Journal of Neuroscience and Neurological Research
2023 Volume 2, Issue 1
DOI: 10.59657/2837-4843.brs.23.007

BioRes Scientia
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Research Article

Open Access

Relationship Between Procrastination and Attitude Toward Substance use among Medical Students

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Abstract

Background and Aim: University students are important members of society. They help form the future though their academic and professional achievements; thus, recognition of the factors that can affect the success of these students is essential. Several prevalent psycho-social factors have been recognized which can significantly affect the academic and professional outcomes of these students. Substance use disorder and procrastination are prevalent among university students and can significantly decrease their academic performance. The present study investigated the relationship between attitudes toward substance use and procrastination among medical students.

Method: A total of 157 medical students were enrolled in the study. The participants completed the Drug Attitude Scale and a General Health Questionnaire. The data were analyzed using SPSS.

Results: Procrastination was prevalent among medical students and the prevalence was higher among females than males. Moreover, there was a significantly positive relationship between procrastination and attitude toward substance use. This relationship was significantly higher among male participants.

Conclusions: Procrastination and attitude toward substance use were significantly related among the medical students in this study.

Keywords: university student; attitude; procrastination; substance use disorder; youth

Introduction

University students are important members of society because they help form the future through their academic and professional achievements (Patel et al., 2007). This means that factors that improve or decrease their academic and professional performance are relevant to society as a whole (Patel et al., 2007). Recognition of these factors and addressing them to prevent academic failure and increase academic performance can enhance psycho-social outcomes (Patel et al., 2007). Studies have shown that two closely related psychological factors, attitudes toward substance use and procrastination, are prevalent among university students and can significantly decrease their academic performance (Jupp & Dalley, 2014; Tibbett & Ferrari, 2015).

Procrastination is an intentional desire to postpone the initiation and performance of an important task, despite being aware of the negative consequences of doing so (Fernie et al., 2017; Klingsieck, 2013). Academic procrastination is one of the most important types of procrastination because it prevents academic advancement and can lead to failure (Ziegler & Opdenakker, 2018). It also increases stress levels and can exacerbate subsequent psychological and physical disorders (Patrzek et al., 2012). According to the literature, the prevalence of procrastination is 20% to 25% in the general public, but about 75% among university students (Tibbett & Ferrari, 2015). Most students are aware of their tendency to procrastinate and would like to decrease it (Steel & Klingsieck, 2016). Procrastination results from a lack of time management skills, low self-efficacy (Alexander & Onwuegbuzie, 2007), poor concentration (Howell & Watson, 2007), low self-esteem (Ferrari, 1992), work-related issues (Senecal, 2003), and low energy levels (Solomon & Rothbloom, 1984). It can result in academic failure (Hussain & Sultan, 2010; Steel, 2008), anxiety

(Williams, 2008), insomnia, physical disorders (Sirois & Pychyl, 2002), depression (Dewitte & Schouwenburg, 2002), low self-esteem (Steel, 2007), confusion (Rivait, 2007), and embarrassment (Hussain & Sultan, 2010).

Several psychological approaches have presented explanations for the roots of procrastination (Uzun Özer, 2010). From the psychoanalytical perspective, procrastination is problematic behavior which is closely related to emotions (Balkis & Duru, 2009). It occurs when an individual must make an important decision, but postpones the decision-making to avoid emotional pain and distress (McCown, 1991). It sometimes happens for people who have been underestimated and neglected by their families during childhood (Burka & Yuen, 1983) and have low levels of self-acceptance and self-efficacy during adulthood (Ferrari, 1995).

Another issue which has increased among the university students is substance use disorder (Jupp & Dalley, 2014). The Diagnostic and Statistical Manual of Mental Disorders identifies substance use disorder (SUD) as a set of cognitive, behavioral, and physiological symptoms resulting from the use of substances in excessive amounts or for a long period of time (American Psychiatric Association, 2013). Although aware of its harmful consequences, a substance user feels compelled to use the substance (American Psychiatric Association, 2013). This prevalent and disabling disorder can lead to academic and professional failure (Jupp & Dalley, 2014), psychological pain intolerance, hopelessness, life dissatisfaction, meaningless relationships, low self-esteem, emotional disorders, and a willingness to take risks (Agin et al., 2019; Ball et al., 2006; Kaplan & Sadock, 2007; Varcarolis, 2006).

SUD is risky behavior which can threaten the health and well-being of users. An individual's attitudes about substance use are major factors in the development of SUD (Fooladvand et al., 2017). From a social perspective, an overall positive attitude toward substance use can result in higher levels of SUD (Fooladvand et al., 2017). It is necessary to understand the underlying attitudes toward substance use and how they develop to understand how to decrease the prevalence of SUD and its associated problems (Fooladvand et al., 2017).

Students are important and vulnerable members of society. It is important to investigate the prevalence of these behaviors and any correlation between them which could significantly affect their academic performance (Fusar-Poli et al., 2017; Niklas et al., 2016). University students, more specifically medical students, are important in this regard because they have knowledge about the use of substances and can easily gain access to them (Awad et al., 2019). They also experience pressure and stress from heavy course loads and exams within a limited time. The use of substances to decrease stress and pressure can be tempting; however, as future physicians and health providers, developing SUD and the habit of procrastination as students will put their futures at risk as well as those they have sworn to treat (Awad et al., 2019). These results also could be applied in different disciplines and for different vulnerable populations as well.

Objectives and Hypothesis

The present study assessed the relationship between attitudes toward substance abuse and procrastination among participants who were medical students at Shahid-Beheshti University of Medical Sciences. We hypothesized that these two factors are significantly associated among the participants sampled.

Material and Methods

Study design and sampling

A cross-sectional questionnaire was distributed to medical students at Shahid Beheshti University of Medical Sciences. A total of 170 subjects were enrolled in the study using the convenient sampling method. A total of 157 completed questionnaires were assessed for final analysis. The required sample size was estimated using the single-population proportion formula at a 95% confidence interval with a 5% margin of error. The response rate was 92%.

Data collection

Data was collected through completion by participants of the Drug Attitude Scale (DAS) and General Health Questionnaire (GHQ-28). The questionnaires were completed anonymously and the participants were assured about the lack of any personal data interpretation. Informed consent was properly obtained in both written and verbal form.

The DAS test was used to evaluate the attitudes among participants toward substance use. The test was designed by Campbell and Chang (2006) and includes 25 items. The respondents were asked to rate each item based on a five-point Likert scale ranging from totally disagree (1) to totally agree (5). The participants then were divided into five categories based on the scores. A

total score of 37 or less signified an extremely positive attitude, 38-44 signified positive, 45-53 signified neutral, 54-64 signified negative, and 65 or more signified extremely negative.

The internal consistency was evaluated using Cronbach's alpha and was reported to be 87% for the DAS test, 87% for the clinical scale, and 89% for the attitude scale. A validated Farsi-language translation of the test was used in this study. The test validity was calculated using Cronbach's alpha as being 0.75 for the test, 0.64 for the clinical subscale, and 0.65 for the attitude subscale.

The General Procrastination (GP) scale was used to evaluate the general procrastination status of participants. Lay (1986) developed this test and reported acceptable reliability and validity for it. The GP consists of 20 statements, each with the options of completely false, usually false, sometimes false and sometimes true, usually true, and completely true (Lay, 1988). Cronbach's alpha was used to calculate the reliability coefficient of the GP scale (α = 0.76). A validated Farsi-language translation of the test was used in this study with acceptable reliability.

Results

Table 1: shows the mean (M) and standard deviation (SD) of the total DAS score of participants (M = 51.38, SD = 9.65). In the results, 49.7% of participants fell into the moderately negative category and 1.9% fell into the extremely negative category. This indicates that almost 50% of participants had a positive attitude toward substance use.

Variables	N	%	Mean ± SD of total DAS scores	Males (*N*)	Males (%)	Mean ± SD of male total DAS scores	Females (N)	Females (%)	Mean ± SD of female total DAS scores
Extremely positive	16	10.2	33.62±4.01	7	11.1	31.57±4.86	9	9.7	35.22±2.44
Positive	23	14.6	41.22±1.76	13	20.6	41.00±1.87	10	10.8	41.50±1.65
Neutral	37	23.6	48.81±2.38	14	22.2	48.50±2.50	23	24.7	49.00±2.34
Moderatel negative	78	49.7	58.22±2.61	28	44.4	57.86±2.51	50	52.7	58.43±2.69
Extremely negative	3	1.9	77.67±7.57	1	1.6	81.00±00	2	2.2	76.00±9.90
Total DAS score	157	100	51.38±9.65	63	40.13	49.75±10.30	93	59. 24	52.41±9.11

Table 2 shows the M ± SD of participant procrastination scores (M = 55.90, SD = 10.07). It can be seen that about 95.5% of participants tend to procrastinate (M = 55.90, SD = 10.07) and 4.5% of them do not procrastinate (M = 25.29, SD = 17.45).

Variable	N	%	Mean ± SD of total GP scores	Males (N)	Males (%)	Mean ± SD of male total GP scores	Females (%)	Females (%)	Mean ± SD of female total GP scores
Total GP scores	157	100	55.90±10.07	63	40.13	49.75±10.30	93	59.24	52.41±9.11
Procrastinators	150	95.5	57.32±6.91	60	40	55.82±7.91	89	60	58.30±6.01
Non-procrastinators	7	4.5	25.29±17.45	3	42.86	35.33±2.52	4	57.14	17.75±20.69

Interestingly, about 86% of the participants who do not usually procrastinate reported less-positive attitudes toward substance use compared to the participants who usually procrastinate. The mean procrastinator scores in the clinical subscale and the attitude toward substance subscale both were higher than for the non-procrastinators. Additionally, the mean total DAS scores for procrastinators in the clinical and attitude subscales were higher than for non-procrastinators.

Table 3 shows the mean total GP scores in consideration of the DAS classifications. Generally, moving from the extremely positive category toward the moderately negative category shows an increase in the mean total GP scores that reaches a peak in the moderately negative category. Most of the procrastinator participants (57.1%) fell into the moderately negative category. Table 3 indicates that procrastination was highly prevalent among the participants and had a greater prevalence among females than males.

Variable		N	Mean ± SD	%	Gender	N	Mean ± SD
Extremely positive	procrastinator	16	53.31±8.26	10/7	male	7	49.71±5.12
					female	9	56.11±9.39
	non-procrastinator	00.00	00.00±00.00	0	male	0	00.00±00.00
					female	0	00.00±00.00
Positive	procrastinator	21	55.62±7.23	14/0	male	11	53.82±8.76
					female	10	57.60±4.74
	non-procrastinator	2	36.50±2.12	28/6	male	2	36.50±2.12
					female	0	00.00±00.00
Neutral	procrastinator	33	57.88±7.23	22.0%	male	13	55.38±6.01
					female	20	59.50±7.63
	non-procrastinator	4	26.00±17.61	57/1	male	1	33.00±00.00
					female	3	23.67±20.79
Moderately negative	procrastinator	77	58.43±5.92	51.3%	male	28	58.79±7.74
					female	48	58.17±4.69
	non-procrastinator	1	00.00±00.00	14/3	male	0	00.00±00.00
					female	1	00.00±00.00
Extremely negative	procrastinator	3	56.33±11.93	2.0%	male	1	43.00±81.00
					female	2	63.00±4.24
	non-procrastinator	00.00	00.00±00.00	0	male	0	00.00±00.00
					female	0	00.00±00.00
Total DAS	procrastinator	150	57.33±6.91	95.5	male	60	50.17±10.35
					female	89	52.46±9.25
	non-procrastinator	7	25.29±17.45	4.5	male	3	41.33±4.16
					female	4	51.25±5.91
Clinical	procrastinator	150	41.14±8.48	95.5	male	60	40.23±9.17
					female	89	41.78±8.03
	non-procrastinator	7	37.71±6.34	4.5	male	3	32.67±3.06
					female	4	41.5±5.45
Attitude	procrastinator	150	23.31±5.99	95.5	male	60	22.47±6.23
					female	89	23.78±5.74
	non-procrastinator	7	21.00±5.16	4.5	male	3	19.00±7.00
					female	4	22.50±3.70

Table 4 shows that there was a significantly positive relationship between the mean total DAS score and the mean total GP score (R=0.206; P<0.01) among the participants. This indicates that higher levels of substance use were significantly associated with an increased level of procrastination (r = 0.21).

Variable	N	SAD	Clinical scale	Attitude
Procrastinators: total SAD	157	0.206**	0.271**	0.062
Procrastinator men	93	0.312*	0.406**	0.130
Procrastinator women	63	0.065	0.129	-0.066

There was a significantly positive relationship between the mean total DAS score and the mean total GP score (R=0.312; P<0.05) among male participants and a significantly positive relationship between mean total score of the DAS clinical subscale and mean total GP scores (R=0.271; P<0.01). There also was a significantly positive relationship between the mean total scores of the DAS clinical subscale and the mean total GP score among male participants in this study (R=0.406; P<0.01). We used sequential regression analysis to assess the relationship between procrastination and the DAS subscales and found no significant relationship.

Discussion

This study assessed the relationship between attitude toward substance use and general procrastination among a sample of medical students. The results indicated that about 95.5% of the participants were procrastinators and about 4.5% were non-procrastinators. These results are consistent with the findings of Beutel et al. (2016), Karatas (2015), Baumeister et al. (2015), Burnam et al. (2014), Glick et al. (2014), Ainslie (2013), Hart (2013), Sinnott-Armstrong and Pickard (2013), Heyman (2009), Steel (2007), Kachgal et al. (2001), and Ferrari et al. (1995). The mean female total GP score was higher than that for males. This indicates that females procrastinated more than males in this study. Consistent with our findings, several studies have reported higher levels of procrastination among females than males (Akinsola et al., 2007; Ozer et al., 2009; Steel, 2007), while Gafni and Geri (2010) reported that gender and academic procrastination were not significantly related. The relationship between gender and procrastination has been partly attributed to personality differences between females and males in several studies (Karatas, 2015; Lyons & Rice, 2014; Rabin et al., 2011; Rakes & Dunn, 2010).

Our results also indicated that females had more positive attitudes toward substance use than males. Cirakoghlu and Isin (2005) concluded that male medical students had more positive attitudes toward substance use than females. The National Center on Addiction and Substance Abuse at Columbia University (2003) reported that male students were more prone to substance use than female students.

About 86% of the non-procrastinator participants in our study reported negative attitudes toward substance use. There also was a significantly positive relationship between the participant attitude toward substance use and procrastination. It was evident that procrastination was more strongly associated with a more positive attitude toward substance use and the use of more substances among the medical students in this study. Interestingly, the mean DAS scores of procrastinators on both the clinical and attitude toward substance subscales were higher than for non-procrastinators and half of the medical students in this study were likely to use substances.

The mean total GP scores for each category of the DAS test were calculated. The results generally indicated that the mean total GP score of participants increased moving from the extremely positive category toward the moderately negative category (those having a more positive attitude toward substance use). There was a significantly positive relationship between procrastination and attitude toward substance use. This relationship was also significant for the clinical subscale. Moreover, the mean total GP score reached a peak in the moderately negative category, where 57.1% of this category were procrastinators. These findings are consistent with the results of previous studies (Ugwueze & Ekechukwu, 2021).

The results were analyzed according to participant gender. The relationship between procrastination and attitude toward substance use was only significant among male participants in this study. There was a significantly positive relationship between the mean total scores of male participants in the DAS clinical subscale and the mean total GP scores. This relationship was not significant among females, and this requires further investigation. The total GP score for females was higher than for males and the total GP score for females was not significantly related to their mean total DAS scores. These findings are consistent with those of Ferrari et al. (Ferrari et al., 1995).

Several studies have concluded that substance users in general have a consistently positive attitude toward substance use and continue to use them intentionally (Ainslie, 2013; Hart, 2013; Sinnott-Armstrong & Pickard, 2013). They are not willing to stop using substances (Baumeister et al., 2015; Heyman, 2009), and mainly use them to occasionally forget their problems (Glick et al., 2014). The high prevalence of SUD among students is partly for the same reason (Glick et al., 2014). Students use the substances to reduce anxiety and the difficulties they encounter with difficult courses, many exams, and limited time (Glick et al., 2014). Medical students who had more psychological problems were more likely to use drugs (Mohammad Beigi & Babaei ,2021). Procrastination in general has been significantly related to emotional regulation disorder (Glick et al., 2014), depression, anxiety, fatigue, life dissatisfaction, and financial problems (Beutel et al., 2016; Krieger et al., 2013). Those with high levels of stress, anxiety, and psychological pain tend to use maladaptive and destructive problem-solving methods to solve or decrease their problems (Farhadian et al., 2017; Madanifard et al., 2016). Substance use is one method of temporarily forgetting about problems and reducing psychological pain and pressure (Farhadian et al., 2017; Madanifard et al., 2016; Mohammad Beigi et al., 2014).

From the metacognitive perspective, which mainly investigates executive functioning such as attention, examination, control, programming, and identification of errors (Wells, 2009), our results can be explained in two ways. According to this approach, procrastination is sometimes used for the regulation of negative emotions and cognitions. The metacognitive model explains that the way people think defines their emotions and emotional regulation, rather than what they think about (Karbasi, 2011). Therefore, metacognition and metacognitive beliefs are important underlying factors in the development and continuation of a behavior. Metacognitions are important to the development and continuation of SUDs because they regulate user emotions and define their behaviors (Kazemeini & Modarres Ghorori, 2013).

Metacognition can help explain the development of coping styles and SUD (Wells, 2009; Zandkarimi, 2015). Disordered metacognitive beliefs can lead to inefficient coping styles, which can lead to specific cognitive interactions, illogical beliefs, and inefficient behaviors, which can result in SUD (Amiri, 2017). Students who have metacognitive problems may procrastinate to transiently decrease their negative emotions and feel better. These students may also use substances to regulate their negative emotions.

From the cognitive-behavioral perspective, procrastination results from a lack of self-efficacy and self-regulation (Fernie et al., 2017; Wolters, 2004; Ziegler & Opdenakker, 2018). According to Bandura (2001), self-efficacy is important to the development of self-regulation. Moreover, self-efficacy and self-regulation can positively predict procrastination and procrastination and self-efficacy can predict the functioning of an individual (Corkin et al., 2011; Klassen et al., 2008; Steel, 2007). Academic procrastination also results from self-regulation problems (Steel & Klingsieck, 2016). Depression, mindlessness, addiction, and lack of self-compassion can disturb emotional regulation and self-regulation and are predictors of higher levels of procrastination among such individuals (Flett et al., 2015; Krieger et al., 2013; Meier et al., 2016). Self-regulation and self-efficacy are important to the development and continuation of SUDs (Duke & Montag, 2017; Kobulsky, 2017). Students with lower levels of self-regulation are likely to be more willing to use substances to regulate their emotions and decrease their psychological pain and problems (Duke & Montag, 2017; Kobulsky, 2017).

Individuals with self-regulation problems tend to use maladaptive methods for solving their problems. They use substances and postpone the performance of important tasks to transiently decrease their stress and anxiety. Procrastination and SUD can reach high levels among these individuals. In this study, we observed high levels of academic procrastination and positive attitudes toward substance use among medical students. This finding indicates that these students require psychological training and support to learn skills with which to solve their problems in healthier ways.

Conclusion

This study revealed that procrastination and positive attitudes toward substance use are prevalent among medical students. Our findings also revealed a significantly positive relationship between procrastination and attitudes toward substance use. The consequences and cost of procrastination and SUD are high. If a sizeable portion of the vulnerable population of medical students, who are future health care providers, are experiencing these issues concomitantly, proper preventive, therapeutic, and educational programs must be developed for this population, as well as for other vulnerable populations. This is especially true at the beginning of their studies to prevent future physical, psychological and social difficulties.

Acknowledgements

Declaration of interests

All authors declare that they have no conflict of interests for this study.

Data Availability

All data sets are available from corresponding author upon request.

Ethics Approval

All content of this research adheres with the ethical guidelines developed by the Committee on Publication Ethics (COPE) during the 2nd World Conference on Research Integrity in Singapore in 2010. All parts of this study meets the American Psychological Association's (APA) Ethical Principles of Psychologists and Code of Conduct (the Ethics Code) and adheres to the legal requirements of the study country, Iran.

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Cite this article: Mohammad Beigi Ali, Babaei Mahsa. (2023). Relationship Between Procrastination and Attitude Toward Substance use among Medical Students. *Journal of Neuroscience and Neurological Research,* BRS Publishers. 2(1); DOI: 10.59657/2837-4843.brs.23.007

Article History: **Received:** September 30, 2022; **Accepted:** February 28, 2023; **Published:** March 06, 2023