

Test Anxiety, Sleep Quality and Eating Habits among University Students

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Abstract

The main objective of this article is to present the effects of test anxiety on sleep quality and eating habits among university students and its predicting role in determining poor sleep quality and eating habits among them. Sample of the study comprised of 300 students, 150 male and 150 female students of age range 18 to 26 years, collected from different universities of Lahore. Test Anxiety Questionnaire (Nist & Diehl, 1990), General Sleep Problems Scale (Malik & Muazzam, 2017), and Disordered Eating Behavior Scale (Muazzam & Khalid, 2011) were used to measure the study variables. The findings of the study indicated test anxiety as a significant predictor impacting sleep quality and eating habits among university students. This research can be beneficial for the teachers and parents to help their students and children in minimizing and eliminating anxiety related to exams so that their performance can be improved.

Key Words: Eating Habits, Sleep Quality, Test Anxiety

Introduction

Anxiety is a state of mood which is linked with future in which an individual get ready to deal with upcoming problems (Barlow, 2000). Anxiety is feeling of fear and worry about a situation that is not fearful and threatening in real (Chaplin, 1989). The meaning of word anxiety is annoyed or problem, it doesn't matter that there is any psychological problem or not. Anxiety results in the feelings of stress, bother and agony (Bouras & Holt, 2007).

Though, anxiety seems to be unpleasant, it is related to that situation which demands an individual to fight or flight reaction. It is a natural physical reaction against fearful situation. It is common to feel anxious even at the thought of a tense event. Now anxieties are found everywhere that are associated with work, money, family life, health and other important matters that seek a person's attention without fight or flight reaction (Smith et al., 2017). Such type of situations also produce conflicting thoughts about the performance and the outcomes that lead to anxiety. For short time period, these types of situations disturb the sleep quality, eating pattern and ability of an individual to concentrate. When the situation has gone, feelings of anxiety and worry automatically end (Marsh, 2015).

A little fear is helpful and good for us and it sharpens our minds. It also helps in the improvement of our performance. It also helps in quick thinking and to do

better work physically. Those students who do not feel any anxiety perform less well in examinations. Similarly, those people who are not worried about interview also don't perform well. In intense situations, anxious people act fast and are more prone to exist as compared to those people who are fearless. Fearful responses have their value. But intense fear is not good for us. It can hinder the performance. Some people feel too much worry that they can't perform well and start stuttering and sweating in front of others. Similarly, some students become very worried about their exams that they spend a lot of time in thinking about their performance in exams and cannot prepare well for them. During a traumatic event, some people perform and maintain themselves very well but with passage of time anxiety provokes in them relating to that stressful situation. This type of anxiety causes distress in them (Muazzam & Ahmad, 2017).

Exam anxiety is defined as fear which results in bad performance on exams, tests and other assessment situations. It causes uneasiness in a person fearing of being judged. This anxiety is mostly encountered by students before the starting of examinations (Batlas, 2002).

Test anxiety is the combination of three responses i.e. physical, behavioral and cognitive which triggers unpleasant feelings related to an assessment (Blandin et al., 2005). Unpleasant feelings involve failure to recall and recollect information, worry and problem in understanding a simple test question or an easy command in exams (Ringeisen & Buchwald, 2010). Everyone feels some anxiety before a test and it is considered to be normal but if it exceeds then it can result in too much difficulties and hurdles in learning and performing task (Landsberger, 1996).

Calvo and Eysenck (1992) proposed the "Processing Efficiency Theory" with the notion that there is a relationship between state anxiety and working memory tasks. This theory implies that anxiety results in minimizing attention control and decreases goal orientated functioning. Emotional distress and worry hinders capabilities and channels that are assigned for working memory process. This distress results in creating fear in high test anxious students that allow danger to use and minimize their problem solving capacities than the low test anxious students. Moreover, test anxious people focus their attention more on anxiety than on actual task. So the efficiency of performance minimizes and they also face other health hazards like sleep deprivation and unhealthy eating habits.

Sleep Quality in Students

Sleep is not just a biological need but it is also a physical urge. In today's speedy-moving world, however, proper sleep at night should be on priority. The impact of insufficient sleep is more than just frustration. Improper sleep affects our mood and performance at school, work, home and even everywhere (Wolfson & Carskadon, 1998).

Sleep is strongly linked to the process of learning of an individual (Walker, 2009). The brain gathers information that individuals learn throughout the day and stores in their minds and this process occurs at night. Without proper sleep, the brain is unable to do the process of storing all the information into long term memory. Deficiency of sleep can have a significant effect on student's ability of learning

during the day. An exhausted mind finds it difficult to concentrate and focus in class activities and a student misses the lectures because of tiredness. This situation results in many problems. Without the proper and sufficient amount of sleep, students feel difficult in retaining the information that they have learned. Particularly during busy routine like during exams, students face anxiety leading them to be sleep deprived and weakening their immune system (Cai et al., 2009). Getting ill when students have to do preparations for the exams hinders their performance directly (Wagner et al., 2004).

Insufficient sleep leads to cognitive disturbance and deficits in memory (Brown, 2012). Sleep deprivation also leads to destruction in abilities that are essential for attentive tasks, decision making process and recalling of long term memory. Furthermore, these damages become more intense as sleep deficiency increases (Alhola&Kantola, 2007).

Insufficient sleep during examinations especially affects different elements of behavioral and cognitive functioning in students. Past researches which have been conducted on reduction of sleep time exhibited that even minor changes in sleep could result in different cognitive and non-cognitive deficiencies in school going children and adults (Muazzam et al., 2020). Exam anxiety leads students towards depression, negative thinking and sleep deprivation. Quantity and quality of sleep in students is normally improper and irregular. As sleep quality and quantity goes on decreasing, performance in academics also worsens (Amin, 2008).

Eating Habits in Students

Eating habits consist of type, amount and time of meal. Healthy meal consists of fruits, vegetables, proteins and grains that is essential for healthy growth. Taking five times meal per day is ideal for proper health and growth. Several small amount of meals during a day helps in improving appetite and increasing metabolic rate of an individual (Meyer, 2016).

Students of any age group studying in schools, colleges and universities have been found to have improper eating habits. College students often eat less vegetables and fruits on regular basis but report that they consume high calories and fat enriched food (Racette et al., 2005). College/university life is a transition period in which eating habits of students become poor because of several factors like stress and anxiety especially during examinations leading to poor health and weight problems, especially in students of first year (Ejaz et al., 2021).

Gender differences have been found to exist in eating patterns among male and female university students. Female college students eat more fat enriched food than male students, though their consumption of fruits and vegetables tends to be similar (Driskell et al., 2005; Racette et al., 2005). The factors which are linked with poor habits of eating among students are stress, anxiety, and low self-esteem in different situations (Huntsinger&Luecken, 2004).

Poor eating habits affect health of young students who are moving to university and are in a period of transition and this is a matter of health concern (Nelson et al., 2008). Environmental factors like different types of fast food available

in the market also result in unhealthy and poor eating habits among students in universities (Ganet al., 2011).

Student life is the critical period of life for selection of food when students start moving independently and take their decisions about their food preferences (Baric, 2003; Marquis, 2005). This transition period can leave a negative effect on eating behaviors in them (Marquis, 2005). Factors influencing eating habits of university students have been widely discussed in past researches (Nelson et al., 2008). Anxiety during examinations is found to be one of the most widely prevalent factor resulting in poor eating habits (Rubina et al., 2009). Though, these unhealthy behaviors are for short time period and temporary but the habits which are adopted during this age remain in older life (Silliman et al., 2004). Unhealthy eating patterns among young adults which are common are skipping meal, eat by staying outside from home, taking snacks and consumption of fast food.

In aspiring to fulfill the strong need to investigate the effects test anxiety could have on sleep quality and eating habits among Pakistani students, the researchers have conducted this study on Pakistani students population as this research area has been least explored. This research will be beneficial for the students to recognize how test anxiety can hinder with sleep quality and what effects it produces on eating habits and what strategies can be adopted to maintain good sleep quality and healthy eating patterns. The main objectives of this study were to find out the relationship between test anxiety, sleep quality and eating habits among university students, to find out gender difference in the mentioned variables and to assess test anxiety as a predictor of sleep quality and eating habits in Pakistani students.

Material and Methods

After getting permission from the concerned authorities including the Chairperson, Department of Applied Psychology, Lahore College for Women University, Lahore and from heads of the universities the process of data collection was initiated. The sample of this research consisted of N=300 (150 male and 150 female university students) with age ranging between 18- 26 years selected from different universities of Lahore through non probability convenience sampling strategy. Researchers gave debriefing prior to data collection. Participants' willingness was ensured through informed consent. It was ensured that anonymity and confidentiality of information would be maintained by confirming that data will only be used for research purpose. Participants were allowed to withdraw from participation at any time. The cross-sectional research design was used to fulfill the research objectives. Demographic sheet was used to gather the information about participant's age, gender, education, socioeconomic status, marital status and family structure. Test Anxiety Questionnaire (Nist& Diehl, 1990), a self-report 10-item measure using a five-point Likert scale from 1 (never) to 5 (always) having high internal reliability = .90 was used to measure test anxiety. General Sleep Problems Scale (Malik &Muazzam, 2017) consisting of 11 items using five point Likert scale from 1 (never) to 5 (everyday) with high internal reliability =.94 was used to determine the quality of sleep. Disordered Eating Behavior Scale (Muazzam & Khalid, 2011), a 26-item questionnaire and a 5 point Likert scale from 1 (never) to 5 (always) with = .86was used to measure eating habits. Statistical Package for Social

Sciences (SPSS) was used for statistical analysis. Descriptive statistics was used to describe sample. Pearson Product Moment Correlation was used to measure the relationship among test anxiety, sleep quality and eating habits. Linear Regression Analysis was used to assess test anxiety as predictor of sleep quality and eating habits. T-test was used to explore gender differences among the variables.

Characteristics of the Participants

Table 1
Frequencies, Percentage, Mean, Standard Deviation of Demographic Variables

Variables	Characteristics	f(%)	M	SD
Gender	Male	150 (50)	1.50	.501
	Female	150 (50)		
Age	18	14 (4.7)	21.6	2.08
	19	37 (12.3)		
	20	49 (16.3)		
	21	52 (17.3)		
	22	54 (18)		
	23	34 (11.3)		
	24	27 (9)		
	25	18 (6)		
Education	Intermediate	30 (10)	2.35	.826
	Graduation	174 (58)		
	Masters	58 (19.3)		
	MS/M.Phil	38 (12.7)		
Socioeconomic Status	Lower class	3 (1)		
	Middle class	291 (97)		
	Upper class	6 (2)		
Marital Status	Unmarried	300 (100)		
	Married	0 (0)		
Family System	Nuclear	199 (66.3)		
	Combined	101(33.7)		

Table 1 illustrates demographic characteristics of the participants. Among a total sample of 300 students, 150 were male and 150 were female students with (M= 150 and SD= .501). Age range of students was 18 to 26 years with (M= 21.6 and SD=2.08). Percentage of participants of age 18 were 4.7%, age 19 were 12.3%, age 20 were 16.3%, age 21 were 17.3%, age 22 were 18%, age 23 were 11.3%, age 24 were 9%, age 25 were 6% and of age 26 were 5%. 10%, students were undergraduates, 58%, were graduate level students, 19.3% were from postgraduate level and 12.7% were M Phil level students. Students from all socioeconomic classes participated in the research but majority of them i.e. 97% belonged to middle class. As married participants were excluded from the research study therefore percentage of married participants was 0%. 66.3% students belonged to nuclear families whereas 33.7% belonged to joint family system.

Correlations among the Main Study Variables

Table 2
Pearson Product Moment Correlation among Test Anxiety, Sleep Problems and Disordered Eating Behavior among University Students (N=300)

Variables	1	2	3
1. Test Anxiety	----		
2. Sleep problems	.119*	----	
3. Disordered eating behavior	.204**	.132*	----

Note: *p 0.05, **p 0.01

Table 2 shows the relationship among test anxiety, sleep problems and disordered eating behavior among university students. According to the results, there is a positive relationship between test anxiety and sleep problems ($r = .119^*$) which indicates that if test anxiety increases, sleep problems also increase and sleep quality decreases. So, there is negative relationship between test anxiety and sleep quality. Results also reveal that there is a positive relationship between test anxiety and disordered eating behavior ($r = .204^{**}$) which means that as test anxiety increases, disordered eating behavior also increases and eating habits become poor. So, there is a negative relationship between test anxiety and eating habits. Relationship between disordered eating behavior and sleep problems is also positive ($r = .132^*$).

Gender Differences among Test Anxiety, Sleep Problems and Disordered Eating Behavior in University Students

Table 3
Gender difference in test anxiety, sleep problems and disordered eating behavior among university students (N=300)

Variables	Male		Female		T	df	P	95% CI	
	M	SD	M	SD				LL	UL
Test Anxiety	23.89	6.14	26.54	7.57	3.33	285.8	.022	4.22	1.08
General Sleep Problems	33.72	4.75	33.88	4.93	-.28	298	.863	1.26	.940
Disordered Eating Behavior	65.56	13.65	66.33	14.21	-.48	298	.399	3.94	2.39

Note: *p 0.05, M = Mean, SD = Standard deviation, LL = Lower limit, UL = Upper limit

Table 3 indicates that there is significant gender difference in Test Anxiety among university students i.e. $t(285.8) = .022$. Gender difference in sleep quality were not found to be significant i.e. $t(298) = .863$ which indicates that male and female university students have almost same quality of sleep. Gender difference in eating habits were also insignificant i.e. $t(298) = .399$.

Test Anxiety as a Predictor of Sleep Problems and Disordered Eating Behavior

Table 4
Linear regression analysis predicting sleep problems by test anxiety among university students.

<i>Predictor</i>	<i>Sleep problems</i>		
	<i>B</i>	<i>SE B</i>	
Constant	31.72	1.038	
Test anxiety	.082	.040	.119
R	.119 ^a		
R ²	.014		

Note: *p 0.05

Results of Table 4 show that test anxiety is a strong predictor of sleep problems among university students. According to the values, $R = .119$, $R^2 = .014$ and $p = .119$ and a significance value $p < 0.05$ it is also concluded that test anxiety caused 14% students to have sleep problems.

Table 5
Linear regression analysis predicting disordered eating behavior by test anxiety among university students. N=300

<i>Predictor</i>	<i>Disordered Eating Behavior</i>		
	<i>B</i>	<i>SE B</i>	
Constant	55.74	2.94	
Test anxiety	.405	.113	.204
R	.204 ^a		
R ²	.042		

Note: **p 0.01

Results of Table 5 show that test anxiety is also a strong predictor of disordered eating behaviors among university students. According to the values, $R = .204$, $R^2 = .042$ and $p = .204$ and a significance value $p < 0.01$, it is also concluded that test anxiety caused 42 % students to have poor eating habits.

Discussion

Current study was planned to examine the effects of test anxiety on sleep quality and eating habits among university students. Relationship between test anxiety, sleep quality and eating habits as well as gender difference among these variables were explored. It was hypothesized that a) test anxiety will be negatively correlated with sleep quality among university students. b) There will be a negative correlation between test anxiety and eating habits among university students. c) There will be significant gender difference in test anxiety, sleep quality and eating habits among university students. d) Test anxiety will be a significant predictor of sleep quality and eating habits among university students.

Test anxiety is a very important phenomenon which plays a vital role in the life of every individual especially of students. Every student faces this type of anxiety

during his or her life which may affect different aspects of his/her life. In this research effects of test anxiety on sleep quality and eating habits are investigated.

Test anxiety is the combination of two components which is worry and emotionality (Liebert & Morris, 1967). Increased heartbeat, nausea and increased temperature of body are the factors which are associated with emotional component of test anxiety. Inner expectations of failure which consist of past performance are related to worry component. This test anxiety's aspect can affect cognitive activity of a person when he/she is being tested (Deffenbacher, 1980).

Test anxiety is a blend of physiological and psychological factors that intervene with a person's attention and concentration when he or she is in a testing situation (Schaffer, 1996).

The first hypothesis of this study was supported by the results when a negative correlation between test anxiety and sleep quality among university students was observed. Various researches in the past have shown similar results.

In a study of Senior High School students, the results revealed that students had exam anxiety which negatively affected their sleep quality (Selminet al., 2018). A significant negative correlation between sleep quality and exam anxiety was also observed in a study conducted in Qom city, Iran. (Barmeh et al., 2016).

Results of this study also supported the second hypothesis and are consistent with past researches showing that correlation between test anxiety and eating habits among university students was negative. Students' healthy lifestyle pattern has been found to be negatively affected during exams (Chanotiset al., 2013). Dietary restraint is also linked with anxiety (Haslam et al., 1989; Ejaz et al., 2020). Female students have been found to report significantly greater levels of disordered eating attitudes, higher levels of anxiety and lower levels of self-esteem during exams (Costarelli & Patsai, 2012).

Significant gender difference in test anxiety among university students were hypothesized and according to the findings female students were found to be more anxious than male students. Previously in a similar study conducted in University of Barcelona female students had reported higher levels of test math, and trait anxiety as compared to male students (Nelson et al., 2008). Women have also been found to report significantly greater symptom intensity than men in test anxiety (Sowa & LaFleur, 1986; Putwain & Daly, 2013). Women were found to experience higher levels of test anxiety while doing preparations for their university exams in a study conducted in the University of Istanbul, Turkey (Kurt et al., 2014).

According to the results of this research, gender differences in sleep quality and eating habits among university students were not significant which means both man and women are equally vulnerable to experience disturbances in sleep and eating preferences during exams.

Test anxiety was found to be a predictor of sleep quality and eating habits among university students supporting the forth hypothesis of this study. Anxiety related to exams significantly affect sleeping hours taken by the students and changes

their dietary plans hence predicting poor sleep quality and disordered eating habits (Lamma, 2012).

Conclusion

Test anxiety is a very important phenomenon which affects different aspects of a student life. Many students suffer from test anxiety which leads to various other problems. Sleep and eating are two very important aspects of any person. If they are disturbed and do not function properly then they can cause disturbances in several other aspects of a student's life. So, test anxiety should be handled. Students should know about the consequences of test anxiety on sleep quality and eating habits and should be assisted by their teachers and parents to help them in minimizing and eliminating anxiety related to exams so that their performance can be improved and life activities could not be disturbed.

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