64222	74.688	1.529	.241	1.509	.478
Valid N (listwise)	99								

Discussion

The aim of this research is to conduct a comparative study of Attention and Anxiety Levels in Smokers and Alcoholics. A sample size of 100 adults from 18 to 60 years old. To compare attentional processes and anxiety levels between smokers and alcoholics. To identify potential differences and interactions in attention and anxiety between the two groups. To explore the relationship between smoking behavior, alcohol consumption, attentional processes, and anxiety levels. By including participants from diverse backgrounds and perspectives, this research seeks to provide a comprehensive understanding of the topic. To study the aim 5 hypothesis were formulated. First Hypothesis states that There will be significant differences in attentional performance between smokers, alcoholics, and non-smoking, non-drinking controls, with smokers and alcoholics exhibiting lower attentional accuracy and slower reaction times compared to controls. Second Hypothesis states that Anxiety levels will be significantly higher in smokers and alcoholics compared to non-smoking, nondrinking controls, as measured by self-report questionnaires such as the State-Trait Anxiety Inventory (STAI) and the Beck Anxiety Inventory (BAI). Third Hypothesis states that Dual users (individuals who smoke and drink alcohol concurrently) will exhibit the poorest attentional performance and highest levels of anxiety compared to smokers, alcoholics, and controls, suggesting a synergistic effect of smoking and alcohol consumption on cognitive functioning and emotional well-being. Forth Hypothesis states that There will be significant correlations between attentional performance and anxiety levels within each group, with poorer attentional performance associated with higher levels of anxiety. This relationship may be particularly pronounced in dual users, reflecting the potential impact of co-occurring smoking and alcoholism on attention and anxiety. Fifth Hypothesis states that Smoking behavior and alcohol consumption patterns, such as frequency, quantity, and duration of use, will be associated with variations in attentional performance and anxiety levels across groups. For

example, heavier smokers and drinkers may exhibit more pronounced deficits in attention and higher levels of anxiety compared to lighter users.

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CONCLUSION

Limitations

Obtaining a representative sample of people with alcohol and smoking issues has proven difficult for the study since some demographic categories may be over or underrepresented. The use of self-report questionnaires to gauge anxiety levels raises the possibility of answer biases like recollection or social desirability bias, which might skew the results. Establishing a causal relationship between drug use, attentional performance, and anxiety levels is hampered by the cross-sectional nature of the study. To ascertain the directionality of these correlations over time, longitudinal research would be required. Confounding factors might affect attention and anxiety levels apart from drug use, such as co-occurring mental health problems or prescription usage. The results of this study might not apply to other populations or cultural settings since drug usage trends and how they affect anxiety and attentiveness might differ among other locations and demographic groupings. It is challenging to compare attentional performance and anxiety levels between those with substance use disorders and those without since there is no control group (non-smokers/non-alcoholics).

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