



Received on 02 February 2023; received in revised form, 12 April 2023; accepted 31 May 2023; published 01 October 2023

## STRESS, ANXIETY AND DEPRESSION AMONG PHYSIOTHERAPY STUDENTS: A NARRATIVE REVIEW

Tarpan Harish Kumar Shah <sup>\*1</sup>, Kritgnasingh N. Vaghela <sup>2</sup> and V. P. Hathila <sup>3</sup>

Parul Institute of Physiotherapy <sup>1</sup>, Parul University, Vadodara - 391760, Gujarat, India.

Psychiatrist Dr. Kritagnasinh Vaghela <sup>2</sup>, Vadodara - 390001, Gujarat, India.

Nikunj Kumar Hathila <sup>3</sup>, Tarmi - 389170, Gujarat, India.

### Keywords:

Academic, Anxiety, Depression,  
Physiotherapy, Stress

### Correspondence to Author:

**Prof. Tarpan Harishkumar Shah**

Professor,  
Parul Institute of Physiotherapy,  
Parul University, Vadodara - 391760,  
Gujarat, India.

**E-mail:** tarpanshah@hotmail.com

**ABSTRACT:** Physiotherapy students are a valuable human resource in the realm of medicine. Mental health of physiotherapy students deteriorates due to challenging learning environment and ongoing battle to become certified healthcare providers. Anxiety, stress and depression lead to decreased productivity, poor quality of life and suicidal thoughts. This study shed light on a narrative review of the impact of stress, anxiety and depression on academic performance of physiotherapy students. Studies were found using databases such as PubMed/ MEDLINE, Google Scholar, and Science Direct. A total of 17, 423 papers and other scientific literature were found and this narrative review included 12 of them. The key terms used were "Stress," "anxiety," "depression," "academic performance," and "physiotherapy students". In conclusion, more than half of the physiotherapy students were found to be affected by depression, anxiety and stress. Increased levels of these elements have an impact on students' academic performance as well as their emotional and physical health.

**INTRODUCTION:** At present, the increasingly competitive and dynamic nature of higher education has resulted in a rise in the typical academic pressures experienced by physiotherapy students <sup>1</sup>. Accumulated evidence postulated that physiotherapy students' mental health deteriorates because of the challenging learning environment and ongoing battle to become certified healthcare providers. Sadly, these students were more likely to face psychological distress such as anxiety, depression, stress, and suicidal ideation <sup>1-4</sup>.

These types of distress have also been proved to be common among physiotherapy students worldwide <sup>5-7</sup>. Whilst connected with anxiety and depression, stress perceived by the students have a significant impact on their quality of life and can cause decrement in academic performance. This may be attributable to anxiety-related difficult cognitive performance including memory loss, inability to make judgments and heightened sensitivity to other people's opinions.

It has been reported that an increase in the prevalence of depression, anxiety and stress among physiotherapy students lead to decreased quality of life, drug usage and suicide <sup>8</sup>. In the light of the foregoing, this narrative review aims to explore the literature to identify the influence of stress, anxiety, and depression on the academic performance of physiotherapy students.

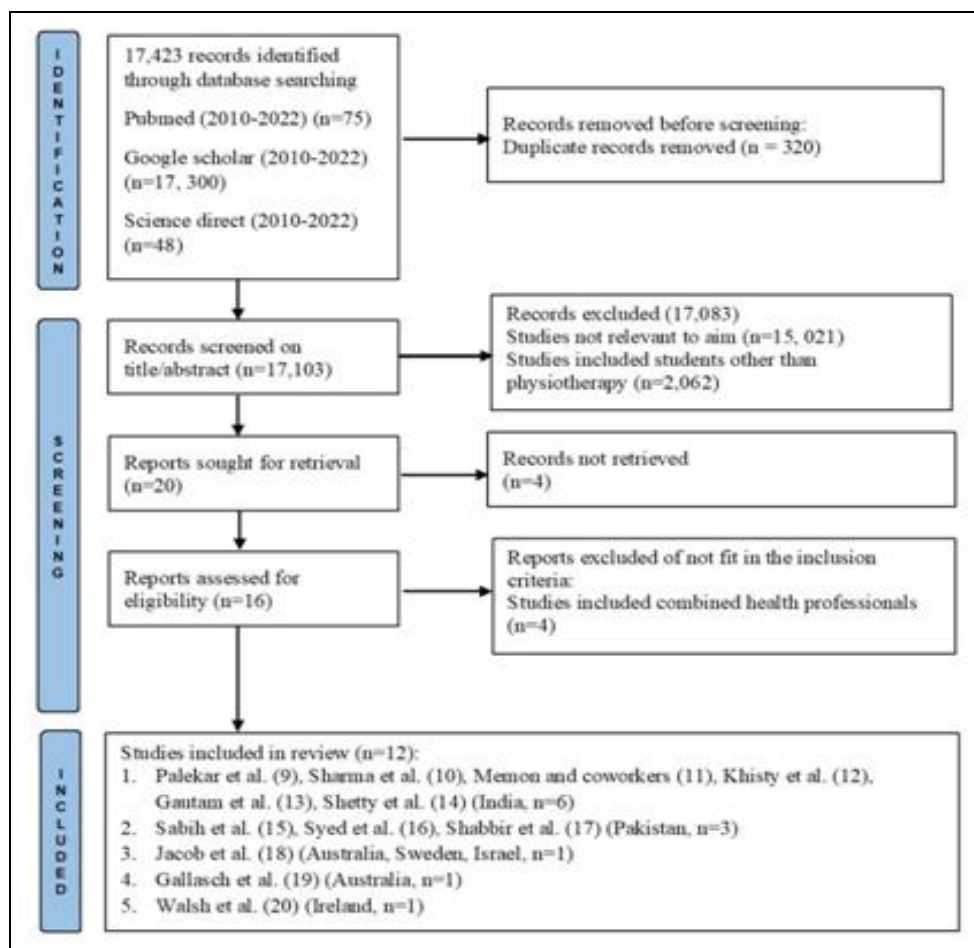
<b>QUICK RESPONSE CODE</b> 	<b>DOI:</b> 10.13040/IJPSR.0975-8232.14(10).4750-55
	This article can be accessed online on <a href="http://www.ijpsr.com">www.ijpsr.com</a>
DOI link: <a href="https://doi.org/10.13040/IJPSR.0975-8232.14(10).4750-55">https://doi.org/10.13040/IJPSR.0975-8232.14(10).4750-55</a>	

**MATERIALS AND METHODS:** A literature review was performed by an extensive electronic search through search engines of MEDLINE/PubMed, Google Scholar, and Science Direct. Key terms like “stress”, “anxiety”, “depression”, “academic performance”, or “physiotherapy students” were used.

Articles with a full text published in English between 2010 and 2022 were screened and only relevant articles were included. For the present narrative review, we only considered cross-sectional studies, prospective cohort surveys, and

questionnaire-based surveys. The search was restricted to studies that were not relevant to aim, studies that included students other than physiotherapy, reviews and duplicate articles.

**RESULTS:** A total of 17, 423 records were identified during the original search; of which, 17, 083 records were not screened as they were found to be irrelevant from titles and abstracts. Thus, 12 studies were included according to the aim of the present review. PRISMA flow diagram of search procedure for narrative review is depicted in **Fig. 1**.



**FIG. 1: PRISMA FLOW DIAGRAM OF SEARCH PROCEDURE FOR NARRATIVE REVIEW**

**Summary of Reviewed Articles:** Palekar *et al.* (2013) have conducted a cross-sectional, questionnaire-based survey to analyze the perceived stress (PS) in physiotherapy students according to the questionnaire<sup>9</sup>. They also assess corroborative clinical markers and PS scores using PS scale (PSS 10). The students were given to fill out two types of questionnaires: a) 27-item questionnaire to measure sources of stress and their severity and b) 11-item questionnaire to identify

the possible institutional stress-reducing factors. In the study, 71 (74%) students gave responses out of the total 95 physiotherapy students. The average PSS score of the study population was  $20.50 \pm 5.96$ . In addition, the average PSS scores in bachelor of physiotherapy 1<sup>st</sup>, 3<sup>rd</sup> and 4<sup>th</sup> academic years were  $20.02 \pm 6.68$ ,  $23.80 \pm 3.94$  and  $18.62 \pm 4.48$ , respectively. Physical [shortage of equipment or laboratory facilities (42.3%)], social [staying away from family (45.1%), high expectations of

parents for academic performance (42.3%)], emotional [fear of failure (49.3%) and staying away from friends (39.4%)] and academic [unpredictability of examinations (56.6%), change in the methods of study from 12<sup>th</sup> standard (40.8%), other students performances being better than mine (38%) and competition for postgraduate seats (36.6%)] issues were determined to be the most common sources of stress. Picnics (59.2%), holidays (56.3%), communication with friends (52.1%), and individual interests (54.9%) were the most common institutional stress decreasing parameters. With this study, authors opine that students studying physiotherapy had a high level of perceived stress. Moreover, physical, emotional, and academic factors were proved to be culprit factors in the causation of stress.

Sharma *et al.* (2013) have performed a prospective cross-sectional study to observe the levels of depression and stress, as well as their impact on vital markers throughout the academic programme<sup>10</sup>. A total of 60 physiotherapy students were included. The height, weight, pulse rate (PR) and blood pressure of each student were measured before and during the pre-university examination. The depression was evaluated using Zung's scale which is categorised as follows: a) normal: <50, b) mild depression: <60, c) moderate or marked major depression: <70, and d) severe or extreme major depression: >70.

Outcomes of the study demonstrated that physiotherapy students had significantly higher vital parameters [pulse rate ( $t=2.73$ ,  $P<0.008$ ), systolic blood pressure ( $t=4.37$ ,  $P<0.001$ ), and diastolic blood pressure ( $t=3.46$ ,  $P<0.001$ )] during the examination as compared to those before the examination. Mild, moderate, and severe depression was observed in 33.33%, 33.33%, 10.7% of physiotherapy students. To sum up, this study demonstrated that academic examinations for physiotherapy students have been found to be stressful and caused alterations in vital indicators that impact their academic performance.

Memon and coworkers (2016) have conducted a cross-sectional study to evaluate the levels of PS amongst 100 physical therapy students<sup>11</sup>. PS scale (PSS-14) was used to collect the data. Low (0-50%), moderate (50-75%), and severe stress

(>70%) were the three levels of stress. A higher number of students had moderate levels of stress (73%), followed by a low levels of stress (19%) and severe levels of stress (8%). The study concluded that the physical therapy students had high levels of stress. Khisty *et al.* (2020) have executed a cross-sectional study to determine the incidence of stress among 100 undergraduate and postgraduate physiotherapy students<sup>12</sup>. The medical students stress questionnaire (MSSQ) was used to screen the students for stress. The MSSQ consists of 6 domains: a) academic-related stressors (ARS), b) intrapersonal and interpersonal-related stressors (IRS), c) teaching and learning-related stressors (TLRS), d) social-related stressors (SRS), e) drive and desire related stressors (DRS), and f) group activities related stressors (GARS).

The undergraduate and postgraduate physiotherapy students had a high level of academic-related stressors and social-related stressors. The study concluded that the undergraduate and postgraduate physiotherapy students had a higher incidence of stress. Moreover, the study stated that the academic and social interaction section had the highest levels of stress. Gautam *et al.* (2020) conducted a cross-sectional study to find the prevalence of depression, anxiety and stress among 105 first-year physiotherapy students irrespective of age, sex and personal habits<sup>13</sup>.

A standardized, semi-structured questionnaire named DASS 21 (Depression Anxiety and Stress Scale) was used to collect data. Among all 105 students, moderate depression was observed in 21.9%, mild in 18.09%, severe in 10.47% and extremely severe in 7.61% of students. A total of 23.8% of students had experienced moderate anxiety, 20.95% experienced extremely severe, 18.09% experienced severe and 9.52% experienced mild anxiety. Moderate stress was found in 19.04%, mild in 13.33%, severe in 11.42% and extremely severe in 0.95% of physiotherapy students.

The findings highlighted that the majority of physiotherapy students suffered from high levels of anxiety and depression, whilst the proportion of students with high levels of stress was low. Shetty *et al.* (2022) have conducted a cross-sectional descriptive survey to detect the academic stress and

study practices of university students of health science<sup>14</sup>. A total of 50 physiotherapy students were included. The Student Stress Inventory and Palsane and Sharma Study Habit Inventory were used to gather the data on academic stress and study patterns. It is a 45-item three-option Likert scale. The average academic stress in physiotherapy students was  $79.22 \pm 2.444$ . In conclusion, undergraduate students experienced a lot of academic stress and had bad study practices. Sabih *et al.* (2013) have performed a cross-sectional study to examine the stress and psychological morbidity in 250 physiotherapy undergraduate students of 1<sup>st</sup> semester to 4<sup>th</sup> semester<sup>15</sup>. A semi-structured proforma and the Student Life Stress Inventory (SLSI) scale were used to collect the data. The SLSI is made up of 51 items organized into nine parts that represent various forms of stressors (frustrations, conflicts, pressures, changes and self-imposed stressors), and responses to stressor (physiological, emotional, behavioral, and cognitive). Out of 250 students, 231 students consented to complete the questionnaire, yielding 92.4% response rate. Overall, 88% of students were feeling stressed. Higher number of students were mildly stressed (42%), followed by moderately stressed 40%), and severely stressed (6%).

The SLSI was significantly higher in the 4<sup>th</sup> semester amongst the students from 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> semesters ( $F = 3.747, p < .05$ ). The results of this study showed that undergraduate physiotherapy students had a higher level of stress. Syed *et al.* (2018) have carried out a descriptive cross-sectional study across different physiotherapy institutes to examine the frequency of Depression, Anxiety and Stress (DAS) among 267 undergraduate physiotherapy students with no physical and mental illness<sup>16</sup>. The data was gathered with the help of a self-administered standardized DASS-42 scale, and the severity rating index was utilized to assess the results.

The overall response rate was 100%. Depression was found in 48.0% (mild: 16.5%, moderate: 21%, severe: 9%, and very severe: 2%), anxiety in 68.54% (mild: 14%, moderate: 24%, severe: 16.5%, and very severe: 14.2%), and stress in 53.2% (mild: 17%, moderate: 25%, severe: 9%, and very severe: 2%) of undergraduate

physiotherapy students. The findings demonstrated a significant prevalence of depression, anxiety, and stress among physiotherapy undergraduate students. Shabbir *et al.* (2022) have carried out a cross-sectional study to examine the prevalence, frequency, and related factors of anxiety and depressive disorders among 98 physical therapy students<sup>17</sup>. Data regarding gender, age and parental education was collected from the questionnaire. The Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) was used to examine the levels of anxiety and depression. The Center for Cognitive therapy categorized the depression by different cut-off points: a) minimal or no depression (<10), mild to moderate depression (10-18), moderate to severe depression (19-29), and severe depression (30-63). Anxiety was divided into three levels: a) no anxiety symptoms ( $\leq 10$ ), b) mild to moderate anxiety (11-19), c) moderate anxiety (20-30), and d) clinically significant anxiety (31-63). A significant difference was found between all variables and anxiety [(gender and anxiety:  $p=0.000$ ), (age and anxiety;  $p=0.011$ ), (semester and anxiety;  $p=0.000$ ), (pressure from parents and anxiety;  $p=0.006$ ), (concern about future and anxiety;  $p=0.011$ )].

As well, a significant difference was noted between all variables and depression [(gender and depression:  $p=0.021$ ), (age and depression;  $p=0.030$ ), (semester and depression;  $p=0.000$ ), (pressure from parents and depression;  $p=0.001$ ), (concern about future and depression;  $p=0.011$ )]. In conclusion, physical therapy students were shown to be quite uncomfortable in the study. Anxiety and depression played a starring role in medical drop-outs and failure in clinical and written exams. Jacob *et al.* (2012) have carried out a cross-sectional survey to compare the views and origin of stress amongst 626 physiotherapy students from three education programmes from different countries and throughout different years of study<sup>18</sup>.

A questionnaire that included the PSS, the Undergraduate Sources of Stress Questionnaire (USOS), and one item to assess "perceived difficulty of studies" was used to gather the data. Students from Ariel reported the lowest mean PS level of 13.5 (95% CI: 12.4-14.6), whereas students from Lund reported the highest PS score of 19.0 (95% CI: 17.7-20.3). The perceived difficulty of



studies was the most important factor in the PS level. The academic aspect of the USOS was the most stressful issue for participants in all three programmes. The PS levels were high among students of all three universities due to personal and academic sources of stress. The demographic profiles of students varied among various universities. Academic sources accounted for PS of the majority of PT students and sources of stress across all three universities. Differences between groups may be attributed to variations in demographic profile and education program. The study concluded that faculty members in PT departments should be aware of stress among students.

Gallasch *et al.* (2022) have examined 109 students across 159 placements in a prospective cohort study to determine the levels of stress and anxiety experienced by physiotherapy students during clinical placements, the variations in stress or anxiety over time, their impact on academic performance, and the factors that influence stress or anxiety and coping techniques<sup>19</sup>. The quantitative and qualitative data was collected using surveys. The Trait section (Y2) of State-Trait Anxiety Inventory (STAI) was used to examine students' baseline general level of stress and propensity for anxiety. This inventory consists of 20-item questionnaire (score range: 20-80). Higher scores show higher stress levels and a stronger proclivity for stress/anxiety. The visual analogue scales (VAS) were used to assess the PS and anxiety at baseline and on a weekly basis throughout the 5-week placement period. The VAS stress/anxiety scores were found to be extremely varied among the students. Week 3 and 4 of online survey had higher VAS scores than week 5 and placements prior to the start of the academic year.

The VAS scores of week 0 were substantially related to the VAS scores of weeks 1-5 (weekly during clinical placements). The higher VAS scores were linked to worse academic performance. Patient complexity, examinations, workload, bad health, and family concerns were all contributed to stress and anxiety. The majority of the students were able to cope with the stress with the support of clinical educators or peers as well as methods such as exercise and taking breaks. The study deduced that the stress or anxiety levels of

physiotherapy students varied greatly during clinical placements. The high levels of stress or anxiety severely influenced the academic performance of physiotherapy students. Walsh *et al.* (2010) has executed a questionnaire-based survey at an Irish educational institution to explore sources of stress, psychological morbidity and possible associations between these variables among 125 physiotherapy undergraduate students<sup>20</sup>. The source of stress was evaluated with the help of Undergraduate Sources of Stress Questionnaire. The incidence of psychological morbidity was assessed with the help of General Health Questionnaire-12 (GHQ-12), with a conservative GHQ threshold of 3-4 to identify probable 'cases'. The GHQ level was exceeded by 27% of students, implying the probable psychological morbidity. Psychological morbidity was higher among students than in the overall population.

A regression analysis revealed the two significant coefficients: a) academic ( $\beta = 0.31$ ,  $P < 0.001$ ), and b) personal ( $\beta = 0.50$ ,  $P < 0.001$ ) sources of stress subscales. This finding demonstrated 48% of the variance in psychological morbidity after adjusting for part-time employment and study hours. Stressful events ( $\beta = 0.24$ ,  $P = 0.004$ ), mood ( $\beta = 0.43$ ,  $P \leq 0.001$ ) and overall level of stress ( $\beta = 0.35$ ,  $P \leq 0.001$ ) were found to be individual significant items from these subscales. Finally, the findings demonstrated that a large percentage of physiotherapy students struggling with academic and personal challenges were emotionally susceptible. Students had a harder time managing personal sources of stress, like stressful events and moods.

**CONCLUSION:** In summary, depression, anxiety, and stress were shown to impact more than half of the physiotherapy students. The increased levels of these factors influence the academic performance as well as mental and physical health of the students. There is a need to identify the individual students' DAS and discuss it with them. The DAS may be caused by lack of motivation, the transition from high school to college, language barrier and academic burden. A mentor/mentee programme on a regular basis will help the students to overcome obstacles in their academic lives. Teachers should provide a review of academics and exam schedules, as well as additional leisure time activities,

improved engagement with students, and peer counselling. Exam frequency and complexity should be closely controlled to ensure that students are not overworked, which could lead to physical and mental tiredness.

**ACKNOWLEDGEMENTS:** The author acknowledges the immense help received from the Scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

**CONFLICTS OF INTEREST:** The Authors declared no conflict of interest.

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#### How to cite this article:

Shah TH, Vaghela KN and Hathila VP: Stress, anxiety and depression among physiotherapy students: a narrative review. *Int J Pharm Sci & Res* 2023; 14(10): 4750-55. doi: 10.13040/IJPSR.0975-8232.14(10).4750-55.

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