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Investigating Doctor of Physical Therapy Student Stress During Pandemic Related Curricular Changes

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Abstract

Introduction: Stress level in physical therapy students has been a focus of research due to multiple documented effects related to physical health, mental health, and ability to learn. Self-reflection has also been a focus of education research, relating it to personal learning, critical thinking, and demonstrable development of professional behaviors and skills. The aim of this study is to investigate student stress in response to programmatic changes wrought by the pandemic and whether stress impacted student self-reflection. Review of literature: Self-reflection is positively associated with growth of professional behavior and academic performance. Student level of self-reflection has been shown to be negatively impacted by stress. Subjects: A convenience sample of 35 students entering the program fall 2019 made up the participants. Methods: Outcome measures were collected six times over two academic years. The Self-Reflection Insight Scale (SRIS) consists of 20 statements rated on a 5-point Likert scale with 3 subscales: need for reflection (N), engaging in reflection (E), and insight (I), scoring from 10 to 100. The Perceived Stress Scale (PSS-10) is a 10-item questionnaire rated on a 4-point Likert scale, scoring from 0 to 40. Results: SRIS scores increased significantly from time 1 to 2, prior to the campus closure; no significant change for times 3 through 6. PSS scores indicated a higher percentage of students reporting a high level of stress at time 3 in the months after campus closure, decreasing significantly from time 3 to 4 during virtual/hybrid learning and increasing from time 5 to 6 as students prepared for clinical internship. No correlation was seen between SRIS and PSS, however a negative correlation was observed between SRIS subscale I and PSS at time 4 and 5. Discussion: Student perceived stress decreased during the study despite a universally stressful time. Student stress increased as students prepared for their first clinical internship experience, consistent with prior research. Initial gains in student self-reflection did not significantly change during the 1.5 years of the pandemic indicating that despite multiple academic and social challenges, students were able to maintain, but not grow, their level of professional self-reflection. Research is needed to further describe the relationship between stress and insight. Conclusion: The Program's response to pandemic mandates may have positively influenced student stress.

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ABSTRACT

Introduction: Stress level in physical therapy students has been a focus of research due to multiple documented effects related to physical health, mental health, and ability to learn. Self-reflection has also been a focus of education research, relating it to personal learning, critical thinking, and demonstrable development of professional behaviors and skills. The aim of this study is to investigate student stress in response to programmatic changes wrought by the pandemic and whether stress impacted student self-reflection. **Review of literature:** Self-reflection is positively associated with growth of professional behavior and academic performance. Student level of self-reflection has been shown to be negatively impacted by stress. **Subjects:** A convenience sample of 35 students entering the program fall 2019 made up the participants. **Methods:** Outcome measures were collected six times over two academic years. The Self-Reflection Insight Scale (SRIS) consists of 20 statements rated on a 5-point Likert scale with 3 subscales: need for reflection (N), engaging in reflection (E), and insight (I), scoring from 10 to 100. The Perceived Stress Scale (PSS-10) is a 10-item questionnaire rated on a 4-point Likert scale, scoring from 0 to 40. **Results:** SRIS scores increased significantly from time 1 to 2, prior to the campus closure; no significant change for times 3 through 6. PSS scores indicated a higher percentage of students reporting a high level of stress at time 3 in the months after campus closure, decreasing significantly from time 3 to 4 during virtual/hybrid learning and increasing from time 5 to 6 as students prepared for clinical internship. No correlation was seen between SRIS and PSS, however a negative correlation was observed between SRIS subscale I and PSS at time 4 and 5. **Discussion:** Student perceived stress decreased during the study despite a universally stressful time. Student stress increased as students prepared for their first clinical internship experience, consistent with prior research. Initial gains in student self-reflection did not significantly change during the 1.5 years of the pandemic indicating that despite multiple academic and social challenges, students were able to maintain, but not grow, their level of professional self-reflection. Research is needed to further describe the relationship between stress and insight**. Conclusion**: The Program's response to pandemic mandates may have positively influenced student stress.

Keywords: self-reflection, physical therapy students, stress, pandemic

INTRODUCTION

A Physical Therapy Doctorate (DPT) program strives to impart knowledge necessary for competent, safe healthcare providers of physical therapy and to foster professional behaviors and ongoing personal growth. While student knowledge can be evaluated via examinations and clinical competency testing, it is difficult to assess student readiness for self-regulation of professional behaviors. Self-reflection has been positively associated with growth of professional behavior and academic performance.[1,2] Conversely, student level of self-reflection has been shown to be negatively impacted by stress.[3,4] High stress levels in DPT students have been previously reported,[5,6] and the global shutdown due to the novel coronavirus likely added to this stress.[7] We were interested in how the coronavirus pandemic and resultant shift to virtual learning impacted student stress levels and student self-reflection.

REVIEW OF THE LITERATURE

Stress is normal and an appropriate response to challenging events in certain doses. When stress continues past positive eustress into chronic distress it can become pathologic, leading to chronic pain, chronic inflammation, irritability, anxiety, depression, headaches, insomnia, high blood pressure, obesity, decreased immunity, and increased risk of stroke, heart attack, and type 2 diabetes.[8,9] Chronic pathologic stress was reported to affect 49% of adults in the United States in 2014 and 55% of adults in 2019 resulting in an estimated cost of $300 billion per year in healthcare costs and employer related losses.[10,11]

Undeniably, stress is a large issue in the United States, and prolonged stress has been correlated with decreased working memory, information retrieval, and academic performance.[1,12–14] Reported stress levels in the graduate and undergraduate student population of the United States have been increasing since the 1990's.[9,15] Eight out of ten undergraduate college students report feeling stressed sometimes or often.[16] A 30% rise in undergraduate students seeking appointments at collegiate counseling centers was seen between 2009–10 and 2014–15, even though student enrollment grew by only 5% during that time.[14,17] Of students seeking counseling services, 45% report needing help with stress.[17] In fact, Herniques et al found the average high school student in 2000 had the same level of anxiety as the average psychiatric patient did in the 1950's.[15] Therefore, it is important for a graduate school program to address the fact that graduate level students report higher levels of stress than their undergraduate counterparts.[12]

High stress levels in DPT students are consistently reported in the literature.[5,6] Specific sources of stress include, transition periods related to university life and clinical placement, competency demonstrations, rigorous examinations, work life balance, and clinical internships.[5,6] Financial factors were also found to be a source of student stress.[6]

The novel coronavirus and resulting global shutdown further complicated the increasing stress levels of the U.S. population.[7] Nearly 8 in 10 adults (78%) said the coronavirus pandemic is a significant source of stress in their life. Similarly, 67% said they have experienced increased stress over the course of the pandemic.[7] In 2020, during the pandemic, adults age 18-23 reported significantly higher stress levels as compared to all other age ranges.[7] The vast majority of college students (87%) reported their education is a significant source of stress.[7] According to the American Psychological Association's Stress in America report, more than 8 in 10 college students (82%) said uncertainty about what the 2020-21 school year will be like was causing stress.[7] Two in 3 adults in college (67%) said the coronavirus pandemic makes planning for the future feel impossible.[7] Based on this self-reported population data, it seems likely that the pandemic related campus closure and move to virtual learning increased stress levels and negatively impacted DPT students as well.

Self-reflection in education has been of interest since John Dewey published his work on self-reflection, relating it to personal learning, critical thinking, and demonstrable development of professional behaviors and skills.[1,2] Self-reflection can be defined as the "intellectual and affective activities that individuals engage in to explore their experience which leads to new understanding and appreciations."[1] Self-reflection is a positive marker for academic performance and happiness.[1,4,18] It is thought that beyond fostering professional behavior, learners who become better at self-reflection also show improved academic outcomes.[1]

It is suggested that a connection exists between stress and self-reflection.[3] Samaie found a negative correlation between stress and self-reflection and a positive correlation between rumination and stress.[3] Rumination is defined as "passively focusing one's attention on a negative emotional state, intrusive thinking about a distressing event," and/or "distress associated with thoughts about recent negative events."[3] As stress rises, the act of positive self-reflection on one's behaviors in a constructive way turns to negative, passive rumination.[3,4] It is thought that as student perceived stress increases, adequate self-reflection might decrease or, conversely, turn to rumination[3]. Self-reflection has been reported to have a direct effect on subjective happiness and is negatively correlated with rumination.[4] Therefore, it can be hypothesized that increased levels of self-reflection are related to subjective happiness, increased quality of life, growth of professional behaviors, and improved academic outcomes.[1–4,18]

The aim of this study is to investigate student stress in response to programmatic changes wrought by the pandemic and whether stress impacted student self-reflection.

METHODS

Subjects

Subjects were recruited from a convenience sample of students entering the Doctoral Physical Therapy program in 2019. Students beginning the DPT program were informed of the study intent, IRB approval, and confidentiality measures. The cover letter also made clear that students could choose to not participate in the study at any time and that data collected was for research purposes only and was in no way a required part of the physical therapy curriculum.

Thirty-six subjects were consented, and 35 subjects responded to the survey at time 1. At time 2, 33 subjects responded. Times 3, 4, and 5 had 35 subjects responding. At time 6, 31 subjects responded. Subject demographics resemble typical student characteristics of the program (Table 1).

Table 1: Subject Demographics

Mean age		25.4
Gender	Male	9
	Female	26
Residency	In state	16
	Out of state	19
Ethnicity	White	20
	Asian	10
	Hispanic	3
	Not provided	2
Total		35

Source: PTCAS. Residency indicates home of record at time of application to DPT program.

Methods

IRB approval 2021-067 was received to analyze existing data collected under an earlier IRB by the second author and a co-investigator. Outcome measures included the Perceived Stress Scale (PSS) and the Self-Reflection and Insight Scale (SRIS).

The SRIS was developed by Grant in 2002.[19,20] It was created with the goal of assessing an individual's readiness for purposeful behavior change and was originally validated on 260 undergraduate students.[20] Since then, it was been studied across many populations, including graduate level medical students, and found to be both reliable and valid with high levels of internal consistency across the three subscales.[19,21] It is therefore a useful measure for assessing self-reflection and insight as an indicator of professional growth in medical education programs.[19,21] The SRIS was chosen for this study due to its documented validity, reliability, and internal consistency in the student and healthcare student population.[18–21]

SRIS consists of 20 statements. Subjects rate the extent to which they agree or disagree with the statement on a 5-point Likert scale. Total possible scores range from 10 to 100 with items 1,2,4,8,11,13,14 and 17 being reversed. Three subscales are evident within the SRIS: need for reflection (N), engaging in reflection (E), and insight (I). The identified subscales demonstrated good internal reliability (>.8).[18,19] A total score for each subscale is calculated as follows:

a) Engaging in self-reflection = total of items 2, 5, 7, 12, 15, 18
    a. Maximal possible score = 30
b) Need for self-reflection= total of items 1, 8, 10, 13, 16, 19
    a. Maximal possible score = 30
c) Insight= total of items 3, 4, 6, 9, 11, 14, 17, 20
    a. Maximal possible score = 40

The Perceived Stress Scale (PSS) was created in 1983 by Cohen to "measure the degree to which situations in an individual's life are appraised as stressful" over the previous month, with physiological stress being defined as "the extent to which a person

perceives that the demands placed on them exceed their ability to cope with said demands".[22] Originally a 14-item scale, it has been reduced to 10 items and since has been found to be a reliable and valid self-report measure of perceived stress with consistency demonstrated across diverse populations.[23] The PSS is commonly utilized as a measure of student stress level in healthcare education programs and therefore was chosen for this study [24–27].

The PSS-10 is a 10-item questionnaire with subjects responding on a 4-point Likert scale from 0 to 4. Total scores range from 0 to 40. PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. Perceived stress levels are broken down as follows:

a) Scores ranging from 0-13 = low perceived stress.
b) Scores ranging from 14-26 = moderate perceived stress.
c) Scores ranging from 27-40 = high perceived stress.

Surveys were collected at the start of the fall semester (September), at winter break (January), and at the end of the spring semester (May) for academic years 2019-2020 and 2020-2021. All data was deidentified prior to analysis.

Six SRIS data points were used and four PSS data points. Two SRIS data points were collected within a fall semester course. The independent variable in this study was time and the dependent variables were PSS score and SRIS score. Descriptive statistics and statistical analysis were performed using SPSS version 26. A one-way repeated measures ANOVA was used to analyze total PSS, SRIS and SRIS subscale scores over time. Levene's test for homogeneity of variance found the data to be normally distributed. Correlation between SRIS total scores and PSS scores within timepoints, PSS and subscale scores within timepoints, and change scores were analyzed using Pearson R. Missing data points were addressed using the last observation carried forward to maximally preserve the integrity of the research process and avoid a type I research error.

RESULTS

Perceived stress levels are described in Figure 1. The ANOVA omnibus revealed a statistically significant difference in PSS. Pairwise comparisons using students t-test and Bonferroni correction revealed that the significant difference occurred between timepoints 3 and 4 and timepoints 5 and 6 with no significant difference between timepoints 4 and 5. Change scores were calculated to assess possible correlation between how scores changed over time and are provided in Table 2. PSS scores should be considered in tandem with events occurring within the academic program due to the pandemic related campus closure. Figure 2 depicts reported student perceived stress levels and events occurring in the academic program's response to the pandemic. Table 3 reports the categorical level of stress, as defined by the PSS, at each data collection.

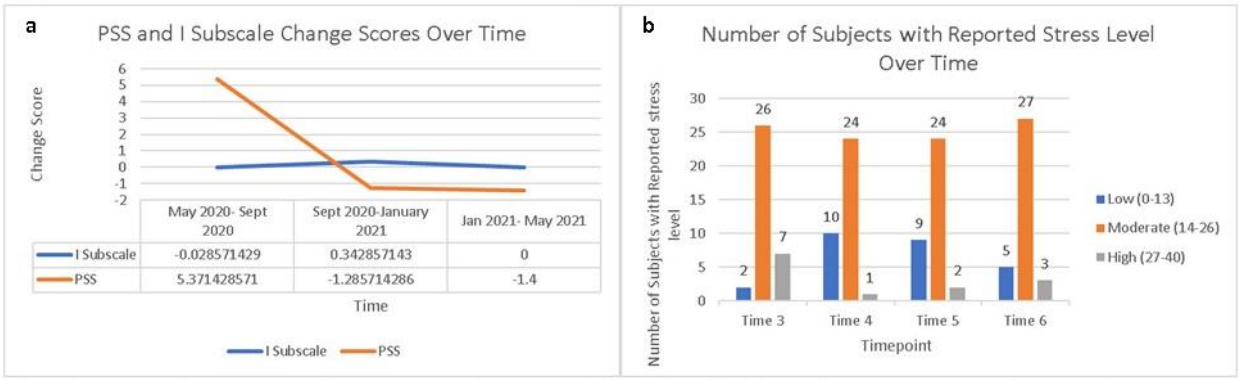

Figure 1. Perceived Stress Level and Subscale Changes Over Time

Note: Significant negative correlation found between the means of time 4 and 5. Figure 1a depicts amount of change between each mean score for PSS and I subscale. Change scores are indicated in the embedded table. Change scores are not significantly correlated.

Table 2: Mean, Standard Deviation, and Change Score for SRIS and PSS at all Timepoints

	SRIS				PSS			
	Mean	SD	Change score	P value	Mean	SD	Change score	P value
Time 1	76.1429	8.2858						
Time 2	79.4857	8.8861	-3.3428	P<0.001[a]				
Time 3	77.91	8.269	1.5757	1	21.29	5.1		
Time 4	77.63	8.748	0.28	1	15.86	5.6	5.371428571[a]	P<.001[a]
Time 5	77.43	8.705	0.2	1	17.2	5.01	-1.28571429	0.244
Time 6	77.29	8.238	0.14	1	18.6	5.4	-1.4[a]	0.034

Change score calculated from mean of one timepoint to mean of subsequent timepoint.
[a] Denotes significant finding. Threshold for significance 0.05.

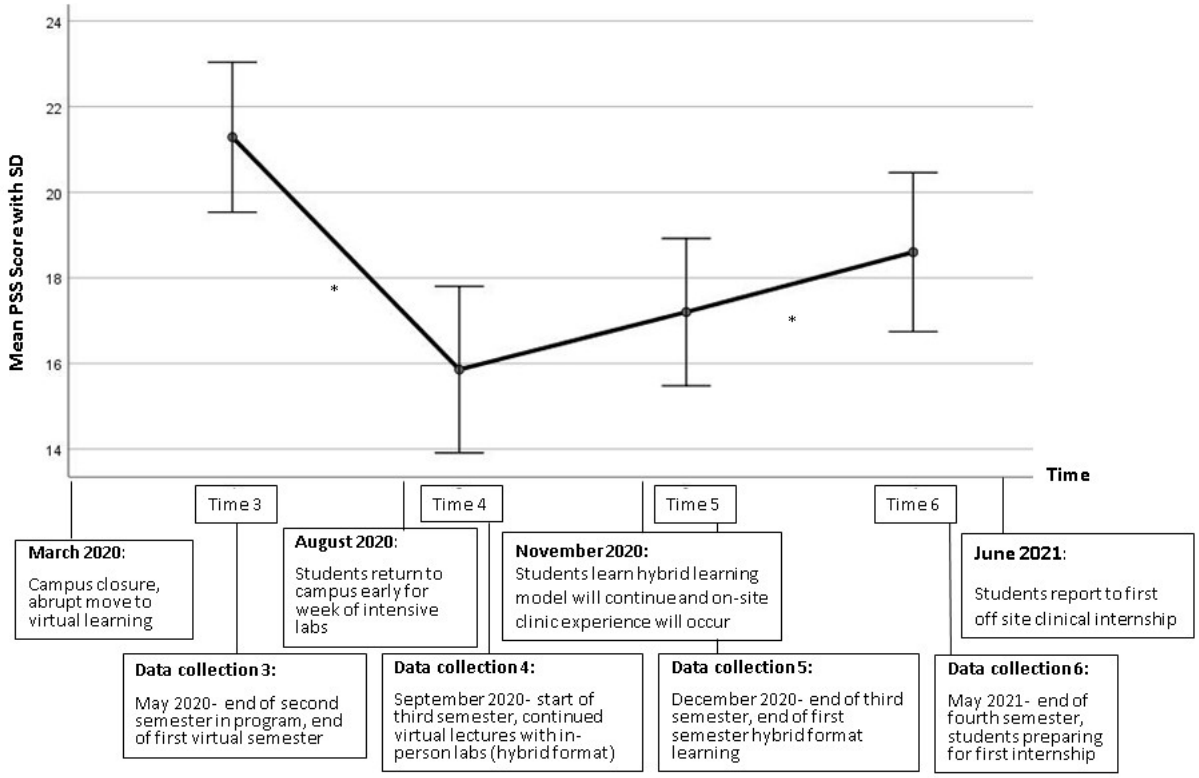

Figure 2. Student Reported Mean Perceived Stress Level and Pandemic-Related Academic Events Over Time

Table 3: Percentage of Students Reporting High, Moderate or Low Stress Levels on the PSS

	High	Moderate	Low
Time 3	20.1	74	5.8
Time 4	2.8	69	28.6
Time 5	6	69	25
Time 6	8.6	77	14.3

Total number of scores reported = 35

The omnibus revealed a statistically significant difference in SRIS total score across time. Pairwise comparisons using students t-test and Bonferroni correction revealed that the significant difference occurred between time points 1 (start of Fall 2019/first semester of program) and 2 (end of Fall 2019) (Figure 3b). Subscale I appears to explain the change in SRIS (Figure 3a). A significant difference was not found in other subscales across timepoints as described in Table 4.

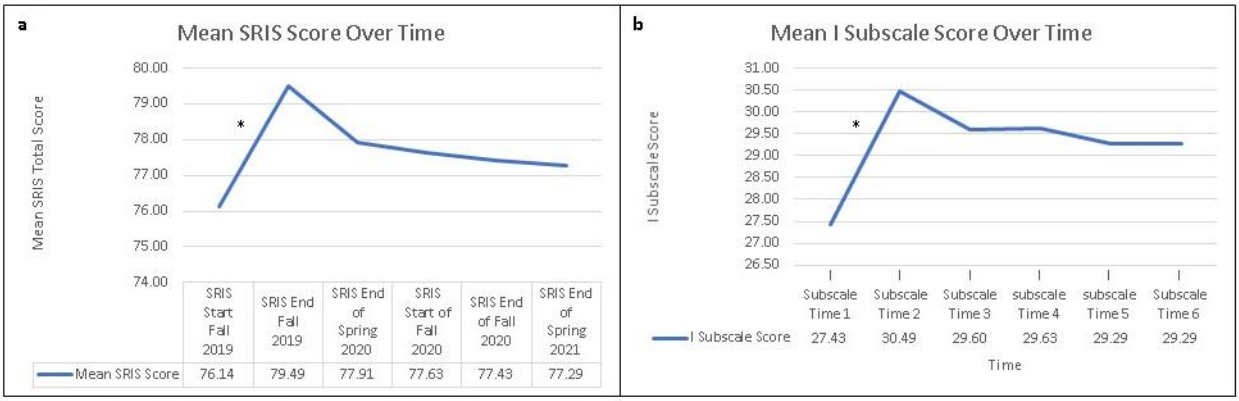

Figure 3. Mean SRIS Total Score and I Subscale Score Over Time
*Indicates significant finding between timepoints. Significance at P<.05

Table 4: SRIS Subscale Means, Standard Deviations, and Change Scores Across all Timepoints

	E Subscale				N Subscale				I Subscale			
	Mean	SD	Change Score	Pvalue	Mean	SD	Change Score	Pvalue	Mean	SD	Change Score	Pvalue
Time 1	24	4.46			24.4286	3.2			27.4286	3.1		
Time 2	24.3429	4.31	-0.3459	1	24.6571	3.6	-0.2285	p>1	30.4857	3.6	-3.0571	P<.0001[a]
Time 3	24.17	4.11	0.1759	1	24.37	3.2	0.2871	p>1	29.6	3.4	0.8857	1
Time 4	23.89	4.65	0.28	1	24.46	3.8	-0.09	p>1	29.63	3.3	-0.03	1
Time 5	24	5.03	-0.11	1	24.26	3.6	0.2	p>1	29.29	3.5	0.34	1
Time 6	24	4.56	0	1	24	3.8	0.26	p>1	29.29	3	0	1

[a] Denotes significant finding. Threshold for significance P<0.05. Change score calculated from mean of one timepoint to mean of subsequent timepoint. SD= Standard deviation

Pearson's R was run across all time points and yielded no statistically significant results. A negative correlation was, however, observed between the SRIS I subscale and the PSS at time points 4 and 5, however, the change in means may not be clinically meaningful. Figure 1a describes the correlation between PSS change scores and I subscale change scores.

DISCUSSION

Understanding the response to the pandemic by the University's Physical Therapy Program during the mandated campus closure is of importance to this discussion. Global recognition of the pandemic occurred in March 2020 and in-person learning was suspended on campus just prior to spring break in mid-March of 2020. Students did not attend class during spring break and faculty spent this time merging current course content into a virtual platform. Upon returning from the break, it was unclear how long virtual class meetings would continue with many believing in-person learning would resume in one week. Lab courses initially trialed remote labs but due to lack of preparation time, this was not found to be successful. Faculty decided to track lab skills missed to be made up when in person instruction was allowed. During this time, messaging to students was that they would not miss any instruction, in person or otherwise, and that the PT faculty was working to ensure they had the necessary hands-on learning opportunities. Students were asked to return early to campus prior to the fall semester to participate in two weeks of intensive lab instruction and practical exams during which all missed lab skills tracked from the spring 2020 semester were practiced, culminating in practical exams. The next academic year (2020-2021), continued with virtual lectures but in-person labs were allowed. Students were organized into small preset groups, limiting interaction to a small group of peers. This hybrid model continued for the entirety of the 2020-2021 academic year.

This DPT program has a unique onsite clinic where patients from the community are seen 1 or 2 days a week in a clinic that is imbedded into the program's classroom space. This onsite clinic is staffed by faculty and community physical therapists who serve as clinical instructors (CIs). The onsite clinic serves patients with orthopedic and neurologic impairments as well as pediatric patients. Clinic pace is slower compared to the average clinic, allowing students to have increased mentorship with experienced CI's. The goal of the onsite clinic is to help students become acquainted with the flow of patient care, become more confident with patient interactions, have increased exposure to patient care in a controlled environment, and have the opportunity to practice documentation in the clinic setting.

Normally, students begin in the onsite clinic at the start of their second year in the program. Second year students shadow third year students for two hours a week and assist with treatments. During the same semester, second year students participate in Exercise Group where they work with CI's to prescribe individualized fitness plans to members of the community. The second semester of the second year, students participate directly in patient care in the onsite clinic. They work with CI's in a ratio of 2:1 in the clinic one half day a week. Students are assigned three patients to their schedule at hour intervals. The study cohort did not experience any clinic in the fall semester but did have a limited spring experience. Fewer patients were scheduled due to spacing requirements, therefore students treated patients in pairs rather than individually. At the end of the second year in the program, students travel to their first clinical internship outside of the University, or "off-site." When students return in the fall of their third year, they participate in the onsite clinic experience again. For third year students, the student to CI ratio is 4:1 and students participate in the clinic two half days a week with three patients assigned at hourly intervals. CI's do not carry a separate schedule for any onsite clinic and therefore are fully available for student mentorship. Students and CIs meet in small groups prior to the start of clinic and at the end of the student's clinic time to discuss patient treatments and collaborate with the CI and peers. Data collection for this study ended prior to the fifth semester experience.

We observed that despite large increases in population stress and dynamic changes in the DPT learning platform during the pandemic, stress did not significantly increase over the course of our study. The initial measurement of student stress indicated the average student was within the "moderate stress" category. Average reported stress decreased by 6 points at the subsequent reading and gradually increased at the final 2 readings. At time 3, the initial data recording (May 2020), students had finished the semester that required a rapid shift to virtual learning. Time 4 data was recorded when students returned early from summer break and had just completed the 2-week intensive hands-on learning unit (September 2020). Students were told during this time via direct communications with the program that the program would ensure they would not miss any educational material or hands on learning opportunities. Efforts were made to track lost lab hours and missed learning tasks with a clear plan as to how this would be remediated. While stress from the global pandemic was not differentiated from stress related to the virtual learning shift in this study, it is possible that the program's response of reassurance and transparent planning helped reduce student stress during an extremely stressful global event.

Our study showed a statistically significant decrease in stress level between our first and second measurement. The PSS sets categorical levels of stress as low, moderate and high. At the initial measurement, 20% of our students ranked in the high category yet the overall mean was in the moderate category and remained in the moderate category throughout all data points (table 3). Student stress was reported at a higher level initially compared to subsequent reports, but gradually increased at the third and fourth measurements. At time 5 (December 2020), students had completed the first hybrid semester but lacked the usual first clinical interactions of shadowing third year students in the clinic and participating in Exercise Group that normally occurs in their third semester. At time 6 (May 2021), students had completed the second hybrid semester that did include an onsite clinical experience and were preparing for summer clinical internships. One possible explanation for the increase in perceived stress is a change in faculty messaging to students. The program was not able to hold the onsite clinic in the fall semester of 2020 and the spring clinic was truncated, so students did miss this experience with no direct make up available. Program messaging was forced to shift away from "nothing will be missed" and student perception of lost instruction time likely effected reported stress levels. Another possible explanation is that students were preparing for their first off-site clinical internship. This is a documented stressor in DPT students, but might have been more so due to student knowledge that they had missed some of the clinical experiences usually had by program students prior to internship.[5,6] Importantly, students were preparing to enter internships at healthcare facilities with newly established policies and procedures related to coronavirus. This new unknown could also have affected student levels of perceived stress.

Memon et al studied perceived stress level in DPT students in Pakistan utilizing the PSS.[26] Their study observed 8% of DPT students reported a high stress score and 73% reported a moderate stress score.[26] Our study found similar rates despite the ongoing global pandemic (Table 3). The percentage of students reporting moderate stress in our study stayed consistent at 69-77% across all timepoints. Therefore, the percentage of students rating stress as high and moderate in our study is comparable to that found by Memon's study in 2016 despite the occurrence of the novel coronavirus pandemic during our study.

Student self-reflection also did not change significantly over time despite the changing academic landscape. A significant increase was noted between times 1 and 2 at the completion of the first semester which includes a course directed at professional development. Time points 3, 4, 5, and 6 occurred after the campus closure during virtual or hybrid learning environments. Although no positive change occurred between these timepoints, student self-reflection did not significantly decrease despite a major shift in curriculum delivery.

No correlation was found between PSS scores and SRIS scores. Increased stress can push the positive behavior of self-reflection toward the negative behavior of rumination, but increased PSS scores were not echoed by decreased SRIS scores in this study.[28] It is unclear whether the SRIS is able to separate rumination and self-reflection in self-report. It is possible that scores on the SRIS during the pandemic was a reflection of rumination instead of self-reflection. Rumination has been observed to increase when stress increases and could be the reason SRIS scores did not decrease significantly.[3] The novel coronavirus and subsequent global pandemic is a known stressor, increasing the likelihood of self-reflection shifting to rumination.[7] If the SRIS did not separate rumination from self-reflection and rumination did increase while self-reflection decreased, SRIS scores would reflect no change.

SRIS scores showed little change over the course of virtual and hybrid learning models. Flinn states that one predictor of acquisition of professional behavior is number of hours exposed to modeling of professional behaviors.[29] Hours of exposure to faculty and peers was reduced during the campus closure, providing a possible explanation for limited change in SRIS scores.

SRIS scores, namely I subscale scores, showed significant change from time 1 to time 2, both occurring prior to the campus closure and virtual learning shift. The change score between the means was only 3.34. SRIS scores range from 20 to 100. At the time of this publication, no minimal clinically significant change value for the SRIS had been published.

A significant negative correlation was found between the PSS and the I subscale at 2 timepoints. At time 4 and 5, when student perceived stress decreased, student insight increased at a level reaching significance. This negative correlation did not extend to time 3 and 6 when perceived stress was high. It is interesting that the negative correlation between stress and I subscale held when stress level was low, but the negative correlation was not observed when stress level was high. Our data does support the hypothesis that as stress decreases insight increases but not the reverse. It is possible this is an incidental finding or that the sample size was not sufficiently large to reach significance at all timepoints. Research is needed to further describe the relationship between stress and insight as it relates to professional student growth.

Limitations

The primary limitation in this study is the lack of PSS scores prior to the pandemic and campus closure event. SRIS data was being collected prior to the event but PSS data was not. PSS data collection started in May 2020 once the campus closure and shift to virtual learning had already occurred. Therefore, we do not have a direct comparison of stress levels before and after the shift in curriculum delivery. Conversely, SRIS scores were collected pre and post campus closure, therefore student self-reflection and insight can be tracked over the course of the curriculum delivery change. While this information is useful for considering how students' professional behaviors matured in relationship to the campus closure, it would be useful to have reported stress scores as well for this timeframe.

CONCLUSION

Despite widespread changes occurring in students' lives due to the large-scale event of the pandemic, student stress was observed to decrease and reported self-reflection did not change. The program's support of students and response to the pandemic both social, emotional, and academic may have mediated student stress. Further research is needed to investigate the maturation of student professional behaviors such as self-reflection and the relationship of this development to stress.

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