

## Brief Communication

# The Relationship between Test Anxiety and Academic Performance of Students in Vital Statistics Course

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## Abstract

**Introduction:** Test anxiety is a common phenomenon among students and is one of the problems of educational system. The present study was conducted to investigate the test anxiety in vital statistics course and its association with academic performance of students at Kermanshah University of Medical Sciences. This study was descriptive-analytical and the study sample included the students studying in nursing and midwifery, paramedicine and health faculties that had taken vital statistics course and were selected through census method. Sarason questionnaire was used to analyze the test anxiety. Data were analyzed by descriptive and inferential statistics. The findings indicated no significant correlation between test anxiety and score of vital statistics course.

**Keywords:** Test anxiety, Academic performance, Statistics

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## Introduction

Academic failure is an important issue in medical education and its lack of control can decrease the academic level and efficiency of paramedics in forthcoming years (1). The youth period is one of the stressful periods of life and university is one of the environments in which most of the youth encounter many cultural and social issues as well as a sense of competition. This competition happens in specific times in each semester. It is more intense during exams in order to get a higher score, which is accompanied by a lot of stress (2, 3).

Test anxiety is a kind of self-preoccupation which is manifested with self-minimization and uncertainty about

abilities of oneself and results in negative cognitive evaluation, lack of concentration, unfavorable physiological reactions and academic failure. Thus, a significant reverse relationship is expected to exist between test anxiety and test scores (4).

On the other hand, academic stress refers to the increasing need for knowledge and simultaneously the individual's perception of lack of sufficient time to gain the expected knowledge (5). So, researchers believe that test anxiety makes students study better (6). In contrast, some other researchers believe that stress reduction is followed by better performance (7). As it was mentioned, most of the studies argue that there is a strong connection between

academic performance and test anxiety. This association has been less intense in some studies; however, in one study no significant relationship was observed (4). Statistics is a branch of mathematics. Training and education experts have emphasized studying the factors affecting academic performance in mathematics course during the past three decades. The findings of various studies have indicated that academic performance is not only affected by knowledge structures and data processing processes, but also associated with motivational factors such as beliefs, attitudes and values (8). Based on what was discussed, the present study was an attempt to investigate the relationship between test anxiety and academic performance in vital statistics course in nursing, midwifery, health and paramedical students at Kermanshah University of Medical Sciences in 2012.

## Methods

The present research was descriptive analytical which was carried out on the students studying in nursing, midwifery, paramedicine and health faculties and had taken vital statistics course during the second semester in 2012-2013. The study sample included 279 students that were selected in collaboration with the education office of the mentioned faculties. Having explained the objectives and significance of the study to students, those who agreed to participate in the study were given Sarason test anxiety questionnaire. The questionnaires were completed before starting the test. Sarason questionnaire consists of 73 questions. It contains short true/false questions. The range of scores is 0-37. The obtained score lower than 12 indicates the person has low anxiety for the test. The score 12-20 indicates average test anxiety and the score higher

than 20 shows high-level test anxiety. Validity and reliability of this questionnaire have been assessed in many studies with Cronbach's alpha coefficient of 0.88, internal consistency of 0.72 and criterion validity of 0.72 (9). The academic performance of students was evaluated according to the scores obtained in vital statistics course. The questionnaires were coded and the data obtained were fed into SPSS-16 software and analyzed by ANOVA, independent sample t-test, chi-square, Man-Whitney and Kolmogrov-Smirnov test.  $P\_value < 0.05$  was considered significant.

## Results

From 279 questionnaires, 231 were completed by the students (67.9% female and 85.4% male). The mean score of test anxiety between female and male students indicated a significant difference ( $p=0.01$  and  $t=2.604$ ). The mean of anxiety in married students was less than that of the single students, although this difference was not significant.

The mean of test anxiety for the students was  $15.36 \pm 6.96$ . No significant difference was observed between anxiety level, major and different faculties (Table 1). Based on the results of this study, the highest level of anxiety belonged to professional health students ( $18.39 \pm 7.09$ ) and the lowest level was reported for paramedics ( $12 \pm 6$ ). However, no significant difference was reported between student's anxiety and various majors. The findings indicated no significant correlation between anxiety level and the score of vital statistics course (Table 2). Pearson correlation coefficient showed a reverse relationship between vital statistics' score and test anxiety.

**Table 1: Frequency and test anxiety level of students in terms of their faculty at Kermanshah University of Medical Sciences**

Faculty	Number	Mean $\pm$ SD	F ANOVA	P_value
Nursing	59	15.14 $\pm$ 7.31	2.508	0.084
Health	111	16.31 $\pm$ 7.28		
Paramedicine	62	13.87 $\pm$ 5.74		
<b>Total</b>	232	15.36 $\pm$ 6.96		

**Table 2: Correlation between test anxiety and score of vital statistics course in students at Kermanshah University of Medical Sciences**

Statistics score	Test anxiety level			total	P_value
	Low Number (%)	Average Number (%)	High Number (%)		
Low	47 (52.2%)	18 (20%)	25 (27.8%)	90 (100%)	0.895
Average	45 (54.2%)	18 (21.7%)	20 (24.1%)	83(100%)	
High	34 (57.6%)	13 (22%)	12 (20.3%)	59(100%)	
<b>Total</b>	126 (54.3%)	49 (21.1%)	57 (24.6%)	232 (100%)	

## Discussion

The findings of the present survey showed a negative relationship between test anxiety of vital statistics course and academic performance; however, this relationship was not significant. The obtained results are in line with the findings of Cheraghian and Chapell (10, 11). However, previous studies have shown a significantly negative correlation between test anxiety and academic performance (12, 15). Vitasari reported a significant relationship between high-level test anxiety and academic performance of the students (16).

There are two theories regarding the findings of the study. The first one is based on Sarason theory arguing that test anxiety is a kind of self-preoccupation which is accompanied by uncertainty about the abilities of oneself and negative cognitive evaluation that consequently results in distraction and academic failure (17). The second one is based on Zeidner theory which refers to test anxiety levels and its effect on the students' performance. High-level test anxiety is associated with such concepts as assignment, worry, negative attitude and self-minimization during stressful activities that consequently lead to interruption in the performance of the students and reduction of efficiency (18).

Based on the results obtained in this study, there was no statistically significant correlation between students' major, faculty and test anxiety. This is indicative of similar results of test anxiety for the students in different majors during vital statistics test, which is in line with the findings of the studies conducted by Saheb Alzamani et al (19) and in contrast with the findings of Moghimian et al.'s study in which they reported a statistically significant correlation between major and test anxiety (20). Esfandiari demonstrated a significant correlation between test anxiety and academic majors of the students in health, paramedicine and medical faculties and argued that midwifery students underwent higher levels of anxiety which was attributed to their gender and susceptibility (21).

Moreover, the results showed higher level of test anxiety for vital statistics course in female students than in male ones. Given the higher sense of competition in female students with each other and trying to obtain a higher score, the female students undergo more stress. According to the findings of Lashkaripour, Hojat and Moaddeli, the

test anxiety score of females was remarkably higher than that of male counterparts (4, 22, 23). However, Mwamwenda reported no significant difference between two genders (24).

## Conclusion

In this study, there was a reverse significant correlation between test anxiety and academic performance of students. Given the average anxiety that students had about vital statistics course and significance of this course in medical science courses and that test anxiety is a multi-factor phenomenon, various factors influence its continuity. It is possible to help students manage stress and reduce test anxiety effectively through group work using students, parents, teachers, advisors and university deans.

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