



The Tendency to Use Substances/Drugs and its Association with Interpersonal Dependence in Iranian Medical Students

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Abstract

Background: Personality traits or disorders are now attracting more attention as factors in the initiation and continuation of substance/drug use. However, few studies have been conducted on the association between interpersonal dependence and substance/drug use. The present study aimed to investigate the association between this form of psychological dependence and the tendency to use substances/drugs in medical students.

Methods: The present study was based on an analytical cross-sectional design and conducted on 310 medical students selected by stratified sampling at Guilan University of Medical Sciences in 2021. The Interpersonal Dependency Inventory and the Iranian Addiction Potential Scale were employed to assess the two variables of interpersonal dependence and the tendency to use substances/drugs.

Findings: The correlation matrix shows that the tendency to use substances/drugs has a significant negative correlation with interpersonal dependence ($P=0.0001$, $r=-0.285$) in general and emotional reliance on another person ($P=0.0001$, $r=-0.264$) and lack of social self-confidence (LSSC) ($P=0.0001$, $r=-0.297$) in particular. Female ($F=8.57$, $P=0.004$) and married ($F=5.14$, $P=0.024$) students showed more tendency to use substances/drugs than male and single students, but no significant difference was observed regarding interpersonal dependence. Academic course, residence status, parents' occupation, number of family members, and birth order did not significantly affect the scores.

Conclusion: Interpersonal dependence can have different functions, depending on its level. Although interpersonal dependence at maladaptive levels can act as a risk factor and make a person vulnerable to some behavioral problems, at adaptive levels, it acts as a protective factor and reduces those problems.

Keywords: Substance use, Psychological dependence, Medical students

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Introduction

Substance/drug use is a common problem in young adults. In fact, according to epidemiological studies, substance/drug use is more common among young people than among other age groups.^{1,2} It is also one of the leading causes of preventable diseases and premature death in the world.³ According to estimates, the burden related to substance/drug use has increased significantly in teenagers and young adults.⁵ For example, in men aged 20–24, 14% of the overall health burden can be attributed to the use of alcohol and illegal substances.⁵ Various reasons are given by users for substance/drug use, such as relaxing (96.7%), staying awake at night (95.9%), strengthening an ability (88.5%), and relieving depression (86.8%).⁶ Students are among the young age groups that are affected by substance/drug use. Studies have shown that the substance/drug use pattern of students has increased and changed in the last decade.⁷⁻⁹

When students enter the university, they face many challenges that can be the basis of mental disturbances, such as depression, feeling alone, and the probability of substance/drug use.¹⁰ Meanwhile, medical students are at greater risk for substance/drug use due to their relative familiarity with addictive substances/drugs.^{10,11}

Various risk factors have been mentioned for the use or tendency to use substances/drugs in young people, such as (a) contextual factors, including availability of drugs/substances, social norms, and environmental challenges, (b) fixed risk factors, including being male and potential genetic factors, and (c) individual, interpersonal, and family risk factors, including insecure attachments, defiant behaviors, poor quality of parent-child interactions, and poor academic performance.^{5,12} Many studies have shown that attention-deficit/hyperactivity disorder, anxiety, depression, and post-traumatic stress disorder



are especially related to substance/drug use,^{13,14} and young people with pre-existing psychiatric disorders have high rates of substance abuse.¹³ In addition, exposure to the COVID-19 pandemic has been among the environmental challenges that have had a significant impact on the quality of life, psychological status, and pattern of substance/drug use of young people in recent years.^{15,16} In particular, medical students are generally known to have higher psychological distress than the general population due to the challenges of studying in medical schools and attending clinical environments.¹⁵ Studies in different countries show that the COVID-19 pandemic has created serious challenges, such as a sudden change in the education pattern, challenging academic requirements, high workload, time pressure, and isolation for medical students and those who have to adapt to these challenges effectively and efficiently.^{17,18} The challenges arising from this public health crisis have caused new negative psychological and behavioral consequences or exacerbated pre-existing ones, such as anxiety, depression, loneliness, and substance/drug use.^{15,16,18}

According to the literature on the association between mental health and substance/drug use, one of the important factors in people's vulnerability to substance/drug use is personality traits/disorders.¹⁹ The importance of personality in explaining substance/drug use is so great that some researchers have proposed the construct of addictive personality traits.²⁰ Impulsivity and novelty/sensation seeking are two personality traits with a well-known biological basis that have been introduced in many studies as risk factors for drug/substance use.^{5,20} Clinical studies also indicate that personality traits at clinical levels have a clear relationship with consumption and tendency towards it. A high correlation between clinical personality traits and consumption of substances/drugs has been reported. For example, epidemiological studies indicate that the prevalence of personality disorders in alcoholism ranges from at least 22%–40% to 58%–78%.²¹ Also, a recent review indicated that the coexistence of personality disorders with substance use disorders was 10%–14.8% in the general population and 34.8%–73% in patients treated for addiction.²² The focus of studies in the past few decades has been mainly on borderline and antisocial personality disorders, and some researchers believe that these two disorders share causal cognitive processes with substance use disorders.²³ Studies have shown that borderline and antisocial personality disorders have high co-occurrence with substance use disorders in clinical and general populations.^{24,25} Despite this focus on the above personality disorders, some findings indicate that the association between substance use and personality disorders is not limited to borderline and antisocial traits/disorders and avoidant, paranoid, and histrionic traits/disorders, among others, are also related to substance use and may act as risk factors.^{23,26}

Although interpersonal dependence has long been accepted as one of the well-known personality traits, and there are some studies on its clinical and non-clinical aspects, very few studies have been conducted to investigate its association with substance/drug use.^{26,27} As a result, there is currently little knowledge about the prevalence of interpersonal dependence and its potential impact on substance/drug use. Interpersonal dependence is a set of personality characteristics defined by the tendency to depend or rely excessively on others for care, support, guidance, and direction. Typically, dependence is characterized by a personality style with four factors: motivational (marked need for guidance, approval, and support from others), cognitive (perception of self as a person lacking power or influence and perception of others as powerful and influential), emotional (tendency to become anxious when one is expected to act independently), and behavioral (tendency to receive support, approval, help, and guidance from others).²⁸ Higher levels of dependence trait can make a person prone to negative psychological experiences. Research has proven that there is a strong relationship between levels of interpersonal dependence and major depression.²⁹ Other studies have reported that dependence is associated with some clinical conditions, such as anxiety, eating disorders, and an increased risk of suicide.^{30,31} On the other hand, because dependent people feel a great need to be supported and accepted by others, they may try to satisfy their emotional needs or show less resistance against collective pressures; thus, they may easily experience substance/drug use. Some studies show that there is a significant relationship between high interpersonal dependence and substance use, such as smoking and drinking.³² Such findings have led some researchers to suggest that interpersonal dependence can be a potential risk factor for the development of various psychiatric disorders, including substance use.³³

In Iran, like some other countries, drug use has become a health problem and has caused extensive physical, psychological, social, and economic complications. According to the available reports, Iran has the highest prevalence of drug use in proportion to the population, and previous studies have shown that this prevalence has increased with a growth rate of 8% every year.³⁴ In particular, during recent years, the use of addictive substances has been increasing among young people and teenagers.³⁵ Substance use among medical students has also been escalating, mirroring a broader global trend.^{36–38} Preventing and correctly dealing with this major problem depends greatly on knowing the risk factors, especially at the psychological level. As a trait, style, and personality disorder that is highly associated with many psychological problems, including depression,²⁵ interpersonal dependence can act as a risk factor for the tendency to use substances/drugs, especially at a young age. Considering

the very few studies in this field, the present study was conducted to investigate the relationship between interpersonal dependence and the tendency to use substances/drugs in medical students of Guilan University of Medical Sciences. According to the existing data, we expected that students with a high score in the trait of interpersonal dependence would have a greater tendency to use substances/drugs.

Methods

This analytical cross-sectional study was conducted in 2021 on Guilan University of Medical Sciences medical students. Based on Cochran's formula and information from the most similar previous study,³⁹ the required sample size was 248 participants, considering an alpha of 0.05 and a power of 0.95. However, after considering the probability of 25% dropout, a total of 310 participants were selected. Stratified sampling was used to control the effect of the academic course and age. In this way, according to the number of students in each course of the basic sciences (2.5 years), physiopathology (1 year), stagership (2 years), and internship (1.5 years), the number of samples for basic science, physiopathology, stagership, and internship courses was determined as 110, 45, 87, and 68, respectively. After completing the demographic checklist, including age, gender, marital status, academic course, residence status, grade point average, family economic status, parents' occupation, number of members of the family, and birth order, the Interpersonal Dependency Inventory and the Iranian Addiction Potential Scale self-report tools were employed for assessing the two variables of interpersonal dependence and tendency to use substances/drugs. Before implementing the measures, the participants were given the necessary explanations, and their written consent was obtained.

The Interpersonal Dependence Inventory (IDI), which was designed by Hershfield et al in 1977, is one of the most widely used interpersonal dependence self-report instruments.⁴⁰ In addition to its original version, two 6-item⁴¹ and 23-item⁴² versions are also designed based on the original version. This questionnaire has high predictive power for maladaptive interpersonal dependence (dependent personality disorder) and behaviors, emotions, and motivations related to interpersonal dependence. This questionnaire has 48 items with four options and consists of three subscales of emotional reliance on another person (18 items), lack of self-confidence (16 items), and assertion of autonomy (AOA) (14 items). The total score is obtained from the total scores of the participants' responses to all three subscales and ranges between 48 and 192. Items 10, 23, and 44 are scored in reverse. This questionnaire has good internal consistency (from 0.79 to 0.91).⁴⁰ The cross-validity of the IDI has been established in a normal and psychiatric population.⁴⁰ Based on the results of the study above, the correlations between emotional

reliance on another person and lack of self-confidence were 0.41 for the normal sample and 0.62 for the patient sample; the correlations between emotional reliance on another person and were 0.10 and 0.18, respectively; the correlations between lack of self-confidence and were 0.16 and 0.34, respectively.⁴⁰ Also, a significant correlation of the IDI subscales with the general neuroticism scale of the Maudsley Personality Inventory⁴³ and the 39-item social desirability scale of the Minnesota Multiphasic Personality Inventory⁴⁴ showed their divergent and convergent validity, respectively.⁴⁰ The Cronbach's alpha coefficient of IDI was reported as 0.81 in one Iranian study.⁴⁵

The Iranian Addiction Potential Scale (IAPS) was designed by Zargar in 2006 according to the social and cultural characteristics of the Iranian society.⁴⁶ The IAPS consists of 36 items plus five lie detector items, and its factorial structure consists of two factors: active preparation and passive preparation. Each item is scored on a 4-point Likert scale (0 to 3). The total score will be in the range of 0 to 108, and the higher this score, the greater the tendency of the respondent to addiction. The IAPS was reported to have good criterion and construct validity in two studies^{46,47}; the Cronbach's alpha coefficient of 0.90 has been reported.

After collecting the data, they were entered into SPSS software version 26. Mean (M), standard deviation (SD), frequency (*n*), and percentage (%) were used to describe quantitative data. Pearson's correlation coefficient was used to examine the association between the tendency to use substances/drugs and interpersonal dependence. Also, multivariate analysis of variance (MANOVA) was used to examine the participants' differences in the tendency to use substances/drugs and interpersonal dependence in terms of demographic variables.

Results

Among the participants, 154 were male (49.7%) and 156 were female (50.3%). The mean and standard deviation of the age of the participants were 22.93 and 3.012, and their age range was between 18 and 37. Other demographic characteristics of the sample, including marital status, academic course, residence status, grade point average, family economic status, parents' occupation, number of family members, and birth order, are shown in [Table 1](#).

The participants' mean and standard deviation were 79.30 and 15.56 in the IAPS and 117.6 and 14.96 in the IDI, respectively. The mean and standard deviation of the IDI subscales were 45.49 and 8.62 for emotional reliance on another person, 39.6 and 6.91 for lack of social self-confidence (LSSC), and 33.89 and 6.43 for , respectively ([Table 2](#)).

Pearson's correlation coefficient was used to examine the association between the tendency to use substances/drugs and interpersonal dependence. As shown in [Table 3](#), the correlation matrix between the study variables shows

Table 1. Demographic characteristics of the sample

Variable	n (%)
Gender	
Male	154 (49.7)
Female	156 (50.3)
Age category	
≤20	80 (25.8)
21–25	175 (56.5)
≥26	55 (17.7)
Marital status	
Single	297 (95.8)
Married	13 (4.2)
Grade point average	
16–20 (A)	228 (73.5)
14–15 (B)	76 (24.5)
12–13 (C)	6 (1.9)
Academic course	
Basic sciences	110 (35.5)
Physiopathology	45 (14.5)
Stagership	87 (28.1)
Internship	68 (21.9)
Residence status	
With family	181 (58.4)
Student house	78 (25.2)
Student dormitory	51 (16.5)
Family economic status	
Good	95 (30.6)
Average	208 (67.1)
Poor	7 (2.3)
Father's occupation	
Unemployed	11 (3.5)
Self-employed	103 (33.2)
Government-employed	196 (63.2)
Mother's occupation	
Homemaker	146 (47.1)
Self-employed	9 (2.9)
Government-employed	155 (50)
Number of family members	
≤3	49 (15.8)
4	177 (57.1)
≥5	84 (27.1)
Birth order	
First	160 (51.6)
Second and later	150 (48.4)

that the tendency to use substances/drugs has a significant negative correlation with interpersonal dependence ($P=0.0001$, $r=-0.285$) in general and emotional reliance on another person ($P=-0.0001$, $r=-0.264$) and LSSC

($P=0.0001$, $r=-0.297$) in particular.

To examine the differences between participants in the IAPS and the IDI scores in terms of demographic variables, including age, gender, marital status, academic course, residence status, grade point average, family economic status, parents' occupation, number of members of the family, and birth order, multivariate analysis of variance (MANOVA) was used. Since Levine's test did not confirm the assumption of homogeneity of variances ($P=0.0001$), the Games-Howell test was used to evaluate the difference.

As shown in Table 4, the two genders had a significant difference in the tendency to use substances/drugs ($F=8.57$, $P=0.004$), with women (83 ± 15.42) obtaining higher scores than men (75.55 ± 14.82). However, no significant difference was observed regarding interpersonal dependence. However, the difference in emotional reliance of another person (ERAP) was significant ($F=4.83$, $P=0.029$), with women (46.40 ± 9.93) scoring higher than men (44.56 ± 6.99).

Regarding age, a significant difference was observed only in AOA ($F=5.38$, $P=0.005$). The Games-Howell test showed that in this case, the 21–25 age group had a significant difference from the ≥26 age group ($P=0.04$), with the ≥26 age group (35.69 ± 5.37) scoring higher than the 21–25 age group (33.31 ± 6.6).

It was found that single students have a significant difference from married students in terms of the tendency to use substances/drugs ($F=5.14$, $P=0.024$), with higher tendency in married students (85.38 ± 15.44) than in singles (79.03 ± 15.53). Marital status also led to a significant difference in the AOA score ($F=5.79$, $P=0.017$), with single students (34 ± 6.48) scoring higher than married students (31.23 ± 4.4).

Participants with various grade point averages did not have a significant difference in the tendency to use substances/drugs. However, in terms of interpersonal dependence ($F=6.23$, $P=0.002$) and the ERAP ($F=3.13$, $P=0.045$) and LSSC ($F=6.57$, $P=0.002$) subscales, a significant difference was observed. The Games-Howell test showed that the group with a grade point average of 15–14 had a significant difference from the grade point averages of 16–20 ($P=0.01$) and 12–13 ($P=0.03$), with the 14–15 group (14.36 ± 112.58) scoring lower than the 16–20 (118.38 ± 14.92) and 12–13 groups (128.67 ± 8.41).

The participants' economic status also significantly affected LSSC ($F=5.58$, $P=0.004$). The Games-Howell test showed a difference between the good and average categories ($P=0.006$), with good economic status (37.77 ± 7.38) scoring lower than average economic status (40.32 ± 6.62). Academic course, residence status, parents' occupation, number of family members, and birth order did not significantly affect the scores.

Discussion

Considering the many findings in the literature about the

Table 2. Mean and standard deviation of scores in terms of gender and age groups

	IAPS	IDI	ERAP	LSSC	AOA
Gender, Mean (SD)					
Male	75.55 (14.82)	116.61 (13.14)	44.56 (6.99)	39.68 (6.45)	33.9 (6.46)
Female	83 (15.42)	117.7 (16.58)	46.4 (9.93)	39.53 (7.35)	33.87 (6.41)
Age category, Mean (SD)					
≤20	84.58 (13.28)	117.74 (14.5)	46.14 (9.22)	39.34 (6.88)	33.91 (6.55)
21–25	78.32 (16.35)	115.85 (16.06)	45.03 (8.99)	39.26 (7.38)	33.31 (6.66)
≥26	74.73 (14.14)	120.49 (11.17)	45.98 (6.34)	41.07 (5.07)	35.69 (5.37)
Total, Mean (SD)	79.3 (15.56)	117.16 (14.96)	45.49 (8.63)	39.6 (6.9)	33.89 (6.43)

IAPS: Iranian Addiction Potential Scale; IDI: Interpersonal Dependency Inventory (total score); ERAP: emotional reliance of another person (subscale of the IDI); LSSC: lack of social self-confidence (subscale of the IDI); AOA: assertion of autonomy (subscale of the IDI).

Table 3. Correlation matrix between the IAPS and the IDI and its subscales scores

	IAPS	IDI	ERAP	LSSC	AOA
IAPS	1				
IDI	-0.285**	1			
ERAP	-0.264**	0.816**	1		
LSSC	-0.297**	0.790**	0.574**	1	
AOA	-0.009	0.459**	0.022	0.074	1

IAPS: Iranian Addiction Potential Scale; IDI: Interpersonal Dependency Inventory (total score); ERAP: emotional reliance of another person (subscale of the IDI); LSSC: lack of social self-confidence (subscale of the IDI); AOA: assertion of autonomy (subscale of the IDI).

** Correlation is significant at the 0.01 level (2-tailed).

impact of personality characteristics on the use or tendency to use substances/drugs,^{19,25} the present study aimed to investigate the relationship between the tendency to use substances/drugs and one of the less studied personality characteristics, interpersonal dependence, in a sample of Iranian medical students. Our main findings showed that the tendency to use substances/drugs had a significant negative correlation with interpersonal dependence. In other words, a higher tendency to use substances/drugs is associated with lower levels of feelings, behaviors, and motivations related to interpersonal dependence. Specifically, female and married students showed more tendency to use substances/drugs than male and single students, but no significant difference was observed in interpersonal dependence. On the other hand, students with various grade point averages did not differ significantly in their tendency to use substances/drugs, but they differed in terms of interpersonal dependence. Another important finding was that students in different academic courses did not differ significantly in their tendency to use substances/drugs. Also, residence status, parents' occupation, number of family members, and birth order did not significantly affect the scores.

In line with some previous studies,^{26,27} we expected an association between interpersonal dependence and the tendency to use substances/drugs; in other words, the presence of interpersonal dependence predicts the tendency to use substances/drugs. Our findings pointed

to the opposite: the higher the tendency to use substances/drugs, the lower the interpersonal dependence trait. In explaining the above finding, it can be pointed out that the interpersonal dependence trait may be a multifaceted construct and manifest in a continuum at clinical and non-clinical levels. Some theorists and researchers have defined this trait in terms of different dimensions and mentioned different characteristics and consequences for them. They have often distinguished between adaptive and maladaptive expressions of interpersonal dependence. While the term dependent personality disorder is often used in the literature to describe the maladaptive expression of dependence, other terms, such as mature dependency, interdependence, connectedness, and relatedness, have been used to describe its more adaptive expression.⁴⁸ Also, Bornstein et al. have distinguished between destructive overdependence (characterized by a weak self-concept, fear of negative evaluation, and seeking reassurance) and healthy dependence (characterized by self-confidence and autonomy, desire for closeness, and situationally appropriate help-seeking).⁴⁹⁻⁵¹ Destructive overdependence is rooted in a continuous pattern of overprotective or authoritarian parenting. Even in adulthood, these people show a pattern of insecure and clingy behavior.^{49,51} In contrast, healthy dependence is based on considerable behavioral flexibility and the ability to delay short-term gratification to consolidate long-term supportive relationships.⁵¹ Healthy dependence is rooted in a history of exposure to authoritarian parenting that instills a sense of confidence and self-directedness in the individual.⁵²

It can be speculated that healthy interpersonal dependence traits in medical students have resulted in the inverse correlation between the tendency to use substances/drugs and interpersonal dependence in our study. According to the literature, healthy dependent people receive the message from their parents and the environment that asking for help and support from significant people in times of need is acceptable and not a sign of weakness or failure.⁵¹ Also, such dependence between people can be related to the feeling of security and

Table 4. MANOVA of the differences in the tendency to use substances/drugs and interpersonal dependence in terms of demographic variables

	F	P value
Gender		
IAPS	8.567	0.004
IDI	0.954	0.329
ERAP	4.830	0.029
LSSC	0.669	0.414
AOA	0.467	0.495
Age category		
IAPS	1.761	0.174
IDI	1.078	0.341
ERAP	0.044	0.957
LSSC	0.380	0.684
AOA	5.381	0.005
Marital status		
IAPS	5.139	0.024
IDI	0.947	0.331
ERAP	0.193	0.661
LSSC	0.252	0.616
VOA	5.785	0.017
Grade point average		
IAPS	1.606	0.203
IDI	6.234	0.002
ERAP	3.126	0.045
LSSC	6.566	0.002
AOA	1.521	0.220
Academic course		
IAPS	0.288	0.834
IDI	0.586	0.625
ERAP	1.317	0.269
LSSC	1.063	0.365
AOA	1.095	0.352
Residence status		
IAPS	0.971	0.380
IDI	0.009	0.991
ERO	0.024	0.977
LSSC	1.217	0.297
AOA	0.436	0.647
Family economic status		
IAPS	0.650	0.523
IDI	0.752	0.473
ERAP	0.520	0.595
LSSC	5.584	0.004
AOA	2.231	0.109
Father's occupation		
IAPS	0.431	0.650
IDI	0.156	0.856
ERAP	0.051	0.950

Table 4. Continued.

	F	P value
LSSC	1.611	0.201
AOA	1.491	0.227
Mother's occupation		
IAPS	0.023	0.978
IDI	0.565	0.569
ERAP	0.498	0.608
LSSC	0.051	0.950
AOA	1.717	0.182
Number of family members		
IAPS	1.002	0.368
IDI	0.404	0.668
ERAP	1.699	0.185
LSSC	0.238	0.788
AOA	0.763	0.467
Birth order		
IAPS	1.536	0.216
IDI	0.051	0.821
ERAP	0.063	0.801
LSSC	0.245	0.621
AOA	1.414	0.235

IAPS: Iranian Addiction Potential Scale; IDI: Interpersonal Dependency Inventory (total score); ERAP: emotional reliance of another person (subscale of the IDI); LSSC: lack of social self-confidence (subscale of the IDI); AOA: assertion of autonomy (subscale of the IDI).

intimacy and act as a protective factor.^{48,51} Some studies have found such a role for mature and healthy dependence in protecting one from addiction. For example, Škarupová and Blinka found that healthy interpersonal dependence is associated with lower online gaming addiction.⁵³ Another explanation that can be provided for the above finding is related to the requirements and consequences of the COVID-19 pandemic. According to the results of some studies,^{15,16,18,54} medical students were exposed to negative psychosocial experiences such as anxiety, stress, suicidal thoughts, depression, loneliness, and isolation during the recent public health crisis. It can be speculated that students who maintained a level of interpersonal relationships/interdependence/connectedness during the contact restrictions caused by the pandemic were able to protect themselves against some of the complications of the pandemic, including loneliness and isolation, and as a result, were less prone to depression, anxiety, and substance/drug use. Some studies have shown that during the COVID-19 pandemic, loneliness in young people had a direct association with substance/drug use, and connectedness acted as a protective factor against it.^{55,56}

Our other finding, the greater tendency of female students to substance/drug use compared to males, is also inconsistent with many other studies.⁵⁷⁻⁵⁹ It has been frequently reported that men show higher rates of

substance use, abuse, and dependence than women.⁶⁰⁻⁶² However, recent epidemiologic surveys suggest that this gap between men and women has narrowed in recent decades.⁶³ The gap between the patterns of substance/drug use and its related variables in the two genders is closing.⁶³ Differences in rates of substance use are usually related to gender/cultural environment.⁶⁴ An explanation that can be given for the above finding is that beliefs about the difference in the roles of men and women are formed during socialization in the family environment and then in the school and media, in which women – particularly in Eastern cultures – are portrayed as weaker than men. As a result, women may be more inclined to use substances/drugs due to having less resilience in the face of events such as academic problems.⁵⁹ Another interesting finding of our study is that female students obtained higher scores than males in the subscale of emotional reliance on another person. Emotional reliance on others measures the tendency to receive emotional support from and interact with significant individuals in one's life. People with emotional dependence invest more seriously and intensely in their relationships, and this may make the females more prone to use substances/drugs than the males.⁶⁵ Another explanation for the above finding is that young people seek more risks, incidents, and new experiences than other age groups. This tendency may motivate them to experience drug use.⁶⁶ On the other hand, medical students are more exposed to the risk of drug use because of their long study period compared with students of other fields. With the progress of social relations and the change of attitude and lifestyle in Iranian society, females can display sensation-seeking behaviors more freely. In many cases, showing sensation and reward-seeking behavior is accepted by the family and society. The combination of family and community attitudes toward adventurous behaviors may lead females to adventurousness and, in some cases, risky behaviors, such as using substances/drugs.^{67,68}

According to one of the findings of our study, married students tended to use substances/drugs more than single students, which is consistent with the results of some studies^{59,64,69} but in contrast with other studies.^{64,70} Expectedly, marital status also led to a significant difference in one of the subscales of interpersonal dependence, the AOA, with single students scoring higher than married students. Single and married people may use substances/drugs with different goals, reasons, and motivations. According to a previous Iranian study, the strongest predisposing factors for the tendency to use substances/drugs in single people are anxiety, using substances/drugs for pleasure, feeling curious about substances/drugs, imitating the behavior of others, violent and authoritarian behavior, family strictness, and academic stress. In contrast, in married people, a positive attitude towards substances/drugs, the pressure of socio-economic problems, the extreme sensitivity of the family,

and having an addicted friend play a major role.⁷¹ On the other hand, it seems that for married people, studying medicine is associated with problems and concerns, particularly academic and socio-economic pressures, that can act as risk factors and provide grounds for the tendency to use substances/drugs. Problems and concerns such as dealing with marital responsibilities, the increasing difficulty of education, sometimes exhausting financial obligations, and high family expectations may have the potential to put more pressure on married medical students and thus increase their desire and tendency to use substances/drugs. Although we are aware that our findings are inconsistent with the findings of many previous studies,⁷² studying medicine in Iran, especially during the COVID-19 pandemic and post-COVID-19, exposed students to problems that may have changed usual substance use patterns. Thus, it may not be possible, for example, to say with certainty that marriage has a direct positive association with the desire and tendency to use substances/drugs. More studies on medical students with larger sample sizes are necessary to confirm these results.

As stated in the results section, there was no significant difference between the tendency to use substances/drugs with the economic status of the student's families, the parent's occupation, and the number of family members. The economic status of the students in the good and average economic groups showed a significant difference only in the lack of self-confidence, with the good group obtaining lower scores than the average group. Even though poverty can be the basis of mental conditions that make a person vulnerable to addiction, it should be kept in mind that the motivation of students to become addicted may be mostly entertainment, and the costs of providing some types of addictive substances are high. It is recommended to carry out more extensive studies with larger sample sizes in more diverse groups to minimize the impact of probable intervening factors. Also, it is necessary to collect data using various procedures, including interviews and qualitative methods, to gather information about attitudes and desires towards substance/drug use, social and supportive relationships between family members, peer groups, and so on.

Our study had some limitations. First, we did not distinguish between adaptive and maladaptive levels of interpersonal dependence, so we cannot say with certainty that moderate traits of interpersonal dependence are associated with a lower tendency to use substances/drugs. It seems necessary to determine the presence of these traits in the participants in future studies using clinical interviews or other valid tools. Second, since our data were collected during the COVID-19 pandemic, these findings may only be generalizable to periods of public health crisis and outbreaks. It is recommended that studies like ours be repeated in other situations, including the post-COVID-19 period, to determine the generalizability

of our findings to situations without a pervasive health threat. Third, our results are limited to medical students and may not be generalizable to other student groups who were not directly in contact with patients in medical centers during the COVID-19 pandemic. The hypothesis that interpersonal dependence has a protective role against the tendency to use substances/drugs caused by students' exposure to medical centers and patients with COVID-19 needs to be tested. Testing this hypothesis involves examining medical students and other groups of students in conditions without a public health threat in terms of the variables of this study.

Conclusion

Our results indicate that interpersonal dependence can have different functions depending on its level. In other words, although interpersonal dependence in its high maladaptive levels can act as a risk factor and make a person vulnerable to some behavioral problems such as addiction, at its adaptive levels, it can act as a protective factor and reduce those problems. Interpersonal dependence and having basic social support from friends and parents strengthens the sense of intimacy of the person with the environment and has significant effects on mental health. This means that in addition to preventing the feeling of isolation or rejection, Interpersonal dependence can be effective in reducing the tendency to use substances/drugs. These results do not seem specific to medical students, although more studies are needed to assess them in other groups. Considering the prevalence of addiction in today's world, particularly among young people, it is necessary to consider such risk factors in planning preventive and interventional efforts.

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Competing Interests

The authors declare no conflict of interest regarding the publication of this paper.

Ethical Approval

The study followed the protocol approved by the Ethics Committee of Guilan University of Medical Sciences (ethical approval code: ID IR.GUMS.REC.1400.180). All subjects were informed about the study, and all provided informed consent.

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