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## FEATURED ARTICLE

# It's Intense: A Mixed Methods Study of Student Stress in PTA Education

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## Abstract

**Purpose:** This study was implemented to measure the self-reported factors contributing to student stress and anxiety levels and the strategies employed to navigate these stressors.

**Methods:** This study utilized a mixed method design for collecting and analyzing both quantitative and qualitative data to identify the trends and details of the complex learning environment of the Physical Therapist Assistant (PTA) students. Current enrolled students within a Physical Therapist Assistant program were invited to participate in this study. A survey was created to gather the data using Qualtrics and a link was distributed via their university email.

**Results:** This study explored the level and sources of self-rated perceived stress as well as identifying the coping mechanisms the PTA students are utilizing within the campus surveyed. The findings indicated that practical examinations followed by exams/quizzes caused the most perceived stress. The students reported that peer discussions, study groups and avoiding procrastination with preparing for practical examinations, were quite common coping mechanisms for stress.

**Discussion.:** The above results indicate the need to offer a range of individual, curricular, co-curricular, and institutional stress management options for the students. Such interventions can focus on improving time management skills and prioritization of student daily activities. Physical therapy educators could include instruction about stress and burnout in the curriculum. By understanding the possibility and symptoms of burnout students can identify the symptoms of stress. Student behavior modifications such as relaxation or guided reflection can aid in test anxiety reduction.

**Keywords:** Coping mechanisms, Education article, Physical therapy program, Stress management

## 1. Introduction

In general, college courses are intense, in that they are often more challenging than high school courses. The learning processes are more complex, and students are expected to navigate these challenges with increasing degrees of autonomy, often in an environment that includes significant real-world implications. These environmental factors were exacerbated under the conditions of COVID-19, which significantly raised the stakes for aspiring health care professionals, including students enrolled in two-years, associates' level physical therapy assistant (PTA) programs. It seems likely that these students are navigating significant degrees of stress. The present study seeks to identify

the sources of academic and professional stress and suggest potential stress management strategies to be implemented at the individual and programmatic level, for students enrolled in a two-year PTA program at a large, public research university.

Stress is a common occurrence in everyone's daily lives. The health care literature tells us, too, that managing stress is the key to preventing many negative biological changes, such as burnout, from occurring [1]. A recent study conducted by the Bieter, Nash, et al., reports that 7 out of 10 United States adults claim to experience stress or anxiety at least at a moderate level daily. While stress occurs across all age ranges, it has been reported chronic stress has become increasingly prevalent among university students of the present generation [2,3].

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Analysts have suggested that contributing factors include high stakes testing in secondary education, global economic insecurity, and political divisions, all of which have contributed to rising pessimism about an increasingly uncertain future [4]. Academically speaking, research suggests that students in health care professions have more stress than other majors and that clinical settings are especially stressful [5,6]. Further, the high stakes testing environment prevalent in health professions education in the United States has contributed to a climate of rising test and grade anxiety, which also increases stress levels [7,8]. Put simply, the combination of a high-pressure, competitive environment, heavy course loads, many hours of study and practice, limited time for friends, family, and outdoor activities, including clinical responsibilities, all contribute to a stressful emotional experience.

Chronic stress has been shown to have demonstrably negative effects on both academic outcomes and student wellbeing, but studies have also indicated that higher stress levels can also be linked specifically to lower clinical outcomes and patient satisfaction, both in clinical education and in the profession more broadly [9–11]. In the workplace, occupational stress has been known to contribute to higher levels of burnout and attrition, both of which have accelerated under the grueling conditions affected by the global pandemic. With record numbers of health care professionals leaving the field, it is imperative that physical therapy assistant education address the mitigating role of stress and work to prepare students to effectively manage the stress that they will likely experience throughout their future careers [12–14].

The question of how best to integrate these non-cognitive learning outcomes into PTA instruction remains an open question. More research has been conducted on identifying stressors, and the effects of stress on academic outcomes, than studies of promising interventions. There is scattered evidence to support changes in instructional practice, such as untimed testing and flexible deadlines, as well as co-curricular interventions such as mindfulness training and group meditation [8,15,16,17]. No studies conducted prior to 2020 could have considered the larger global context of collective pandemic-induced trauma. For these reasons, the present study seeks to identify both sources of PTA student stress and coping strategies used for students whose clinical rotations fell before and during COVID-19 conditions.

## 2. Methods

The study was conducted for PTA programs housed on a single campus of a large, public

research-intensive university located in the mid-Atlantic region of the United States. The university system includes 19 campuses in addition to the flagship institution. Taken collectively, these campuses include 39 percent of the undergraduate student population for the system as a whole. The campus included in this study enrolls approximately 600 full and part-time students in 11 four-year degree and 5 two-year degree programs. Including a mixture of both traditional and non-traditional students. The career-ready orientation of the degree programs offered contribute to a student population that includes a relatively high percentage of adult (25 years of age or older) students as well as a relatively high internal transfer rate, as students move to the system's main campus.

### 2.1. The program

According to state and national accrediting standards, PTA students must graduate from an accredited physical therapist assistant education program and pass a state-administered national exam to obtain licensure to practice as a PTA. The typical length of most PTA programs is two years or five semesters. Approximately 75% of the PTA curriculum is classroom (didactic) and lab study and the remaining 25% is dedicated to clinical education. PTA students have 15 weeks (about 3 and a half months) of full-time clinical education experience. Most programs, including the one covered by this study, require a total of 69–71 credits for the student to be awarded an Associates in Science Degree.

As part of their training, students are expected to learn and perform physical activities utilizing proper body mechanics and techniques to prepare them for the rigors of physical therapy treatment. Such activities include, but are not limited to, patient lifting, transfers, ambulation training and guarding, manual exercises, sterile techniques for wound treatment, and training in mat and floor mobility skills. Training includes the safe and appropriate use of electromedical equipment and physical agents for the treatment of multiple ailments. Students are expected to communicate effectively utilizing professional terminology in verbal and written forms [18].

Practical clinical experiences are an integral part of the program. Three full-time off-campus experiences are included in the curriculum. The first experience within our campus occurs in the fall semester of the second year, and the last two experiences occur in the summer at the conclusion of the didactic portion of the program. These experiences are scheduled by the academic coordinator of

clinical education (ACCE) in coordination with the various clinical sites. The program has clinical agreements with a significant number and variety of clinical sites throughout the commonwealth and other states. Students practice under the supervision of a physical therapist and also under the direction of a physical therapist assistant [18].

## 2.2. The instrument

The researchers created an electronic survey to identify the major areas causing stress, coping mechanisms that the students were using to manage their stress, and recommendations that the PTA students may have for faculty and staff to aid with stress management. The institutional review board (IRB) approval process was completed in March of 2020 with the intent to disseminate the survey in mid-semester, after the scheduled spring break. The outbreak of the COVID-19 pandemic changed those plans. At this point, additional questions were added to the survey pertaining to transition to remote teaching and learning. The electronic survey (disseminated through university-owned Qualtrics) was eventually sent near the end of the semester.

## 2.3. Participants

Students actively enrolled in the two-year PTA program were the target audience for this study. The program consists of both traditional and non-traditional students, the majority of whom identify as female, a demographic that is consistent with larger trends within the field. The student cohort consists of first year and second year students. The maximum enrollment for the program is 55 students for a total of 110 students. At the time of the survey, 108 students were enrolled in the program. A total of 53 students completed the survey, 32 in the first distribution in spring of 2020 and 21 in the second iteration in spring 2021. The overall survey response rate was 49.07%.

## 2.4. Survey

The objectives of the survey were to ascertain information regarding stressors across all aspects of the program, including written examinations,

practical examinations, clinical experience, and the transition to remote learning. The study also identified the coping mechanisms and the recommendations for faculty and staff from our students. The two-part survey included 14 questions. The first part of the questionnaire consisted of 3 questions on demographic characteristics (age, gender, student academic level). The second section consisted of a 5-point Likert scale ranging from 0 (never) to 5 (always) based on a standardized questionnaire. The survey also included five open -ended questions inquiring about common triggers of their psychological symptoms of anxiety, stress and suggestions for coping strategies.

## 3. Results

Although the faculty members had an intuitive sense that stress and anxiety impacted student success, the researchers believed that obtaining more concrete statistical evidence would strengthen the case for implementing increased measures to address the negative effects of stress on the students.

### 3.1. Quantitative descriptive

Based on the survey results, the most telling responses indicated 50% of the students surveyed indicated practical examinations “Always” caused the most stress and anxiety among the PTA student respondents, while written examinations and online learning were similarly aligned. 32% of respondents indicated written exams “Always” caused anxiety and stress. 28% of respondents indicated “Sometimes”. During the transition to remote online learning 32% indicated stress and anxiety occurred “Always” while 22% indicated “Most of the time. The least stressful of the assessments appeared to be student clinical experience. Respondents indicated 34% experience stress or anxiety “Sometimes” and 32% indicated “Never” (Table 1).

Although our findings affirmed what we originally thought would be a leading cause of students' stress and anxiety, we were able to verify that practical examinations are the leading stressors in PTA Education. Written exams and online synchronous learning were equally aligned which resonate with

Table 1. Quantitative survey results.

Practical Exams:	50% of students indicated practical exams “Always” caused the most stress and anxiety
Written exams:	32% of respondents indicated written exams “Always” caused anxiety and stress
Synchronous online learning:	32% indicated stress and anxiety occurred “Always”
Clinical experiences:	34% experience stress or anxiety “Sometimes” and 32% indicated “Never”

findings from other related healthcare related programs. When it comes to the level and frequency of anxiety and stress, students reported almost never feeling anxious in the clinical environment, which contradicts findings in other health professions. These findings call into question the high-stakes testing environment the practical exam presents to the student and suggest that these could potentially be obstacles to both well-being and retention in the profession. The researchers noted that it was not possible to analyze these results by gender, as the sample population was overwhelmingly female (96%); and that age-related analysis did not produce significant differences between traditional aged students and adult students, at least for the scaled survey items.

### 3.2. Qualitative descriptive

Five open-ended questions were included in the survey for students to include their feedback on what aspects of the PTA Program cause the most stress/anxiety, determine what coping strategies they use and provide suggestions for the instructors and other students.

Two student co-researchers followed a four-stage process to evaluate the data for each open-ended questions:

- Identify general themes based on close reading of all responses
- Group responses under the proposed thematic framework, with iterative changes to themes as needed

- Providing summary analysis of the number and nature of responses under each theme
- Conduct periodic checks for quality and consistency

Initial themes were discussed with the research team and further refined prior to the presentation below. Responses that did not have significant totals ( $n \geq 3$ ) did not qualify as a theme were assigned to the category of “other”. The second survey contained additional items related to remote teaching that were not found on the first iteration.

Affirming the responses to the Likert scale items, the qualitative analysis identified practical exams ( $n = 22$ ), workload ( $n = 21$ ), and written exams/quizzes ( $n = 20$ ) to be the top three aspects of the program that cause the students the most stress/anxiety. What was more surprising were the students’ self-reported strategies for coping with stress and anxiety whether at a personal, professional, or academic level (Tables 2–4).

From the results, the areas that caused the most stress involved practical's, quizzes and exams, and the quantity of work. There were many suggestions given for the department and teachers to utilize to help lessen stress and anxiety, but the top suggestion involved more tutoring sessions and reviews. Many participants responded with nothing or no suggestions. Some of the less frequently mentioned strategies included extra credit, increased time within scenarios, to having an actual teacher onsite during weekend lab hours. When it came to giving suggestions to fellow students, many felt having

Table 2. Leading stress management strategies.

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Relaxation techniques ( $n = 41$ ) such as, meditation, deep breathing and taking breaks, exercise/having an outlet ( $n = 22$ )
Forming study groups/studying more ( $n = 13$ )
Time management ( $n = 25$ ), having support from classmates/others ( $n = 11$ ) and having an outlet, most commonly exercise ( $n = 10$ )

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Open ended questions.

Table 3. Leading stress management suggestions for other students.

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“Find a few good friends in the program to have them by your side through the next two years, it will help with studying and when times become stressful, they know exactly what you're feeling/going through”
“Practice for practical's early so you make the mistakes and come up with questions ahead of time and not the day before a practical and since the labs usually would be less crowded.”
Other responses suggested study groups, organization, ask questions, practice, take it one day at a time and believe in yourself.

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Open ended questions.

Table 4. Leading strategies suggested to faculty for improving student anxiety and stress.

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“Having study guides and review sessions” ( $n = 18$ )
“The instructors being available/supportive” ( $n = 16$ )
Academic resources, e.g., “a study guide would make me more confident in the material I'm being tested on.”
Instructional strategies, e.g., “More demonstrations within the classroom/lab that are applicable to a real work/clinical setting.”

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Open ended questions.



support groups and mental breaks was the best option.

When asked about what instructors could do to address emerging stressors related to the conditions of online learning, the most common response, by far, was “no recommendation.” ( $n = 13$ ). More constructive comments focused largely on classroom management, such as “Have more review sessions” ( $n = 9$ ) or “Create a more relaxed atmosphere” ( $n = 6$ ). Scattered responses included more attention to time management, such as keeping a structured programmatic calendar, or reducing screen time because of Zoom fatigue. Because the conditions of the pandemic were unprecedented, it is perhaps understandable why both students and faculty were struggling to identify emerging strategies for navigating these extraordinary circumstances.

It should be noted that student experiences were not uniform. The program enrolls a high percentage of adult learners, who experienced different stressors and often employed a wider range of stress management strategies, with an increasing emphasis on self-reliance. Adult students were also less likely to find study groups, or other social solutions, appealing. At least one adult learner recognized that some of the contributing issues were structural, noting, “with a program that is regulated by CAPTE along with the fact that the satellite campuses all must follow the same program, it's hard to deviate from the program that was created and there's just no way to spread out the program.” These structural factors served to that constrain the agency of the instructors to address underlying stressors at the curricular or instructional level.

#### 4. Discussion

The impetus for this study came from two PTA educators, who had noticed an increase in what they perceived to be stress-related behaviors in their students over the previous five-year period. Increasingly, students were asking the instructors for advice on how to manage their stress, and they found little research to guide them. To implement management tools, the instructors created a stress reduction station. Items such as stress balls, Silly Putty, Playdoh, bubbles, bubble wrap, candy, essential oils and scented lotions, adult coloring books were available for the students to utilize when they felt an increase in their stress and anxiety levels. During the didactic portion of the curriculum, the lead investigator implemented positive affirmations presented prior to lectures along with

scheduling a stress management presentation from our counselor on campus. The PTA Department also scheduled physical group activities weekly over the lunch period such as playing volleyball, walking and dodgeball to help manage stress. Before investing in other resources or strategies, the instructors chose to conduct this study to identify specific triggers of stress and to learn from the coping strategies already used by the students.

Given that background, this study explored the level and sources of self-rated perceived stress and anxiety as well as identifying the coping mechanisms that students are utilizing amongst the PTA students on our campus. The findings indicated that practical examinations followed by exams/quizzes caused the most perceived anxiety and stress. The students reported that social learning, whether in the form of peer discussions, study groups, or support sessions, were effective coping mechanisms for stress, but these benefits did not accrue equally to all student populations [19,20].

The above results indicate the need to offer increased access to expert counseling and provide more structured stress management programs for the students at the institutional level [19,21–24]. Such interventions can focus on improving time management skills and prioritization of student daily activities. Some studies have reported that other academic institutions have already initiated the development of educational programs for their students and additional counselors have been hired at all levels [24–26]. These programs include counseling sessions that are designed to assist students in identifying the influence of stress on academic work and developing new skills to counter stress responses. These interventions have been shown to be effective for fostering adjustment to academic stress for both students and educators [27,29,30]. Other stress management programs that use the Cognitive Behavioral Therapy (CBT) approach have also been tested and shown to be effective [31].

It is possible that stress management could be integrated directly into classroom and/or clinical instruction, a strategy that has proven to have some benefits in other disciplines. Structural limitations, such as the preset curriculum required by the accrediting body, however, provide little extra space in which to wedge stress reduction activities. In addition, working to master new strategies to meet the academic and personal needs of the students, while simultaneously meeting the demands of the university and upholding CAPTE standards, poses increased demands on educators who are themselves dealing with significant stress and mental fatigue in both their personal and professional lives [32].

Much attention has been paid in the research to burnout and attrition within the health care profession, but there is the potential that similar stressors may lead to similar outcomes within health care education [27–29].

In addition to institutional and instructional approaches, our findings suggest that it may be possible to consider self or peer education as an emerging modality. The responses to our survey suggest that PTA students have identified and honed a host of strategies that do work for them. By understanding the possibility and symptoms of burnout, the suggestion is that students can be educated to identify more readily, and mitigate, the symptoms of stress on their own or in peer groups. They are capable of implementing interventions to prevent anxiety and stress from becoming uncontrollable. This approach would allow for a range of approaches, enabling students to tailor stress management strategies that work most effectively for them.

The literature does suggest that short, self-guided mindfulness practices, such as relaxation or guided reflection can aid in test anxiety and, by extension, stress reduction [23,24]. These activities may require either students or faculty, or both, to spend additional time attending workshops or classes, practicing techniques, or other activities related to behavior intervention. Generating additional demands on already packed schedules, however, may contribute to the opposite of the desired results. A similar dynamic may apply to thinly stretched budgets, so no- or low-cost interventions may be preferable, but the trade-off is that they often have less impact.

## 5. General discussion

Stress in PTA programs not only affects the students and faculty in academia, but it also affects the physical therapy profession. Health care has increased demands and expectations with the current pandemic which adds to an already highly stressed work environment. In the physical therapy field, there is stress to achieve productivity standards, provide quality care with the reimbursement regulations, and treat multiple patients within the same time frame. This increased stress leads to employee turnover and absenteeism, both of which lessens the quality of care [3]. Attention paid to stress management early in the education process for health care professionals has the potential to serve as a proactive strategy to increase retention and caring practice in the field. To that end, this survey-based study was created to identify the major areas causing

stress, coping mechanisms that the students were using to manage their stress, and recommendations that our students may have for faculty and staff to support effective stress management.

The objectives of our survey were to ascertain information regarding the anxiety and stress in the program through the written examinations, the practical examinations, the clinical experience, and the transition to remote learning as this did occur during the 2020 year. We also identified the coping mechanisms and the recommendations for faculty and staff from our students. The findings indicated that practical examinations followed by exams/quizzes caused the most perceived anxiety and stress. The students reported that social learning, such as peer discussions, study groups and support sessions, were quite common coping mechanisms for stress.

One student described her experience with the PTA program under COVID-19 conditions by stating simply “it’s intense”. Our results indicate the need to offer a range of individual, curricular, co-curricular, and institutional stress management options for students that are similarly intense. At the institutional level, such interventions can focus on improving time management skills, prioritization of student daily activities, and providing opportunities for group processing. In their courses, physical therapy educators can include instruction about managing stress and burnout. By understanding the possibility and symptoms of burnout, students can learn to identify the symptoms of stress in themselves and each other; and find ways to alleviate those together. Our study suggest that it will likely take multiple strategies, implemented over time, to address this growing systematic problem in a sustainable and inclusive way.

### 5.1. Implications for future research

Based on the evidence presented further research to be explored can include how other PTA and DPT programs are impacted by student stress and anxiety. It is not known, for example, whether DPT students have the same level of anxiety as PTA students. The students included in this study have provided examples of how they cope and provided suggestions on what they feel would be helpful. It remains an open question whether or not these suggestions be integrated into the curriculum effectively and efficiently. Increasing transparency between both the student and instructors may bridge the gap to achieve both the program academic standards as well as provide a less stressful learning environment.

Both PTA educators and other stakeholders have questioned if the associate level PTA degree provided enough time for students to complete all CAPTE, FSBPT and institutional requirements. This raises a number of questions regarding the links between the curriculum and student well-being. If the program transitioned to a 4-year degree, would students be less stressed or more successful? Would attrition rates decrease? Would enrollment increase? Or do we need to take a deeper look at the design and implementation of that program content and make changes to meet the needs of today's students? PTA programs across the country do have the freedom to design their curriculum as they see works best for their individual programs. Thinking creatively, and intensely, about other delivery methods may be options worth exploring as we consider educational strategies for the post-pandemic world.

### Ethical approval

Ethical approval has been granted for the Pennsylvania State University, Institutional Review Board for research using human subjects. (Study00015027, May 4, 2020).

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### Other disclosure

None.

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