



# Prevalence of Academic Procrastination Among Medical Students and Its Relationship with Their Academic Achievement

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## Abstract

**Background:** Procrastination is prevalent among university students and it affects different aspects of their personal and academic life.

**Objectives:** This study aimed to determine the prevalence of academic procrastination among medical students and its relationship with their academic achievement.

**Methods:** This is a cross-sectional correlational study of 317 medical students at Shiraz University of Medical Sciences. To collect the data, we used Solomon and Rothblum academic procrastination questionnaire (1984). The questionnaire's validity and reliability were confirmed by experts. We used descriptive statistics and inferential statistics (Pearson correlation coefficient, Independent *t*-test, and one-way analysis of variance) to analyze the data by SPSS version 14.

**Results:** The results showed that 29.25% of the students had academic procrastination (nearly always or always). Moreover, 47.9% of the students stated that academic procrastination at a moderate level had caused a lot of problems for them. There was a significant negative relationship between academic procrastination and academic achievement in medical students ( $P < 0.01$ ). Male students and those living in the dormitory had higher levels of procrastination than females and those living at home ( $P < 0.01$ ).

**Conclusions:** The findings of the present study revealed that a considerable number of students had high levels of procrastination, leading to permanent problems and reduced academic achievement.

**Keywords:** Procrastination, Academic Achievement, Medical Students

## 1. Background

In recent years, the promotion of students' academic achievement has been one of the most important topics in education and the main concerns of educational psychologists (1). In particular, one of the main challenges of medical schools and faculty members is to find strategies for improving medical students' academic performance (2,3). Many studies have been conducted on the factors affecting the increase in students' achievement (1,2), but fewer studies have been done on the role of preventive factors (4). In fact, investigating the preventive factors is as important as investigating the factors facilitating academic achievement. In this regard, procrastination is seen as a prevalent phenomenon that interferes with the individuals' academic performance and daily activities (5). Even though some of the dilatory behaviors might be considered as purposeful behaviors, academic procrastination is regarded as illogical and often destructive, among other behaviors (6)

since many students do so and delay their academic tasks with no logical reason despite their awareness of negative outcomes (6,7). In other words, procrastination is referred to as disregarding, delaying, postponing, prolonging, and deferring a task to be performed (8,9). As a form of procrastination behaviors, academic procrastination is an irrational tendency through which one delays starting or finishing the assignments (10). This behavior is very common among students (11-13), especially concerning affairs for which there is a deadline. It is worth mentioning that students' life involves frequent deadlines for registration, course selection, submission of assignments, articles, etc. (14). A common form of students' procrastination is postponing writing papers or studying for exams.

The studies conducted in this field have reported different prevalence rates for this problem (13), ranging from 46% (12) to 52% (15) and 80% - 95% (16). Therefore, procrastination is not a subject to be easily overlooked; rather, it should be seriously taken into account since its prevalence

in society, especially among students, is very high (13, 17) and is on the increase (7).

Procrastination, as irrational and destructive behavior, can lead to the reduction of self-confidence (7) and sleepiness, and increase unhealthy behaviors (18), smoking, drinking, gastrointestinal disorders, insomnia (19), anxiety (7, 17), and depression (7, 20), thus reducing the quality of life (21). The results of some studies revealed that high levels of procrastination made students unable to organize their academic goals and achieve them (22).

The academic performance is more at risk among procrastinating students than in their peers. Several studies have reported that procrastination negatively affects learning (23), attitude toward courses (24, 25), and academic performance (13, 23, 24, 26-29). Moreover, based on some studies, there is a negative relationship between procrastination and rational beliefs about studying, academic life satisfaction (29), self-efficacy, and the use of metacognitive learning strategies (5, 6, 21).

The results of a study on university students revealed that procrastinators had lower scores than other students (7, 12, 23, 29). Although the negative outcomes of this habit in one's daily life might not be considerable, the consequences of its prevalence among medical students who are to take significant responsibilities in the future can be irreparable. Thus, it is essential to identify the prevalence of academic procrastination and its important consequences among medical students. Even though some studies have been conducted in American and European contexts on procrastination, surprisingly a few studies have been carried out in the Asian context (23), specifically in Iran and on medical students.

## 2. Objectives

As mentioned, less attention has been paid to procrastination among medical students, especially in Iran. Therefore, in the present study, we aimed to focus on the recognition of procrastination among medical students and to determine its relationship with academic achievement. This will provide valuable insight into this behavior and its consequences to be used by all those who are concerned with education.

## 3. Methods

### 3.1. Study Design and Participants

The present cross-sectional study was done on medical students at Shiraz University of Medical Sciences. We used the Cochran sampling formula to determine the sample size. First, we distributed 350 questionnaires to the

students and finally, 317 questionnaires were returned and used in the analysis. The inclusion criteria included medical students at Shiraz University of Medical Sciences and willingness to participate in the study. The exclusion criteria included incomplete responses to the questionnaires and the lack of willingness to participate in the study. Data were collected from January 2018 to July 2018.

### 3.2. Instruments

To collect the data, we used the Procrastination Assessment Scale for Students (PASS) that was made by Solomon and Rothblum (1984). This questionnaire contains two parts. In this research, we only used the first part that was to assess the university students' procrastination behavior in six domains including: (1) writing a term paper, (2) studying for an exam, (3) keeping up with weekly reading assignments, (4) performing administrative tasks, (5) attending meetings, and (6) performing academic tasks in general. For each dimension, three questions were designated, with a total of 18 questions, and some items were related to demographic features. These items were scored on a five-point Likert scale from 1 (never procrastinated) to 5 (always procrastinated). Thus, the amount of academic procrastination and the problems it caused for the individual was scored from 10 to 21. The total score ranged from 12 to 60. Based on the scoring system, the higher the score, the more the academic procrastination. The first item assessed the frequency of procrastination, the second one measured how much it caused problems in one's performance of duties, and the third one evaluated the individual's willingness to reduce his/her procrastination. Solomon and Rothblum reported its internal consistency coefficient to be 0.84 (12). This questionnaire has been used in many studies in Iran and its validity and reliability have been reported at acceptable levels (30). In the present study, the questionnaire's face validity and content validity were approved by a panel of experts. Also, its reliability was measured using Cronbach's alpha and determined to be 0.81. To evaluate the students' academic achievement, we used their GPA as reported by the participants.

### 3.3. Data Analysis

To analyze the data, we used descriptive and inferential statistics (Pearson correlation coefficient, Independent *t*-test, one-way ANOVA). We employed SPSS version 14 to analyze the data.

### 3.4. Ethical Consideration

The approval of the Ethics Committee of Shiraz University of Medical Sciences (code 1396.s182) was obtained. Also, all the participants' data remained confidential. The

students were ensured that their data would be collected, analyzed, and used unanimously. Before the study, we obtained the participants' written informed consent and they were asked to fill out the questionnaires without writing their names or surnames. Participation was voluntary and those who were willing to participate merely received the questionnaires.

#### 4. Results

The results of this study revealed that 182 (57.4%) out of 317 participants were male and 135 (42.6%) of them were female. Moreover, 146 (46.1%) subjects were residing in the dormitory and 171 (53.9%) subjects were living at their homes. Besides, 99 (31.2%) of them were in the basic sciences period, 31 (9.8%) in the physiopathology period, 111 (35%) in the studentship period, 50 (15.8%) in the externship period, and 26 (8.2%) in the internship period.

In the first dimension (writing a term paper), the results showed that 75.4% of the students were in the moderate-to-high level of procrastination; of them, 26.6% had nearly always or always practiced procrastination. About 65.7% of them were procrastinators at a moderate-to-high level in studying for an exam, among whom 30% were academically always or nearly always procrastinators. As to keeping up with weekly reading assignments, the results showed that 68.7% of the students under the study had practiced a moderate-to-high level of procrastination, and 21.8% were always or nearly always procrastinators in the academic context.

About 60.4% were procrastinators at a moderate-to-high level in performing administrative tasks; among them, 28% always or nearly always showed academic procrastination. Also, it was shown that 67.2% of the students were moderate or high procrastinators in attending meetings, with 26.1% being always or nearly always procrastinators. Finally, the findings of this study revealed that 81.2% of them were at a moderate-to-high level of procrastination in performing academic tasks in general, from whom 43% were always or nearly always academic procrastinators (Table 1). In general, the results showed that 29.25% of the students always or nearly always showed a high level of procrastination.

Based on the findings, 47.9% believed that their procrastination in academic tasks had been problematic for them. Furthermore, there was a significant negative relationship between the students' academic procrastination and their academic achievement (Table 2).

Based on the results, there was a significant difference between male and female students' academic procrastination so that the male students were more procrastinators than female students (Table 3).

As the results showed, there was a significant difference in procrastination behavior between the students who lived in a dormitory and those who did not so that those who resided in the dormitory showed more procrastination behaviors than those who did not (Table 4).

Finally, there was a difference in procrastination behaviors among students in different periods of their studies; the more the years of their study, the more the procrastination behaviors by the students. However, these differences were not statistically significant (Table 5).

#### 5. Discussion

In the present study, we first determined the prevalence of academic procrastination among the students of medicine. Based on the results, overall 29.25% of the students were always or nearly always procrastinators; in other words, the results showed that a high percentage of the students tended to delay their academic tasks; this is in the same line with the results of other studies (7, 11-13, 31). However, the majority of other studies have reported a higher prevalence. In the present research, 26.6% of the students reported procrastination always or nearly always in writing a term paper, while Ozer et al. (15) and Solomon and Rothblum (12) studies reported 30% and 46%, respectively. About 30% of the students nearly always or always postponed studying for their exams; in these two above-mentioned studies, this rate was reported as 33% and 27.6%, respectively.

Moreover, 21.8% of the students nearly always or always postponed keeping up with weekly reading. The prevalence of this dimension in SUMS was lower than those of Ozer et al. (15) and Solomon and Rothblum (12) studies (30% and 30.1%, respectively). Also, the results revealed that 28% of the medical students nearly always or always postponed performing administrative tasks; this is much higher than the rates reported by Ozer et al. and Solomon and Rothblum (10% and 10.6%, respectively) (12, 15).

As to attending the meetings, the results showed that 26.1% of the students were nearly always or always procrastinators; this has been reported to be lower in other studies. Finally, the results showed that 43% of the medical students were nearly always or always procrastinators as to performing academic tasks in general; in Ozer et al. (15) and Solomon and Rothblum (12) studies, this has been reported as 5% and 10.2%, respectively.

Furthermore, the results showed that there was a significant negative relationship between medical students' academic procrastination and academic achievement; this result is in the same line with those of other previous studies (13, 23, 24, 26, 29, 32). Therefore, it is likely that procrastination results in low success and achievement since

**Table 1.** Frequency of Students' Academic Procrastination<sup>a</sup>

Students' Procrastination Behaviors in Six Domains	Sometimes	Nearly Always	Always	Sum
Writing a term paper	48.8	19.8	6.8	75.4
Studying for an exam	35.7	26.1	3.9	65.7
Keeping up with weekly reading assignments	46.9	20.8	1.0	68.7
Performing administrative tasks	32.4	23.2	4.8	60.4
Attending meetings	41.1	23.7	2.4	67.2
Performing academic tasks in general	38.2	39.1	3.9	81.2

<sup>a</sup>Values are expressed as percentage.

**Table 2.** Correlation Between the Students' Academic Procrastination and Their Academic Achievement

Academic Achievement	Students' Academic Procrastination Dimensions					
	Writing a Term Paper	Studying for an Exam	Keeping up with Weekly Reading Assignments	Performing Administrative Tasks	Attending Meetings	Performing Academic Tasks in General
Pearson correlation	-0.28 <sup>a</sup>	-0.21 <sup>a</sup>	-0.30 <sup>a</sup>	-0.28 <sup>a</sup>	-0.27 <sup>a</sup>	-0.38 <sup>a</sup>
P value	0.01	0.01	0.01	0.01	0.01	0.01

<sup>a</sup>P < 0.001.

**Table 3.** Comparison of Procrastination in Male and Female Students

Academic Procrastination	Mean ± Standard Deviation	t-Test	P Value
<b>Gender</b>		3.023	0.01
Male	3.08 ± 0.63		
Female	2.81 ± 0.59		

**Table 4.** Comparison of Academic Procrastination Behavior in Students Residing in the Dormitory and Home-Residing Students

Academic Procrastination	Mean ± Standard Deviation	t-Test	P Value
<b>Residence</b>		6.13	0.01
Dormitory-residing students	3.21 ± 0.57		
Home-residing students	2.71 ± 0.59		

**Table 5.** Comparison of Procrastination Based on the Years of Study

Academic Procrastination	Mean ± Standard Deviation	F	P Value
<b>Education level</b>		1.79	0.131
Basic science	2.83 ± 0.61		
Physiopathology	2.93 ± 0.79		
Studentship	3.10 ± 0.49		
Externship	3.03 ± 0.64		
Internship	3.05 ± 0.69		

in case a student cannot succeed in writing term papers or study for the exam, he/she will get low scores. Moreover, the relationship between procrastination and academic achievement can be explained by the mediating role

of other academic and motivational variables. For example, the findings of some studies indicated that procrastination affected one's academic achievement through influencing the individual's rational beliefs in studying and

academic satisfaction (29). In other words, students with high levels of procrastination are most probably unsatisfied with their academic life due to working under the limitation of time. Also, these individuals experience more stress and anxiety, which can, in turn, negatively affect their performance.

The results of other research in educational contexts have revealed that the lack of satisfaction with academic life and stress are associated with low performance (29) since procrastinating individuals like to work under the pressure of time (33). Tice and Baumeister pointed out that working under the pressure of time can lead to stress and it adversely affects the performance (34). Research has shown that individuals who tend toward procrastination tend to have a low performance. Some researchers believe that the low level of performance in procrastinating students results from their low self-efficacy (35). Students with low levels of self-efficacy are most probably afraid of accepting and doing the assignments, avoid working, postpone it, and give it up soon. Also, another reason for the low achievement of procrastinating individuals is, as shown by some studies, that these people possess low levels of self-regulating and metacognitive learning strategies (5, 6, 36).

Some researchers have defined procrastination as a failure in self-regulation performance (37), which leads to the inability to do or finish their academic assignments and tasks. Accordingly, the researchers believe that self-regulated learning strategies have a facilitating role in the process of learning (38) and the students with a variety of these strategies learn more and perform better than their peers who are not skillful in the use of these strategies (32).

It was also found that there was a significant difference in procrastination between male and female students; male students practiced more procrastination than their female peers. The results of other studies on the relationship between gender and procrastination are contradictory. Some studies have indicated that there is no significant difference in procrastination between male and female participants (39). Some other researchers have revealed that girls are more procrastinators in their tasks (12), but the results of the present study were in the same line with those showing more procrastination among males (15, 28, 40). This discrepancy can root in cultural differences. It can be concluded, as shown in other studies, that girls are better than males in self-regulated learning strategies and self-efficacy (41). Also, the results have shown a negative relationship between self-regulated strategies and academic procrastination; students who use these strategies more practice less procrastination in their academic tasks (6).

Moreover, female students act more competitively

than male ones in academic contexts and are more motivated to get higher grades; therefore, they have less academic procrastination. Some believe that obtaining lower grades is more fearful for girls than for boys, so they try to avoid it. Therefore, it can be said that fear of failure acts as a mechanism for the lower level of procrastination in girls.

According to the results, there was a significant difference between the students who lived in the dormitory and those who did not in the level of academic procrastination; in other words, those residing in the dormitory were more procrastinators than those who did not. The atmosphere of the dormitory causes the students to spend more time on pastime and hobbies together; also, they spend much of their time on the Internet and social networks; this leads to postponing their academic assignments. It is obvious that the dormitory context, unlimited access to the Internet, and their hobbies lead to negative outcomes as to their education and performance.

Finally, it was shown that there was a difference in academic procrastination among the students in different periods of their university studies; with an increase in the years of education, the students became more procrastinator. However, the differences were not significant. Some researchers have reported that with an increase in the years of education, the students' motivation decreases since motivation is negatively associated with procrastination; the less the students' motivation, the more the procrastination behaviors (42). Furthermore, when medical students enter higher levels of their education, they get more involved in their clinical activities and practically have less chance of following their academic duties.

Generally speaking, the results revealed that a considerable number of students practice procrastination in all dimensions. Notably, those who practiced more procrastination had poorer academic performance; thus, it is suggested that all educational authorities take this issue into account.

In the present research, we used a self-report questionnaire, which might have involved some bias. Moreover, the data were collected from the medical students studying at Shiraz University of Medical Sciences; this limits the generalizability of the results to the students of other universities and other majors. Also, this was a cross-sectional research study in which the data were collected in a specific time period. Therefore, it is suggested that further research be carried out longitudinally to determine the level of procrastination behaviors among the students. Despite the mentioned limitations, it is believed that the current research increases the authorities' insight into the studied issue in the student and medical school contexts.



### 5.1. Conclusions

The findings of this study showed that procrastination behaviors are considerably seen among medical students, especially in writing term papers and doing assignments. The other important finding of this study was that there was a negative correlation between the students' procrastination behaviors and their academic success. It is concluded that procrastination can negatively impact the students' academic performance and that gender and living at home or dormitory can affect the students' procrastination behaviors.

### Footnotes

**Authors' Contribution:** Ali Asghar Hayat, Leila Bazrafcan, and Nasrin Shokrpour contributed to the conceptualization, development of ideas, and drafting and approving the final draft. Moein Jahanian conducted the data collection, data analysis, and drafting of the manuscript.

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