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Determinants of Alcohol Consumption among Adolescents: Is Mindfulness a Predictor Factor?

Ergenlerde Alkol Tüketiminin Belirleyicileri: Farkındalık Yordayıcı Bir Faktör mü?

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Abstract

Objective: While the relationship between mindfulness and alcohol consumption is well-documented in adults, it remains underexplored in adolescent populations. This study aimed to examine the predictive role of mindfulness in alcohol consumption among adolescents.

Method: The study included a cohort of adolescents (n = 70) receiving care at a child and adolescent psychiatry outpatient clinic who reported alcohol use. Participants completed a series of validated measures during face-to-face interviews, including the Child and Adolescent Mindfulness Measure (CAMM), the Kessler–10 Psychological Distress Scale (K10), the Drinking Motives Questionnaire–Revised–Coping Motives (DMQ–R–CM), and the Alcohol Use Disorders Identification Test–Consumption (AUDIT–C).

Results: The mean participant age was 16.99 years, with 54.3% being male. Female gender was a significant negative predictor of DMQ–R–CM scores (B = –3.936, p = .022), whereas higher K10 scores were positively associated with DMQ–R–CM scores (B = .280, p = .002). Additionally, both the duration of alcohol use (B = .861, p <.001) and K10 scores were significant positive predictors of AUDIT–C scores (B = .066, p =.021). In contrast, higher CAMM scores were negatively associated with AUDIT–C scores (B = –.079, p = .029).

Conclusion: The findings indicate the potential role of mindfulness in mitigating alcohol consumption among adolescents. Furthermore, the results underscore the necessity of implementing policies that promote mental health and prevent the initiation of alcohol consumption in this population.

Keywords: Adolescent, coping motives, mindfulness, psychological distress, problematic alcohol use

Öz

Amaç: Farkındalık ve alkol tüketimi arasındaki ilişki yetişkinlerde açıkça ortaya konmuşsa da, ergen popülasyonunda yeterince araştırılmamıştır. Bu çalışmanın amacı, ergenler arasındaki alkol tüketiminde bilinçli farkındalığın öngörücü rolünü incelemektir.

Yöntem: Çalışmaya bir çocuk ve ergen psikiyatrisi polikliniğine başvuran ve alkol kullandığını bildiren ergenlerden oluşan bir kohort (n = 70) dâhil edilmiştir. Katılımcılar yüz yüze görüşmeler sırasında Çocuk ve Ergen Bilinçli Farkındalık Ölçeği (ÇEBFÖ), Kessler–10 Psikolojik Sıkıntı Ölçeği (K10), İçme Güdüleri Anketi–Gözden Geçirilmiş–Baş Etme Güdüleri (İGA–GG–BG) ve Alkol Kullanım Bozuklukları Tanımlama Testi–Tüketim (AKBTT–T) dahil olmak üzere bir dizi onaylanmış ölçümü tamamlamıştır.

Bulgular: Katılımcıların ortalama yaşı 16,99 olup, %54,3'ü erkektir. Kadın cinsiyet İGA–GG–BG skorlarının anlamlı bir negatif yordayıcısı iken (B = –3.936, p = .022), yüksek K10 skorları İGA–GG–BG skorları ile pozitif ilişkilidir (B = .280, p = .002). Ayrıca, hem alkol kullanım süresi (B = .861, p <.001) hem de K10 skorları AKBTT–T skorlarının anlamlı pozitif yordayıcıları olmuştur (B = .066, p =.021). Buna karşılık, daha yüksek ÇEBFÖ skorları, AKBTT–T skorları ile negatif ilişkilidir (B = –.079, p = .029).

Tartışma: Bulgular, ergenler arasında alkol tüketiminin azaltılmasında farkındalığın potansiyel rolüne işaret etmektedir. Ayrıca, sonuçlar bu popülasyonda ruh sağlığını teşvik eden ve alkol tüketiminin başlamasını önleyen politikaların uygulanmasının gerekliliğinin altını çizmektedir..

Anahtar kelimeler: Ergen, başa çıkma güdüleri, farkındalık, psikolojik sıkıntı, sorunlu alkol kullanımı

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Introduction

Alcohol consumption is prevalent among adolescents worldwide (1). More than half (57%) of 15-year-olds have experimented with alcohol at least once, and nearly 40% have reported alcohol consumption within the past 30 days. Furthermore, approximately one in ten adolescents have experienced intoxication on at least two occasions. This prevalence exhibits a marked increase from 5% at age 13 to 20% by age 15, underscoring a concerning upward trajectory of alcohol misuse among youth (2). Extensive evidence indicates that early initiation of alcohol use significantly increases the risk of developing maladaptive drinking patterns later in life (3). This is particularly concerning given that adolescent alcohol consumption is associated with adverse physical and psychological health outcomes (4–6), as well as impairments in cognitive functions such as attention, learning, psychomotor speed, and memory. Additionally, alcohol use in this population has been linked to structural alterations in both gray and white matter volume (7,8).

Several psychosocial factors contribute to adolescent alcohol use, including peer influence, concerns about social acceptance, and impulsivity (9,10). Psychological distress is also a well-established correlate of alcohol use (11), particularly when individuals engage in maladaptive coping strategies to manage negative emotions (12). This common pattern, known as drinking to cope, is strongly associated with problematic alcohol consumption (13). Mindfulness represents another psychological construct that may be relevant to alcohol consumption. It is defined as "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (14). Mindfulness has been shown to facilitate adaptive coping with adversity (15) and is associated with lower levels of mental health problems (16). Furthermore, mindfulness may mitigate the risk of developing maladaptive drinking behaviors and has been identified as a protective factor in the treatment and recovery of individuals with alcohol use disorder (17). Specifically, individuals with higher levels of mindfulness tend to engage in more adaptive coping strategies and exhibit lower susceptibility to problematic drinking and its associated negative consequences (18–20).

Given the substantial impact of alcohol use on adolescents' physical and mental health, it is critical to identify the factors contributing to alcohol consumption within this population. However, existing research on alcohol consumption in adolescents remains less extensive than that conducted in adults. Moreover, the relationship between mindfulness and alcohol consumption in adolescents has yet to be thoroughly examined. Therefore, the present study aims to investigate the predictive role of mindfulness in alcohol consumption and drinking to cope in a clinical sample of Turkish adolescents.

Methods

Sample and Procedure

This study was conducted through face-to-face interviews based on the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) between August and September 2024 in Adana, Türkiye. All interviews were performed by a child and adolescent psychiatrist (A.A.G).

The study population comprised adolescents who had been undergoing psychiatric treatment for an existing diagnosis and those who sought consultation at the Child and Adolescent Psychiatry Outpatient Clinic at Dr. Ekrem Tok Mental Health and Diseases Hospital for the first time during the specified period. During the interviews, participants were asked, "How often do you have a drink containing alcohol?"—the first item of the Alcohol Use Disorders Identification Test–Consumption (AUDIT–C). Adolescents who responded "never" were excluded from the study. Additional exclusion criteria included a diagnosis of psychosis, bipolar disorder, autism spectrum disorder, intellectual disabilities, or substance use, as well as refusal to participate. A total of 70 adolescents met the inclusion criteria, with a mean age of 16.99 years (range: 14–19 years). Of these, 54.3% were male. In terms of alcohol consumption frequency, 40% reported drinking "once a month or less," 34.3% reported drinking "once a week or less," 17.1% indicated consuming alcohol "2 to 4 times per week," and 8.6% reported drinking "five times a week or more."

Ethical approval for the study was obtained from the Adana City Training and Research Hospital Scientific Research Ethics Committee (approval number: 15.08.2024/110). The study was conducted in accordance with the principles outlined in the Declaration of Helsinki. Informed consent was obtained from all participants and their parents prior to participation.

Measures

The Alcohol Use Disorders Identification Test (AUDIT)

AUDIT is a standardized screening instrument designed to identify patterns of alcohol consumption ranging from low-risk to hazardous or harmful use. It comprises ten items that assess problematic alcohol consumption across three domains: alcohol intake (three items), symptoms of dependence (three items), and adverse consequences associated with alcohol use (four items) (21). Items 1–8 are scored on a 5-point Likert scale ranging from "0 = never" to "4 = daily or almost daily," while items 9 and 10 have three response options: "0 = No," "2 = Yes, but not in the past year," and "4 = Yes, during the past year." The total AUDIT score ranges from 0 to 40, with a threshold score of ≥8 indicating hazardous or harmful drinking. A score of ≥13 in women and ≥15 in men is suggestive of alcohol dependence (21). The AUDIT has been translated into multiple languages, including Turkish, and has demonstrated reliability and validity within Turkish populations (22).

Given the study's focus on alcohol consumption among adolescents, the AUDIT–Consumption (AUDIT–C) subscale (23) was employed. The AUDIT–C consists of three items assessing alcohol consumption patterns over the past year, including frequency of use, quantity of alcohol consumed, and episodes of binge drinking. The three items are: "How often do you have a drink containing alcohol?", "How many standard drinks containing alcohol do you have on a typical day when drinking?", and "How often do you have six or more drinks on one occasion?" The total AUDIT–C score is derived by summing the scores from these three items, yielding a possible range of 0 to 12, with higher scores indicative of greater alcohol consumption (24).

The Drinking Motives Questionnaire–Revised (DMQ–R)

This scale is a 20-item measure that evaluates the frequency of drinking for four distinct motivational dimensions: enhancement, social, coping, and conformity motives (25). Each motive is assessed through five items rated on a 6-point Likert scale from "0 = never" to "5 = almost always." The DMQ–R has been validated as a reliable instrument for assessing alcohol-related motives among Turkish inpatients (26). In this study, the Coping Motives subscale (DMQ–R–CM) was utilized to assess drinking as a means of coping with negative emotions. This subscale comprises five items, including "How often do you drink to forget your worries?" and "How often do you drink because it helps you feel better when depressed or anxious?" The total DMQ–R–CM score is obtained by summing the scores of the five items, with a possible range of 0 to 25. Higher scores reflect greater reliance on alcohol as a coping mechanism among adolescents.

The Child and Adolescent Mindfulness Measure (CAMM)

CAMM is a validated instrument designed to assess mindfulness in children and adolescents (27). The CAMM consists of ten items, including "I get upset with myself for having feelings that don't make sense" and "I keep myself busy so I don't notice my thoughts or feelings," rated on a 5-point Likert scale from "0 = never" to "4 = always." All items are reverse-scored (i.e., 0 = 4, 1 = 3, 2 remains unchanged, 3 = 1, and 4 = 0), and the total mindfulness score is obtained by summing the scores of all items, yielding a range of 0 to 40. Higher scores indicate greater levels of mindfulness. The CAMM has been demonstrated to be a reliable and valid tool for assessing mindfulness in Turkish children and adolescents (28).

The Kessler-10 Psychological Distress Scale (K10)

K10 is a widely used instrument for measuring psychological distress (29). The K10 consists of ten items assessing the frequency of psychological distress symptoms over the past 30 days, including "During the last 30 days, how often did you feel nervous?" and "During the last 30 days, how often did you feel depressed?" Items are rated on a 5-point Likert scale from 1 ("none of the time") to 5 ("all of the time"). The

total score ranges from 10 to 50, with higher scores indicating greater psychological distress. The K10 has been translated into multiple languages, including Turkish, and is recognized as a reliable and valid instrument for assessing psychological distress in Turkish populations (30).

Table 1. Sociodemographic characteristicsof sample (*n* = 70)

Variable	
Age (years), *mean (SD)*	16.99 (1.20)
Gender, *n (%)*	
Female	32 (45.7)
Male	38 (54.3)
Chronic disease, *n (%)*	
No	68 (97.1)
Yes	2 (2.9)
Psychiatric diagnosis, *n (%)*	
No diagnosis	18 (25.7)
Depressive disorders	29 (41.4)
Anxiety disorders	13 (18.6)
Attention deficit hyperactivity disorder	7 (10.0)
Obsessive–compulsive disorder	7 (10.0)
Conduct disorder	6 (8.6)
Maternal education, *n (%)*	
High school or below	49 (70.0)
University	21 (30.0)
Paternal education, *n (%)*	
High school or below	43 (61.4)
University	27 (38.6)
Family type, *n (%)*	
Intact family	45 (64.3)
Non-intact family	25 (35.7)
Duration of alcohol use (years), *mean (SD)*	2.32 (1.43)
Frequency of drinking, *n (%)*	
Once a month or less	28 (40.0)
Once a week or less	24 (34.3)
2 to 4 times a week	12 (17.1)
Five times a week or more	6 (8.6)
Household alcohol use, *n (%)*	
No	62 (88.6)
Yes	8 (11.4)
Alcohol use among close friends, *n (%)*	
No	41 (58.6)
Yes	29 (41.4)

Statistical Analysis

All statistical analyses were conducted using SPSS version 29.0 (IBM SPSS Corp., Armonk, NY, USA). Continuous variables were summarized as mean (standard deviation), while categorical variables were reported as frequencies and percentages (n, %). Data integrity checks confirmed the absence of missing values. Subsequently, the dataset was screened for outliers and violations of normality. Multivariate outliers

were identified using Mahalanobis distance (D^2) and visual inspection of boxplots. The assumption of normality was assessed through skewness and kurtosis values, as well as histogram examination, with skewness and kurtosis values within ±1.0, indicating a normal distribution (31). Spearman's correlation analysis was employed to explore the relationships among study variables.

Hierarchical linear regression analyses were conducted to examine predictors of drinking to cope (DMQ–R–CM) and alcohol consumption (AUDIT–C). Based on prior literature, gender (0 = male, 1 = female) and duration of alcohol use were included as predictor variables in the null model (Step 1). Psychological distress (K10) was introduced as an additional predictor in Step 2, followed by mindfulness (CAMM) in Step 3. To identify potential additional covariates, unpaired t-tests were performed to assess differences in DMQ–R–CM and AUDIT–C scores across key demographic variables, including psychiatric diagnosis and household alcohol use. No significant differences were observed across these demographic factors, and their inclusion in the regression models did not meaningfully alter the interpretation of the results. Thus, to optimize statistical power by minimizing the number of predictors, these variables were excluded from the final regression analyses. This decision aligns with established guidelines recommending a minimum of 15 to 20 participants per independent variable in linear multivariate regression analysis (32). Multicollinearity was evaluated using variance inflation factor (VIF) and tolerance values. A p-value of <0.05 was considered indicative of statistical significance.

Results

Table 1 provides a summary of the sociodemographic characteristics of the sample. Table 2 presents descriptive statistics, including minimum and maximum values, mean, standard deviation, median, and reliability statistics for the scale scores.

Table 2. Descriptive statistics for the scale scores

Scale	M	SD	Min. – Max.	α	ω
CAMM	22.23	7.09	0–35	.786	.770
K10	30.89	9.77	10–50	.933	.934
DMQ–R–CM	9.47	7.10	0–25	.940	.940
AUDIT–C	4.43	2.56	1–11	.667	.769

M: Mean, SD: Standard deviation, α: Cronbach alpha, ω: McDonald's omega, CAMM: Child and Adolescent Mindfulness Measure, K10: Kessler-10 Psychological Distress Scale, DMQ–R–CM: Drinking Motives Questionnaire–Revised–Coping Motives, AUDIT–C: Alcohol Use Disorders Identification Test–Consumption

Table 3 reports Spearman's correlation coefficients among the study variables. AUDIT–C scores exhibited a positive correlation with the duration of alcohol use ($r_s = .483$, $p < .001$), psychological distress (K10) ($r_s = .381$, $p = .001$), and drinking to cope (DMQ–R–CM) ($r_s = .359$, $p = .002$). Likewise, a positive association was observed between K10 and DMQ–R–CM scores ($r_s = .303$, $p = .011$).

Table 3. Spearman's correlations coefficients among the study variables

	1	2	3	4	5	6
1. Gender	—					
2. Duration of alcohol use	–.074	—				
3. CAMM scores	.001	.036	—			
4. K10 scores	.334**	.163	–.154	—		
5. DMQ–R–CM scores	–.161	.161	–.180	.303*	—	
6. AUDIT–C scores	–.013	.483***	–.225	.381**	.359**	—

CAMM: Child and Adolescent Mindfulness Measure, K10: Kessler-10 Psychological Distress Scale, DMQ–R–CM: Drinking Motives Questionnaire–Revised–Coping Motives, AUDIT–C: Alcohol Use Disorders Identification Test–Consumption, *p <.05, **p <.01, ***p <.001

A three-step hierarchical linear regression analysis was conducted to examine predictors of drinking to cope (DMQ–R–CM). The results indicated that the first model, which included gender and duration of alcohol use, was not statistically significant, suggesting that these variables did not explain a significant proportion of variance in DMQ–R–CM scores (F (2, 67) = 1.09, p = .342). The second model, which incorporated psychological distress (K10), was significant and accounted for an additional 13.32% of the variance in DMQ–R–CM scores (F (1, 66) = 10.53, p = .002, ΔR2 = .133). However, the third model, which added mindfulness (CAMM), was not significant, indicating that mindfulness did not contribute significantly to the explanation of variance in DMQ–R–CM scores (F (1, 65) = 2.69, p = .105, ΔR2 = .033).

Regarding specific predictors, the female gender significantly predicted DMQ–R–CM scores (B = –3.94, t (65) = –2.35, p = .022), whereas psychological distress (K10) was also a significant positive predictor (B = .28, t (65) = 3.18, p = .002). However, neither the duration of alcohol use (B = .12, t (65) = .22, p = .829) nor mindfulness (CAMM) significantly predicted DMQ–R–CM scores (B = –.18, t (65) = –1.64, p = .105) (Table 4).

Table 4. Results from hierarchical linear regression analysis on drinking to cope (DMQ–R–CM)

Variable	B	SE	95% CI	β	t	p-value
Step 1 (R2 = .032)						
(Intercept)	9.35	1.82	[5.72, 12.98]		5.14	<.001
Gender (female)	–2.11	1.70	[–5.50, 1.29]	–.15	–1.24	.219
Duration of alcohol use	.46	.60	[–.73, 1.65]	.09	.78	.439
Step 2 (R2 = .165)						
(Intercept)	2.27	2.77	[–3.25, 7.80]		.82	.415
Gender (female)	–4.04	1.70	[–7.43, –.65]	–.29	–2.38	.020
Duration of alcohol use	.06	.57	[–1.08, 1.20]	.01	.10	.923
Psychological distress (K10)	.29	.09	[.11, .47]	.40	3.24	.002
Step 3 (R2 = .198)						
(Intercept)	6.41	3.72	[–1.02, 13.83]		1.72	.089
Gender (female)	–3.94	1.68	[–7.29, –.58]	–.28	–2.35	.022
Duration of alcohol use	.12	.57	[–1.01, 1.25]	.02	.22	.829
Psychological distress (K10)	.28	.09	[.10, .46]	.39	3.18	.002
Mindfulness (CAMM)	–.18	.11	[–.41, .04]	–.18	–1.64	.105

B: Unstandardized coefficients, β: Standardized coefficients, CAMM: Child and Adolescent Mindfulness Measure, K10: Kessler-10 Psychological Distress Scale, DMQ–R–CM: Drinking Motives Questionnaire–Revised–Coping Motives

A three-step hierarchical linear regression analysis was also conducted to examine predictors of alcohol consumption (AUDIT–C). The first model, which included gender and duration of alcohol use, was significant and accounted for an additional 27.25% of the variance in AUDIT–C scores (F (2, 67) = 12.55, p <.001). The second model, which added psychological distress (K10), was also significant, explaining an additional 6.01% of the variance (F (1, 66) = 5.95, p = .017, ΔR2 = .060). The third model, incorporating mindfulness (CAMM), remained significant, accounting for an additional 4.73% of the variance in AUDIT–C scores (F (1, 65) = 4.96, p = .029, ΔR2 = .047).

Among the predictors, duration of alcohol use (B = .86, t (65) = 4.81, p <.001) and psychological distress (K10) were significant positive predictors of AUDIT–C scores (B = .07, t (65) = 2.37, p = .021). In contrast, mindfulness (CAMM) emerged as a significant negative predictor (B = –.08, t (65) = –2.23, p = .029). Gender, however, did not significantly predict AUDIT–C scores (B = –.24, t (65) = –.45, p = .653) (Table 5).

Table 5. Results from hierarchical linear regression analysis on alcohol consumption (AUDIT–C)

Variable	*B*	*SE*	95% CI	β	*t*	*p-value*
Step 1 (R^2 = .273)						
(Intercept)	2.17	.57	[1.03, 3.30]		3.81	<.001
Gender (female)	.18	.53	[–.88, 1.24]	.04	.35	.731
Duration of alcohol use	.93	.19	[.56, 1.30]	.52	5.00	<.001
Step 2 (R^2 = .333)						
(Intercept)	.45	.89	[–1.33, 2.23]		.51	.615
Gender (female)	–.28	.55	[–1.38, .81]	–.06	–.52	.606
Duration of alcohol use	.83	.18	[.46, 1.20]	.47	4.52	<.001
Psychological distress (K10)	.07	.03	[.01, .13]	.27	2.44	.017
Step 3 (R^2 = .380)						
(Intercept)	2.23	1.18	[–.12, 4.58]		1.89	.063
Gender (female)	–.24	.53	[–1.30, .82]	–.05	–.45	.653
Duration of alcohol use	.86	.18	[.50, 1.22]	.48	4.81	<.001
Psychological distress (K10)	.07	.03	[.01, .12]	.25	2.37	.021
Mindfulness (CAMM)	–.08	.04	[–.15, –.01]	–.22	–2.23	.029

B: Unstandardized coefficients, β: Standardized coefficients, CAMM: Child and Adolescent Mindfulness Measure, K10: Kessler-10 Psychological Distress Scale, AUDIT–C: Alcohol Use Disorders Identification Test–Consumption

Discussion

The present study examined the determinants of alcohol consumption and drinking to cope within a clinical sample of Turkish adolescents. The findings indicate that a longer duration of alcohol use and greater psychological distress were significant positive predictors of alcohol consumption, aligning with previous research (11,33). Indeed, individuals frequently resort to alcohol as a coping mechanism for emotional distress (13), and a substantial body of literature has demonstrated that reliance on alcohol for coping significantly contributes to problematic drinking (34–37). Moreover, early initiation of alcohol consumption and prolonged use are critical indicators of alcohol misuse and its associated consequences. For example, a cohort study reported that adolescents who engaged in heavy drinking at an earlier age exhibited greater alcohol consumption, more frequent high-intensity drinking episodes, and an increased likelihood of meeting criteria for alcohol use disorder by the age of 20 (38).

This study further identified mindfulness as a negative predictor of alcohol consumption, a finding consistent with existing literature. Flowers et al. (39) observed that acting with awareness, a core component of dispositional mindfulness, may mitigate alcohol-related problems by fostering intentional decision-making rather than automatic, habitual responses. Additionally, Skrzynski et al. (40) demonstrated that an eight-week mindfulness-based relapse prevention program reduced hazardous drinking by alleviating cravings among individuals consuming more than 14 drinks per week (women) and 21 drinks per week (men). Similarly, a mixed-methods study evaluating a four-week mindfulness intervention designed to reduce heavy episodic drinking found that participants in the mindfulness group reported lower alcohol consumption on weekends following the intervention (41). The inverse relationship between mindfulness and alcohol consumption is well established. However, research examining this association in adolescents remains relatively limited, with findings that are less conclusive than those observed in adults. For instance, a

randomized controlled trial assessing the effects of mindfulness meditation in conjunction with brief school-based cognitive-behavioral therapy found no additional benefits of mindfulness meditation in reducing adolescent alcohol use (42). Mindfulness practice involves cultivating present-moment awareness in a nonjudgmental manner, enabling individuals to recognize their thoughts and emotions without reacting impulsively (14). This process can disrupt automatic responses to alcohol-related cues and decrease impulsive drinking behavior (43,44). Additionally, rumination—characterized by persistent, negative, self-referential thinking—has been identified as a predictor of problematic drinking (12), whereas mindfulness has been shown to attenuate this risk by reducing rumination (45). Nevertheless, further research is warranted to elucidate the efficacy of mindfulness-based interventions in adolescent populations.

Another potential mechanism underlying the association between mindfulness and alcohol use is its role in mental health. Mindfulness has been linked to greater psychological well-being and reduced psychological distress, including lower levels of negative affect (16). Consequently, individuals with higher levels of mindfulness may be less likely to engage in alcohol use as a maladaptive coping strategy for negative emotions (45). However, the findings of the present study do not support this hypothesis. Specifically, mindfulness was not significantly associated with either psychological distress or the use of alcohol as a coping mechanism. A possible explanation for this discrepancy is that the study sample consisted of adolescents in a clinical setting, whereas existing research on the effects of mindfulness on adolescent mental health lacks robust empirical support (46). Additionally, the relatively small sample size may have limited the statistical power to detect significant associations. Moreover, the inverse relationship between mindfulness and alcohol consumption observed in this study may not be attributable to the beneficial effects of mindfulness on mental health. Instead, it is plausible that mindfulness exerts its influence by reducing personal traits associated with alcohol consumption, such as impulsivity.

Mental health disorders are strongly associated with the onset of alcohol use and subsequent dependence among adolescents, regardless of sex. However, it has been suggested that distinct developmental trajectories for males and females may render adolescent females more susceptible to using alcohol as a means of managing negative emotions (47). Indeed, Johannessen et al. (48) reported that the association between early alcohol use and symptoms of anxiety and depression was more pronounced in females. This finding is particularly relevant, as alcohol consumption among females has been linked to exacerbated alcohol-related health consequences compared to males (47). Nonetheless, the present study found that the female sex was a negative predictor of drinking to cope. This unexpected finding may be attributable to the limited sample size and the unique characteristics of the study population (e.g., psychological resilience, impulsivity, and demographic factors such as household alcohol use), underscoring the need for larger-scale investigations to better understand the role of sex differences in adolescent alcohol consumption.

It is important to acknowledge several limitations of this study that should be considered when interpreting the findings. First, the sample size and the use of clinical data from a single center may restrict the generalizability of the results. Nonetheless, a post-hoc power analysis revealed that the sample size attained an adequate power level (>.80) for the interpretation of the current findings. Second, variability in participant characteristics introduced potential confounding factors; while some individuals were already receiving treatment for various conditions, including depression and anxiety disorders, others were first-time patients seeking care at the outpatient clinic. This heterogeneity resulted in a broad spectrum of diagnoses, such as newly diagnosed depression and depression in remission, complicating statistical assessments of the relationship between clinical diagnoses and alcohol consumption. Third, the cross-sectional study design precludes any evaluation of the temporal dynamics between the examined variables. Fourth, the lack of a control group represents a notable limitation, as it prevents direct comparisons that could strengthen causal inferences. Furthermore, individual psychological traits, such as resilience, impulsivity, and personality factors, were not incorporated into the analysis despite their potential influence on adolescent alcohol consumption patterns.

Despite these limitations, this study offers valuable insights into factors associated with alcohol consumption among adolescents. The findings suggest that promoting mindfulness may serve as an effective strategy for

mitigating alcohol consumption. Mindfulness-based interventions, including mindfulness-based stress reduction and mindfulness-based cognitive therapy, could be beneficial in this regard. Additionally, addressing underlying mental health conditions may help reduce alcohol consumption by minimizing its use as a maladaptive coping mechanism. The development and implementation of policies aimed at preventing adolescent alcohol initiation remain critical. Future large-scale, longitudinal studies are warranted to further elucidate the factors contributing to alcohol consumption in this population.

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Yazar Katkıları: Tüm yazarlar ICMJE'in bir yazarda bulunmasını önerdiği tüm ölçütleri karşılamışlardır
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