

## ORIGINAL ARTICLE

## PERCEIVED STRESS IN UNDERGRADUATE PHYSICAL THERAPY STUDENTS OF PESHAWAR, PAKISTAN

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**Background:** Stress results from different kind of stressors that affect students either positively or negatively depending on their coping ability. Academic stressors are the main cause of stress and depression among undergraduate allied health sciences' students. The aim of this study was to determine the prevalence of perceived stress and its association with gender among undergraduate physical therapy students of Peshawar. **Methodology:** Level of perceived stress was assessed using cross sectional study design at different Physiotherapy institutes of Peshawar, Pakistan. A total of 300 students were recruited from five different institutes. Degree and prevalence of stress was assessed using Perceived stress scale (Cohen PSS 10). **Results:** Seventy-two percent students were found to be moderately stressed, 23.3% were highly stressed whereas 4.7% had low level of stress. Female students showed significantly higher stress levels ( $23.50 \pm 4.80$  vs  $21.50 \pm 5.60$ ,  $p=0.01$ ). Control on irritation and confidence were considered as positive stressors whereas nervousness, stress and loss of patience were found to be the important negative stressors. **Conclusion:** A significant number of physiotherapy students fall in moderate to high stress categories with female preponderance.

**Keywords:** Perceived stress, Physical Therapy Students

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## INTRODUCTION

Stress is a non-specific response that results from different kind of stressors, to which a person responds either positively or negatively. The positive stress is beneficial for students to prepare themselves for the challenging environment.<sup>1</sup> The amount of stress perceived by a student depends on its coping ability to face different stressful situations and circumstances.<sup>2</sup>

Medical schools usually have stressful environment that sometimes puts negative effects on students' academic performance, physical health and psychological wellbeing. This condition may lead to different complications such as anxiety and depression.<sup>3</sup>

Health care students, in particular physical therapy students are more vulnerable to perceived stress.<sup>4</sup> Some of the main reasons discussed were stress due to less focus on achieving good grades in professional practical examination. In addition, it lowers self-confidence and compromises their ability to cope with problems that influences their academic performance in the new challenging era where educational strategies of learning are changing continuously.<sup>5</sup> Ratio of depression among undergraduate students is 2.4 times higher than that of the mean population.<sup>6</sup> Stressors not only affect the student's intellectual ability but are also attributed to their failure and drop out from professional institution due to low motivational and emotional levels.<sup>7</sup> A significant association has been found between stress and sleep deprivation, eating habits, lack of physical exercise and drugs consumption.<sup>7</sup>

High stress in students is a risk factor for chronic illnesses like diabetes mellitus, hypertension and cardiac diseases.<sup>8</sup> The high level of stress in medical students has been studied across the globe. In Thailand medical schools the prevalence of perceived stress was reported to be towering among 3<sup>rd</sup> year undergraduate students.<sup>9</sup> Moreover, the incidence of clinical depression in US students were reported to be 23%.<sup>2</sup> Similarly, psychological morbidity due to stress was 20.9%, reported in Nepal, while prevalence of severe stress in 25% of the Saudi medical students has been shown.<sup>10,11</sup>

The students of physiotherapy almost follow the same curriculum as medical students and are exposed to the same amount of stress as they all are affiliated with Khyber Medical University. However, the available literature to show the prevalence of stress in the undergraduate physical therapy students is limited. So, the aim of this study was to determine the prevalence of perceived stress and its association with gender in students of physiotherapy studying at different institutes of Peshawar, Pakistan.

## MATERIAL AND METHODS

This cross-sectional study was conducted at different physical therapy institutes of Peshawar, Pakistan from Sep to Dec 2017 after approval from Research Ethics Committee of the University. A total of 300 students were recruited from 5 institutes, i.e., Rehman Medical Institute (RMI) n=60, Institute of Physical Medicine and Rehabilitation (IPMR) n=91, Mehboob Medical Institute (MMI) n=45, North West School of Medicine (NWSM) n=42, and National College System (NCS)

n=62). Sample size was calculated using the WHO calculator with 95% confidence level, 5% margin of error and 50% anticipated population proportion that turned out to be 238. Questionnaire was distributed to 320 students at an estimated response rate of 75% through random sampling. Written informed consent was obtained from all the participants.

Perceived stress scale (Cohen PSS-10) was used for measuring the degree and prevalence of stress.<sup>13</sup> The scale is extensively used in psychometric research with high internal consistency and validity ( $\alpha$  value of 0.82).<sup>14</sup> It is a 10-item questionnaire with 2 sub themes. Direct stress measuring them where the scoring is done directly by perceiving the stress created by the scenario (Question No. 1, 2, 3, 6, 9, 10) given and indirect stress where the score is reversed by measuring the level of happiness and confidence of individuals (Question No. 4, 5, 6, 7). The minimum score on scale is zero and the maximum score is 40. Based on the total score, three categories of stress, mild (0–13), moderate (14–26) and severe (27–40) have been identified. The participants responded to each question on a 5-point Likert scale including how often they have felt or thought about a certain situation within the past month.

Data were analysed using SPSS-25. Categorical variables were presented as frequency and percentage whereas numerical variables as mean and standard deviation. Comparison between mean scores was calculated using *t*-test, comparison between frequencies using Chi-Square test, and  $p \leq 0.05$  was considered significant.

## RESULTS

The mean age of the participants was 20.2±2.2 years with 155 (51.7%) males and 145 (48.3%) females. Table-1 shows mean PSS score for the whole sample as well as comparison of scores between males and females. Comparison of the PSS score between the two genders separately for different institutes is also shown. Table-1 also shows frequency and percentage of students with mild, moderate and severe stress as well as comparison of the frequency between males and females along with the *p*-values.

Extended analysis into the isolated variables in questionnaires showed that mean score for direct questions related to stress was 13.05±3.15 with significant male to female difference (12.10±4.6 vs. 14.06±4.3,  $p < 0.001$ ) and the mean score for indirect questions related to stress was 9.42±3.03 with no significant male to female difference (9.39±3.10 vs. 9.45±2.9,  $p = 0.8$ ). Nervousness, stress and loss of patience were found to be the critical stimuli in perceived stress whereas control on irritation and confidence were considered as positive components for coping with stressful situations. However, females were more affected by scenarios that directly increase the stress levels of individuals such as unexpected situations leading to upsets, not able to control things, nervousness and stressful conditions.

**Table-1: Perceived stress scale item analyses based on total score for all and separate institutes along with gender wise distribution**

Institute	Gender	n	Score Mean±SD	<i>p</i>	Mild Stress % (frequency)	Moderate stress % (frequency)	Sever stress % (frequency)	<i>p</i>
Whole sample	Total	300	22.47±5.3	0.001*	4.7 (14)	72 (216)	23.3 (70)	0.003*
	Male	155	21.5±5.6		7.7 (12)	74.8 (116)	17.4 (27)	
	Female	145	23.5±4.8		1.4 (2)	69 (100)	29.7 (43)	
IPMR	Total	91	22.7±5.6	0.02*	4.4 (4)	67 (61)	28.6 (26)	0.036*
	Male	54	21.7±5.3		5.6 (3)	75.9 (41)	18.5 (10)	
	Females	37	24.3±5.7		2.7 (1)	54.1 (20)	43.2 (16)	
MMI	Total	45	20.9±4.1	0.29	2.2 (1)	91.1 (41)	6.7 (3)	0.42
	Male	22	20.2±4.0		4.5 (1)	90 (20)	4.5 (1)	
	Females	23	21.5±4.1		0 (0)	91.3 (21)	8.7 (2)	
RMI	Total	60	23.6±4.9	0.54	1.7 (1)	68.3 (41)	30 (18)	0.35
	Male	20	23.0±6.5		5 (1)	65 (13)	30 (6)	
	Females	40	23.98±3.9		0 (0)	70 (28)	30 (12)	
NWSM	Total	42	23.2±5.9	0.48	9.5 (4)	64.3 (27)	26.2 (11)	0.48
	Male	25	22.6±6.3		12 (3)	68 (17)	20 (5)	
	Females	17	23.9±5.4		5.9 (1)	58.8 (10)	35 (6)	
NCS	Total	62	21.5±5.2	0.03*	6.5 (4)	74.2 (46)	19.4 (12)	0.05*
	Male	34	20.2±5.6		11.8 (4)	73.5 (25)	14.7 (5)	
	Females	28	23.1±4.3		0 (0)	75 (21)	25 (7)	

\*Significant

## DISCUSSION

This study aimed to determine the level of stress among undergraduate physical therapy students in Peshawar as well as gender differences. It was evident from the

analysis that majority of the students were moderately stressed (72%) followed by highly stressed (23.33%). A similar study showed that depression, anxiety and stress levels of moderate or above severity were found in 21%,

41% and 27% of respondents, respectively.<sup>15</sup> Mean PSS score in the study population was  $22.47 \pm 5.30$ . It is indicative of moderate stress level and is similar to the mean PSS score reported by Sharma (Mean  $22.29 \pm 5.58$ ), observed in 400 first year para-medical students.<sup>6</sup> In India it was observed that academic examinations were the most powerful stressors in MBBS and Physiotherapy students affecting the vital parameters significantly.<sup>15</sup>

The analysis revealed that female students were more stressed compared to males. Similar studies conducted on stress with pharmacy students showed that female students had higher stress levels than males. Study on undergraduate students revealed the higher stress level among women than men due to lack of regular physical activities.<sup>17</sup> Results of our study showed that female stress score was significantly higher than males in the direct questions portion. In other words, coping with unexpected events, control on different events, nervousness, in time task accomplishment, anger and difficulty levels of the tasks were the stressors more profoundly perceived by the females compared to males. Nonetheless, female students are more prone to social pressure, physiological and parental expectations compared to their male fellows.<sup>15,16</sup>

Study conducted in Karachi, Pakistan, revealed that type of academic assessment also affects the stress levels among medical students. The results indicated that overall test anxiety and stress levels were much higher in students with Grade Point Average (GPA) system as compared to annual system (PSS:  $17.0 \pm 6.70$  vs.  $20.30 \pm 6.80$ ;  $p < 0.01$ ) which is comparable to the high stress levels at our participating institutes due to their GPA system.<sup>18</sup>

In our study, as all the students followed a central curriculum and assessment method of the same university, institutional influences are not expected to be different. However, socioeconomic background and accommodation status of the students (hostel vs. home) are some of the limitations of the study.

The question related to the workload towards the end of semester showed a significant stress response from the student. One study at Brazil on the nursing students in their last semester showed similar results to our study.<sup>19</sup> This could be due to the demanding responsibility of performing better in exam from teachers and parents, in-addition to the work load of the entire semester. This is accompanied by the anxiety and depression among students.<sup>12,20</sup>

This study points towards a huge percentage of physiotherapy students suffering from perceived severe and moderate stress. The institutions need to look into the matter seriously on urgent basis, so that the students can effectively cope with the demands of the curriculum and their routine daily life.<sup>21</sup>

## CONCLUSION

A significant number of students fall in the high stress category in all physical therapy institutes. Further qualitative and in-depth studies are warranted to find out specific stressors causing high level of stress among students through psychometric analysis of the students. This would enable the institution to establish effective counseling mechanism for such students in order to excel their performance during academia.

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