

## Comparison of Impulsivity, Sleep Disorder and Suicidal Thoughts among People with and without Marijuana Dependence

DOI: [10.22098/JPC.2022.1633](https://doi.org/10.22098/JPC.2022.1633)

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### Abstract

This study aimed to causally compare impulsivity, sleep disorder, and suicidal thoughts in marijuana users and non-users. The statistical population included students consuming marijuana as well as non-consuming students at the University of Gilan. Fifty male students consuming marijuana and another 50 in the age group of 18 to 33 years were selected by purposive and snowballs sampling and 50 non-consuming ones placed in each group. Participants completed the Bart (1995) Impulse Scale, the Pittsburgh Sleep Quality Index (1989), and the Beck Suicide Thought Scale (1961), respectively. Data were analyzed using multivariate analysis of variance through SPSS-22 software. The results showed that marijuana users scored higher on all three subscales of impulsivity, i.e., cognitive, motor, and unplanned impulsivity, and showed a significant difference with the non-consumer group. In terms of sleep disorders, marijuana abusers showed significantly different from the non-consumers in six subscales out of seven subscales, i.e., mental quality, sleep delay, sufficient sleep, sleep disorders, hypnotic drug, and daily sleep disorders. Moreover, in the suicidal ideation scale, people with marijuana abuse had a higher mean score on the Beck suicidal thoughts scale. It was found out that the highest prevalence of severe depression was in participants using marijuana and that using marijuana, hostility, and anxiety were risk factors for developing severe depression. This result addressed an important gap in our knowledge of the different characteristics of depression, anxiety, impulsivity, and aggression in various types of substance users and provides clinicians and policy-makers with directions for intervention and preventing

Vol. 3, No. 1, (2022), 18-31  
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*Published online June, 2022*

**Journal of Preventive  
Counselling (JPC)**

relapse the research findings can be used in designing therapeutic interventions for people addicted to marijuana.

**Keywords:** Impulsivity, Sleep Disorder, Suicidal Thoughts, Marijuana

## Introduction

Marijuana is one of the oldest and most common psychedelic drugs. It is estimated that 200-300 million people in the world use this substance in some way, and many people are constantly addicted to it. Marijuana contains more than 400 different chemicals. Its active ingredient is THC or Tetrahydrocannabinol. Marijuana is a gray-green compound of buds, leaves, trunk, seeds, and flowers of *Cannabis Sativa* (cannabis plant) (Saleh Che, 2006). Marijuana causes many physical and psychological problems, including cognitive reasoning, memory problems, learning disabilities, suicidal thoughts, lung problems, cancer, and heart attack (Hall, 2009; Hall & Degenhart, 2009; Mayer). These side effects are more likely to occur and have more problems in those who have recently started using marijuana (Castellanos-Ryan, 2013; Diox, 2002; Gruber, 2014). Young people use marijuana more than other groups, and more than 75% of those who use marijuana each year are in the same range of age (NIDA, 2014). Marijuana users in their education and test scores are at low levels; also, they are less likely to be accepted to university, are less likely to be employed in an institution or office, and are less satisfied with life (Kob-Clark, 2015; Johnson, 2014). In addition, marijuana users are more likely than others to engage in risky behaviors, including theft, use of firearms, violence, unsafe sex, and accidental injuries (Brooke, 1999; Castellanos Ryan, 2013; Chisin, 2010; Church Well, 2010; Cruz, 2007; Diox, 2002). Marijuana use can cause problems with brain development, including socio-emotional areas (such as the Amygdala, Ventral Striatum, Orbitofrontal cortex, middle prefrontal cortex, and upper temporal lobe) and cause more problems in adulthood (Cruz, 2007; Chisin, 2010; Gruber, 2014). One of the problems with marijuana use is impulsivity (Hall, Hall, & Degenhart, 2009; Mayer, 2012). Impulsive behaviours such as impulsivity and aggression were also common in drug abuse patients. Impulsivity could promote the initiation, maintenance and relapse of drug addiction, which typifies the at-Marijuana abuser group (Danluo, 2022; Bari, Robbins, 2013; Winstanley, Olausson, Taylor, Jentsch, 2018). Compared to age- and sex- attached healthy controls, a higher level of impulsivity was found in methamphetamine users with brief abstinence (no use for 2 days) (Lee et al. 2019). A higher Barratt impulsiveness scale version 11 (BIS-11) score was also found in methamphetamine users seeking treatment than in cocaine users, who scored consistently higher than healthy controls (Winhusen, 2018). Moreover, another study found deficits in reflection impulsivity (Clark, Robbins, Ersche, Sahakian, 2016), response inhibition, and delay discounting (Li et al, 2021) but no differences in motor and non-planning impulsivity in heroin users (Baldacchino et al, 2020). Regarding the relationship between substance addiction and aggression, previous studies suggested that marijuana (Hoaken, Stewart, 2014), heroin (Gerra, et al, 2017), and methamphetamine abusers (Sekine et al, 2016) perform more aggressively and may directly increase the occurrence of aggressive behaviour. Drug abuse may induce various forms of aggressive behaviour during drug intoxication (Kelly, Cornelius, Clark, 2014; Hechtman, Weiss, 1986), and the severity of aggressive behaviour is time-dependent (Schaub, Boesch, Stohler, 2016).

Impulsive behaviors, sometimes referred to as risky behaviors, involve a wide range of more minor thought-provoking behaviors; they immaturely occur with instantaneous, inability to focus on a particular task, and in the absence of proper planning, and are at a

high level of risk and risk (Segal, Moral, and Stones, 2014). A relationship between Marijuana use, mood disorders and impulsive behaviour was also found. Studies have suggested that individuals who use drug such as marijuana (Hoaken, Stewart, 2014), heroin (Alessandra Costanza, 2020; Gerra, et al, 2017), and methamphetamines (Sekine et al, 2016) have higher aggression and impulsivity scores (Zorich et al, 2018). Impulsivity is very common in people who use drugs and has been considered as one of the determining factors and consequences of substance abuse. Some people often behave impulsively (adjective-dependent) while others behave in this way just in certain situations such as experiencing the underlying symptoms of temptation (depending on the situation). The deterioration of close family relationships, living conditions and unemployment of the consumer also leads to violence, spousal abuse, hostility, aggression and suicide. Contrastive styles of addicted people compared to non-addicted people, is also one of the main factors in their impulsiveness and emotional behaviors, because addicted people use impulsive contrastive style more than non-addicted people. Jabraili, Moradi, Habibi (2015) concluded that the dimensions of queue impulsivity and disorder in emotional regulation directly and indirectly affect the degree of impulsivity in meta-users. Moreover, research have revealed relationship between neurosis and impulsivity with craving in opioid addicts (Powell et al., 1990; Powell, Bradley and Gray, 1992) and between personality infrastructure and craving in women who drink alcohol and cocaine (Zilberman, Tavares and El Gubali, 2003). Thus, such people have difficulty in solving problems rationally and efficiently, and use incorrect and often aggressive methods when dealing with problems and people (Knut, 2012).

Another problem that marijuana use causes in people is sleep problems (Sarciafon et al., 2014). As one of the essential parts of human life, sleep helps improve the physical and mental condition of human beings, and its problems will obviously affect freshness and health (Valadi, Aloj, and Visar, 2005). Since humans spend nearly a third of their lives asleep and many people, who make up almost 30% of the world's population, suffer from insomnia, sleep disorders can be one of the most important human mental disorders (Blanc et al., 2007). Poor quality sleep, which is mostly manifested as insomnia, is one of the most important causes of irreversible driving accidents, rail and air accidents, educational problems, and other events in the field of work, and causes a decrease in quality of life and learning and mental problems in individuals (Valadi, Aloj and Visar, 2005). In these circumstances, due to the particular circumstances of student life, they are among the people who suffer more from sleep problems than other people (Sahraeian and Javadpour, 2010). In various studies, the prevalence of sleep problems in Iranian students (Ghani et al., 2011) has been reported from 43 to 57% (Sahraeian and Javadpour, 2010). It is estimated that approximately 64% of students suffer from one or more sleep problems at least a few nights a week, and at least 6% of them are said to have insomnia (Erwin, 2002). Psychological research has shown that cocaine use causes awakening and disrupts the REM sleep phase and that people who quit after abusing the substance experience sleep problems and nightmares. Therefore, according to research results, it can be said that sleep problems have existed even in the stage of abstinence (Skernberg et al., 2008). Also, if marijuana is smoked and taken orally, the REM sleep phase will be reduced; after quitting hashish, people may experience strange dreams frequently and delayed sleep

onset has been a reported symptom of marijuana abuse (Skernberg et al., 2008). Karen et al. (2008) found that excessive use of marijuana caused sleep problems, and these problems persisted even when one stopped using it. Using a Petersburg questionnaire on methadone-treated patients, another study by Ples et al. (2006) found that about 75.2% had trouble sleeping. Based on the evidence, the increase in drug and Psychedelic drugs abuse is one of the reasons for the increase in suicide rates (Cronley, 1990). Drug abuse is closely related to depression and addiction. Addiction causes a person to be prone to suicide and depression. Suicide is 20 times higher in people who use drugs than in others such .that 12 to 15% of these people attempt suicide. Thus, the thought of suicide and taking action against it is another danger and consequence of marijuana use (British College of Psychiatry, 2021). In Australia, 1,600 young people between the ages of 19 and 26 were studied over a period of 7 years, and the study found that cannabis users were five times more likely to be anxious and depressed than others. (British College of Psychiatry, 2021). A study by Babson, Bean, and Miller (2013) concluded that there was a link between cannabis use and sleep problems, as well as depressive symptoms such as suicide.

Suicide as a major health problem has increased among young people in the last decade (Ronald, 2002). One of the risk factors associated with suicide is drug abuse (Liddle et al., 2002); however, almost half of all suicides are committed by individuals with drug abuse (Segal et al., 2014). Over the years, drug abuse has been identified as a major risk factor for suicidal behaviors, and much research has focused on identifying and screening addicts at risk of suicide (Murphy, 1988). Epidemiological studies indicate the relationship between drug abuse, alcohol, and especially drug abuse and physical and psychological dependence on several substances with an increased likelihood of suicidal thoughts and behavior, and the prevalence of suicidal behavior among drug addicts is reported between 17% (Squid, 1986) up to 29% (Withers, Covert, & Widmar, 1985). On the other hand, research has shown that depression and anxiety are closely related to suicide attempts (Brunich and Witchen, 1994). People who attempt suicide suffer from drug abuse and addiction compared to normal people (Oboyel, 1998; Lee, Gaidish, Pagano, Tajima, & Pasalakova, 2015). Nosratabadi and Halvaipour (2015) in a study conducted on soldiers showed the relationship between suicidal thought and drug use.

Another study of patients taking methadone found that there was a significant correlation between suicidal thought and the frequency of slipping. Mental disorders, especially mood disorders, are common in drug abuse patients. Previous studies have found a bidirectional relationship between mood disorders such as depression or anxiety and drug abuse (Grant et al, 2014; Pettinati, O'Brien, Dundon, 2013). Grant et al. reported that 20% of individuals who have substance use disorders presented with at least one independent mood disorder in the US (Grant et al, 2014). Similarly, another study found that 24% to 43% of patients with anxiety disorders have a lifetime history of substance use (Kaufman, Charney, 2010). Regarding mood disorders in different drug addiction groups an early study reported that Beck's Depression Inventory score was significantly higher in the marijuana addiction group than in the recreational marijuana use group, but there was no difference on Beck's Anxiety Inventory score (Latif et al, 2019). Another study also found that the use of marijuana increased the risk of anxiety, depression and suicide tendencies

among juveniles (Gobbi et al, 2019). Zorick et al. also confirmed that anxiety and depression were the most important psychological factors for withdrawal symptoms and cravings among drug users (Zorich et al, 2018). and patients with comorbidity of mood disorder and drug use had a higher risk of suicide (Faraone, wilens, 2017). Furthermore, Coryell et al. (2018) found that recent aggressive behaviour and higher levels of impulsivity were risk factors for suicide in a group of patients suffering from major depressive disorder. Cramley (1990) also concluded that increased drug use is one of the major causes of suicide.

Given the above, and since not much research has been done on the differences between impulsivity, sleep disorders, and suicidal thought among marijuana users compared to normal individuals, in order to better understand these differences in people with and without marijuana use and to provide solutions to improve these problems in suffering people, the present study seeks to the comparative investigation of impulsivity, sleep disorders and suicidal ideation in marijuana users and non-users to answer the question of whether there is a difference between the two wedges in terms of these variables?

## Methods

### Society, sample and sampling method

The present study was a descriptive comparative casual study. The statistical population of the study consisted of two groups. The first group of students who used marijuana was 18-33 years old, and the second group was non-marijuana users. In terms of age, education, and marital status, they were equal to members of the drug-dependent group. Since in comparative causal research, the volume of each group is considered appropriate as 30 people (Delavar, 2017); in this study, to increase the generalizability of the results, 50 people were selected (marijuana users and non-users: No=50, in each) for each group. The sampling methods used were purposeful and snowball for the first and second group, respectively. Questionnaires were distributed online due to the coincidence with the prevalence of coronary heart disease. Male gender, informed consent, passing at least one to three years of marijuana use history for drug addicts, no psychological disorders, and no specific physical illnesses were the criteria for inclusion in the study. The incompleteness of questionnaires and history of marijuana use in non-users were also criteria for exclusion from the study. Ethical principles were: not violating the rights of research participants and respecting their human rights. Providing the results to them if they wished was another ethical principle observed in this study. Both descriptive and inferential statistical analyses were run to address the research problem. Inferentially, independent t-test, chi-square, and multivariate analysis of variance (MANOVA) were run in SPSS-24 software.

### Instruments

Pittsburgh Sleep Quality Index (PSQI): This questionnaire contains nine questions about sleep quality variables in the past month and includes seven subscales as follows: 1) Mental sleep quality 2) Delay in falling asleep 3) Duration Sleep 4) Effective sleep 5) Night sleep disorder 6) Taking the hypnotic drug, 7) Daily sleep disorder. The overall

score for sleep quality ranges from zero (utterly healthy sleep quality) to 21 (wholly impaired sleep quality). An overall score the above 5 indicates show poor sleep quality (Castro et al., 2004). The Pittsburgh Questionnaire has reliability index of 0.83 (Cronbach's alpha method). Its psychometric properties have been tested in various studies, and its internal consistency and concurrent validity and differential validity in healthy and sick people are satisfactory. (Baysey, Reynolds, Monk, Berman, Kappfer, 1989). The psychometric properties of this questionnaire for the Iranian population have been confirmed by a study registered under No—2730 at the Tehran Institute of Psychiatry (Farhadi Nasab and Azimi, 2008). For the purpose of this study, Cronbach's alpha index showed 0.81 as an index of reliability.

**Bart's Impulsivity Scale (Eleventh Edition):** This questionnaire, developed by Ernst Bart et al. (2004, quoted in Adalati, 2007), is based on Bart's personality theory, which has 30 questions and measures three factors (motor impulsivity, cognitive impulsivity and unplanned). The questionnaire questions are graded in four options (rarely to almost always), and the highest score is 120. Its internal consistency was reported between 0.79 and 0.83 by Patton, Stanford, and Bart (1995). In Iran, Naderi and Haghshenas (2009), validated the Bart impulsivity scale by calculating its correlation with comparing Zuckerman's sensation seeking in the student community. The correlation coefficient was 0.28, and its validity coefficient was 0.72 based on Cronbach's alpha method and 0.60 based on split-half method. Also, the validity and reliability of the Persian version have been estimated by Ekhtiari et al. (1999), the results of which indicate desirable indices of validity and reliability. Cronbach's alpha index showed 0.73 as an index of reliability.

**Beck Suicide Thought Scale (BSSI):** A self-assessment tool with 19 questions, developed by Beck (1961) to detect and measure the power of attitudes, behaviors, and planning for suicide. The questions of this questionnaire assess factors such as the frequency of suicidal thoughts, death wish, active and passive suicidal thoughts, duration, feeling of self-control, suicide deterrents, and readiness to attempt suicide. This scale has 19 three-choice questions based on a point grade from zero to two. A person's total score is calculated based on the sum of scores, which varies from zero to 38. Simultaneous validity of this scale is 0.76 and the validity of this scale has been reported 0.95 by Cronbach's alpha method (Anisi, Fathi Ashtiani, Salimi, Ahmadi, 2005). Studies have also shown that the validity of this scale is 0.87 to 0.97 using Cronbach's alpha method and 0.54 using the test-retest method (Beck and Steer, 1991). In the present study, Cronbach's alpha of this instrument was obtained 0.91.

## Results

Demographic information show that the samples were aged between 18 to 33(15%), 18 to 21 (30%), 22 to 25 (42%), 26 to 29 (13%) and between the ages of 30 33 years. 88% were single but 12% married. In terms of education, the percentage of bachelor's degree

with a volume of 36 people, master's degree of 62% with a volume of 62 people and doctorate of 2% with a sample size of 2 people.

**Table 1.** Descriptive Statistics Related to the Control Group's Dependent Variables

Variable		Sample	Mean	Standard deviation	Minimum	Maximum
Cognitive impulsivity	normal	50	6.940	2.838	1	13
Motor impulsivity	normal	50	8.420	4.435	1	24
Disorganization	normal	50	10.200	3.251	4	17
Mental quality	normal	50	0.660	0.626	0	2
Delay in falling asleep	normal	50	1.160	0.817	0	3
Sleep duration	normal	50	0.920	1.639	0	11
Effective sleep	normal	50	0.960	0.282	0	2
Nighttime sleep disorder	normal	50	0.140	0.404	0	2
Taking hypnotic drug	normal	50	0.380	0.490	0	1
Daily sleep disorder	normal	50	0.500	0.646	0	2
Suicide Thought Scale	normal	50	1.420	3.375	0	19
Total impulsivity	normal	50	25.560	8.971	8	54
Total sleep quality	normal	50	4.720	2.688	0	16

**Table 2.** Descriptive Statistics Related to the Experimental Control Group's Dependent Variables

Variable		Sample	Mean	Standard deviation	Minimum	Maximum
<b>Cognitive impulsivity</b>	consume	50	13.060	3.454	4	22
<b>Motor impulsivity</b>	consume	50	15.420	4.895	5	24
<b>Disorganization</b>	consume	50	17.860	4.194	10	28

<b>Mental quality</b>	consumer	50	1.800	0.903	0	3
<b>Delay in falling asleep</b>	consumer	50	2.040	0.924	0	3
<b>Sleep duration</b>	consumer	50	0.780	0.932	0	3
<b>Effective sleep</b>	consumer	50	1.660	0.626	1	3
<b>Nighttime sleep disorder</b>	consumer	50	0.840	0.997	0	3
<b>Taking hypnotic drug</b>	consumer	50	0.640	0.721	0	3
<b>Daily sleep disorder</b>	consumer	50	1.720	0.809	0	3
<b>Suicide Thought Scale</b>	consumer	50	16.000	10.793	0	41
<b>Total impulsivity</b>	consumer	50	46.340	9.788	27	73
<b>Total sleep quality</b>	consumer	50	9.460	3.506	1	17

In Table 1&2, statistical indices include mean, minimum and maximum of research-dependent variables including impulsivity (cognitive impulsivity, motor impulsivity and disorganization), sleep disorder (mental quality, delay in falling asleep, sleep duration, Effective sleep, nighttime sleep disorders, hypnotic drug and daytime sleep disorders) and suicidal ideation For experimental and control groups.

**Table 3.** Results of one-way analysis of covariance in MANOVA text on impulsivity variables in marijuana abuse group and non-consumer

<b>Variable</b>	<b>Total squares</b>	<b>Degrees of freedom</b>	<b>Mean squares</b>	<b>Frequency</b>	<b>Significance level</b>
<b>Cognitive impulsivity</b>	936.360	1	936.360	93.670	000/0
<b>Motor impulsivity</b>	1225.000	1	1225.000	56.141	000/0
<b>Disorganization</b>	1466.890	1	1466.890	104.169	000/0

Table 3 of the one-way analysis of covariance in the Mancova text shows that the differences between groups in the subscales of cognitive impulsivity ( $F = 670.93$ ), motor impulsivity ( $F = 141.56$ ) and unplanned ( $F = 169.104$ ) is significant ( $P < 0.05$ ).

**Table 4.** Results of one-way analysis of covariance in MANOVA text on sleep disorder in marijuana abuse group and non-consumer

Variable	Total squares	Degrees of freedom	Mean square	Frequency	Significance level
<b>Mental quality</b>	32.0490	1	32.0490	53.766	0.000
<b>Sleep delay</b>	19.360	1	19.360	25.419	0.000
<b>Sleep duration</b>	0.490	1	0.490	0.276	0.000
<b>Effective sleep</b>	12.250	1	12.250	51.880	0.000
<b>Nighttime sleep disorder</b>	12.250	1	12.250	21.158	0.000
<b>Taking hypnotic drug</b>	1.690	1	1.690	4.440	0.038
<b>Daily sleep disorder</b>	37.210	1	37.210	69.353	0.000

Table 4 - one-way analysis of covariance in the Mankova text - shows that the differences among groups in the subscales of mental quality ( $F = 766/53$ ), delay in falling asleep ( $F = 25/419$ ), effective sleep ( $F = 81.51$ ), nighttime sleep disorder ( $F = 158.21$ ), taking hypnotic drug ( $F = 4/440$ ) and daily sleep disorder ( $F = 35.69$ ) were significant. But in the sleep duration subscale, no difference was observed between the two groups of consumers and non-consumers ( $P < 0.05$ ).

**Table 5.** Results of one-way analysis of covariance in MANOVA text on the variable of suicidal ideation in marijuana abuse group and non-consumer

Variable	Total squares	Degrees of freedom	Mean square	Frequency	Significance level
<b>Suicidal thoughts</b>	5314.410	1	5314.410	81.121	0.000

Table 5 - One-way analysis of covariance in the Mancova text - shows that the difference between the groups in the scale of suicidal ideation ( $F = 121.81$ ) was also a significant ( $P < 0.05$ ).

## Discussion

This study aimed to compare impulsivity, sleep disorders, and suicidal thoughts in marijuana users and non-users. The findings showed that there was a difference between marijuana users and non-marijuana users among all three variables.

As to the issue of 'impulsivity' between users and non-users, the results showed that marijuana users scored higher on all three components of the impulsivity scale, including cognitive impulsivity, motor impulsivity, and unplanned, and showed a significant difference with the non-consumer group. These results were in line with the findings of Jabraili, Moradi, and Habibi (2020), Powell et al. (1990), Dostian, Bahmani, Azami, Godini (2013). Continuing to explain the difference in impulsivity between consuming and non-consuming individuals, it can be said that impulsivity consists of a previous preparation for rapid and unplanned reactions to internal or external stimuli, regardless of the negative consequences of those reactions for the individual or others (Bayrami, Bakhshipour, Fakheri, Khakpour, 2011).

Therefore, it can be said that the dimensions of impulsivity are directly and indirectly related to the use of drugs, and people who obtain high scores in impulsivity have a greater craving for the use of drugs (Jabraili, Moradi, Habibi, 2020). Another study by Powell et al. (1990) concluded that impulsivity is associated with the tendency to use drugs, meaning that people who experience high impulsivity are more likely to use drugs. Dostian, Bahmani, Azami, Godini (2013) also showed that impulsivity could significantly predict the readiness to use drugs, which reveals the relationship between impulsivity and use drugs. Therefore, when a person is tempted to use marijuana or is pressured by others, cognitive impulsivity, motor and disorganization can increase the risk of use as components of impulsivity. The low score of the person in the three components of impulsivity causes him not to act on the feelings of the moment and has a high resilience against the temptation of consumption. Therefore, it is logical to say that there is a difference between the impulsivity of marijuana users and non-marijuana users and that people who use marijuana experience higher impulsivity. Regarding the difference between sleep disorders between marijuana users and non-marijuana users, it can be said that marijuana users showed a significant difference with the non-consuming group in six subscales, mental quality, sleep delay, adequate sleep, nighttime sleep disorder, hypnotic use drug, and daily sleep disorders and only in the subscale of sleep duration, the difference was not significant. These results were consistent with the findings of Skenberg et al. (2008), Karen et al. (2008), Pless et al. (2006).

Given that the relationship between quantity and quality of sleep and health has been confirmed in various studies (Fari Hata et al., 2012; Lager & Poursain, 2005), so it can be said that the use of drugs causes sleep problems and unpleasant sleep (Skenberg, 2008). Karen et al. (2008) also found that marijuana use causes sleep problems as supported by Plz (2006) too.

Therefore, this finding can be explained by the fact that: problems related to sleep and poor sleep quality are the consequences of drug abuse and break the addiction, so that prevalence is much higher in substance abusers than in the general population (between 75% and 84%), and these patients suffer from some form of sleep disorder (Kronswicki, Sadak, & Chiu, 2014). The relationship between drug abuse and sleep problems appears to be twofold in that drug use can lead to sleep disturbance, and having trouble sleeping may be a risk factor for relapse.

There is growing evidence linking substance use and circulatory disorders, and circadian regulatory interventions can play a vital role in preventing and treating substance use disorders (Hassler, Smith, Kissins, & Butzin, 2011). In this study, people using marijuana have sleep disorders and problems, and due to this problem and failure to solve it, their craving and temptation to use increases. Therefore, it is reasonable to say that there is a difference between sleep problems of marijuana users and non-marijuana users and that drug users are characterized by higher scores on subscales related to sleep problems.

To explain the difference between suicidal ideation between marijuana users and non-marijuana users, it can be said that marijuana users had a higher mean score on the Beck Suicidal Thought Scale and their differences with non-marijuana users were significant. The results of this research are in line with Nosratabadi and Halvaeipour (2015), Naghibi, Azizpour, Ash'ari, Hosseini, Alizadeh (2012), Karamli (1990) researches. According to research, those who use drugs are more likely to commit suicide (Bridge, Goldstein, Brent, 2006), or in other words, substance abuse can lead to suicide (Hirschfield, Davidson, 1998). Therefore, it can be said that people who use drugs think more about suicide (Nosratabadi and Halvaeipour, 2015); people who use drugs more or fail in quitting have stronger suicidal thoughts than other individuals do (Naghibi et al., 2014). In Boscarino's (2006) research, this issue is well explained. The severity of drug use is closely related to the severity of suicidal ideation and can have devastating effects on physical and mental health. Therefore, it can be seen that successive failures in the face of the temptation to use marijuana can increase the feeling of failure in people and cause suicidal thoughts in them. Under these circumstances, people who are able to control the temptation to use marijuana or have never used it will experience lower suicidal ideation than consumers. Therefore, there is a difference between suicidal thoughts of consuming and non-consuming people such that consuming people have higher scores in suicidal thoughts than non-consuming people do.

One of the most critical limitations of this study was its focuss use on marijuana users and non-users among students. In this study, self-assessment questionnaires have been used, which may be because of this, an error occurred during the data collection process, which may be due to dishonesty due to less time spent responding. Moreover, due to conducting this research during the quarantine period of the coronavirus, it was not possible to do it based on other methods such as interviews. Finally, due to the use of private and direct questions about marijuana use, it is possible that it has caused resistance and dishonesty of clients and has affected the results of the research.

Based on the results of this study, it is suggested that, in addition to the variables of impulsivity, sleep disorder, and suicidal ideation, other variables should be included to compare marijuana users and non-marijuana users. It is also suggested that other groups and classes of marijuana users and non-consumers can be investigated.

Practically, the findings can be used to develop treatment programs and interventions such as cognitive-behavioral therapy and addiction prevention training in universities. Therapists and counselors are also advised to pay attention to sleep disorders, suicidal ideation, and impulsivity in university counseling centers. Although this study was conducted among students, using its results, programs can be developed to identify students prone to addiction in schools and use screening methods to identify these students.

## Conclusion

The present study showed that there were differences between marijuana users and non-marijuana users in all three variables. The results showed that marijuana users scored higher in all three components of the impulsivity scale, including cognitive impulsivity, motor impulsivity and unplanned impulsivity, and showed a significant difference with the non-user group. It can also be concluded that drug use causes sleep problems and unpleasant sleep. It can also be concluded that people who use drugs are more likely to think about suicide. People who use more drugs or fail to quit have stronger suicidal thoughts than other people.

## Disclosure Statements

We are grateful to all the respected officials of Gilan University, in order to issue permission and the possibility of distributing questionnaires among students.

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