Study of Perceived Stress among Female Students, Taif University, Saudi Arabia

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Abstract **Background.** Alarming figures of stress have been reported in the university students in the last years. Many negative academic, emotional and health problems have been linked to stress in university students. **Objectives.** This study aimed to evaluate the level of perceived stress among female faculty students at Taif university and to identify the sources of stress as reported by the students themselves. **Methods.** A cross sectional study was used where 530 female students from Taif university participated in answering a questionnaire about perceived stress. Perceived Stress Scale-10 (PSS-10) was used for assessing perceived stress level of the students. An open question about the five main causes of stress encountered by students during their university life was added to the questionnaire. **Results.** About 84% of female students at Taif university suffer from stress. Most of them had moderate degree of stress (75.5%). The average stress score of students was 19 ± 5.5 which was higher than the standard score used in assessing stress (M = 14.2; SD = 6.2). The stress mean score was significantly highest among medical students and students of illiterate mothers. Study condition was the most common source of stress reported by students especially the medical ones. Other factors contributing to stress were environmental and social factors. **Conclusions.** This study showed that most university female students at Taif suffered from moderate stress. Medical students were more vulnerable to stress than other students and the academic causes were the most common source of stress to them.

Keywords: stress, university students, adolescent females

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1. Introduction

Stress is a word often used to describe the situation when pressure exceeds a person's capability to manage [31].

Teens have been reported to have alarming figures of stress. Several studies have reported strong association between stress and college students [27,29].

University students are challenged by many stressors in their day to day life. These stressors include internal and external challenges to thrive, overcome economic pressures, plan for the vague future and overcome societal problems. Moreover, they are exposed to academic overload of study, constant pressure to succeed in examinations, competition with peers and teacher or parental pressure [26,34].

Many negative academic, emotional and health consequences can affect university students due to the much stress they face [16,30]. High stress levels in students are associated with low final grades and bad academic performance [5,21]. High course load, social activities and sleep issues were reported by undergraduate students as the major sources of stress that negatively impacted their academic performance [33].

Recent studies show exaggerated levels of stress related psychological problems in students. Some of which are anxiety, depression and panic attacks [14,24]. Moreover, there has been a well-documented impact for stress on the physical health of students either by direct and indirect effects [30]. High stress levels are associated with poorer physical health in students [22].

Stressful life implications on personal health are many. Some of which are elevated blood pressure, stomachaches, headaches, sleeping problems, and chest pains. Stress also can inhibit the immune system, causing more colds and sickness. Moreover, chronic stress can negatively impact practicing healthy habits like eating nutritious diets, adequate sleep, avoiding smoking and excess drinking. Deadly and serious health risks like various cancers, liver cirrhosis, heart disease, lung problems, and suicide have been also associated with stress [7].

The health of university students has been the subject of increasing attention in recent years because of the psychopathology arising from the negative impact of stress [2,11,19]. In addition to the alarming fact that adolescence is a critical period of time because behavioral patterns arising due to stress in this period can have long term health consequences when they grow to adulthood

period [17]. However, there are few studies on this topic in Taif University. The present study was undertaken to assess the levels of stress among female students of Taif university, to test the association with various sociodemographic factors and to investigate probable causes of stress as perceived by students.

2. Methods

A cross sectional study design was used where a random sample of five-hundred and fifty female students at Taif university in Saudi Arabia agreed to participate in the study after taking their verbal consent. The study was approved by the ethical committee board at Taif university. Data for twenty students was excluded because of missing responses in the questions evaluating stress so the total number of the study participants was 530 students. The study took place from 15 September 2016 to 25 March 2017.

General perceived stress over the last month was assessed using the 10-item version of Cohen's Perceived Stress Scale (PSS) [10]. This instrument is the most commonly used measure of the current levels of experienced stress. An open question about the five main causes of stress encountered by students during their university life was added. Additionally, details of the subjects' demographic and socio-economic characteristics were ascertained through questions about age, faculty, and fathers' and mothers' educations and jobs.

The data were collected and analyzed using Statistical package for Social Science (SPSS) software version 22.0. Descriptive statistics (e.g. number, percentage, mean and standard deviation) and analytic statistics using Chi Square, T-test, ANOVA for the association and difference between categories were applied. Pearson correlation coefficient was calculated for association between numeric variables in the study.

PSS scores were obtained by revising responses (e.g. 0=4, 1=3, 2=2, 3=1 and 4= 0) to the four positively stated items (item 4, 5, 7 &8) and then summing across all scale items. The minimum score is zero and the maximum is 40 with the higher scores indicating higher perceived stress.

As per the norms table for the PSS published by Cohen [9], a score of 14.2 with a SD ± 6.2 was reported as the norm for 18-29 year age group [9]. A cut off score of 14 on PSS has been chosen below which students are considered to have non-significant low stress. low stress is considered if scores range from 0-13. Scores ranging from 14-26 would be considered moderate stress. Scores ranging from 27-40 would be considered high perceived stress [32].

Student responses to the final open-ended question about the main causes of stress were grouped into the following categories: study conditions, family stressors, transportation, university environment, sleep disturbances, social relationships and family income.

3. Results

Table 1 shows socio-demographic characteristics of students. Mean age was 21.3 ± 1.4. Minimum age was 18 years and maximum was 26 years. Regarding faculty,

27.7% of students were from medical college, 44% from scientific college and 28.3% from theoretical college. It was found that (11%) of mothers were illiterate. Nearly 10% of fathers were illiterate too. Forty-six percent of mothers were housewives. Twenty-one percent of fathers were retired while 2.0% were unemployed, the rest had jobs.

Table 1. Socio-demographic characteristics of the students

Parameters	Figure	
Age:		
Min, Max.	18, 26	
Mean± SD	21.3± 1.4	
	No.	**%**
Faculty:		
Medical	147	27.7
theoretical	150	28.3
scientific	233	44
Mothers 'education:		
Illiterate	59	11.1
Primary	85	16
Intermediate	76	14.3
Secondary	93	17.5
university	162	30.5
Fathers 'education:		
Illiterate	52	9.8
Primary	41	7.7
Intermediate	73	13.8
Secondary	115	21.7
university	171	32.3
Mothers' job:		
Worker	108	20.4
housewife	244	46.0
Fathers' job:		
Health service workers	18	3.4
Skilled professional	85	16.0
Office worker	16	3
Manual worker	48	9.1
Military	100	18.9
Retired	110	20.8
unemployed	11	2.1

Table 2 shows stress levels of students. Mean level of perceived stress score was 19 ± 5.5. Minimum was 3 and maximum was 35.

Table 2. Perceived stress levels among students:

Statistic	figure
Min.	3
Max.	35
Mean± SD	19 ± 5.5

Figure 1 shows that 84% of students (number= 445) suffered from significant stress.

Figure 2 shows that most of students (75.5%) suffered from moderate stress. Low non-significant stress was encountered in about 16% of students, while 8.5% of students suffered from severe stress.

Table 3 shows the relationship between mean score of stress and different socio-demographic factors. There was a statistical significant difference between stress and field of education (P= 0.004). The stress mean score was

highest among medical students (20.3± 4.8) and least among theoretical faculty students (18.2 ± 5.6). There was a significant relation between mothers' education and the perceived stress among students (P <0.001). Stress mean score was significantly higher among students of illiterate mothers (20.46 ± 5.47). Other factors as mothers' job, fathers' job and fathers' education were insignificant factors in determining the mean of perceived stress.

Figure 3 shows no significant correlation between age of students and their mean score of stress (r = -0.03, p = 0.503).

In Table 4, only 179 students answered the part of questionnaire concerned with sources of stress. The main causes of perceived stress as mentioned by the students were; study condition which was the most common factor reported by students (71%) and there was a significant difference between different faculties in reporting study condition as the most common factor (p= 0.028); it was the highest among medical students (84.0%), and the least among theoretical college students (63.0%). Other factors in descending order of importance were family stressors (18.7%), transportation (17.5%), university environment (11.5%), sleep disturbance (8.5%), social relationships (2.5%) and finally family income (1.5%). All these factors were insignificantly different between faculties (p>0.05) except for university environment factor which was significantly highest among scientific colleges students and least among medical college students (p = 0.02).

Table 3. Relationship between perceived stress level and different demographic factors

Parameters	Mean± SD	P value
Faculty:		
Medical	20.3 ± 4.8	
Scientific	18.9 ± 5.8	0.004
theoretical	18.2± 5.6	
Mothers 'education:		
Illiterate	20.46± 5.47	<0.001
Non-illiterate	16.67± 5.34	
Fathers 'education:		
Primary	19.39 ± 6.64	
Intermediate	19.53 ± 5.29	0.929
Secondary	19.72 ± 5.76	
university	18.89 ± 5.22	
Mothers' job:		
Worker	19.42 ± 5.61	0.340
housewife	18.62 ± 5.57	
Fathers' job:		
Health service workers	16.14 ± 8.53	
Skilled professional	20.03 ± 5.07	
Office worker	18.90 ± 4.28	0.499
Military	19.05 ± 5.05	
Retired	19.35 ± 6.62	
unemployed	16.00 ± 3.16	
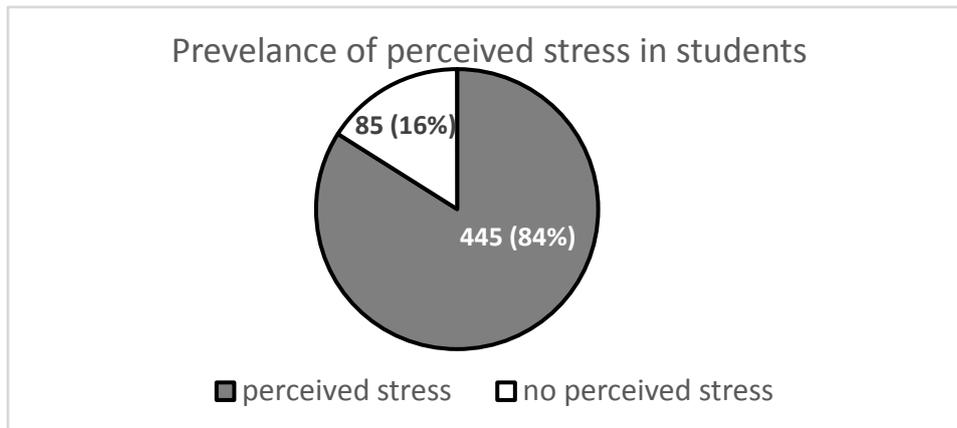
Figure 1. Prevalence of stress among students
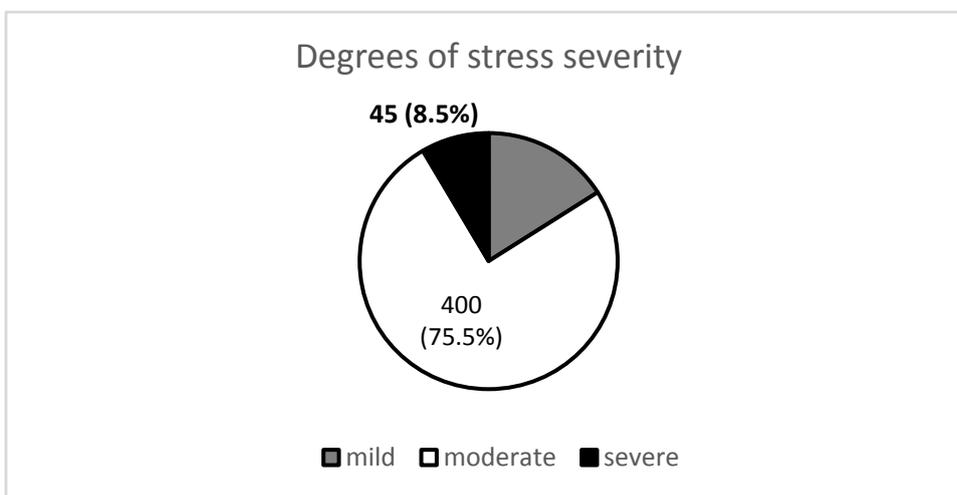
Figure 2. Stress severity degree among students
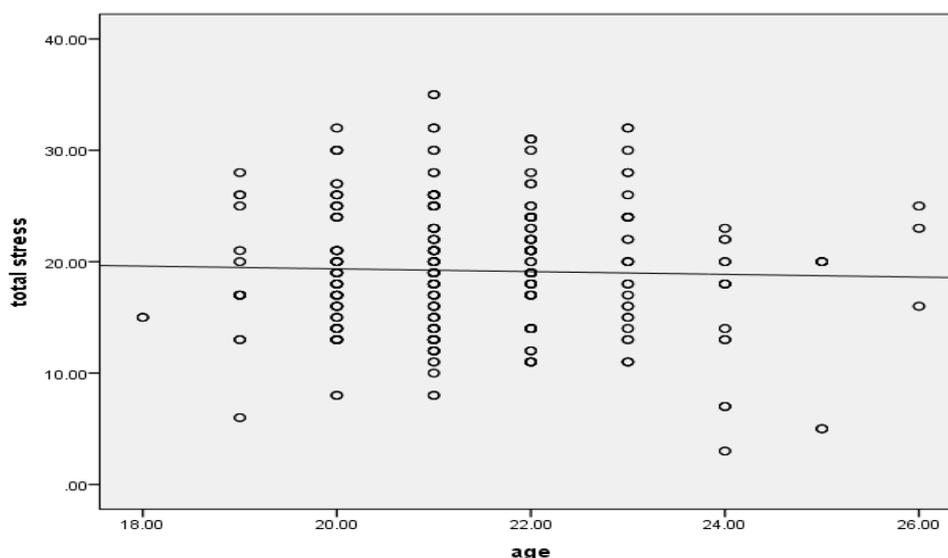
Figure 3. Correlation between age and stress of students (R = -0.03, p value = 0.503)

Table 4. Main sources of perceived stress as described by the students

Sources of stress	Medical	Scientific	Theoretical	Total		P value
				No.	%	
Study conditions	42 (84.0%)	36 (72.0%)	63 (63.0%)	141	71.2	0.028
Family stressors	14 (28.0%)	10 (20.0%)	13 (13.0%)	37	18.7	0.079
Transportation	8 (16.0%)	6 (12.0%)	21 (21.0%)	35	17.5	0.737
University environment	1(2.0%)	12 (24.0%)	10 (10.0%)	23	11.5	0.002
Sleep disturbance	7 (14.0)	4 (8.0%)	6 (8.5%)	17	8.5	0.251
Social relationships	2 (4.0%)	0 (0.00%)	3 (3.0%)	5	2.5	0.397
Family Income	1 (2.0%)	1(2.0%)	1 (1.0%)	3	1.5	0.844

4. Discussion

Stress in university students has been getting much concern recently [8]. In the current study, prevalence of stress among students was 84 %. Students experienced a mean stress score of about 19 ± 5.5, which was higher than the standard score (14.2± 6.2) for their age group. Regarding degree of stress in the stressed students, most students (75.5%) had moderate amount of stress (14-26 score) while severe stress (27-40 score) was present in 8.8% of the students. These findings agree with many recent studies which state that university students suffer significant levels of stress.

A study on a group of 124 college students at James Madison University revealed that a high degree of stress exists among the students, with over 50 percent of students suffering from high levels of stress [7]. Moreover, Elias et al. conducted a study on undergradute students at a local university from different disciplinary areas using a different scale than the scale used in the current study. They found that the undergraduate students have moderate stress levels with a mean stress score of 926.39 and standard deviation of 288.38 [15]. A quantitative survey in 2015 was done on a sample of 428 students from five selected tertiary institutions. The results revealed that students generally had moderate to above moderate level of stress [12].

A study conducted on a large population of 1876 university students in France in the period from 2009 to 2011 which used the same tool of measuring stress as the current study found that the mean PSS score for students was 15.9 with a standard deviation of 7.2 [35]. The lower estimate in this study than the current study may be attributed to the percentage of medical school students was much lower in this study (7%) while in the current study it is 25%.

Medical education has been identified as one of the most worldwide stressful academic curricula because they include hard and challenging courses over an extended period. The stress level among students of medical schools depends on the curriculum, the setting of the medical school, and the examination system [11,23]. In faculty of Medicine at Taif University, an integrated program is followed with high frequency of examinations. Theoretically, the higher frequency of examinations should lead to a higher prevalence of stress among medical student. A fact which has been found in the current study where there was a statistical significant association between stress and field of education (P= .004). The stress mean score was highest among medical students (20.3± 4.8). Many studies have emphasized that students studying in medical courses experience higher levels of stress [6,16,37]. Abdulghani et al, [1] conducted a cross-sectional study on the medical students from the College of Medicine, King Saud University in Saudi Arabia. The study was conducted using Kessler10 psychological distress (K10) inventory, which measures the level of stress according to none, mild, moderate, and

severe categories. The total prevalence of stress was 63%, and the prevalence of severe stress was 25% [1].

Stress in medical students is receiving much attention because it negatively impacts their academic performance by reducing their attention span and impacting their decision-making skill. It has also been recognized that tense, tired doctors are not able to provide high-quality care [13,18].

It is generally agreed that some familial factors like parental education and occupation pose significant effect on the academic achievements and educational aspirations of adolescents [25]. Similarly, Azhar et al, in 2014, stated that students who belong to strong financial status have a better performance than those who have problems in finance. One of the factors that improves the finance is the parental education which has been found to boost up the students' performance [4]. A factor which surely help in alleviating stress of students. In the current study mothers' education was a significant factor (P <0.001) in determining the mean of perceived stress among students where it was highest among students of illiterate mothers (20.46 ± 5.47).

There was no significant correlation between age of students and their stress level in our study (r = -0.03, p value = 0.503). Inversely, a cross sectional study in Tahran conducted on university students reported a significant negative association between age on one hand and stress, depression, anxiety and sleep disturbance of the students [38]. However, Ardani et al. found non-significant association between age and stress of students; a finding which agrees with our result [3].

Identifying the sources of stress in university students is an important approach in helping them to alleviate this stress. In the current study, students reported that study condition was the most common stressor (71%) and this reporting was significantly highest (p= 0.028) among medical students (84.0%). These results are in accordance with findings from a systematic review of quantitative studies in 2012 which found that the most common sources of stress in university students was related to academics such as problems associated with studying and workload [28].

Other sources of stress reported by students in the current study in descending order of importance were family stressors (18.7%), transportation (17.5%), university environment (11.5%), sleep disturbance (8.5%), social relationships (2.5%) and family income (1.5%). These findings agree with many studies which have reported the importance of social and environmental factors as sources for stress in university students [20,36,37].

5. Conclusion and Recommendations

Most students from all three fields of education are exposed to moderate stress; however, medical students are more prone to the development of stress compared to scientific and theoretical faculty students. Academic, environmental and social factors were reported by students as the main sources for their stress. Academic factors are the most important stressors especially in the medical field students. Curricular and exam system evaluation is needed to minimize the burden of academic load and stress for students. Providing encouraging university environment which gives importance to the extracurricular activities may help alleviate stress. Finally addressing complaints of students should be taken in consideration by university authorities.

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