

Test Anxiety in Dental Students: A Study at the Ahvaz Jundishapur University of Medical Sciences, Iran

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ABSTRACT

Introduction: Students' chronic test anxiety may lead to their lowering of educational standard and even dropping out of school. Therefore, this research was conducted in 2018 to study the test anxiety in dental students of Ahvaz Jundishapur University of Medical Sciences in southwest of Iran.

Materials and Methods: In this descriptive research, the standard questionnaire (TAI) (Test Anxiety Inventory) was used to measure students' test anxiety. Sampling method was census by selecting all general dental students. The descriptive and inferential statistics and the software SPSS version 22 were used to analyse the data.

Results: 160 students who had at least one year of study had participated in this study, of whom 38.8% were male and 61.2% were female students. Also, 93.8% of students were single and the rest married. According to the results of this research, the students' test anxiety was assessed in four levels: severe anxiety (9.8%), moderate anxiety (32.7%), mild anxiety (37.5%) and non-anxiety (19.5%). 0.5% of the students did not respond. In this research, no significant relationship was found between gender, satisfaction with field of study, being native, age and test anxiety ($p>0.05$). However, a significant relationship was found between the satisfaction with field of study and the level of test anxiety ($p=0.04$).

Discussion and Conclusion: Considering the negative effects of test anxiety on academic performance of students and considering the prevalence of test anxiety and its negative effects on the individual and the educational system, for the sake of the mental health of the students and preventing their physical, psychological, academic and economic damage, an appropriate planning by universities and educational institutions is necessary. Based on their level of anxiety, different behavioural and even medicinal methods can be used to reduce students' test anxiety.

Key words: Test anxiety, Students, Dentistry, Iran

HOW TO CITE THIS ARTICLE: Abdolreza Gilavand, Meisam Moezzi, Sakineh Gilavand, Test anxiety in dental students: A study at the Ahvaz Jundishapur University of medical sciences, Iran, J Res Med Dent Sci, 2019, 7(1): 108-113

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Received: 03/01/2019

Accepted: 26/01/2019

INTRODUCTION

Test anxiety is a particular kind of anxiety that is characterized by physical, cognitive, and behavioural symptoms when preparing for the test and performing tests; it becomes a problem when a high level of anxiety counteracts with preparing for the exam and performing the test [1]. The test anxiety is specified by severe fear of weak performance in exams and tests [2]. Also, each person reveals a particular mental anxiety and stress in encountering the test; the anxiety in the test and before is by itself normal and natural, but what matters is the intensity of excitement or extraordinary anxiety that affects some people. The minds of students with severe anxiety suffer from fleeting forgetfulness and error of

perception, and their success rate is exposed to difficulty [3]. Learners in the educational system also experience a wide range of test anxiety the form of test anxiety [4]. On the other hand, many students may have readiness for the test in terms of the ability, but due to the high level of this kind of anxiety, they cannot provide their abilities desirably [5]. Many studies have shown that test anxiety results in negative effects and outcomes, including feeling of weakness in performance, reducing motivation and focus; this greatly increases the incidence of dropping out of school [6]. Also, the studies have shown that the anxiety is associated with learning and the anxiety and nerve stresses caused by it are the origin of the numerous failures and some physical problems; this unwanted disorder affects the results so that it is considered as the main cause of failure in the learners [1,7]. New educational systems around the world have taken exams as the main and important tool in evaluating and comparing learners. This creates anxiety and a negative

experience in taking examination being associated with the possibility of not achieving one's core competencies. Students repeatedly experience failure in exams despite adequate effort and study [8]. Also, some studies have shown that there is an inverse relationship between students' mental health and their academic achievement [9,10]. Some studies also show an inverse relationship between religious beliefs and mental health of Iranian students [11]. According to Sarason, they feel stupidity and inefficiency [12]. However, many students may be able to prepare well for the exam, but due to high level of this kind of anxiety, they are not able to offer their capabilities [6]. The field of dentistry is currently a very popular field for university acceptance in Iran [13,14]. The profession of dentistry is by itself anxious [15]. In Iran, the course of dental students can be divided into three courses: course of basic sciences, pre-clinical course and clinical course [total education time is 6 years]. Each of these courses has its own characteristics. In the basic sciences course, the focus is on theoretical lessons, and the exams do not differ much from those of the medical discipline. Examinations in pre-clinical and clinical courses include the theoretical and practical exam. Practical exam process involves a test of theoretical knowledge and work done on the patient, which may increase the anxiety in the student [16]. Due to the role of test anxiety, it may lead to their lowering in standards and even dropping out of education. Therefore, this research was conducted to evaluate the test anxiety in dental students of Ahvaz Jundishapur University of Medical Sciences in southwest of Iran.

MATERIALS AND METHODS

This study was a descriptive one conducted in 2018. This project was funded by the National Agency for Strategic Research in Medical Education, Tehran, Iran (Grant No 960437). Its statistical population included all general dental students of Ahvaz Jundishapur University of Medical Sciences in Iran. Only those students who have spent at least one year of their studies at the Faculty of Dentistry have participated in this research. The

questionnaire was distributed through a census method among them. For collecting data and assessing the students' anxiety, the standard Test Anxiety Inventory (TAI) has been used. The questionnaire has two parts. The first part contains the student's individual information such as: gender, marriage, age, and academic year, being native or non-native, satisfaction and dissatisfaction with university and the field of study (Table 1). The second part of the questionnaire contains 254-option questions (never=0, rarely=1, sometimes=2, and often=3), with a minimum score of zero and a maximum of 75; the higher scores represent the students' test anxiety. Therefore, the individuals' anxiety has been classified in the four levels of severe, moderate, mild and non-anxiety. The validity and reliability of this questionnaire has been confirmed in numerous previous studies in Iran, including the study of Cheraghian *et al.* [17]. To analyse the data, descriptive statistics (Mean, standard deviation, percentage) and the software SPSS version 22 were used.

RESULTS

160 general dental students studying in the Ahvaz Jundishapur University of Medical Sciences in Iran, who had at least one year of study, participated in this research; their characteristics have been shown in Table 1. Of these, 38.8% were male students and 61.2% of them female students. 93.8% of students are single and the rest married; 55.6% of them were native and the rest non-native; 31.2% of them were satisfied with their university. Also, 93.1% of them were satisfied with their chosen field of study. Also, 9.4% of them were in the age group under 20 years; 59.4% of them were in the age group of 21-25 years and 24.4% of them in the age group of 26-30 years and 6.8% of them were over the age of 30 year. 1.8% of students were studying in the second year of study, 30.6% of them in the third year of study, 28.1% of them in the fourth year of study, 15.6% of them in the fifth year of study, 8.8% of them in the sixth year of study, 13.12% of them in the seventh year of study and 1.8% of them in the eighth year of study.

Table 1: Students' demographic characteristics

Variables	Number (percent) (%)
Gender	***
Man	62 (38.8)
Woman	98 (61.2)
Total	160 (100%)
Marriage	***
Single	150 (93.8)
Married	10 (6.2)
Total	160 (100%)
Ahvaz native	***
Yes	89 (55.6)

No	71 (44.4)
Total	160 (100%)
Satisfaction with university	***
Yes	59 (31.2)
No	101 (68.8)
Total	160 (100%)
Satisfaction with field of study	***
Yes	141 (93.1)
No	11 (6.9)
Total	160 (100%)
Academic year	***
2	3 (1.8)
3	49 (30.6)
4	45 (28.1)
5	25 (15.6)
6	14 (8.8)
7	21 (13.12)
8	3 (1.8)
Total	160 (100%)
Age (years)	***
Under 20	15 (9.4)
21-25	95 (59.4)
26-30	39 (24.4)
Over 30	11 (6.8)
Total	160 (100%)

In Table 2, the students' anxiety has been classified into four levels: severe anxiety (9.8%), moderate anxiety (32.7%), mild anxiety (37.5%) and non-anxiety (19.5%).

This study showed that there is no significant relationship between age, sex, marriage, academic year, place of life of students and their test anxiety.

Table 2: The students' anxiety has been classified into four levels

Levels of Anxiety Exam	Percent (%)
Non-anxiety	19.5
Mild anxiety	37.5
Moderate anxiety	32.7
Severe anxiety	9.8
No response	0.5
Total	100%

In Table 3, the relationship between test anxiety and demographic variables of the students has been evaluated. The results revealed no significant relationship between the variables of gender, satisfaction with field of study, being native (place of life of), age and

test anxiety ($p>0.05$). However, a significant relationship was found between satisfaction with the field of study and the level of test anxiety ($p=0.04$). The results of this study also revealed no significant relationship between

the variables of gender, satisfaction with field of study, being native, and age and exam anxiety.

Table 3: The relationship between test anxiety and demographic variables of the students

Variables	Mean	Standard Deviation	Test	p-value
Gender	Male	27.7	Independent-t	0.335
	Female	36.7		
Satisfaction with field of study	Yes	39.7	Independent-t	0.04
	No	21.7		
Ahvaz native	Yes	29.5	Independent-t	0.155
	No	42.8		
Age	Under 20	16.5	Independent-t	0.175
	21-25	35.07		

DISCUSSION AND CONCLUSION

The test anxiety of the majority of the students was mild to moderate. The research of Gilavand *et al.* showed that the dental students are mentally more favourable than other students due to their lack of concern for post-graduate employment [18]. Torabi *et al.* also showed that students in dentistry in Kerman University of Medical Sciences have some levels of test anxiety [16]. It is consistent with our study. Also Yousefi *et al.* have evaluated the test anxiety in medical students of Kurdistan University to be relatively high [19]. Mohammadi *et al.* have assessed the anxiety of students of Kermanshah University of Medical Sciences to be high [20]. It is not consistent with our study. Studies have shown that the habits of study of general medical students of Ahvaz Jundishapur University of Medical Sciences are relatively favourable and moderate. In this study, there was also an inverse relationship between the proper habits of study and the test anxiety [1]. In the study of Alzahem *et al.* in the UK, the main source of stress in dental students was a result of their exams [21]. The causes of test anxiety were measured by Hashemi *et al.* the highest level of test anxiety was resulted from the length of the exam period, the lack of physical activities, and High volume of lessons [22]. In the study of Latas *et al.* the test anxiety of medical students in Belgrade was evaluated; they showed a moderate test anxiety, especially among female students [23]. In a study conducted by Afzal *et al.*, the test anxiety by medical students was assessed; they observed a high level of test anxiety, especially among students of the fourth and last year of study [24]. In the study of Maimanee the physical impact of test anxiety on the students were examined; it was showed that test anxiety increases Blood lipids, especially triglycerides, by stimulating automatically the nervous system; this is different according to the kind of the test, so this is greater in the periodic examinations than final ones [25]. Pradeep *et al.* reported the fear of not passing a lesson as a factor of anxiety in Indian dentistry students [26]. Polychronopoulou *et al.* have mentioned the fear of failing courses as the main stress factors in Greek students [27]. In a research conducted by

Hatami *et al.* to evaluate the relationship between test anxiety and demographic variables in students of Kurdistan University of Medical Sciences, no relationship was found between age, gender, and faculty of study. This result is consistent with that of our research [28]. In addition, in study conducted by Dortaj *et al.* among the first-semester students of Hormozghan University of medical sciences, they found no significant relationship between student's age and gender and test [4]. This research also revealed a significant relationship between satisfaction with the field of study and the level of test anxiety. The results of the research conducted by Hatami *et al.* showed a significant relationship between the level of test anxiety and the field of study [28]. The results of the research conducted by Norouzinia *et al.* in Alborz University of Medical Sciences revealed a significant relationship between the level of test anxiety and satisfaction with field of study, studying non-teaching books and having major physical illness [29]. The results of research carried out by Azimi *et al.* [30] and Larijani *et al.* [31] also showed an inverse relationship between satisfaction with field of study and test anxiety. In a study conducted by Anbari *et al.* in Arak University of Medical Sciences, is a significant relationship was found between satisfaction with the field of study, mental health and academic achievement of students [32]. Their results are in line with those of our research. This research also revealed that most of the students were satisfied with their field of study, but they were not highly satisfied with their university. In this regard, the satisfaction of dentistry students with their field of study can be attributed to their acceptance in the most popular academic field of study. However, their low level of satisfaction with their university may be related to different personal and environmental factors (educational and non-educational), such as: the compactness of the courses contents in this field of study, the long period of education, the weather conditions of the region and other factors. It can be argued that in selecting a field of study, due to the intense competition of the candidates in special fields such as dentistry, the attention of students and their parents is more on certain fields of studies and type of university and city have a

lower importance for them. This problem might be manifested in the form of dissatisfaction during the study. In this regard, this result is in line with that of the study conducted by Alikhani *et al.* [33]. The results of the research conducted by Motlagh *et al.* also revealed that successful students, compared to unsuccessful students, have lower satisfaction with their field of study [34].

Different ways have been proposed to reduce the test anxiety in students. Can *et al.* believe that behavioral and cognitive behavioral therapies are effective in reducing the severity of test anxiety [35]. Brown *et al.* also declared that behavioral-cognitive and "Acceptance-based behavior therapy" (ABBT) are effective in reducing the test anxiety [36]. Inflammatory mechanisms have been observed in the pathophysiology of depression and stressful experiences. They show that the administration of omega-3 in medical students before test and test period reduces by 14% of pre-inflammatory factor of interleukin 6 and reduces by 20% of the anxiety symptoms [37]. Moreover, according to the research conducted by Jenaabadi *et al.*, time management training can be effective in reducing test anxiety among students [38]. In addition, based on the study conducted by Sheydaei *et al.*, mindfulness training has a significant effect on reducing the test anxiety and threat perceived from the students' exams [39]. Thus, it seems that different behavioral and even medicinal methods can be used to reduce students' test anxiety.

It is also necessary that university policies be developed on clear and comprehensible standard tests; faculty members of universities and higher education institutions are aware of the level of students' growth and the pressure that students may have before taking the exam. They must teach their students important strategies for taking test, including understanding the limitations of the test's time, the kinds of test formats (such as multi-choice, descriptive, fill-in formats, etc.). Also, university consultants should practice the different types of relaxation methods with students and familiarize them with cognitive tools to break down the negative self-expression that may be experienced before, during and after the test. Finally, due to the negative effects of test anxiety on the students' academic performance and considering the prevalence of test anxiety and its negative effects on the individual and the educational system, for the sake of the mental health of the students and in order to prevent their physical, psychological, academic and economic damage, an appropriate planning by universities and educational institutions is a necessity. One of the important limitations of this research can be psychological states of students at the time of completion of the questionnaire, time and honesty in responding and proper self-understanding; it is a fundamental condition of the appropriateness and safety of the research, and some factors may corrupt this.

ETHICAL CONSIDERATIONS

Ethical issues were completely observed by the author.

ACKNOWLEDGEMENTS

This project was funded by the National Agency for Strategic Research in Medical Education, Tehran, Iran. Grant No 960437.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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