Chapter 1

The Relationship Between Substance Use and Depressive Symptoms

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Abstract

This study examines the relationship between the tendency to use alcohol to cope with depressive feelings and the use of cigarettes, cannabis, and alcohol among adolescents. The study was conducted with 15–16-year-old high school students in Northern Cyprus, and data was collected using the European School Survey Project on Alcohol and Other Drugs (ESPAD) questionnaire. While the literature suggests a bidirectional relationship between depression and substance use, this study presents a current example of this relationship at a local scale. The study employed a descriptive survey model, and quantitative analyses were conducted using data from a population of 3,901 students. Pearson correlation and simple linear regression analyses revealed significant and positive relationships between depressive drinking and cigarette ($r = .46$, $R^2 = .21$), cannabis ($R^2 = .01$–$.05$), and heavy alcohol consumption (binge drinking) ($R^2 = .31$). The strongest relationship was found with heavy alcohol consumption, while short-term cannabis use had the lowest explanatory power. The findings support Lazarus and Folkman's theory of coping strategies and Khantzian's self-medication model. Adolescents were observed to prefer alcohol to cope with psychological stress, which, in turn, increased their tendency to use other substances. In this context, the study offers significant contributions to preventive mental health services and policy development at both the individual and societal levels. Furthermore, as one of the few studies conducted on this topic in the context of Northern Cyprus, it provides local and comparative data to the literature.

Keywords: Adolescence, depression, substance use, coping strategies, self-medication, Northern Cyprus

1.1. Introduction

Adolescence, considered a developmental stage, is a critical period characterized by rapid and complex biological, psychological, and social changes (Gray & Squeglia, 2018). During this critical period, individuals experience emotional fluctuations, which, particularly due to environmental influences, can increase the likelihood of adolescents engaging in risky behaviors (Pozuelo et al., 2022). Depressive symptoms, the subject of this study, are cited in the literature as a significant factor in adolescents' tendency to engage in substance use (Felton et al., 2020; Pozuelo et al., 2022). While the use of all addictive substances, such as alcohol, cigarettes, and marijuana, may provide short-term relief, they can also lead to serious long-term negative effects on both physical and mental health (Nath et al., 2022). It should be noted that the tendency to use substances to cope with depressive feelings within the scope of adolescent health is an important research topic.

Research demonstrates a reciprocal relationship between depression and substance use both globally and in Europe (Amendola et al., 2022; Engebretsen & Skylstad, 2022). Individuals experiencing depression are more likely to turn to alcohol and other substances. Depressive symptoms are exacerbated with use of addictive substances (Wilkinson et al., 2016). The relationship between depression symptoms and substance use is a condition that deserves careful examination in adolescents (Schleider et al., 2019). If substance abuse begins during adolescence, it can become a chronic problem later in life (Allen et al., 2021). Scientific studies such as European School Survey Project on Alcohol and Other Drugs (ESPAD) provide important findings regarding adolescent alcohol and substance use and allow for comparisons across many countries (Molinaro et al., 2020).

Research on the relationship between adolescent substance use and mental health in Northern Cyprus is limited, increasing the importance of this study (Bekiroğulları, 2024). Some research findings suggest that cultural, social, and economic factors in Northern Cyprus can directly influence adolescents' substance use tendencies and mental health (Taçoy, 2022;

Tremeşeli & Tekyaprak, 2022). Therefore, this study aimed to examine the relationship between alcohol use tendencies and levels of cigarette, cannabis, and alcohol use among 15–16-year-old high school students to cope with depression, and to provide current research findings. Data were collected using the ESPAD scale developed within the European School Survey Project. Literature reveals that adolescents exhibiting depressive symptoms frequently turn to substance use, such as alcohol and marijuana. This is often described as a coping mechanism (Kokkevi et al., 2012; Michaud et al., 2020). Findings from Northern Cyprus support these findings. For example, according to the findings of a study conducted in Northern Cyprus by Çakıcı et al. (2022), increased psychoactive substance use was associated with acculturation stress and poor coping strategies. The purpose of this study is to specifically focus on the tendency to drink to cope with depression. The aim is to test whether drinking is a significant predictor of substance use behavior in Northern Cyprus and to provide current findings.

The purpose of this study is to determine the prevalence of turning to addictive substances as a coping strategy for depression among young people. The aim was to investigate how this tendency relates to levels of cigarette, cannabis, or alcohol use. In this context, the study seeks to answer the following questions:

i. Is the tendency to use alcohol to cope with depressive feelings significantly associated with the frequency of cigarette and cannabis use among young people?
ii. Does the tendency to use alcohol to cope with depressive feelings predict substance use behaviors in the last 30 days or the last 12 months?
iii. To what extent does the tendency to use alcohol to cope with depressive feelings explain the frequency of binge drinking and drunkenness?

In summary, this study aimed to reveal the relationship between the tendency to drink to cope with depression and the frequency of substance use such as cigarettes, cannabis, and alcohol. The study analyzed not only adolescents' past substance use but also their recent frequency of use. The

research findings are expected to make a significant contribution to the literature by creating a regional dataset based on the adolescent population in Northern Cyprus.

1.2. Literature Review

The relationship between substance use and depression has long been researched in the fields of psychiatry, psychology, medicine, public health, and education (Garey et al., 2020). The relationship between depressive symptoms that emerge during adolescence and substance use behaviors is particularly important due to the fragile nature of adolescence (Williams et al., 2022). It is emphasized that substance use can increase depressive symptoms, and depression, in turn, can lead individuals to substance use. This two-way relationship is underlined in the literature (Birrell et al., 2020).

1.2.1. Types and Prevalence of Adolescent Substance Use

The prevalence of adolescent substance use is extensively researched in the literature. In this context, access to substances is not the only issue of importance. Adolescents' psychosocial development, parental involvement (or lack thereof), and peer relations can directly influence their substance use (Whitesell et al., 2013). Adolescents with high levels of depressive symptoms generally begin using substances at an earlier age and use them more frequently (Gau et al., 2007; Stone et al., 2016).

ESPAD is implemented in approximately 35 countries. This allows for a comparative assessment of adolescent substance use. Based on ESPAD reports, the most used substances by adolescents are cigarettes, alcohol, and cannabis. According to the findings of the 2024 ESPAD report, lifetime alcohol use among 15-16-year-old adolescents in Europe is 74%, cigarette use 32%, and cannabis use 12% (ESPAD Group, 2025).

ESPAD reports and research between 2021 and 2024, particularly those based on substance use, indicate a significant change in adolescent substance use in Europe. The downward trend observed in the early years of the

pandemic reversed, particularly in 2022, with a resurgence in tobacco, alcohol, and cannabis use. Alcohol use remains the most prevalent substance. In some countries, short-term effects of awareness campaigns were noted. For example, in Poland, educational campaigns in 2021 led to a temporary decrease in youth alcohol use, but this effect was reported as unsustainable (Bętkowska-Korpała & Klingemann, 2024). Regional differences in tobacco use are evident across Europe. For example, daily cigarette use rates in Italy are well above the European average (Biagioni et al., 2023). In the post-pandemic period, an increase in cigarette use was observed (Brime & Villalbi, 2023). Cannabis use, on the other hand, became particularly prominent after 2022. In addition to increasing rates of cannabis use, it was noted that young people began to view cannabis as "harmless" and that there was a significant decrease in risk perception (O'Dowd et al., 2025). Overall, ESPAD data from the 2021–2024 period indicate that adolescent substance use behaviors rapidly normalized and even increased following the pandemic. The decline in risk perception, the loosening of control mechanisms, and the influence of digital environments fuel this process. In this context, preventive policies based on perceptions, attitudes, and environmental factors related to substance use need to be strengthened.

Studies conducted in Northern Cyprus indicate that psychoactive substance use among adolescents became a significant public health problem. Studies conducted in Northern Cyprus up to 2015 indicated that adolescents use tobacco, alcohol, and inhalants (Çakıcı et al., 2017). Cigarettes and alcohol were the most common drugs used by adolescents, followed by inhalants and cannabis. When examining the reasons for substance use in these studies, it was concluded that lack of family communication, low academic achievement, and peer pressure are effective risk factors (Çakıcı et al., 2018). Among recent studies, the study by Bekiroğulları and Tremeşeli (2023) is noteworthy. These results suggest that use in Northern Cyprus, which begins with cigarettes and alcohol, carries a risk of transitioning to illicit substances over time. Another study, by Bekiroğulları (2024), conducted a comparative analysis of substance use in Northern and Southern Cyprus.

These findings suggest that substance use trends are similar in both regions of Cyprus. The conclusion that prevention programs are weaker in the north of Cyprus was a notable finding among the research findings.

1.2.2. Psychological Models Explaining Depressive Symptoms and Substance Use in Adolescence

Adolescence is one of the most critical periods in human development. It is a period characterized by changes in emotional, cognitive, and social development. The physiological and hormonal changes, differentiation of social roles, and identity formation during adolescence are crucial. All these changes can make adolescents psychologically vulnerable (Bozzini et al., 2020). Psychopathologies, particularly depression, are highly prevalent in adolescents. Depression manifests as loss of interest, hopelessness, low motivation, social isolation, and disruptive behaviors. These symptoms threaten adolescents' subjective well-being and may pave the way for risky behaviors (Pozuelo et al., 2022; H. Wang et al., 2024).

Coping strategy theory was developed by Lazarus and Folkman (1984). According to this theory, stressed individuals develop problem-focused or emotion-focused strategies. Problem-focused coping strategies are associated with developing solutions that address the root cause of the problem. Emotion-focused coping strategies, on the other hand, are aimed at regulating an individual's emotional reactions. Adolescents lacking coping skills or social support embark on a quest. They often try to find ways to find short-term relief. These short-term relief efforts are sometimes achieved by experimenting with and resorting to psychoactive substances. Psychoactive substances serve to temporarily alleviate depressive symptoms. While they are functional, they are extremely harmful as a coping strategy (Ibigbami et al., 2023).

Some of the studies in the literature based on Lazarus and Folkman's (1984) theory of coping strategies are related to adolescents. Adolescents choose dysfunctional ways to cope with their emotional problems. For example, a study by Garey et al. (2020) found a bidirectional relationship between depression and anxiety symptoms and substance use behaviors.

Furthermore, findings in the literature suggest that depressive symptoms lead to impulsivity, impaired decision-making, and changes in reward expectation systems. It was suggested that this neuropsychological state may facilitate substance use (Felton et al., 2020). Alcohol and cannabis provide short-term relief from depression; therefore, they are perceived as psychologically appealing substances.

The Self-Medication Hypothesis (1997) was developed by Khantzian. According to this hypothesis, individuals sometimes consciously and sometimes unconsciously turn to substance use to solve psychological problems. The use of substances such as alcohol, tobacco, or cannabis is often undertaken to alleviate emotional pain rather than to seek pleasure. In this model, substance use is not viewed solely as being tied to biological or environmental factors. It is interpreted specifically based on the individual's internal psychodynamics.

Numerous studies were conducted based on Khantzian's self-medication hypothesis (1997). Fergusson et al.'s (2005) study demonstrated the significant importance of depressive symptoms beginning in adolescence. These symptoms were seen as a predictor of early substance (alcohol) use. Wills et al.'s (2000) study found a significant and positive correlation between depressive symptoms and early alcohol use. Based on these findings, it can be argued that depression does not only affect the age of substance use initiation. Depression can also influence the frequency of substance use and the risk of addiction.

In conclusion, the literature demonstrates that depressive symptoms increase individuals' risk for substance use, and that this relationship is shaped by both cognitive-emotional processes and environmental factors. Self-medication and coping strategies models explain these dynamics theoretically and psychologically, providing a framework consistent with empirical data. Adolescent substance use should not be considered solely a behavioral disorder; it should also be understood as a manifestation of coping deficiencies and emotional dysregulation. This can guide both prevention and intervention efforts.

1.3. Methodology

1.3.1. Research Case and Importance

Most studies examining the relationship between depression and substance use among adolescents were conducted in Europe and the United States. However, studies addressing this relationship in Eastern Mediterranean countries, and particularly in Northern Cyprus, are quite limited. The region's cultural structure, family relationships, and social norms are important variables that can influence substance use behaviors. Therefore, conducting this study in the context of Northern Cyprus fills a gap in the literature. Furthermore, this study examined multiple substance types (cigarettes, cannabis, alcohol) simultaneously, thus assessing the overall impact of depressive drinking on substance use behaviors from a more holistic perspective.

The study offers significant contributions at both theoretical and practical levels. From a theoretical perspective, the relationship between coping strategies for depressive feelings and substance use was analyzed in line with coping theory and the self-medication model established in the literature. On a practical level, the findings may contribute to the development of early intervention strategies for school counselors, teachers, and families. Understanding the link between adolescent substance use and depressive symptoms provides important guidance for designing prevention programs. In conclusion, this study demonstrates that the relationship between depression and substance use has significant implications at both the individual and societal levels.

1.3.2. Research Model and Participants

This research was structured with a quantitative design and conducted using a descriptive survey model. The study was conducted in accordance with the ethical principles and methodological guidelines of the European School

Research Project (ESPAD). The research population consisted of all secondary school students aged 15-16 (n=3901) studying in the northern part of Northern Cyprus.

1.3.3. Procedure

Before administering the ESPAD scale in the study, the necessary correspondence was conducted to obtain permission. To implement the survey in the Northern Cyprus sample, permission was obtained from the Ministry of National Education. Following the Ministry's approval, all schools were granted permission by the Northern Cyprus Substance Abuse Combating Commission, and the necessary information was provided.

Information meetings were held for students at the schools, led by school administration and guidance counselors. At this meeting, Dr. Zafer Bekiroğulları, from the Northern Cyprus Substance Abuse Combating Commission, explained ESPAD to the students. A team from the commission was assigned to conduct the implementation in a controlled manner in the schools.

Research consent forms were sent home to students' parents, indicating whether they would allow their children to participate in the ESPAD. The ESPAD was administered to children whose parents agreed to participate in the study and signed the consent form.

On the day of data collection, teams formed by the Commission visited the schools and administered the scale to all students simultaneously. This ensured that all questions were viewed and answered simultaneously. Before distributing the ESPAD to students, the principle of voluntary participation was applied. Students were asked whether they would like to participate. Those who did not wish to participate were excluded from the study. The same approach was followed across all schools, ensuring consistency.

Students were informed of the importance of confidentiality. They were asked to answer the questions honestly and were informed that no names would be used. It was clarified that the results would not be shared with families or school administration, and that the data would be used

anonymously for scientific purposes only. Data collection began in October 2024 and was completed in December 2024.

The entire procedure was carried out in strict accordance with the ethical rules and methodology prescribed by ESPAD.

1.3.4. Analysis of Data

In this study, data obtained from ESPAD were analyzed using Pearson correlation analysis and simple linear regression analysis. The main variable in the study was "tendency to use alcohol to cope with depressive feelings." Both the relationship and predictive power of the following variables were determined with this variable: 30-day cigarette use frequency, lifetime cannabis use, cannabis use in the past 12 months, cannabis use in the past 30 days, last day alcohol use, frequency of heavy episodic drinking and frequency of drunkenness/intoxication.

1.3.5. Ethical Consideration

The study was conducted in accordance with the Declaration of Helsinki and approved by the ethics committee of the Northern Cyprus Prime Minister's Anti-Drug Commission (No. 2024-09-30), which comprises members who are experts in their respective fields. All participants and their legal guardians were thoroughly informed about the study's purpose and procedures, and written consent was obtained from the guardians prior to participation. The data collected for the study were anonymized and processed to safeguard the privacy of participants and prevent the inclusion of any personal information.

1.4. Findings

1.4.1. Correlation Analysis Among the Variables

Pearson Correlation Analysis was applied to examine the relationship between the tendency to drink to cope with depressive feelings and substance

use. The results of the analysis are given in Table 1.1. There is a significant positive correlation between depressive drinking tendency and smoking (r=.46, p<.01), lifetime cannabis use (r=.22, p<.01), 12-month cannabis use (r=.21, p<.01), cannabis use in the last 30 days (r=.09, p<. 01), last day drank alcohol (r=.51, p<.01), heavy episodic drinking frequency (r=.55, p<.01) and drunkenness/intoxication frequency (r=.33, p<.01). There is a significant positive correlation between smoking and lifetime cannabis use (r=.26, p<.01), 12-month cannabis use (r=.25, p<.01), cannabis use in the last 30 days (r=.13, p<.01), last day drank alcohol (r=.34, p<.01), heavy episodic drinking frequency (r=.41, p<.01) and drunkenness/intoxication frequency (r=.27, p<.01).

There is a significant positive correlation between lifetime cannabis use and 12-month cannabis use (r=.96, p<.01), cannabis use in the last 30 days (r=.76, p<.01), last day drank alcohol (r=.14, p<.01), heavy episodic drinking frequency (r=.25, p<.01) and drunkenness/intoxication frequency (r=.25, p<.01). There is a significant positive correlation between 12-month cannabis use and cannabis use in the last 30 days (r=.87, p<.01), last day drank alcohol (r=.12, p<.01), heavy episodic drinking frequency (r=.27, p<.01) and drunkenness/intoxication frequency (r=.28, p<.01). There is a significant positive correlation between cannabis use in the last 30 days and last day drank alcohol (r=.07, p<.01), heavy episodic drinking frequency (r=.18, p<.01) and drunkenness/intoxication frequency (r=.26, p<.01). There is a significant positive relationship between last day drank alcohol and heavy episodic drinking frequency (r=.57, p<.01) and drunkenness/intoxication frequency (r=.28, p<.01). There is a significant positive correlation between heavy episodic drinking frequency and drunkenness/intoxication frequency (r=.38, p<.01).

Table 1.1. Correlational Analyses between Variables

	1	2	3	4	5	6	7	8
1. Tendency to drink to cope with depressive feelings	**1**	.46**	.22**	.21**	.09**	.51**	.55**	.33**
2. 30-Day Cigarette Use Frequency		**1**	.26**	.25**	.13**	.34**	.41**	.27**
3. Cannabis Use Frequency (In your lifetime)			**1**	.96**	.76**	.14**	.25**	.25**
4. Cannabis Use Frequency (During the last 12 months)				**1**	.87**	.12**	.27**	.28**
5. Cannabis Use Frequency (During the last 30 days)					**1**	.07**	.18**	.26**
6. Last Day Drank Alcohol (Recency)						**1**	.57**	.28**
7. Heavy Episodic Drinking Frequency (30-day Binge)							**1**	.38**
8. Drunkenness/Intoxication Frequency (During the last 30 days)								**1**

Note: ** The correlation means $p<.01$

1.4.2. Simple Linear Regression Analysis Among Variables

Simple linear regression analysis examined the relationship between depressive drinking tendency and smoking. According to simple linear regression analysis, there is a significant relationship between depressive drinking tendency and smoking [F (1, 1439)=386.06, p<.001, R2=.21, R2adjusted=.21]. According to the regression coefficient (b=.73, %95 CI [.66, .80]), a 1-unit increase in depressive drinking tendency increases smoking by .73. The results of the analysis are given in Table 1.2.

Table 1.2. Simple Linear Regression Table for the Effect of Depressive Drinking Tendency on Smoking

Variable	b	*SE*	%95 CI		*t*	*p*
			LL	*UL*		
(Constant)	.47	.06	.35	.58	7.84	<.001
Depressive Drinking Tendency	.73	.03	.66	.80	19.65	<.001
R^2	.21					

Simple linear regression analysis examined the relationship between depressive drinking tendency and lifetime cannabis use. According to simple linear regression analysis, there was a significant relationship between depressive drinking tendency and lifetime cannabis use [F (1, 1432)=71.33, p<.001, R2=.05, R2adjusted=.05]. According to the regression coefficient (b=.12, %95 CI [.09, .14], a 1-unit increase in depressive drinking tendency increases lifetime cannabis use by .12. The results of the analysis are given in Table 1.3.

Table 1.3. Simple Linear Regression Table for the Effect of Depressive Drinking Tendency on Lifetime Cannabis Use

Variable	b	*SE*	%95 CI		*t*	*p*
			LL	*UL*		
(Constant)	.89	.02	.85	.94	40.64	<.001
Depressive Drinking Tendency	.12	.01	.09	.14	8.44	<.001
R^2	.05					

Simple linear regression analysis examined the relationship between depressive drinking tendency and 12-month cannabis use. According to simple linear regression analysis, there was a significant relationship between depressive drinking tendency and 12-month cannabis use [F (1, 1432)=65.69, p<.001, R2=.05, R2adjusted=.04]. According to the regression coefficient (b=.10, %95 CI [.08, .13]), 1-unit increase in depressive drinking tendency increases 12-month cannabis use by .10. The results of the analysis are given in Table 1.4.

Table 1.4. Simple Linear Regression Table for the Effect of Depressive Drinking Tendency on 12 Month Cannabis Use

Variable	b	*SE*	%95 CI		*t*	*p*
			LL	*UL*		
(Constant)	.90	.02	.86	.94	44.01	<.001
Depressive Drinking Tendency	.10	.01	.08	.13	8.11	<.001
R^2	.05					

Simple linear regression analysis examined the relationship between depressive drinking tendency and last 30 days cannabis use. According to simple linear regression analysis, there is a significant relationship between depressive drinking tendency and last 30-day cannabis use [F (1, 1386)=10.40, p<.05, R2=.01, R2adjusted=.01]. According to the regression coefficient (b=.03, %95 CI [.01, 05]), 1-unit increase in depressive drinking tendency increases last 30 days cannabis use by .03. The results of the analysis are given in Table 1.5.

Table 1.5. Simple Linear Regression Table for the Effect of Depressive Drinking Tendency on Last 30 Days Cannabis Use

Variable	b	*SE*	%95 CI		*t*	*p*
			LL	*UL*		
(Constant)	.98	.02	.95	1.01	63.63	<.001
Depressive Drinking Tendency	.03	.01	.01	.05	3.23	<.001
R^2	.01					

Simple linear regression analysis examined the relationship between depressive drinking tendency and last day drunk alcohol. According to simple linear regression analysis, there is a significant relationship between depressive drinking tendency and last day drunk alcohol [F (1, 1439)=510.48, p<.001, R^2=.26, $R^2_{adjusted}$=.26]. According to the regression coefficient (b=1.11, %95 CI [1.02, 1.21]), 1-unit increase in depressive drinking tendency increases last day drunk alcohol by 1.11. The results of the analysis are given in Table 1.6.

Table 1.6. Simple Linear Regression Table for the Effect of Depressive Drinking Tendency on Last Day Drunk Alcohol

Variable	b	*SE*	%95 CI		*t*	*p*
			LL	*UL*		
(Constant)	1.14	.08	.98	1.30	14.27	<.001
Depressive Drinking Tendency	1.11	.05	1.02	1.21	22.60	<.001
R^2	.26					

Simple linear regression analysis examined the relationship between depressive drinking tendency and heavy episodic drinking frequency. According to simple linear regression analysis, there was a significant relationship between depressive drinking tendency and heavy episodic drinking frequency [F (1, 1439)=631.56, p<.001, R2=.31, R2adjusted=.31]. According to the regression coefficient (b=.71, %95 CI [.65, .76]), 1-unit increase in depressive drinking tendency increases heavy episodic drinking frequency by .71. The results of the analysis are given in Table 1.7.

Table 1.7. Simple Linear Regression Table for the Effect of Depressive Drinking Tendency on Heavy Episodic Drinking Frequency

Variable	b	*SE*	%95 CI		*t*	*p*
			LL	*UL*		
(Constant)	.53	.05	.44	.62	11.51	<.001
Depressive Drinking Tendency	.71	.03	.65	.76	25.13	<.001
R^2	.31					

Simple linear regression analysis examined the relationship between depressive drinking tendency and drunkenness/intoxication frequency. According to simple linear regression analysis, there was a significant relationship between depressive drinking tendency and drunkenness/intoxication frequency [F (1, 1336)=162.07, p<.001, R2=.11, R2adjusted=.11]. According to the regression coefficient (b=.23, %95 CI [.20, .26], 1-unit increase in depressive drinking tendency increases drunkenness/intoxication frequency by .23. The results of the analysis are given in Table 1.8.

Table 1.8. Simple Linear Regression Table for the Effect of Depressive Drinking Tendency on Drunkenness/Intoxication Frequency

Variable	b	*SE*	%95 CI		*t*	*p*
			LL	*UL*		
(Constant)	.83	.03	.78	.89	29.85	<.001
Depressive Drinking Tendency	.23	.02	.20	.26	12.73	<.001
R^2	.11					

1.5. Discussion

The first research question of this study was, “Is the tendency to use alcohol to cope with depressive feelings significantly associated with the frequency of cigarette and cannabis use among young people?” Findings indicated significant positive correlations between depressive drinking tendency and cigarette use (r = .46, p<.01) and lifetime cannabis use (r = .22, p<.01). Regression analyses revealed that depressive drinking tendency explained 21% of the variance in cigarette use (R^2 = .21) and had a weaker but significant effect on cannabis use (R^2 = .05).

When faced with stressful and emotionally challenging situations, adolescents may adopt dysfunctional coping strategies to regulate their emotions. This is reflected in Lazarus and Folkman's (1984) coping theory. Cigarette and cannabis use can serve as a form of "emotion-focused coping," providing short-term emotional relief. Cigarettes are a preferred coping tool because they are an easily accessible and socially accepted substance (Biagioni

et al., 2023; Brime & Villalbi, 2023). Therefore, the fact that cigarettes were the most associated substance with depressive drinking in this study was an expected result.

According to the research findings, the relationship between tobacco use and depressive drinking tendency ($r = .46$, $R^2 = .21$) is significant and striking. This finding suggests that depressed individuals turn not only to alcohol but also to other addictive substances such as nicotine. Recent studies (P. Wang et al., 2021) emphasize the bidirectional relationship between depression and cigarette use, suggesting that depressive symptoms trigger nicotine use, and nicotine, in turn, exacerbates depressive symptoms in the long term.

Research findings suggest that depressive drinking tends to influence cannabis use, but its effects are not as pronounced as those of alcohol or cigarettes. The literature demonstrates a significant relationship between depression and cannabis use; however, there is also evidence that this relationship is not as strong as that of alcohol or cigarettes (Hasin et al., 2022; Lev-Ran et al., 2014). These studies suggest that depressed individuals prefer alcohol as a coping tool with shorter-term and faster effects, while cannabis use is based on different motivations. Therefore, the current findings in this study are generally consistent with those in the literature.

The second research question was, “Does the tendency to use alcohol to cope with depressive feelings predict substance use behaviors in the last 30 days or the last 12 months?” The findings showed that depressive drinking tendency significantly predicted both 12-month ($b = .10$, $p < .001$, $R^2 = .05$) and past 30-day cannabis use ($b = .03$, $p < .001$, $R^2 = .01$). The lowest explanatory power ($R^2 = .01$) occurred for past 30-day cannabis use. This finding suggests that the effect of depressive drinking tendency on short-term behaviors may be limited, whereas its contribution to the long-term risk of use is greater. This finding in the study suggests that behaviors are influenced not only by psychological but also by social, cultural, and environmental factors (Pozuelo et al., 2022). In this context, Khantzian's model (1997) suggests that the persistence of depressive tendencies is functional in explaining substance

use behaviors. It is suggested that chronic psychopathologies such as depression perpetuate an individual's "substance-seeking" patterns over time (Fergusson et al., 2005). The association with 12-month cannabis use demonstrates how this transition is structured over time. Furthermore, the increased access to substances among young people after the pandemic (ESPAD Group, 2025) and the normalizing effect of digital environments increased the frequency of substance use at a behavioral level. This, in turn, explains the relationship between depressive drinking and substance use.

The third question of this study was, “To what extent does the tendency to use alcohol to cope with depressive feelings explain the frequency of binge drinking and drunkenness?” Regression analyses revealed significant positive correlations between depressive drinking tendency and both binge drinking frequency ($R^2 = .31$) and drunkenness frequency ($R^2 = .11$). These values indicate that depressive drinking tendency is a particularly strong predictor of binge drinking behavior. This finding supports the "heavy use behaviors" aspect of the self-medication hypothesis. The tendency of individuals experiencing depression to consume large amounts of alcohol in a short period of time to suppress emotional pain is consistent with the predictions of this model. According to Khantzian (1997), such use is a symptom of deep psychological distress rather than a simple search for relief. From a coping theory perspective, binge drinking is understood as an "escape strategy." The individual attempts to compensate for their lack of problem-solving skills through drinking, and heavy alcohol consumption provides a short-term "emotional forgetting" (H. Wang et al., 2024).

This study revealed that adolescents exhibiting depressive symptoms consumed alcohol more frequently and uncontrollably. Studies by Bravo et al. (2018) and Pilatti et al. (2024) also revealed that individuals with depression use alcohol to cope with their symptoms. These studies, like the current study, also indicated that alcohol is consumed more frequently during depression, often leading to excessive alcohol consumption. One of the findings of this study, the strong correlation between depressive drinking tendency and the

last drinking day ($r = .51$, $p < .01$), is particularly noteworthy. This finding suggests that individuals with depression frequently consume alcohol.

The highest explanatory power (.31) obtained in the study indicates that depressive drinking is associated with binge drinking. This suggests that young people prefer heavy drinking behaviors, especially in groups or on weekends, as a coping mechanism. Studies supporting this finding exist in the literature (Allen et al., 2021; Birrell et al., 2020). Specifically, the positive reinforcement cycle (temporary relief → relapse → habituation) was observed to develop more rapidly in adolescents.

1.6. Conclusion

This study examined the relationship between the tendency to use alcohol to cope with depressive feelings and substance use among adolescents in Northern Cyprus and yielded significant findings. The study showed that depressive drinking was significantly related with a range of risky behaviors, including cigarette and cannabis use, binge drinking, and frequent drunkenness. The strongest association was observed with excessive alcohol consumption ($R^2 = .31$), while the weakest association was found with past 30-day cannabis use ($R^2 = .01$).

The results of the study support Lazarus and Folkman's coping theory and Khantzian's self-medication model, demonstrating that substance use is often viewed as a short-term relief tool among adolescents' coping strategies for psychological stress. Alcohol use is prominent as a coping strategy for depressive symptoms, and this use, over time, triggers a reliance on other substances such as cigarettes and cannabis. The study's findings demonstrate that the reciprocal relationship between depression and substance use is influenced not only by individual psychological factors but also by sociocultural factors.

The study makes a unique contribution to the literature by examining the relationship between depressive symptoms and substance use specifically through the lens of "depressive drinking tendency." In a region like Northern Cyprus, where research on this topic is scarce, providing data on this topic

serves as a guide for local policymakers, school counselors, and healthcare professionals. Furthermore, data obtained using the ESPAD scale enables comparisons with European studies. The study demonstrated that depressive drinking tendency can predict not only general substance use but also behavioral components such as duration, frequency, and intensity of use. In this context, the study can contribute to the development of preventive mental health services at both theoretical and practical levels.

Among the limitations of the study, the first is its cross-sectional (single time) design. This insufficiently explains the direction and cause-and-effect relationship between depressive drinking and substance use. Second, the fact that the data were collected using a self-report method may have led to participants' tendency to respond in accordance with social expectations, particularly regarding sensitive issues such as alcohol and substance use, thus limiting the validity of the findings. Furthermore, the study analyzed only depressive drinking, ignoring potential protective or influencing variables such as social support, family relationships, and school engagement. This further limits the comprehensiveness of the analyses.

Several recommendations for future research are offered. First, longitudinal studies are needed to determine causality and the relationship between variables over time. Furthermore, incorporating other psychosocial variables such as social support level, parental monitoring, academic achievement, and peer influence into research models, rather than focusing solely on depressive drinking, will increase the validity and comprehensiveness of the results. The use of qualitative data collection techniques (e.g., interviews, focus groups) is recommended to gain a deeper understanding of the reasons why young people turn to substance use. As the findings can inform the development of school-based prevention and intervention programmes, it is important to complement them with practical research. Finally, multicenter studies comparing the results obtained in Northern Cyprus with other regions with similar sociocultural structures would be useful to test the generalizability of the findings.

1.7. Challenges and Limitations of the Study

Additionally, tobacco and e-cigarette companies employ sophisticated marketing strategies that incorporate health-related claims, branding, colorful packaging, and flavors. These marketing tactics are continuously evolving, making it difficult to evaluate them accurately and consistently over time. The messages on marketing materials that may lead individuals to believe that tobacco and e-cigarette products contain fewer harmful compounds than they do, as well as the additional risk associated with developmental exposure, further complicate the assessment of what constitutes an actual puff and obscure the actual risks associated with tobacco and e-cigarettes.

On the other hand, accessibility emerges as the most significant challenge. Tobacco and e-cigarette products are easily obtainable, with fewer controls in place to ensure that minors do not have easy access to them, making it difficult to regulate their usage and experimentation. Additionally, this study identifies a range of individual behavioural and psychological factors, such as coping, curiosity, and rebellion against social norms, that are believed to enhance youth vulnerability to smoking and vaping. However, these factors are interconnected and complex, making it exceptionally difficult to isolate and study them individually, particularly about their contribution to smoking and vaping behavior. This study also aims to identify the underlying causes of youth tobacco and e-cigarette use to address the risks to health and well-being. However, understanding and addressing these underlying causes is challenging due to the multifaceted nature of the influences involved. The findings of the study may be limited in their generalizability due to variations in social norms, technological developments, and marketing strategies across different regions and populations. This limitation affects the broader applicability of the study's conclusions. By tackling these challenges and limitations, the study aims to provide a comprehensive understanding of the factors influencing youth tobacco and e-cigarette use and to inform effective prevention and intervention strategies.

References

Agrawal, A., Neale, M. C., Prescott, C. A., & Kendler, K. S. (2004). A twin study of early cannabis use and subsequent use and abuse/dependence of other illicit drugs. *Psychological medicine, 34*(7), 1227–1237. https://doi.org/10.1017/s0033291704002545

Allen, J. P., Loeb, E. L., Narr, R. K., & Costello, M. A. (2021). Different factors predict adolescent substance use versus adult substance abuse: Lessons from a social-developmental approach. *Development and Psychopathology, 33*(3), 792-802. https://doi.org/10.1017/S095457942000005X

Amendola, S., Hengartner, M. P., Ajdacic-Gross, V., Angst, J., & Rössler, W. (2022). Longitudinal reciprocal associations between depression, anxiety, and substance use disorders over three decades of life. *Journal of affective disorders, 302,* 315-323. https://doi.org/10.1016/j.jad.2022.01.101

Bekiroğulları, Z. (2024). Comparative analysis of substance use across Cyprus: Analyzes the differences and similarities in substance use between north and south Cyprus. In N. Dağlıoğlu, & S. Kılıç Akıncı (Eds.), *The landscape of substance abuse in Northern Cyprus: Trends, risks, and responses* (pp. 22-54). Emanate Publishing House Ltd. https://doi.org/10.70020/BI.20240801.2

Bekiroğulları, Z., & Tremeşeli, T. T. (2023). Assessment of substance use among high school students in Northern Cyprus based on the Gateway Hypothesis. *The European Journal of Social & Behavioural Sciences, 32*(3), 162-174. https://doi.org/10.15405/ejsbs.341

Bętkowska-Korpała, B., & Klingemann, J. (2024). Alcohol use. In S. Golinowska S. (Ed.), *Public Health. The Social and Ecological Dimension* (pp. 189-204). Scholar Publishing House.

Biagioni, S., Baldini, F., Baroni, M., Cerrai, S., Melis, F., Potente, R., Scalese, M., & Molinaro, S. (2023). Adolescents' psychoactive substance use during the first COVID-19 lockdown: A cross sectional study in Italy. *Child & Youth Care Forum, 52*(3), 641-659. Springer US. https://doi.org/10.1007/s10566-022-09701-0

Birrell, L., Slade, T., Teesson, M., Prior, K., Chapman, C., Hides, L., McBride, N., Mewton, L., Allsop, S., Andrews, G., & Newton, N. C. (2020). Bidirectional relationships in the development of internalising symptoms and alcohol use in adolescence. *Drug and Alcohol Review, 39*(7), 950-959. https://doi.org/10.1111/dar.13070

Bozzini, A. B., Bauer, A., Maruyama, J., Simões, R., & Matijasevich, A. (2020). Factors associated with risk behaviors in adolescence: a systematic review. *Brazilian Journal of Psychiatry, 43*(2), 210-221. https://doi.org/10.1590/1516-4446-2019-0835

Bravo, A. J., Pilatti, A., Pearson, M. R., Mezquita, L., Ibáñez, M. I., & Ortet, G. (2018). Depressive symptoms, ruminative thinking, drinking motives, and

alcohol outcomes: A multiple mediation model among college students in three countries. *Addictive behaviors, 76,* 319-327. https://doi.org/10.1016/j.addbeh.2017.08.028

Brime, B., & Villalbi, J. R. (2023). Is adolescent use of tobacco, alcohol and cannabis decreasing? *Adicciones, 35*(4), 383-386. https://doi.org/10.20882/adicciones.2035

Çakıcı, M., Çakıcı, E., Özsoy, İ., Karaaziz, M., Beyazit, U., & Hançerli, S. (2018). The prevalence and risk factors of psychoactive substance use among secondary school students in Turkish Republic of Northern Cyprus. *Anatolian Journal of Psychiatry, 19*(6), 586-592. https://doi.org/10.5455/apd.293192

Çakıcı, M., Ergün, D., Çakıcı, E., & Onur, C. (2017). The prevalence and risk factors of substance use among high school students in Turkish Republic of Northern Cyprus, 1996-2015. *Alpha Psychiatry, 18*(5), 428-437. https://doi.org/10.5455/apd.257281

Çakıcı, M., Yeşil Dirisu, G., Karaaziz, M., Buran, A., & Çakıcı, E. (2022). Psychoactive substance abuse: prevalence, risk factors and relation to acculturation in adults living in North Cyprus, 2003–2018. *Current Psychology, 41*(11), 8044-8051. https://doi.org/10.1007/s12144-020-01225-x

Engebretsen, I. M. S., & Skylstad, V. (2022). Childhood alcohol use: Global insights. In V. B. Patel, & V. R. Preedy (Eds.), *Handbook of substance misuse and addictions: from biology to public health* (pp. 1-24). Springer, Cham. https://doi.org/10.1007/978-3-030-67928-6_65-1

ESPAD Group. (2025). *Key findings from the 2024 European School Survey Project on Alcohol and Other Drugs (ESPAD)*. European Union Drugs Agency. https://doi.org/10.2810/5746644

Felton, J. W., Shadur, J. M., Havewala, M., Gonçalves, S., & Lejuez, C. W. (2020). Impulsivity moderates the relation between depressive symptoms and substance use across adolescence. *Journal of Clinical Child & Adolescent Psychology, 49*(3), 365-377. https://doi.org/10.1080/15374416.2018.1537189

Fergusson, D. M., John Horwood, L., & Ridder, E. M. (2005). Show me the child at seven: the consequences of conduct problems in childhood for psychosocial functioning in adulthood. *Journal of Child Psychology and psychiatry, 46*(8), 837-849. https://doi.org/10.1111/j.1469-7610.2004.00387.x

Garey, L., Olofsson, H., Garza, T., Rogers, A. H., Kauffman, B. Y., & Zvolensky, M. J. (2020). Directional effects of anxiety and depressive disorders with substance use: A review of recent prospective research. *Current Addiction Reports, 7*(3), 344-355. https://doi.org/10.1007/s40429-020-00321-z

Gau, S. S., Chong, M. Y., Yang, P., Yen, C. F., Liang, K. Y., & Cheng, A. T. (2007). Psychiatric and psychosocial predictors of substance use disorders among

adolescents: Longitudinal study. *The British Journal of Psychiatry, 190*(1), 42-48. https://doi.org/10.1192/bjp.bp.106.022871

Gray, K. M., & Squeglia, L. M. (2018). Research Review: What have we learned about adolescent substance use? *Journal of Child Psychology and Psychiatry, 59*(6), 618-627. https://doi.org/10.1111/jcpp.12783

Hasin, D. S., Saxon, A. J., Malte, C., Olfson, M., Keyes, K. M., Gradus, J. L., Cerdá, M., Maynard, C. C., Keyhani, S., Martins, S. S., Fink, D. S., Livne, O., Mannes, Z., & Wall, M. M. (2022). Trends in cannabis use disorder diagnoses in the US Veterans Health Administration, 2005–2019. *American Journal of Psychiatry, 179*(10), 748-757. https://doi.org/10.1176/appi.ajp.22010034

Ibigbami, O. I., Oginni, O. A., Bradley, C., Lusher, J., Sam-Agudu, N. A., & Folayan, M. O. (2023). A cross-sectional study on resilience, anxiety, depression, and psychoactive substance use among heterosexual and sexual minority adolescents in Nigeria. *BMC Public Health 23,* 1759. https://doi.org/10.1186/s12889-023-16660-1

Khantzian, E. J. (1997). The self-medication hypothesis of substance use disorders: A reconsideration and recent applications. *Harvard Review of Psychiatry, 4*(5), 231-244. https://doi.org/10.3109/10673229709030550

Kokkevi, A., Rotsika, V., Arapaki, A., & Richardson, C. (2012). Adolescents' self-reported suicide attempts, self-harm thoughts and their correlates across 17 European countries. *Journal of child psychology and psychiatry, 53*(4), 381-389. https://doi.org/10.1111/j.1469-7610.2011.02457.x

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* Springer.

Lev-Ran, S., Roerecke, M., Le Foll, B., George, T. P., McKenzie, K., & Rehm, J. (2014). The association between cannabis use and depression: a systematic review and meta-analysis of longitudinal studies. *Psychological medicine, 44*(4), 797-810. https://doi.org/10.1017/S0033291713001438

Michaud, P. A., Bélanger, R., Mazur, A., Hadjipanayis, A., & Ambresin, A. E. (2020). How can primary care practitioners address substance use by adolescents? A position paper of the EUROPEAN academy of PAEDIATRICS. *European Journal of Pediatrics, 179*(8), 1297-1305. https://doi.org/10.1007/s00431-020-03596-6

Molinaro, S., Vicente, J., Benedetti, E., Cerrai, S., Colasante, E., Arpa, S., Chomynová, P., Kraus, L., Monshouwer, K., Spilka, S., Arnarsson, A. M., Balakireva, O., Beteta, B. B., Bye, E. K., Chileva, A., Clancy, L., Duraku, Z. H., Đurišić, T., Ekholm, O., & Škařupová, K. (2020). *ESPAD Report 2019 Results from the European School Survey Project on Alcohol and Other Drugs.* Publications Office of the European Union. https://doi.org/10.2810/877033

Nath, A., Choudhari, S. G., Dakhode, S. U., Rannaware, A., Gaidhane, A. M., Dakhode, S., & Gaidhane, A. (2022). Substance abuse amongst

adolescents: an issue of public health significance. *Cureus, 14*(11), e31193. https://doi.org/10.7759/cureus.31193

O'Dowd, T. M., Fleury, R., Power, E., Dooley, N., Quinn, L., Petropoulos, S., Healy, C., Smyth, B., & Cannon, M. (2025). Risk and protective factors for cannabis use in adolescence: a population-based survey in schools. *Irish Journal of Psychological Medicine, 42*(1), 6-14. https://doi.org/10.1017/ipm.2024.28

Pilatti, A., Correa, P., Rivarola Montejano, G., Michelini, Y., Bravo, A. J., & Pautassi, R. M. (2024). Positive and negative pathways linking depressive symptoms to problematic alcohol use among Argentinian college students: An examination of positive and negative urgency traits and internal drinking motives. *Journal of Psychoactive Drugs,* 1-10. https://doi.org/10.1080/02791072.2024.2405677

Pozuelo, J. R., Desborough, L., Stein, A., & Cipriani, A. (2022). Systematic review and meta-analysis: depressive symptoms and risky behaviors among adolescents in low-and middle-income countries. *Journal of the American Academy of Child & Adolescent Psychiatry, 61*(2), 255-276. https://doi.org/10.1016/j.jaac.2021.05.005

Schleider, J. L., Ye, F., Wang, F., Hipwell, A. E., Chung, T., & Sartor, C. E. (2019). Longitudinal reciprocal associations between anxiety, depression, and alcohol use in adolescent girls. *Alcoholism: Clinical and Experimental Research, 43*(1), 98-107. https://doi.org/10.1111/acer.13913

Stone, A. L., Vander Stoep, A., & McCauley, E. (2016). Early onset substance use in adolescents with depressive, conduct, and comorbid symptoms. *The Journal of Early Adolescence, 36*(6), 729-753. https://doi.org/10.1177/02724316155864

Taçoy, S. (2022). Substance addiction among youth in Northern Cyprus. In A. Güneyli, & F. Silman (Eds.), *ICEEPSY 2022: Education and Educational Psychology*. European Proceedings of International Conference on Education and Educational Psychology (pp. 151-163). European Publisher. https://doi.org/10.15405/epiceepsy.22123.13

Tremeşeli, T. T., & Tekyaprak, N. (2022). Profile of substance addicts in north Cyprus: Analyzing addiction characteristics, mental problems and personal features. In A. Güneyli, & F. Silman (Eds.), *ICEEPSY 2022: Education and Educational Psychology*. European Proceedings of International Conference on Education and Educational Psychology (pp. 126-138). European Publisher. https://doi.org/10.15405/epiceepsy.22123.11

Wang, H., Wang, Z., Li, X., & Liu, J. (2024). Characteristics and risk factors of health-related risky behaviors in adolescents with depression. *Child and Adolescent Psychiatry and Mental Health, 18,* 34. https://doi.org/10.1186/s13034-024-00722-2

Wang, P., Abdin, E., Asharani, P. V., Seet, V., Devi, F., Roystonn, K., Lee, Y. Y., Cetty, L., Teh, W. L., Verma, S., Mok, Y. M., & Subramaniam, M. (2021).

Nicotine Dependence in Patients with Major Depressive Disorder and Psychotic Disorders and Its Relationship with Quality of Life. *International Journal of Environmental Research and Public Health, 18*(24), 13035. https://doi.org/10.3390/ijerph182413035

Whitesell, M., Bachand, A., Peel, J., & Brown, M. (2013). Familial, social, and individual factors contributing to risk for adolescent substance use. *Journal of Addiction,* 2013(1), 579310. https://doi.org/10.1155/2013/579310

Wilkinson, A. L., Halpern, C. T., & Herring, A. H. (2016). Directions of the relationship between substance use and depressive symptoms from adolescence to young adulthood. *Addictive Behaviors, 60,* 64-70. https://doi.org/10.1016/j.addbeh.2016.03.036

Williams, G. C., Patte, K. A., Ferro, M. A., & Leatherdale, S. T. (2022). Exploring the bi-directional associations between poly-substance use and symptoms of anxiety and depression among a large sample of Canadian adolescents. *Canadian Journal of Addiction, 13*(2), 7-16. https://doi.org/10.1097/CXA.0000000000000144

Wills, T. A., Sandy, J. M., & Yaeger, A. (2000). Temperament and adolescent substance use: An epigenetic approach to risk and protection. *Journal of Personality, 68*(6), 1127-1151. https://doi.org/10.1111/1467-6494.00129