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The Effect of a Wellness Curriculum on First Semester JMU PA Students

By Abby Larson and Jeanine Aberbook

Abstract

Physician Assistant (PA) programs are rigorous graduate-level medical programs that achieve a Master's degree but complete an equal number of credits as a Doctorate degree. They are notorious for triggering high levels of stress pre-matriculation as well as upon matriculation. While this is a well-known topic discussed between students and incoming students, it is an under-researched topic. As a result of the lack of research in physician assistant education regarding implementing a wellness curriculum and the desire to reduce stress, anxiety, and depression symptoms in first semester PA student, the faculty and students at James Madison University (JMU) implemented a wellness curriculum. The curriculum consists of matching each first-year physician assistant student with a second-year "buddy", organizing wellness activities, four transition seminars, small group discussion, and increased faculty-advisor involvement. The curriculum is analyzed using anonymous pre-test and post-test online surveys. The pre-test and post-test surveys include the Generalized Anxiety Disorder-2 (GAD-2) and Patient Health Questionnaire-2 (PHQ-2). These are screening questionnaires used to evaluate the presence of anxiety and depression symptoms. The answers from the screening questionnaires are used to evaluate if there is a decrease in the number of students who screen positive for anxiety and depression symptoms at the end of the semester, and to see if there is an increase in average score of the two screening tools at the end of the semester. In addition, the answers to the GAD-2 and PHQ-2 screening questions are then compared to student's feelings of importance about the topics of "Burnout", "Mindfulness", and "Stress reduction" needing to be addressed in PA programs. After comparison, the data shows that the wellness curriculum is not successful in reducing anxiety and depression symptoms based off the screening questionnaires in first semester PA students and showed that a majority of students would like "Burnout", "Mindfulness", and "Stress Reduction" to be addressed in the wellness curriculum. Although the results did not show an improvement in quantitative results, qualitative comments from first semester PA students display effectiveness of certain aspects of the wellness curriculum. It is suspected that with future research and analysis of the wellness curriculum with both quantitative and qualitative measures, physician assistant student benefit will be confirmed over time.

Introduction

Physician Assistant (PA) programs are graduate degree programs that are designed as an accelerated medical model curriculum. To be considered for admission to most PA programs, students must have clinical experience prior to matriculation, ranging from 2,000-4,000 hours at minimum. These programs are notorious for their rigor and intensity. James Madison University Physician Assistant program includes 103 credit hours in 28 months as compared to some PhD programs that can take up to 8 years to finish 120 credits[1]. Due to the vast amount of information students are expected to know in such a short amount of time, it should come as no surprise that PA students are faced with stress and anxiety on a daily basis. Interestingly, although the profession was established almost 60 years ago, there has been minimal research completed on first year PA student wellness and anxiety. The only strictly PA student-focused research studies found were completed by four JMU faculty members. These included "Assessing Burnout and Interest in Wellness Programs in Physician Assistant Students"[2] as well as "A Qualitative Examination of Burnout Experienced by Physician Assistant Students." These studies serve to evaluate the prevalence of burnout among PA students. The first study surveyed 320 students from all 8 PA programs in the state of Virginia and found that 79.69% of students reported emotional exhaustion and 56.56% met the criteria for cynicism. 77.50% of students reported interest in a wellness curriculum focused on reducing burnout. The study concludes that the inclusion of a tailored wellness curriculum could provide potential benefit to PA students.[3]

Due to the limited research on PA students regarding wellness, the research on medical students was reviewed to better understand how wellness curricula may impact students studying medicine. Surprisingly, research studies tracking the effect wellness curricula have on medical students' mental health are lacking. There were studies that examined burnout, anxiety, and depression in medical students and others that outlined specific wellness curricula programs implemented, however there were minimal studies evaluating the direct influence of wellness curricula on students' mental health. One study from 2009 surveyed 4,400 medical students from seven US medical schools, of which 2,682 students responded, to assess mental health and burnout. The Mental Health Continuum Short Form (MHC-SF) was used to evaluate mental health and the Maslach Burnout Inventory (MBI) was used to measure burnout. The survey also included questions about suicidal ideation, dropping out, and professional behaviors and beliefs. After results were analyzed, the researchers concluded positive mental health was correlated with lower rates of suicidal ideation, thoughts of dropping out, unprofessional behavior, and burnout[4]. This research suggests the need for interventions to support positive mental health.

Two studies directly measured how the inclusion of a wellness curriculum in the medical school education affected students. Saint Louis University School of Medicine published an article in 2014 analyzing their implementation of integrated approach to a wellness curriculum that included "significant but efficient changes to course curriculum that ultimately were associated with significantly lower levels of depression symptoms, anxiety symptoms and stress"[5]. The second research study found was conducted by the Geisel School of Medicine at Dartmouth, who implemented their own version of a wellness program that also found "lower levels of burnout and perceived stress and higher levels of mindfulness and quality of life in participants"[6]. This was assessed through a pre- and post-survey created by the researchers with questions pertaining to four areas of wellness: quality of life, perceived stress, mindfulness, and burnout. Although these studies were smaller and limited, it is quite fascinating that these studies display success of wellness curricula in medical model programs, but it has yet to become standardized. It seems that each school is independently understanding the importance of a culture of wellness and transition to these demanding programs, which is very similar to what happened at James Madison University Physician Assistant Program in 2018.

Three years ago, students at James Madison University realized the need for support within the first-year class to improve the transition into PA school and acclimate to the rigorous schedule and curriculum. What started as an informal giving of advice to the first-year class has transformed into a more structured student-guided curriculum, including one-on-one and group "buddy" events, increased advisor involvement, large group seminars, and small group activities. The goal of this wellness curriculum, facilitated by two "transition liaisons" and two "wellness liaisons" from the second-year class, is to decrease stress, anxiety, and depression with the desire to ease the enormous transition into PA school. The purpose of this study is to use quantitative measures established by the Generalized Anxiety Score Disorder Scale-2 and Patient Health Questionnaire-2 to evaluate if the inclusion of a wellness curriculum decreases anxiety and depression symptoms from the beginning of first semester as compared to the end of first semester within JMU PA students.

Methods

This study was conducted during the first year JMU PA students' first semester, September through December. A pre-test was administered in the beginning of September before the initiation of the wellness curriculum and incorporated Generalized Anxiety Disorder screening questionnaire (GAD-7) and Patient Health Questionnaire (PHQ-2) screening questionnaire as well as the Perceived Medical School Stress Scale (PMSS). Immediately following the pre-test, the first large group seminar, titled 'Tips

and Tricks to Surviving the First Semester of PA School', was provided to the first-year class by the two transition liaisons. This seminar included general advice about preparing for PA school, how to succeed from the start, and maintaining mental health. The seminar also included advice about each of the four classes taken during first semester and helpful resources pertaining to both schoolwork and maintaining wellbeing. Two weeks later, the two wellness chairs led a small group session. Each small group was comprised of one second year student leading a group of four first years. The session started with a "study styles quiz"[7] to assist each first year in discovering their specific study style and introduce them to other students who studied the same way they did. Then there was a discussion about study habits within each group. The small group session ended with the first years writing down three wellness goals for the semester. Each second-year student was matched with a first year "buddy" and they were requested to meet together within the first two weeks of school. The purpose of these "buddy" pairings was to provide the first-year students with more individualized advice and give them someone they would feel comfortable reaching out to with questions, concerns, or struggles. The transition liaisons also hosted a barbecue for the two classes to get to know each other better and provide the first years with more opportunities to connect. Each advisor also hosted an advisor lunch for their group of first year advisees during orientation as well as a small group meeting later in September.

In October, the transition liaisons presented a seminar called 'Stress, Anxiety, and Coping with Change'. This seminar focused on how to recognize anxiety and depression in both their peers and themselves and how to manage it, as well as strategies to cope with the transition to PA school. The small group activity consisted of splitting into groups led by second year students where each first-year student wrote a short positive note to each of the classmates in their group. Notes were then distributed anonymously to each person. Additionally, advisors held individual meetings with their advisees in late October.

In November, the seminar was titled 'Coping with Burnout'. This included a discussion about the inevitable burnout that most students feel at that point in the semester, including tips for recognizing, managing, and powering through burnout. There was a substantial amount of encouragement from the transition liaisons included in this particular lecture. The small groups focused on positive versus negative self-talk. The advisors checked-in with each advisee via email during the month of November.

In December, the students were looking ahead to the upcoming semester, so the seminar covered 'Second Semester Tips and Tricks'. The goal of this seminar was to prepare first year students for what to expect in the second semester as well as give concrete advice on how to succeed in each class. The small groups involved creating new wellness goals for the upcoming semester and ideas for

how to stick to these goals. Immediately following this small group session, the post-test was taken by all the students. The post-test was identical to the pre-test except for the addition of a comments section. In this section, students were encouraged to comment on the strengths and weakness of both the seminar sessions and the small group sessions.

Pre-and post-test surveys from the 2022 and 2023 cohorts were analyzed using the comma-separated values (CSV) data format. After reviewing the pre- and post-test survey for cohort 2022, it was decided to exclude this data set as only 23 of 31 people completed the post-test survey and there were no comparable unique identifiers to connect the pre and post surveys. However, for cohort 2023 equal numbers of pre- and post-test surveys were received, allowing for data comparison.

For the pre- and post-test surveys for the cohort of 2023, all test responses and non-completed surveys were removed. There were 32 completed surveys on the pre- and post-survey. Each person was requested to put a matching unique ID on the pre and post survey, however there were only 16 out of 32 matched responses. Pre-test and post-tests were then matched using age, gender, ethnicity, portions of unique identifier codes, and IP addresses. After the data clean-up process for pre and post-test surveys, there was the ability to have one-to-one comparison of responses from pre to post-test survey as well as overall averages of scores.

The GAD-2 screener and PHQ-2 screener questionnaires[8,9] were used in analysis of averages as well as observing trends of responses over the course of the semester. Both the GAD-2 and PHQ-2 are validated screening questionnaires for the initial screening tool for anxiety and depression, respectively. A score of 3 or above on these screening tools trigger more lengthy questionnaires in a clinical setting (PHQ-9 & GAD-7) that should be administered for further evaluation of anxiety and depression. For the purpose of this research paper, the screener questions were used to assess if students screen positive for anxiety or depression symptoms. Further questioning with the PHQ-9 and GAD-7 was not evaluated. For an official diagnosis of anxiety or depression to be made, a clinician would use both of these tools as well as conduct an interview to fully evaluate the status of a patient's mental health.

To evaluate if there was a statistically significant increase or decrease in amount of people that screened positive (greater than or equal to 3) GAD-2 and PHQ-2 scores, a chi-squared test using an online software was used. To evaluate if there was a statistically significant increase or decrease in average score of GAD-2 and PHQ-2 between pre- and post-test survey, a t-test using an online software was used.

To evaluate the trend of changes in perception of topics that needed to be addressed in PA school, the GAD-2 and PHQ-2 numeric answers to screener tools were used. In the validated GAD-2

screener tool, the answer “not at all” is assigned “0”. Answer “several days” is assigned “1”. Answer “more than half the days” is assigned “2”. Answer “nearly every day” is assigned “3”. The next step to help assess the research question was to find the difference in change of matching categories, so the quantified answers from the pre-test survey were subtracted from the post-test survey answers. For example, someone whose answer choice to “feeling nervous, anxious, or on edge” and “not able to stop or control worrying” for the pre-test survey was “not at all”, the answers were changed to “0”. Then that same person answered, “nearly every day” on the post-test survey for both aspects of the GAD-2, had that answer changed to “3” for both responses. Since the GAD-2 is looked at as a whole for screening purposes, the added totals would be “0” for the pre-test survey and the total would be “6” for the post-test survey. The difference between the pre- and post-test surveys would be “6” as 6 - 0 = 6. Having a difference in 6 would indicate that this person had the greatest increase in anxiety symptoms as part of the GAD-2 screener over the semester. Contrarily, if someone had a difference of “-6” then that person would have gone from feeling very anxious at the beginning of the semester to not anxious at all.

The next step was evaluating if people with the greatest change in anxiety and depression screening scores desired specific wellness curriculum topics to be addressed in PA school wellness curriculum. For example, someone whose change from pre-test to post-test was a “6”, meaning they felt anxious nearly every day of the semester by the end of the semester, “strongly agreed” that “Burnout” is an important issue that needs to be addressed in PA school. The survey initially asked the importance of addressing eleven wellness topics in PA school. The topics listed were “Meditation”, “Burnout”, “Improving empathy”, “Personal well-being”, “Stress reduction”, “Nutrition”, “Conflict” “Management”, “Mindfulness”, “Compassion fatigue”, “Work-life balance”, and “How to handle failure”. The top three chosen for this research paper were “Burnout” “Stress reduction” and “Mindfulness”. The answer choices that were assigned to those were “Disagree”, “Neutral”, “Agree” and “Strongly Agree”. Meaning, the four previous answer choices were available to those answering the question of those topics needing to be addressed in PA school on the surveys. The next step was creating pivot charts with quantified change over time for each of the GAD-2 and PHQ-2 and comparing this data to how important students feel it is to address the issues of “Burnout”, “Stress reduction”, and “Mindfulness” in PA school.

Results

In reviewing the GAD-2 screening tool first, 17/32 students screened positive (score 3 or above) on the pre-test survey and 15/32 students screened positive on the post-test survey. Using a chi squared

analysis tool[10] to see if the difference in amount of students was statistically significant, the p value = 0.62 which means there was not a significant decrease in number of students screening positive on the GAD-2 screener tool. In regard to PHQ-2 screening tool, 3/32 screened positive on the pre-test survey and 5/32 students screened positive on the post-test survey. Using a chi squared analysis tool to see if the difference in number of students was statistically significant, the p value = 0.45 which means there was not a significant increase in number of students that screened positive

To observe if there was a statistically significant increase or decrease in GAD-2 screening scores over the semester, a two score T-test analysis tool[11] was used. The GAD-2 pre-test survey average score was 2.72. The GAD-2 post-test survey average score was 2.78. Although there was an increase in score of 0.06, that was not a statistically significant increase with p score equaling 0.9. In regard to the PHQ-2 screening tool, the PHQ-2 pre-test survey average was 0.5. The PHQ-2 post-test survey was 1.19. Although there was an increase of 0.69, that was not a statistically significant increase as the p score using a T test equaled 0.08.

The next part of results was to review if people with the greatest change in GAD-2 and PHQ-2 screening scores felt the strongest about the inclusion of certain topics to be addressed in PA school. In Figures 1, 2, and 3 you will see the difference in GAD-2 scores from post-test survey to pre-test survey and the amount of people that have certain opinions of: “Strongly Agree”, “Agree”, “Neutral”, “Disagree” or “Strongly Disagree” in regard to “Stress Reduction”, “Burnout”, and Mindfulness needing to be further addressed in PA school.

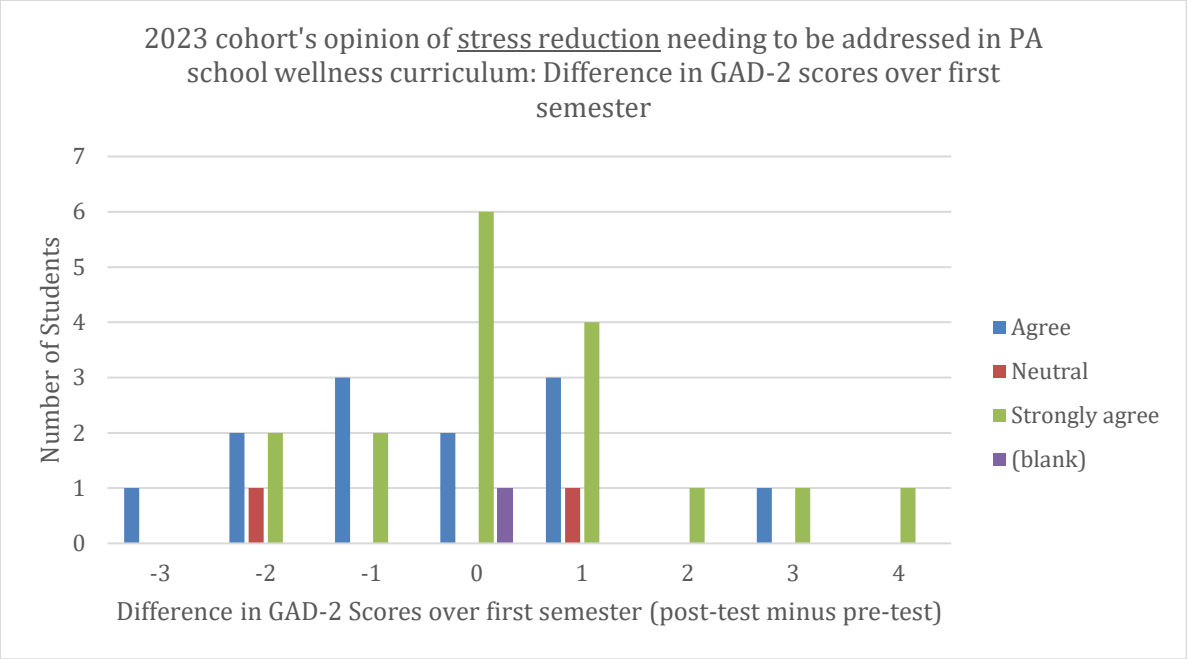

Figure 1 (Note: One student failed to respond)

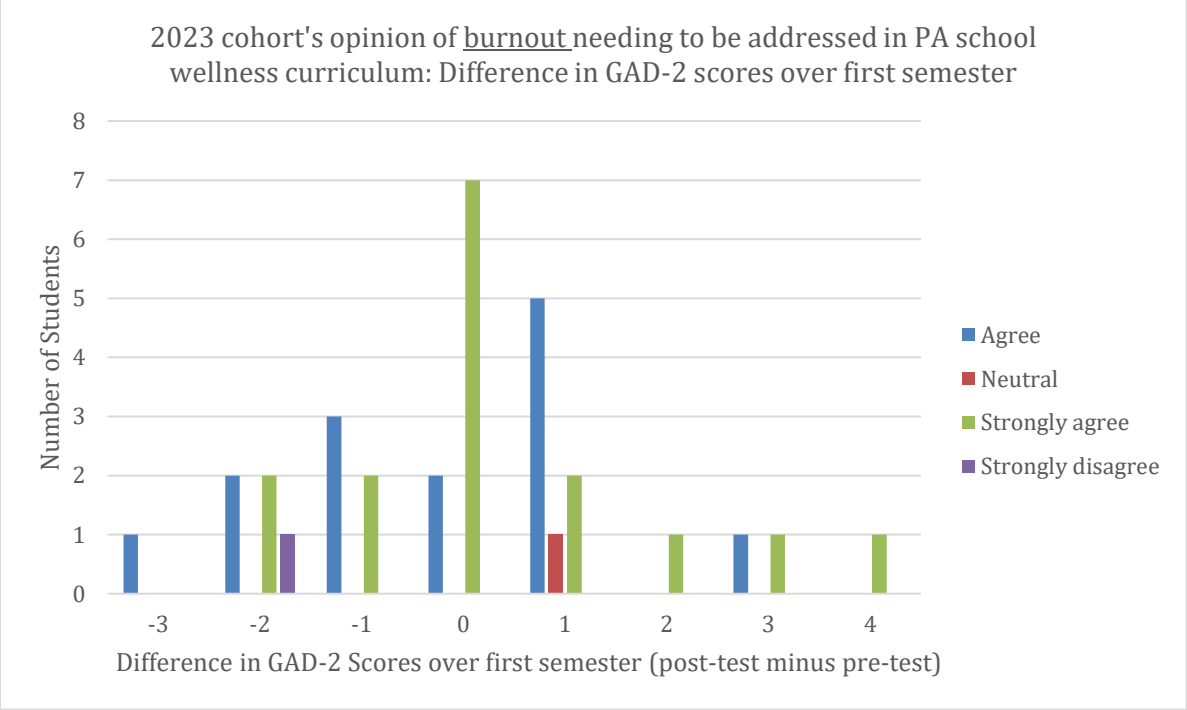

Figure 2

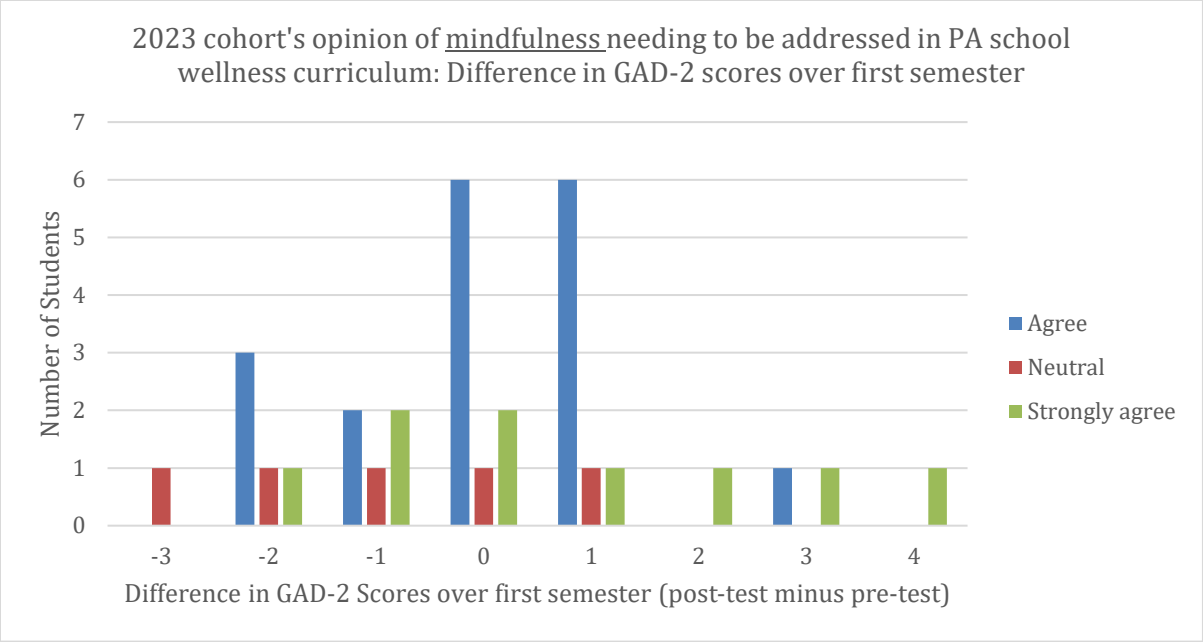

Figure 3

As comparing results above, it is seen that 21/32 students had no difference or a positive increase in GAD-2 scores from the beginning to the end of the semester. Although there was no statistically significant increase or decrease in average GAD-2 scores from beginning to end of semester, there was still a majority of students screening positive for anxiety symptoms at same score or screening positive at a higher score at the end of the semester. Stress reduction (Figure 1) was reviewed to be the topic that most students "strongly agreed" needs to be addressed in PA school with 17/32 students selecting "strongly agree". Burnout (Figure 2) was almost the same number of students "strongly agreeing" with 16/32 students. Mindfulness (Figure 3) had only 10/32 students "strongly agreeing" that this topic needs to be addressed further in PA school wellness school curriculum. However, it is important to note that even students who had a decrease in GAD-2 scores over the semester, still feel as if those topics should and need to be addressed in PA school. There was only one negative with "Strongly Disagree" in regard to "Burnout" needing to be addressed by a student who had a decrease in GAD-2 score over the semester, with the rest either having neutral or in agreement responses.

In Figures 4, 5, and 6 below you will see the difference in PHQ-2 scores from post-test survey to pre-test survey and the amount of people that have certain opinions of: "Strongly Agree", "Agree", "Neutral", "Disagree" or "Strongly Disagree" in regard to "Stress Reduction", "Burnout", and Mindfulness needing to be further addressed in PA school.

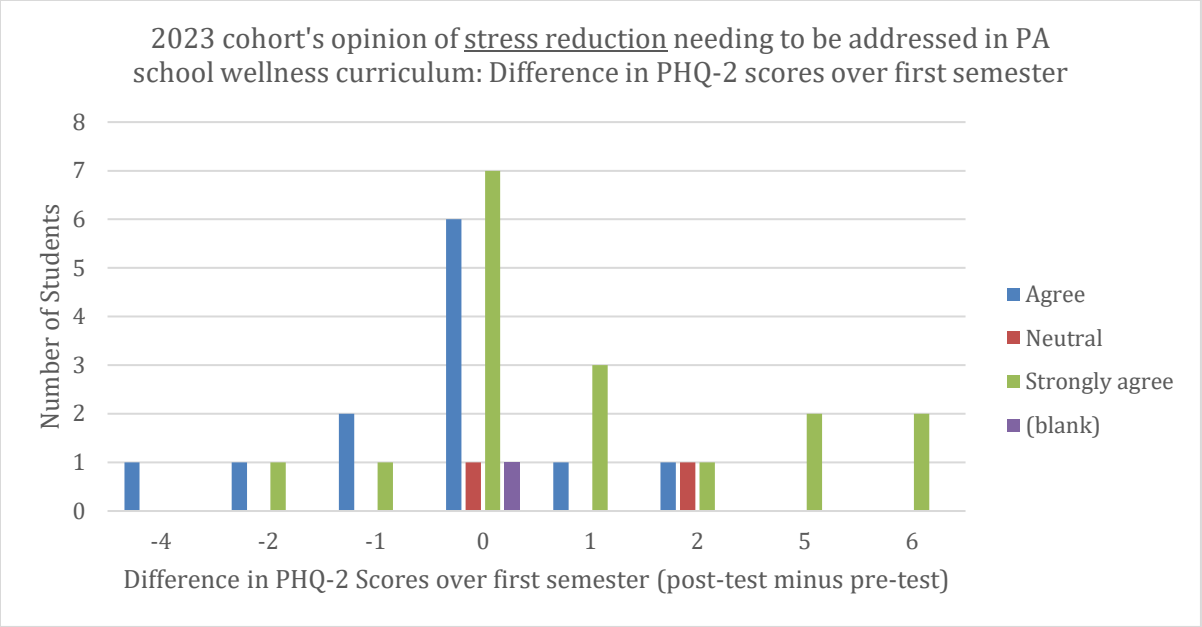

Figure 4 (one blank response as a student was able to skip over selection for stress reduction)

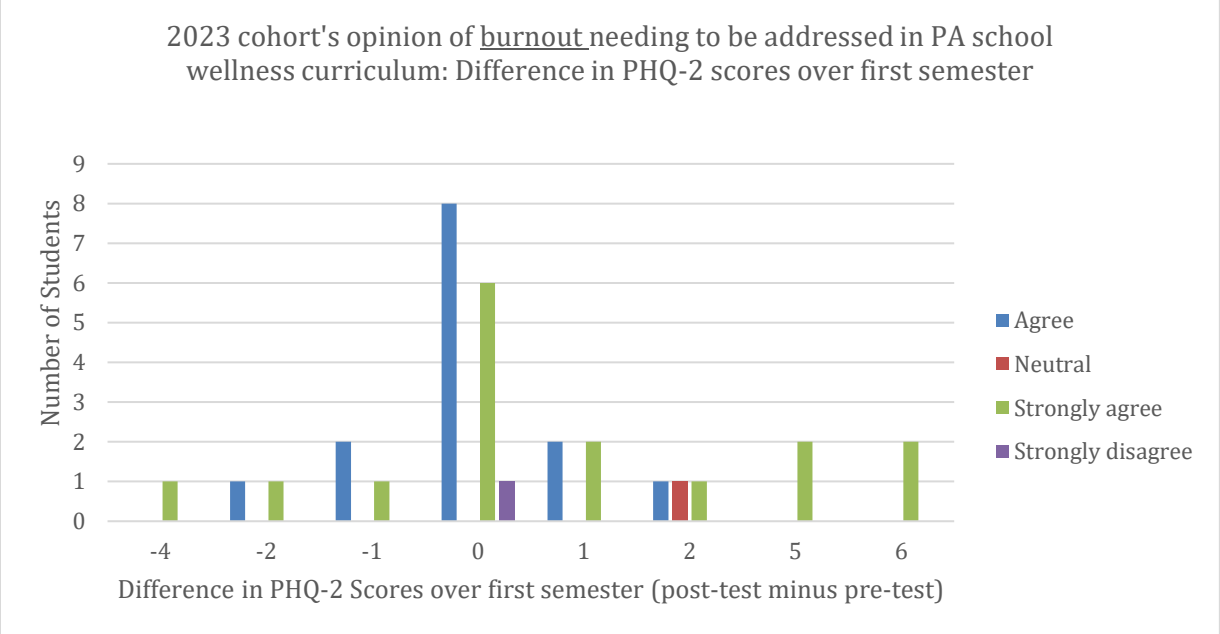

Figure 5

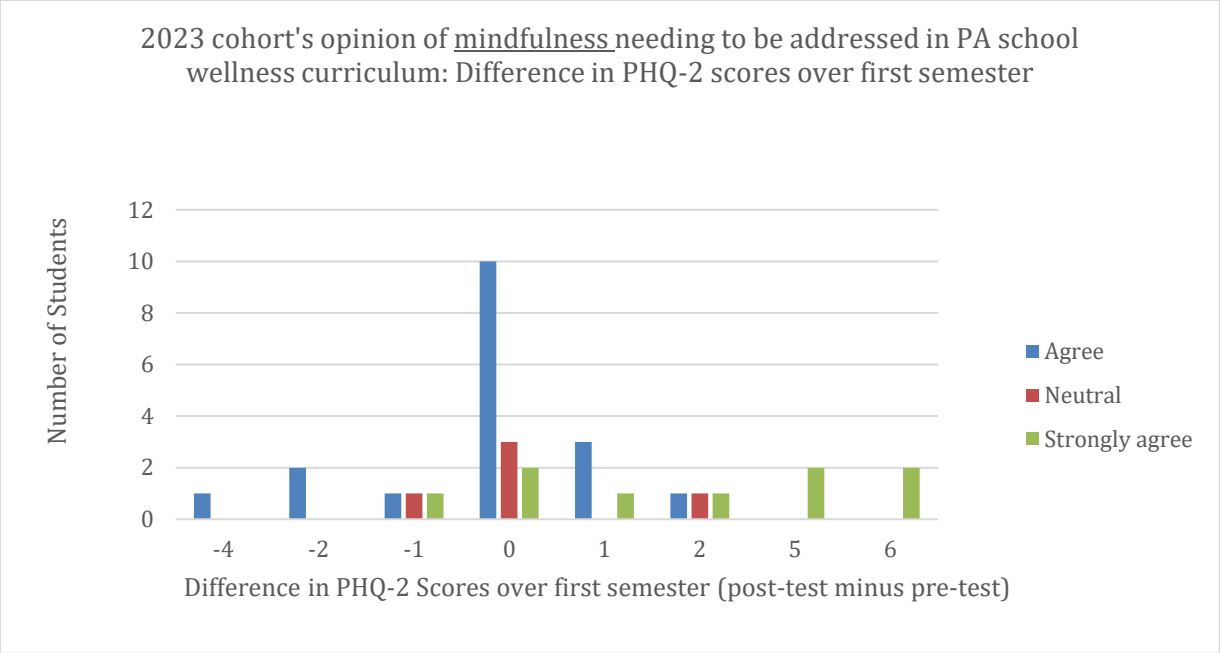

Figure 6

As comparing results above, it is seen that 26/32 students had no difference or a positive increase in PHQ-2 scores from the beginning to the end of the semester. Although there was not a statistically significant increase or decrease in average PHQ-2 scores from beginning to end of semester, there was still a majority of students screening positive for depression symptoms at the same score or screening positive at a higher score at the end of the semester. Stress reduction (Figure 4) was reviewed to be the topic that most students "strongly agreed" needs to be addressed in a PA school wellness curriculum with 17/32 students selecting "strongly agree". Burnout (Figure 5) was almost the same number of students "strongly agreeing" with 16/32 students. Mindfulness (Figure 6) had only 9/32 students "strongly agreeing" that this topic should be addressed. However, it is important to note that even students who had a decrease in PHQ-2 scores over the semester, still feel as if those topics should and need to be addressed in PA school. There was only one negative with "Strongly Disagree" in regard to "Burnout" needing to be addressed by a student who had no change in PHQ-2 scores over the semester, with the rest either having neutral or in agreement with needing those topics addressed.

Discussion

The GAD-2 and PHQ-2 screener tests analyzed showed that there was not a significant increase or decrease in average scores over the semester. There was also not a significant increase or decrease in the number of persons screening positive on the two screener tests. In addition, the majority of each

individual student's scores on the GAD-2 and PHQ-2 screeners remained the same or increased over the semester. Based on this data, it appears that the wellness curriculum does not help reduce anxiety and depression symptoms throughout the first semester of PA school at JMU. Because only one class's data was analyzed, there was not enough data to concretely state whether the wellness curriculum has any effect on anxiety and depression symptoms overall and/or from year to year. The data set needs to be increased to 3-5 years' worth of data in order to be able to draw overall conclusions with comparisons. That being said, evaluating the effect of the wellness curriculum on the anxiety and depression symptoms of first semester PA students is hard to quantify in itself. Even though the collected data does not support a decrease in anxiety and depression symptoms, it cannot be concluded that the students did not find the wellness curriculum valuable. In fact, there were many survey comments from students that suggest many of them subjectively found the wellness curriculum helpful. Students especially appreciated the tips and tricks for the upcoming semesters and liked being reminded of the bigger picture of PA school. Many students also felt validated and comforted by the fact that other students before them felt the same stress they were feeling and that they were not alone. Many students felt the lectures on burnout and coping with change were repetitive, so these lectures could potentially be modified or removed in the future. There was a large amount of positive feedback regarding being matched with a second year "buddy". This allowed students to reach out with any questions or concerns they had about the semester to ease their transition. The large amount of knowledge and preparation provided by buddies was invaluable. The barbecue hosted by the transition liaisons also served to strengthen the connections between the first- and second-year class, thus helping to ease the transition even more.

For future research initiatives, the researchers suggest editing the pre- and post-test surveys given to the students before and after their first semester are improved. Students had the ability to select multiple answers or skip questions which made data analysis difficult. In addition, one of the most important survey components that needs to be addressed is to ensure students are using the same "unique identifier" question for the pre- and post-survey data for increased pre-test to post-test accuracy. Since this research is expected to be a long-term study at JMU, there must be a complete cohort of survey data year to year. In addition, if there was to be analysis from year to year, surveys need to be given at the same time throughout the semester. Having different dates of survey administration may cause a skew in the data due to different stressors such as tests or other events making emotions more or less prevalent.

Wellness curriculum effectiveness on decreasing anxiety and depression symptoms is the topic being evaluated with the utilization of theGAD-2 screener being assessed for anxiety symptoms and the PHQ-2 screener assessment to screen for depressive symptoms. While GAD-2 and PHQ-2 screeners were only compared to 3topics needing to be addressed in a PA school wellness curriculum, there were a total of eleven topics asked about on the survey. These topics included stress reduction, mindfulness, and burnout, which were analyzed in the data set this year, as well as meditation, improving empathy, personal well-being, nutrition, conflict management, compassion fatigue, work-life balance, and how to handle failure. Because stress reduction, mindfulness, and burnout are the three topics the researchers analyzed, future research may include assessment of other topics, or the topic list could be modified in the future pending further research. Lastly, the survey is long and has the potential to lead to survey fatigue, which therefore has the potential to skew the data with students mindlessly selecting answers in order to complete the survey.

Conclusion

The results show the trend that most first semester PA students have the same or increased feelings of anxiety and/or depression at the end of the semester as compared to the beginning. In addition, the wellness curriculum was not shown to be statistically significant in increasing or decreasing average GAD-2 and PHQ-2 scores over the semester or number of students screening positive on the screening questionnaires. As seen in the discussion, there are adjustments that can be made to the survey and data collection to help improve viability of results. While the quantitative data from the class of 2023 did not suggest that the wellness curriculum was beneficial in reducing anxiety and depression symptoms, survey comments from the PA students after their first semester indicated that participation in the curriculum was beneficial. Future research should focus on improving assessment and wellness curriculum analysis as well as transforming the curriculum based on student feedback. Other resources, such as a wellness counselor, could be considered as additions to the wellness curriculum. Overall, significant effort has been put into creating a new wellness and transition curriculum for first semester PA students, with the ultimate goal to decrease anxiety and depression symptoms in first year PA students. With continued student-informed changes, it is believed that future analysis will show both quantitative and qualitative program benefit on mental health of PA students.

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