

Impact of Perceived Academic Stress Upon Academic Performance of Physiotherapy Students - A Cross Sectional Study

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Abstract Introduction: Stress is prevalent among Healthcare students worldwide. Studies have shown that these students are more likely to suffer from mental health issues and have lower levels of life satisfaction. This research aimed to examine physical therapy students' experiences with academic stress and how it relates to and affects their academic performances. **Methods:** The study was done among the physical therapy students of AIHMS New Delhi. Using Yamane's formula, the sample size of 260 participants was calculated. The study sample was 272, and participants were asked to fill out a Perceived Mean Stress Score (PMSS) questionnaire using convenient sampling. The data was analyzed by using SPSS version 25. The mean and standard deviation for each response were calculated as a part of descriptive statistics, whereas the Student t-test and ANOVA were applied for inferential statistics to assess the impact of academic stress on their performance. **Results:** 272 students participated in the study, of which 173 and 99 respondents were females and males, respectively. The respondents were tested for differences in Perceived Mean Stress Score for 13 dimensions. Mean stress scores were significantly higher in students with lower GPA scores and less in students with high GPA scores. Personal finances and Accommodation were found to impact stress ratings significantly ($P=0.036^*$, 0.018^*). The stress scores were significantly higher in the final years compared to the initial years in Physiotherapy school ($P<0.05^*$). **Conclusions:** High mean scores for stress and anxiety necessitate early identification, especially in the initial years of Physiotherapy school, and integration of preventive mental health services in routine clinical services for Physiotherapy students.

Key Words Education, Physiotherapy, Majmaah, stress

1. Introduction

Students pursuing a healthcare career often report high-stress levels, which negatively affects their ability to focus and succeed in class [1]. Among different healthcare professions, Physiotherapy students are more likely to experience stress or trauma due to academic difficulties than social variables, according to a large body of research [2]–[4]. Physiotherapy students have identified personal factors (such as home environment, peer relationships, etc.) and academic demands (such as time demands, amount of material to learn, uncertainty about expectations, and lack of skills) as contributing to psychological morbidity [5]. To add to this, the demands of the clinical learning setting could be a contributing factor to the high levels of stress and anxiety experienced by physiotherapy students [6].

The literature review suggests that academic stress can significantly affect students' mental health students. Optimal

mental health encompasses a variety of factors, including emotional stability, capacity to cope with stress, contentment with one's life, and overall psychological functioning [7], [8].

A study on a poll of physiotherapy college students in Australia indicated that academic stress was one of the biggest problems with students' grades. Students may struggle academically, have trouble engaging in class, and be more likely to abuse substances if their stress levels are high and last for an extended period [9]. Moreover, while on clinical rotations, physiotherapy students' levels of stress and anxiety varied widely, with higher levels having a detrimental impact on their academic performance [10].

Most earlier studies have been conducted in Western countries [11], [12]. This is the first type of study conducted in North India that focuses on understanding academic stress issues among physiotherapy students.

2. Methodology

The study design was an observational cross-sectional study design. Using Yamane's formula, a sample size of 260 was calculated. However, 272 respondents who satisfied the inclusion criteria participated in the study. The students enrolled in the Department of Physical Therapy, AIHMS New Delhi, and some other Delhi NCR institutions were recruited for the study using convenient sampling. The study was conducted between June 2023 to August 2023.

Ethical approval was obtained from the Institutional Review Board of AIHMS New Delhi (Reference No. IRB-0623-PT-132).

Once informed consent was taken from the participants; the survey questionnaire was handed over to all physiotherapy students from 1st year to the interns. Two hundred forty students enroll in the physiotherapy program, with around 60 students annually. The study did not include any students who were either absent or did not consent to participate. The study's goals were detailed in an informed consent form delivered to the participants, along with a demographic profile sheet. Every student who agreed to participate in the study was given a unique identification number and 30 minutes to complete a demographic survey. A Perceived Stress (PSS) questionnaire was asked to be filled out. None of the students were asked to write their names, and they were coded according to their class to ensure their privacy.

The modified questionnaire was a 13-item questionnaire aimed at probing students' negative feelings and impressions of their time in physiotherapy school. The questionnaire had five parts, including the students' demographic profile, gender, age, academic year, etc. The original eleven-item PSS survey covered four domains: physiotherapy education and setting, self-efficacy and stamina, social and recreational activities, and financial matters [13]. Two new questions were added to the questionnaire: one on students' perceptions of their level of competition and another about their level of accommodation. A Cronbach's alpha of 0.81 was determined as the reliability coefficient of internal consistency of the questionnaire used on a pilot sample of 10 students.

Excel was used for data entry, whereas SPSS (version 23) was used for analysis. The descriptive data highlighted the various parameters' mean and standard deviation as percentages and frequencies. Variables were tested for normality using the Kolmogorov-Smirnov test and found to be normally distributed. Differences in Perceived Mean Stress Scores (PMSS) between males and females were tested using an independent sample t-test. PMSS between students of different academic years and the influence of PMSS on academic performance was tested using the ANOVA test.

3. Results

There were 272 students who participated in the study out of which there were 173 females and 99 males. Majority of the students were single (98.5%) and only few were married (1.5%). Mean age was 22.34 ± 1.95 . Approximately equal number of students from all years of Physiotherapy school

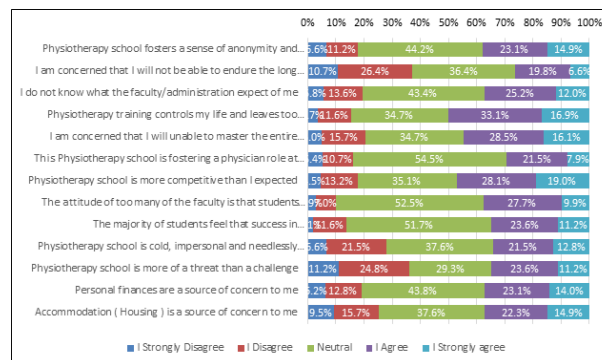


Figure 1: Perceived level of stress among Physiotherapy students of Delhi NCR

participated. Out of the total 272 students, 40 students were repeaters and of the repeaters, 30 (75%) had repeated once and remaining 10 (25%) had repeated two times and more. The graduation grades from high school of majority of the students were between 57-92% (Table 1).

Table 2 compared the perceived mean stress scores of female and the male students across all thirteen dimensions. Both personal finances and Accommodation were found to have a significant impact on stress ratings ($P=0.036^*$, 0.018^*). However no statistically significant differences were found in terms of gender. Similarly, PMSS between individuals who repeated in any given year and those who did not also were found to be non-significant (Table 2).

Another purpose of this survey was to gauge the students' opinions and level of agreement on several topics. Students made the following statements: "Physiotherapy school is cold, impersonal and needlessly bureaucratic" (26.4% of students disagreed), "Physiotherapy school is more of a threat than a challenge" (24.8% of students disagreed), and "They are concerned that they will not be able to endure the long hours and responsibilities associated with clinical training and practice" (51.5%). Similarly, a quarter of students (23.1% to be exact) and nearly half (14.9%) strongly agreed that students often felt lonely and unidentified. In addition, they felt that the physiotherapy program was very formal, lacking in human interaction, and frigid. Physiotherapy education is more competitive than I imagined,' said 48.1% of students, "They do not know what the faculty/administration expect from them," and "Physiotherapy training controls their life and leaves too little time for other activities," according to 50 percent of students (Figure 1).

Table 3 showed that as the year progressed the PMSS score marginally increased however the stress score were significantly higher in the final years as compared to the initial years in Physiotherapy school. The difference of mean score between students of different year was found statistically significant ($p < 0.01^{**}$).

Last but not the least, Mean stress scores were significantly high in students with less GPA scores and less in students with high GPA score. Mean stress score in students with GPA

Characteristics		Frequency	Percentage
Gender	Female	173	63.2
	Male	99	36.8
Marital Status	Single	268	98.5
	Married	4	1.5
	Widowed	0	.0
	Divorced	0	0
Mean Age ± S.D		22.06 ± 1.95	
Region Of Origin	NCR Region	92	34.0
	Delhi Region	180	66.0
Academic Year	1st year (Physiotherapy Basic Sciences & Pre-Clinical)	60	22
	2nd year (Para-clinical)	49	18
	3rd year (Clinical)	56	21
	4th year (Clinical)	56	21
	Internship	51	18
Have you repeated any year in college	No	202	74
	Yes	70	26
if yes, how many years	1	20	29
	2	38	54
	3	12	17
Graduation grade from intermediate school	50-60%	49	18
	61-70%	23	7
	71-80%	167	61
	81-90%	24	8
	91-100%	9	6

* S.D: Standard Deviation

Table 1: Demographic profile of the physiotherapy students of Delhi NCR

PMSS(Perceived Mean Stress Score)	Females (N=173)		Males (N=99)		Total (N=272)		T-value	P-Value
	Mean	S.D	Mean	S.D	Mean	S.D		
Physiotherapy school fosters a sense of anonymity and feelings of isolation among the students	3.19	1.09	3.43	1.00	3.29	1.06	-1.591	0.113
I am concerned that I will not be able to endure the long hours and responsibilities associated with clinical training and practice	2.73	1.09	2.89	1.04	2.85	1.07	-0.404	0.687
I do not know what the faculty/administration expect of me	3.16	1.04	3.20	0.99	3.24	1.02	0.433	0.665
Physiotherapy training controls my life and leaves too little time for other activities	3.43	1.06	3.55	0.95	3.48	1.02	-0.825	0.410
I am concerned that I will unable to master the entire pool of Physiotherapy knowledge	3.35	1.05	3.35	1.14	3.35	1.08	0.032	0.974
This Physiotherapy school is fostering a physiotherapist's role at the expense of one's personality and interests	3.31	0.90	3.07	0.93	3.16	0.91	1.168	0.244
Physiotherapy school is more competitive than I expected	3.27	1.06	3.55	1.11	3.44	1.08	-1.237	0.217
The attitude of too many of the faculty is that students should be subjected to 'baptism of fire' meaning learning the hard way	3.35	0.87	3.38	0.85	3.35	0.86	-0.480	0.632
The majority of students feel that success in Physiotherapy school is in spite of the administration rather than because of it	3.36	0.93	3.27	0.82	3.30	0.89	0.426	0.671
Physiotherapy school is cold, impersonal and needlessly bureaucratic	3.14	1.13	3.15	1.04	3.12	1.09	-0.239	0.811
Physiotherapy school is more of a threat than a challenge	3.02	1.15	2.90	1.23	2.99	1.18	0.895	0.372
My Personal finances are a source of concern to me	3.91	1.02	4.02	1.10	3.26	1.05	1.163	0.036*
My Accommodation (Housing) is a source of concern to me	3.31	1.13	2.94	1.16	3.17	1.15	2.386	0.018*
Sum	42.52	7.62	42.7	6.95	42.00	7.37	0.264	0.792

* P <0.05 considered statistically significant

Table 2: Perceived physiotherapy school stress (PMSS) scores of male and female physiotherapy students of Delhi NCR

Year of Study	N	Mean	Std. Deviation	F-Value; P-Value
1st year Physiotherapy students	60	39.14	12.12	3.363; <0.05**
2nd year (Physiotherapy Para-clinical year)	49	39.20	7.72	
3rd year (1st Clinical year)	56	42.57	6.92	
4th year (2nd Clinical year)	56	43.70	6.94	
Internship	36	44.75	6.02	
Total	272	43.04	7.37	

Table 3: Comparison of perceived mean stress scores in students of different academic years

GPA Scores	N	Mean	Std. Deviation	F-value, P-value
2.01-2.50 (High Pass)	29	43.25	4.19	4.627, <0.05**
2.51-3.00 (Good)	67	44.83	9.03	
3.01-3.50 (Above Average)	62	43.71	6.24	
3.51-4.00 (Very Good)	52	41.67	6.85	
4.01-4.50 (Superior)	47	40.43	6.32	
4.51-5.00 (Excellent)	15	38.59	7.82	
Total	272	42.00	7.37	

* Statistically significant at P <0.05

Table 4: Comparison of perceived mean stress scores with student’s GPA scores

score between (4.51-5.0) was 38.59 ± 7.82 as compared to the less GPA scores i.e 43.25 ± 4.19 (2.51-3.0). It was noticed that students with high GPA scores had less mean stress score and was found to be statistical significant ($p < 0.001^{**}$) (Table 4).

4. Discussion

Our study found a significantly higher mean PMSS score (41.87 ± 7.37) compared to earlier research that used the Perceived Stress Scale (PSS). Only a few studies have been conducted on physiotherapy students. A study conducted in Australia confirmed that the anxiety scores were highly variable between participants. However, Higher Stress scores were associated with poorer academic results [5], [6]. In yet another study conducted in Palestine among physiotherapy students concerning stress sources contributing to academic stress, it was found that the perceived stress was significantly higher [14].

In line with earlier research indicating that the most detrimental effect of physiotherapy education on a student’s self-image, the main finding of this study indicates that a significant number of students (28.5% agree, and 16.1% strongly agree) worry about their lack of comprehension with the pool of physiotherapy knowledge. There were no significant variations in stress levels across genders on any aspects except than personal finances and accommodation (housing) was a source of concern for female students" ($p = 0.036^*$, 0.018^*). Though, Previous research has shown a strong correlation between stress and lodging, with psychosocial aspects like "quality of food in a mess," "lack of entertainment," and "feeling of loneliness" listed as major contributors to the stressors. The present study highlighted that stress scores increased from the course initiation to the finish. One possible reason could be that once the students gain more experience with real-life conditions, that might culminate into more stressors depending on one’s condition.

Apart from this, competition, lack of opportunities in the job market, and poor salary scales also contribute to the stressors.

According to the results (Table 4), a statistically significant relationship exists between students’ stress reports and their actual academic achievement. Although many studies do not back the study’s findings, evidence shows that students perform better when under pressure. However, the present study found that lower grades contributed to more significant stress.

Thus, the association between perceived stress and academic performance was statistically significant in the present study, which means the greater the stress, the lower the performance. Though few studies support this finding of the current study, in contrast, few studies suggest that many students feel stress motivates them to perform better, and hence, the higher the stress, the better the performance [9], [10].

The physiotherapy curriculum is challenging compared to other allied health sciences curricula. Therefore, the students might experience significant stress levels, which may impact their academic performance, personal life, and health, according to the current study. As a result, it is crucial to implement well-thought-out strategies and techniques to reduce stressors and initiate measures to enhance productivity. Additionally, physiotherapy programs should incorporate stress management and coping skills training as a part of their curriculum so that students can cope better with the increasing mental and physical demands of their studies.

5. Limitation of the Study:

The results are just one part of the area of Delhi and, therefore, cannot be applied to the region. Moreover, the sample size was optimal since it was conducted by taking students from a significant part of one school. Additionally, reporting bias might occur naturally in a self-administered questionnaire due to the inherent subjectivity of the questions.

6. Conclusions

The study has highlighted that Students with low GPA scores might tend to have higher stress scores. Personal finances and accommodation act as key stressors in students’ lives, as personal circumstances vary from person to person. Therefore, access to counseling services and other student support programs should be initiated in the physical therapy schools of Delhi NCR to make them productive.

Conflict of interest

The author declares no conflict of interests. Authors read and approved final version of the paper.

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