Relationship between Test Anxiety and Academic Achievement among Undergraduate Nursing Students

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Abstract

Introduction: Anxiety is a common phenomenon that constitutes a universal cause of poor academic performance among students worldwide. It is a kind of self preoccupation which is manifested as self-minimization and results in negative cognitive evaluation, lack of concentration, unfavorable physiological reactions and academic failure. Test anxiety and its dimensions became one of the broadest research areas in recent years. Compared to other students, most of the nursing students experience high levels of test anxiety during final exam even though their marks are good throughout the semester. **Objective:** The aim of this study was to explore the relationship between test anxiety and academic achievement among undergraduate nursing students. **Methods**: A descriptive correlation, cross sectional research design was utilized to conduct the current study on a convenience sample of 277 undergraduate nursing students from all academic levels at College of Nursing, King Saud bin Abdul-Aziz University for Health Sciences - Riyadh (KSAU), who gave voluntary consent to participate in the study. Participants were asked to complete a two part questionnaire survey including participant's demographic background such as age, GPA, academic level, history of medical and mental illnesses and Test Anxiety Inventory (Spielberger, 1980) which was used to measure the primary outcome variable of the study, it is a four point Likert scale with 20 statements to find out how often participants experience the feeling described in each statement. An explanation about the purpose and the nature of the study was offered for each participant. The participants were ensured about the confidentiality and anonymity of the collected data. Data were analyzed using SPSS version 22. **Results**: Test anxiety score of the participants ranged between 20 and 74. Only 14.4% demonstrated severe test anxiety, about 50.9% experienced moderate test anxiety and more than one quarter of the participant's experienced mild test anxiety. Analysis of data revealed statistically significant negative relationship between test anxiety scores and undergraduate nursing students' academic level (r = -0.144, p = 0.01) which explain that undergraduate nursing students in higher academic level experience less test anxiety. Pearson's R revealed a negative none statistically significant relationship (r = -0.090, p = 0.157) between test anxiety scores and undergraduate nursing students Grade Point Average. In examining the relationship between test anxiety scores and undergraduate nursing students' age, Pearson's R revealed negative none statistically significant relationship (r = -0.078, p = 0.197) which indicates that test anxiety scores decreased with participants age. **Conclusion and Recommendations:** Results of this study concluded that a significant percentage of the students participated in the study experienced moderate to severe levels of test anxiety. It is fundamental to help out undergraduate nursing students to deal with stress and trim down test anxiety efficiently through group work via students, parents, faculty, academic advisors and other concerned parties. In addition undergraduate students should be taught about effective time and anxiety management strategies for better academic achievements. Considering the physiological and psychological factors leading to severe test anxiety among undergraduate nursing students is highly recommended. Counseling services should be available to nursing students when needed.

Keywords: Test Anxiety, Academic Performance, Undergraduate Nursing Students.

Introduction

Anxiety is a common phenomenon that constitutes a universal cause of poor academic performance among students worldwide. It is a common undisputable fact in human life's that influence an individual's accomplishment in numerous situations, an average level of anxiety is useful in sustaining people hardworking and being responsible of what they have to do (Kahan, 2008 & Donnelly, 2009). Anxiety was defined by (Asadullapoor, Fati, & Gharaee, 2010) as feeling that undesirable and unclear like when person predicts a danger situation. Extreme level of anxiety impends individual's mental and physical health and also has a negative effect on their personal, social, familial, occupational, and educational performance (Zahrakar, 2008). One of the broadest research areas in recent years has been test anxiety and its dimensions. It is a kind of anxiety which turn out especially during examination. Test anxiety has been overwhelmingly identified as a two-factor construct, consisting of the cognitive (often referred to as "worry") and emotional (or affective) components. The prime

view of the association between these two factors suggests the cognitive component that directly influences the performance of students in exams, while the emotionality component is associated but does not directly persuade test performance (Cassady, 2001). The individual might experience a feeling of distress that their performances are being prudently observed out to be assessed (Cheraghian, Fereydouni, BarazPardejani & Bavarsad, 2008). Sometimes this can lead to low confidence or poor academic performance (Moadeli & Ghazanfari, 2005).

Taking on new knowledge, roles, concepts and attitudes eventually leads to period of stress and dissatisfaction. Stress and recognition of impending stressors among nursing students were given a large extent of attention in the literature (Nicholl & Timmins, 2005). University students face challenges like adaption to new outset altering the routines and habits of life, also there is a great challenge and demand for success to achieve the highest level of academic performance which in turn can affect student performance and lead to situation of stress, depression and anxiety (Shamsuddin, Fadzil, Ismail, Shah, Omar & Muhammad, 2013).Undergraduate students have a great possibility of developing anxiety during examination. Anxiety disorders are rising among students (Leta, 2001). Recent studies on anxiety and related fields showed that anxiety disorders are prevalent in American society. Test anxiety is one of these fields (Amiri-Majd & Shahmoradi, 2008). This form of anxiety most of the time tends to weaken students' test taking ability. Also, their ability to exhibit knowledge about the content in the course being evaluated decreases, consequently leading to poor performance in the test that in turn affects the test scores and overall grades (Markman, Balik, Bercovitz & Ehrenfeld, 2010).

Test anxiety is an undesirable reaction toward evaluation. It's the most important problem that is faced by the students in their education worldwide (Khosravi & Bigdeli, 2008). Test anxiety is a psychological condition in which students experience extreme distress and anxiety in test situations. A little anxiety during exams is required that will help students to get motivated and learn. Mounting up so much of anxiety will not help the student to perform rather it will influence the academic performance negatively (Coon & Mitterer, 2009). The psychological symptoms that build up in students before a test includes restlessness, unusual body movements, difficulty in concentrating, insomnia, fatigue, muscle contraction, abdominal pain, and tremors (Porto, 2013). These symptoms have negative consequences on student lives and professional growth (Ferreira, Almondes, Braga, Mata, Lemos & Maia, 2014)

Most of the nursing students experience high level of anxiety during final exam even though their marks are good throughout the semester (Akbary-boorang & Aminyazdi, 2009). Driscoll Evans, Ramsey & Wheeler (2009) identified that nursing students have nearly double the rate for moderately high to high test anxiety in comparison to the general public and high school students. Nursing programs can be viewed as highly stressful settings. Nursing students are under pressure for taking various tests throughout their college and professional lives. Nursing students have clinical exams, which is highly stressful, that needs more preparation before facing the clinical exams (Mahat, 1998). In addition, nursing students are also under the stress that even a slight inaccuracy cause fatal effect to a patient as well as affect a student's own career (Driscoll et al., 2009).

Nursing students experience higher levels of test anxiety than other, especially because of struggle to balance multiple works, career adjustment and family responsibilities with the long study hours that are required for success. Over time these stressor may put student in chronic stress (Beggs, Shields & Goodin 2011). Test anxiety affects 30% of all nursing students (Driscoll et al., 2009). A technique that can be used as support and treatment that benefit to manage and reduce anxiety is progressive muscle relaxation (Mailloux, 2006). The activities acquired from religion or spirituality can also reduce anxiety (Stanley, 2012).

Most of the studies that assessed anxiety and stress among nursing students were carried out in western population. However, there are limited researches on test anxiety among nursing students in the Saudi population. This area of research has a greater concern to be intensely studied to identify the locus of the impact of test anxiety on academic achievement among undergraduate nursing students in Saudi Arabia.

Aim of the Study

The aim of this study was twofold, first to identify the level of test anxiety and second to explore the relationship between test anxiety and academic achievement among undergraduate nursing students at King Saud bin Abdul-Aziz University for Health Science- Riyadh, Kingdom of Saudi Arabia.

Subjects and Methods

Research question

1. Do nursing students experience test anxiety?
2. What is the level of the test anxiety experienced by undergraduate nursing students at King Saud bin Abdul-

Aziz University for Health Sciences?
3. Is there a relationship between test anxiety and academic achievement among undergraduate nursing students?

Research Design
A descriptive, cross section, correlational design was used to conduct this study with the aim to assess the level of test anxiety and to identify the relationship between test anxiety and academic achievement based on GPA among undergraduate nursing students of King Saud bin Abdul-Aziz University for Health Science.

Setting
The study was conducted in College of Nursing, King Saud bin Abdul-Aziz University for Health Sciences – Riyadh. This college take students from stream I and stream II. The period of study is 4 years which is divided into 2 years pre-professional and other 2 years as nursing courses. After finishing the nursing course the students have to complete one year internship to be a graduate nurse.

Sample
A convenience sample of 277 female nursing students from all levels (1-8) who were invited and agreed to participate in the study.

Tools and Measurements of Data Collection
Data were collected using a two part questionnaire. First part was concerned with the participant's demographic background such as Age, GPA, academic level, marital status and history of medical diagnoses. Second part of the questionnaire included the Test Anxiety Inventory (Spielberger, 1980) which was used as a measure of the primary outcome variable of the current study, test anxiety among undergraduate nursing students. The TAI consists of 20 statements, and the participants indicate on a four point Likert-type scale how often they experience the feeling described in each statement. Eight of the statements measure the W (worry) component and 8 statements measure the E (emotionality) while the remaining four statements contribute to the TAI-T score. Reliability analysis for the test anxiety inventory was calculated in the current study and revealed high reliability as indicated by Cronbach's Alpha = 0.871.

Ethical Considerations
An approval to conduct the study was obtained from the ethical committee of the research unit at College of Nursing-Riyadh affiliated to King Saud bin Abdul-Aziz University for Health Sciences. Voluntary participation was assured. Agreement to complete the questionnaire worked as an informed consent. Subjects were assured about the confidentiality and anonymity of the collected data and that it will be only used by the researchers for the purpose of the current study.

Data Collection
Participants who gave consent to participate in the study were given a brief explanation about the study. Researchers arranged with different course instructors to take 15 -20 minuet of the class time for the students to complete the survey questionnaire. In addion, some students were met individually or in groups in the lobby and cafeteria of the college for the purpose of data collection. The data were collected over a five weeks period.

Statistical Analysis
Data was coded, entred, cleaned and analysed using SPSS statistical software package version 22. Data was presented using descriptive statistics in the form of frequencies and percentages. Interval and ratio variables was presented in the form of means and standard deviations. Appropriate statistical analysis were carried out according to the study variables. The significance level was chosen as ($p < 0.05$).

Results
The current study was done with the aim to explore the relationship between test anxiety and academic achievement among undergraduate Saudi nursing students

Analysis of data revealed that 277 female nursing students participated in the current study. Students age ranged between 19 and 23 years old with a mean age of 20.54 ($\pm$1.131). The study sample included nursing students from all academic levels. Grade point average ranged between 2 – 4.87 with a mean GPA of 3.299 ($\pm$0.595). 94.6% of the students were single while only 15 students were married and only one student had one child. With regard to presence of any medical diagnosis only 15 students reported that they have a medical diagnosis and those diagnoses included gastrointestinal disease, hypertension, anemia, allergy, respiratory disease. One

student reported that she is diagnosed with depression and other two students had post traumatic stress disorder, all the three students with previous psychiatric history were excluded from the analysis.

Table 1: Participants Distribution by Demographic Data (n = 277)

Variable	Number (n)	Percentage (%)
Gender		
Female	277	100
Age		
Mean 20.54		
SD±1.131		
GPA		
Mean 3.299		
SD±0.595		
Academic level		
Level 1	31	11.2
Level 2	33	11.9
Level 3	31	11.2
Level 4	35	12.6
Level 5	49	17.7
Level 6	20	7.2
Level 7	52	18.8
Level 8	26	9.4
Marital Status		
Single	262	94.6
Married	15	5.4
History of Medical Diagnosis		
Yes	15	5.4
No	262	94.6

Table two represents the participants' responses to the Test Anxiety Inventory. As shown in the table, the most highly ranked statements were: during examinations I get so nervous that I forget facts I really know (M = 2.91, SD = 0.99), Thinking about my grade in a course interferes with my work on tests (M = 2.87, SD = 0.97), I wish examinations did not bother me so much (M = 2.82, SD = 0.96), While taking examinations I have an uneasy, upset feeling (M = 2.75, SD = 0.90). The least frequently reported statements were: I feel confident and relax while taking tests (M = 2.48, SD = 1.01), During exams I find myself thinking about whether I'll ever get through school (M = 2.49, SD = 0.97), The harder I work at taking a test, the more confused I get (M = 2.57, SD = 0.96), and During tests I find myself thinking about the consequences of failing (M = 2.58, SD = 1.04).

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Table 2: Participants' Responses to Test Anxiety Inventory (n = 277)

Statement	Almost Never		Sometimes		Often		Almost Always		M	SD
	n	%	n	%	n	%	n	%		
1. I feel confident and relax while taking tests	60	21.7	71	25.6	98	35.4	48	17.3	2.48	1.01
2. While taking examinations I have an uneasy, upset feeling	22	7.9	89	32.1	103	37.2	63	22.7	2.75	0.90
3. Thinking about my grade in a course interferes with my work on tests	27	9.7	69	24.9	94	33.9	87	31.4	2.87	0.97
4. I freeze up on important exams	37	13.4	80	28.9	100	36.1	60	21.7	2.66	0.96
5. During exams I find myself thinking about whether I'll ever get through school	52	18.8	81	29.2	100	36.1	44	15.9	2.49	0.97
6. The harder I work at taking a test, the more confused I get	38	13.7	99	35.7	84	30.3	56	20.2	2.57	0.96
7. Thoughts of doing poorly interfere with my concentration on tests	29	10.5	81	29.2	111	40.1	56	20.2	2.70	0.91
8. I feel very jittery when taking an important test	26	9.4	77	27.8	106	38.3	68	24.5	2.78	0.92
9. Even when I'm well prepared for a test, I feel very nervous about it	31	11.2	82	29.6	98	35.4	66	23.8	2.72	0.95
10. I start feeling very uneasy just before getting a test paper back	38	13.7	83	30.0	85	30.7	71	25.6	2.68	1.00
11. During tests I feel very tense	34	12.3	82	29.6	104	37.5	57	20.6	2.66	0.94
12. I wish examinations did not bother me so much	28	10.1	73	26.4	96	34.7	80	28.9	2.82	0.96
13. During important test I am so tense that my stomach gets upset	34	12.3	81	29.2	100	36.1	62	22.4	2.69	0.96
14. I seem to defeat myself while working on important test	23	8.3	99	35.7	90	32.5	65	23.5	2.71	0.92
15. I feel very panicky when I take an important test	34	12.3	95	34.3	99	35.7	49	17.7	2.59	0.92
16. I worry a great deal before taking an important examination	31	11.2	84	30.3	105	37.9	57	20.6	2.68	0.93
17. During tests I find myself thinking about the consequences of failing	48	17.3	87	31.4	75	27.1	67	24.2	2.58	1.04
18. I feel my heart beating very fast during important tests	35	12.6	83	30.0	85	31.0	73	26.4	2.71	0.99
19. After an exam is over I try to stop worrying about it, but I can't	45	16.2	63	22.7	96	34.7	73	26.4	2.71	1.03
20. During examinations I get so nervous that I forget facts I really know	28	10.1	63	22.7	91	32.9	95	34.3	2.91	0.99

The total possible test anxiety inventory score range between 20 and 80 with higher scores indicating higher levels of anxiety. Participants total Test Anxiety Inventory scores ranged from 20 to 74 with a mean score of 53.77 ($\pm$10.376). According to Spielberger (1980), there are two subscales for the Test Anxiety Inventory, Emotionality subscale and Worry subscale each subscale consists of 8 items with a possible score of 8-32. With regard to the emotionality subscale, participants' scores ranged between 8 and 32 with a mean score of 21.57 ($\pm$4.842) while in the worry subscale their scores ranged between 8 and 32 with a mean score of 21.50 ($\pm$ 4.781). Participants were distributed to four different levels of test anxiety according to their test anxiety inventory scores: scores between 20 and 35 no anxiety, 36 – 50 mild anxiety, 51 – 65 moderate anxiety and 66 – 80 severe anxiety. Based on this classification, only 6.5% experienced no anxiety, more than one quarter of the participants experienced mild anxiety, half of the participants (50.9%) classified as having moderate anxiety while 14.4% demonstrated severe anxiety.

Table 3: Distribution of the Participants According to their Level of Anxiety (n = 277)

Level of Test Anxiety	Frequency	Percentage
No Anxiety	18	6.5
Mild Anxiety	78	28.2
Moderate Anxiety	141	50.9
Severe Anxiety	40	14.4
Total	277	100

In examining the relationship between test anxiety scores and students' age, Pearson's R revealed negative none statistically significant relationship (r = -0.078, p = 0.197) which indicating that anxiety scores decreased with participants age.

Analysis of data showed statistically significant negative relationship between test anxiety scores and students' academic level (r = -0.128, p = 0.03) which explain that student in higher academic level experience less test anxiety.

Table 4: Relationship between Test Anxiety Inventory Scores and Students' GPA at Different Academic Levels

Students' GPA	Number of Students	Total Test Anxiety Inventory Scores	
		r	P
Academic Level 1	31	-0.102	0.586
Academic Level 2	33	-0.323	0.067
Academic Level 3	31	0.978	0.005[*]
Academic Level 4	35	-0.279	0.044[*]
Academic Level 5	49	-0.275	0.056
Academic Level 6	19	0.202	0.245
Academic Level 7	52	0.047	0.489
Academic Level 8	26	0.055	0.789

Table 4 shows the relationship between test anxiety scores and students' GPA in different academic levels. It is clear from the table that test anxiety scores decreased with increased academic level of nursing students

Relationship between Test Anxiety Score and Students' GPA (n = 277)
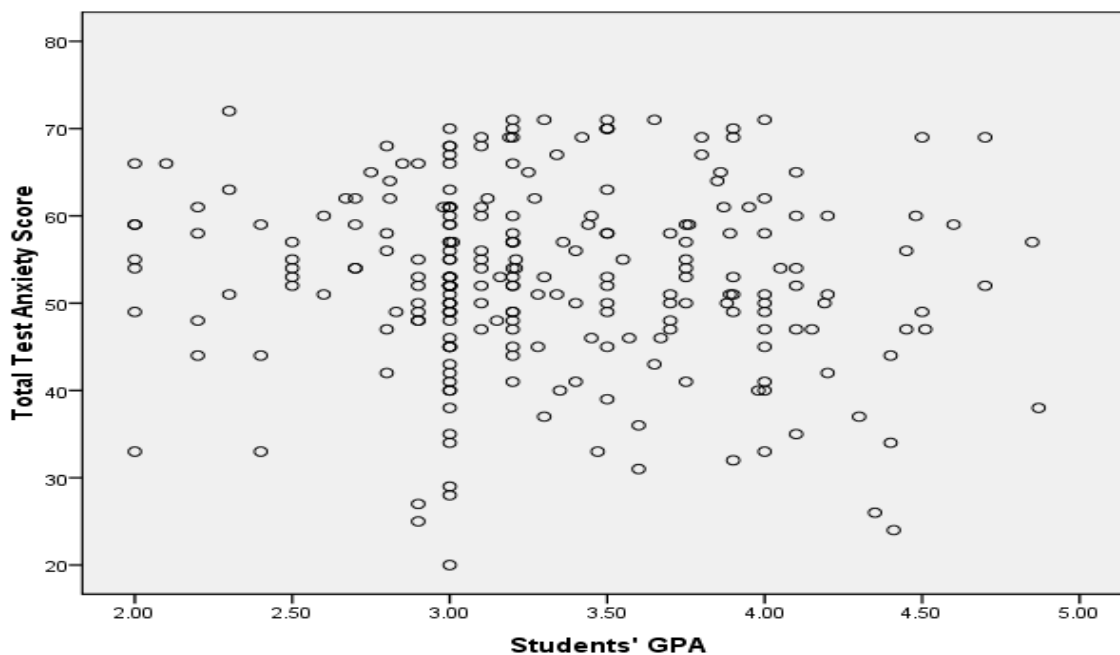
Pearson's R revealed a negative none statistically significant relationship (r = -0.090, p = 0.157) between test anxiety scores and students Grade Point Average.

Discussion

The main purpose of this present study was to explore the relationship between test anxiety and academic achievement among undergraduate nursing students. The results indicated that test anxiety of greater part of participants was mild and moderate; only 14% had severe test anxiety. These results are much allied to the study done by (Dordinejad et al., 2011) 35.0% had moderate test anxiety and 20.7% yielded high test anxiety.(Chapell, Blanding, Silverstein, 2005) reported that majority of nursing students had either moderate or high level of test anxiety. A moderate level of test anxiety is essential for better academic performance, absence of anxiety ultimately lead to poor academic performance as anxiety is a trigger factor to uphill struggle among students (Driscoll et al., 2009).

The current study revealed that there was no significant relationship between test anxiety and undergraduate nursing students' grade point average. This finding was contrasting to the study by (Afolayan, Donald, Onasoga, Babafemi & Juan 2013) which indicates that anxiety that is expressed as physiological, psychological and behavioral during examination negatively affected student's performance and outcome in the examination (Dordinejad et al., 2011) In their study discovered that when test anxiety is higher, their academic achievements (GPA) are lower. (Onyeizugbo, 2010) showed that students with higher test anxiety has low academic achievement. However, Result from the present study was in harmony with (Cheraghian et al., 2008) found out no meaningful relationship between test anxiety and academic performance.

With regard to relationship between test anxiety and undergraduate nursing students age the present study showed no significant relationship; also indicate that test anxiety scores decreased with participant's age. These findings agree to the work done by (Ebrahimi & Khoshsima 2014) that age does not play a significant role in the relationship between learners Test Anxiety. In contrary to the present study finding the research conducted by (Dordinejad et al., 2011) discovered that there was a positive correlation between age and test anxiety, as well they revealed that there was no meaningful relationship between test anxiety and semester at university, the current study presented similar result that there was no significant relationship between test anxiety and the undergraduate nursing students' academic level. In addition (Mohsen & Mansoor 2009) in their study revealed that there is no relationship between test anxiety and years of study.

Conclusions and Recommendations

Results of this study confirmed no relationship between test anxiety and grade point average among undergraduate nursing students. More over only few participants had severe test anxiety. While most participants experienced mild anxiety during examinations this point out that test anxiety is not directly affecting the student's academic achievement rather anxiety during examination acts as a motivating factor. Although it is essential to help out undergraduate nursing students to deal with stress and trim down test anxiety efficiently through group work via students, parents, faculty, advisors and university deans, since it was evident that few students had severe test anxiety. The results suggest the need for students to maintain a finest state of health and mind during examination as this is important for better academic achievements.

Current research lacks information regarding the physiological and psychological factors leading to severe test anxiety; therefore further research is required to address these factors causing test anxiety especially among undergraduate nursing students.

Based on the findings of this study, the following recommendations are suggested:
- Replicate the current study on larger sample size using a combined quantitative and qualitative research approach to better understand the factors leading to test anxiety among undergraduate nursing students.
- Encourage the students to prepare for the examinations in advance so that they will develop confidence consequently that help to prevent or reduce test anxiety.
- Guidance through academic advising and counseling programs should be activated in nursing colleges especially before examinations that may help to reduce test anxiety and thus improve the academic performance of students.
- Providing family monetary, social support and encouraging participation in social activities are recommended to decrease test anxiety in students preparing for different exams.
- Guide students to handle and cope with test anxiety during examinations and be made to understand that some level of anxiety is required as a motivating factor before the exam.
- Examinations and continuous assessment tests as well as assignments should be well planned to avoid undue stress on the students which most likely triggers anxiety.

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