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Abstract

Purpose: The purpose of this investigation was to develop, describe, and evaluate burnout curricula using meditation as a burnout reduction strategy. **Method:** The Maslach Burnout Inventory was the survey method used to assess PA student's levels of burnout after completing developed burnout curricula. **Results:** The results showed no relationship between burnout curricula completion and rates of student burnout. However, the findings showed burnout differences across the three cohorts of student classes. **Conclusion:** While limited by only the three cohorts of students, the study affirmed the need for faculty to stay attuned to aspects of student burnout.

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ABSTRACT

Purpose: The purpose of this investigation was to develop, describe, and evaluate burnout curricula using meditation as a burnout reduction strategy. **Method:** The Maslach Burnout Inventory was the survey method used to assess PA student's levels of burnout after completing developed burnout curricula. **Results:** The results showed no relationship between burnout curricula completion and rates of student burnout. However, the findings showed burnout differences across the three cohorts of student classes. **Conclusion:** While limited by only the three cohorts of students, the study affirmed the need for faculty to stay attuned to aspects of student burnout.

Keywords: physician assistant, burnout, meditation, accreditation standards

INTRODUCTION

In the 5th Edition of the ARC-PA Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) standards, which were implemented in September 2020, Standard B2.20 states “The curriculum must include instruction about provider personal wellness including prevention of: a) impairment and b) burnout.”¹ Burnout is defined by Hinami et al as a “psychological syndrome leading to a worker’s erosion of engagement with their job due to long-term exposure to emotionally demanding work.”² Burnout commonly affects the helping profession.² Physician assistants (PA) not only suffer from burnout, but burnout can lead to emotional disengagement and medical errors.^{2,3} This investigation does not address impairment curricula or education. This investigation specifically addresses how one PA program conceptualized, implemented, and assessed a burnout curriculum.

Educational Module

Standard B2.20 is new, and existing PA programs will need to incorporate education about burnout into existing curricula. Curricula should focus on describing or defining burnout and solutions for reducing or eliminating burnout. Three proposed solutions to burnout are “acknowledge and assess, be mindful of boundaries, and create a culture of well-being.”⁴ Meditation is one way to address the problem of burnout and a possible solution. Meditation focuses the mind on the present, or the breath, while passively being aware of extraneous thoughts.⁵ The use of meditation has been shown to decrease perceptions of stress across multiple professions, including doctors and nurses.⁶ Therefore, this PA Program chose to address definitions of burnout and teach students methods to combat burnout.

The PA Program developed a burnout educational module to inform students about factual knowledge about burnout and active methods to prevent it. Because of timing of implementation, COVID restrictions on campus, as well as the availability of a meditation coach on campus; students in one of three cohorts had different educational experiences with the burnout curriculum. Therefore, the PA Program evaluated the burnout curriculum in the three cohorts that were currently enrolled. Each cohort had different experiences of the burnout curriculum and an investigation seemed warranted to gauge efficacy.

Comprehension of burnout requires two different types of knowledge used in cognition.⁷ The learning objectives for this module included both factual knowledge (i.e., defining meditation) and metacognitive knowledge (i.e., the ability to practice the skill of meditation when needed).⁷ The burnout module consisted of assigned reading, a 50-minute power point lecture given by a PA educator about burnout and meditation, and then a guided meditation. The guided meditation was facilitated by a PA educator. This educator had no formal training in meditation. Students were asked to meditate in place by focusing on their breathing for ten breathes. Students were asked to only focus on the sensation of breathing for the duration of ten consecutive breathes once. Students were then asked to write a reflection essay on the experience of meditation. The purpose of this shortened meditation exercise was to demonstrate to students how to meditate in place. This form of meditation is easy to do while practicing clinically, because it takes very little time and no extraneous resources.

In the first-year cohort, the learning module was completed asynchronously, and meditation was performed at home due to COVID restrictions. The module consisted of a lecture and recorded guided meditation by a PA educator with no formal training. It is unknown whether all student actively performed meditation, although a required reflection essay about the meditation was completed by all students in this cohort. The students were surveyed two months post educational module.

In the second-year cohort, a physician assistant educator coached students in person, and in addition to this learning module in the first semester, the second-year cohort also received additional meditation training in their fourth semester of PA school. This meditation training consisted of a brief review of factual knowledge of burnout by PA faculty. Then a wellness coach met weekly with students for approximately 20 minutes. The wellness coach did have formal training in meditation. Breathing exercises and yoga stretches were practiced with students with the coach. This cohort was surveyed 15 months after the initial educational module and a few weeks after the review and additional coaching.

Finally, the third-year cohort received no information from PA faculty concerning mindfulness or meditation. Because of the timing of implementation of the ARC PA Standards 5th edition, the third-year students did not receive any training regarding burnout or meditation. They were surveyed in their last semester, and a few weeks prior to graduation.

The Maslach Burnout Inventory was used to assess burnout in students in two ways. First, the authors investigated whether the use of meditation was related to a decreased sense of burnout, and second, whether or not there were differences in self-reported burnout across the three cohorts in the PA program.

This investigation describes and assess one PA Program’s burnout educational module, the method of measuring its effectiveness, and the educational modules effectiveness on combating student burnout.

Hypotheses

- i. Students levels of meditation practice and positivity toward meditation will significantly influence their degree of exhaustion as associated with burnout.
- ii. Students levels of meditation practice and positivity toward meditation will significantly influence their degree of cynicism as associated with burnout.
- iii. Students levels of meditation practice and positivity toward meditation will significantly influence their degree of professional efficacy as associated with burnout.
- iv. Students year of placement in the program will significantly influence their degree of exhaustion as associated with burnout.
- v. Students year of placement in the program will significantly influence their degree of cynicism as associated with burnout.
- vi. Students year of placement in the program will significantly influence their degree of professional efficacy as associated with burnout.

METHOD

Overview

The protocol for the current study was reviewed by the Institutional Review Board (IRB) and was approved. More specifically, the IRB determined the research study to be exempt under 45CFR46.104(d), Category 1, meaning that this research project was to be conducted in typically accepted educational settings with normal educational practices and was not likely to adversely affect students.

Participants

Currently enrolled students across the three training years of a Masters of Physician Studies program were invited to serve as participants in this study through an email invitation. The invitation directed them to a survey link, should they choose to participate. Forty-nine percent of first year students (n=17); sixty percent of second year students (n=21); and sixty-six percent of third year students (n=23) consented and participated fully in the investigation.

Design

A quasi-experimental between group post-test only design was employed for both investigations of the study. Investigation One explored differences in reported burnout based on three levels of meditation scores. Investigation Two explored differences in reported burnout based on their cohort year of schooling in the PA program. Burnout was measured with the Maslach Burnout Inventory (MBI) - General Survey for Students (Schaufeli, Leiter, Maslach & Jackson, 1996). Meditation scores were derived from the Meditation Survey, a self-created survey specific for these investigations. Each instrument is further discussed in the next section.

Instruments

Maslach Burnout Inventory (MBI) – General Survey for Students (MBI-SS)

The MBI-SS consists of 16 items that represent three subscales: Exhaustion (EX; 5 items); Cynicism (CY; 5 items); and Professional Efficacy (PE; 6 items). Students were asked to indicate their level of frequency with each item, which are scored on a 7-point Likert-type scale ranging from 0 (never) to 6 (everyday), in order to best describe how often they felt a particular way. The authors obtained a license from Mind Garden, Inc, to use the MBI-SS.

Meditation Survey (MS)

The MS was created by the authors for the purpose of this study to assess use and familiarity of meditation. The MS consists of three items, and students were asked to indicate their level of frequency with each item. Items are scored on a 5-point Likert-type scale ranging from 0 (never) to 4 (always). Total scores were calculated that could range from 0 to 12. (See Appendix A.)

Procedure

All 100 students from the PA program were invited to participate, and the surveys were open for thirty days through the online platform SurveyMonkey. Once the surveys were closed, each student's scores on the three subscales of burnout were calculated as well as their meditation scores. The confidentiality of responses provided by the participants was emphasized. After collection

of the questionnaires, 61 surveys were found to have been completely filled and usable for the study. This represents a 61% response rate.

Design and Statists

A cross-sectional survey design was utilized for data collection and for descriptive inferences at a single point in time. For each separate investigation, the data sets were subjected to a multiple analysis of variance (MANOVA). The three dependent variables were the subscales from the MBI-SS: Exhaustion, Cynicism, and Professional Efficacy. For the first investigation, meditation groups were determined by their average score on the MS according to the following delineations: Low 0-1; Medium 1.1-2.9; and High 3.0-4.9. For the second investigation, cohort groups were determined by their expected year of graduation for the next three years.

RESULTS

Investigation One

Table 1: Means and Standard Deviations for Meditation Groupings on Exhaustion, Cynicism, and Professional Efficacy

Dependent Variables	Meditation Group	Mean	Standard Deviation	N
Exhaustion	Low	4.09	1.70	15
	Medium	3.74	1.53	27
	High	3.95	1.75	19
Cynicism	Low	3.04	1.65	15
	Medium	2.27	0.95	27
	High	2.71	1.41	19
Professional Efficacy	Low	4.34	0.96	15
	Medium	4.59	0.74	27
	High	4.69	1.04	19

Table 2: Summary Tables of One-Way MANOVA for Meditation Groupings on Exhaustion, Cynicism, and Professional Efficacy

ANOVA: Single Factor			EX Average			
Sources	SS	df	MS	F	P value	Eta-sq
Between Groups	1.28	2.0	0.64	0.24	0.789	0.008
Within Groups	156.36	58	2.70			
Total	157.65	60	2.63			
ANOVA: Single Factor			CY Average			
Sources	SS	df	MS	F	P value	Eta-sq
Between Groups	5.98	2.0	2.99	1.79	0.18	0.058
Within Groups	97.02	58	1.67			
Total	103.00	60	1.72			
ANOVA: Single Factor			PE Average			
Sources	SS	df	MS	F	P value	Eta-sq
Between Groups	1.05	2.0	0.53	0.66	0.52	0.022
Within Groups	46.56	58	0.80			
Total	47.61	60	0.79			

Tables 1 and 2 show the results of a one-way, between-group multivariate analysis of variance which was performed to investigate meditation score differences in students' levels of exhaustion, cynicism, and professional efficacy. Overall, there was no statistically significant differences among groups of students based on meditation scores on the on the three burnout dependent variables of exhaustion (EX), cynicism (CY), and professional efficacy (PE): $F(6, 114) = .87, p = .52$; Pillai Trace = .09; partial eta squared = .04.

Accordingly, follow-up ANOVA tests to the MANOVA were not required nor any series of post-hoc analyses to the ANOVA tests, respectively.

An inspection of the mean scores, however, indicated that students in the low positivity toward meditation practice group reported the highest levels of exhaustion ($M = 4.09$, $SD = 1.70$) compared to the medium positivity toward meditation practice group ($M = 3.74$, $SD = 1.53$) and the high positivity toward meditation practice group ($M = 3.95$, $SD = 1.75$). Furthermore, students in the low positivity toward meditation practice group reported the highest levels of cynicism ($M = 3.04$, $SD = 1.65$) compared to the medium positivity toward meditation practice group ($M = 2.27$, $SD = .95$) and the high positivity toward meditation practice group ($M = 2.71$, $SD = 1.41$). Finally, students in the low positivity toward meditation practice group reported the lowest levels of professional efficacy ($M = 4.34$, $SD = .96$) compared to the medium positivity toward meditation practice group ($M = 4.59$, $SD = 0.74$) and the high positivity toward meditation practice group ($M = 4.69$, $SD = 1.04$).

Despite this, based on the above results, hypotheses 1, 2, and 3 cannot be accepted. The results imply that while the mean trends support a directionality, a conclusion cannot be made that engagement and positivity toward meditation practices influences measured factors of burnout.

Investigation Two

Table 3: Means and Standard Deviations for Year of Program on Exhaustion, Cynicism, and Professional Efficacy

Dependent Variables	Year of Program	Mean	Standard Deviation	N
Exhaustion	First	4.09	1.52	17
	Second	4.76	1.50	21
	Third	2.95	1.33	23
Cynicism	First	3.42	1.38	17
	Second	2.92	1.08	21
	Third	1.69	0.85	23
Professional Efficacy	First	4.37	0.89	17
	Second	4.42	0.97	21
	Third	4.83	0.78	23

Table 4: Summary Tables of One-Way MANOVA for Year in Program on Exhaustion, Cynicism, and Professional Efficacy

ANOVA: Single Factor				EX Average		
Sources	SS	df	MS	F	P value	Eta-sq
Between Groups	37.09	2.00	18.54	8.92	0.00	0.24
Within Groups	120.56	58.00	2.08			
Total	157.65	60.00	2.63			
ANOVA: Single Factor				CY Average		
Sources	SS	df	MS	F	P value	Eta-sq
Between Groups	32.90	2.00	16.45	13.61	0.00	0.32
Within Groups	70.09	58.00	1.21			
Total	103.00	60.00	1.72			
ANOVA: Single Factor				PE Average		
Sources	SS	df	MS	F	P value	Eta-sq
Between Groups	2.63	2.00	1.32	1.70	0.19	0.06
Within Groups	44.98	58.00	0.78			
Total	47.61	60.00	0.79			

Tables 3 and 4 show the results of a one-way between-group multivariate analysis of variance which was performed to investigate year of placement in the program with measured levels of exhaustion, cynicism, and professional efficacy. Overall, there was a statistically significant difference among groups of students based on their year in the training program with regard to the three burnout dependent variables of exhaustion, cynicism, and professional efficacy: $F(6, 114) = 5.67, p < .001$; Pillai Trace = .46; partial eta squared = .23.

A series of one-way ANOVA's on each of the three dependent variables was conducted as follow-up tests to the MANOVA. As can be seen in Table 4, two of the three ANOVA's were statistically significant: exhaustion (EX) and cynicism (CY). Finally, a series of post-hoc analyses (Tukey's HSD/Kramer) were performed to examine individual mean difference comparisons across all three cohorts and all the two burnout subscales that showed significant differences: EX and CY (See Table 5).

Table 5: Summary Tables of Tukey HSD/Kramer Post-hoc Analyses for Year in Program on Exhaustion and Cynicism

Tukey HSD/Kramer		EX Average					
group 1	group 2	mean	std err	q-stat	lower	upper	p-value
First	Second	0.67	0.33	2.01	-0.46	1.80	0.34
First	Third	1.15	0.33	3.52	0.04	2.26	0.04
Second	Third	1.81	0.31	5.90	0.77	2.86	0.00
Tukey HSD/Kramer		CY Average					
group 1	group 2	mean	std err	q-stat	lower	upper	p-value
First	Second	0.50	0.25	1.97	-0.36	1.36	0.35
First	Third	1.74	0.25	6.98	0.89	2.58	0.00
Second	Third	1.24	0.23	5.27	0.44	2.04	0.00

An inspection of the mean scores indicated that students in the second-year cohort reported the highest levels of exhaustion ($M = 4.76, SD = 1.50$) compared to first year cohort ($M = 4.09, SD = 1.52$) and the third year cohort ($M = 2.95, SD = 1.33$). However, the results indicate that the third-year cohort was significantly different than their first year and second year counterparts.

Furthermore, students in the first-year cohort reported the highest levels of cynicism ($M = 3.42, SD = 1.38$) compared to the second year cohort ($M = 2.92, SD = 1.08$) and third year cohort ($M = 2.71, SD = 1.41$). In a similar style as with the EX subscale, the third year cohort was significantly different than their first year and second year counterparts.

Finally, while no significant differences were found among the cohorts on professional efficacy, students in the third-year cohort reported the highest levels of professional efficacy ($M = 4.83, SD = 0.78$) compared to second year cohort ($M = 4.42, SD = 0.97$) and first year cohort ($M = 4.37, SD = 0.89$).

Based on the above results, both hypotheses 4 and 5 are therefore accepted. The results imply that student year of placement in the PA program significantly influences exhaustion and cynicism. However, null hypothesis 6 is accepted. These results imply that the student's year of placement in the PA program does not significantly influence their self-efficacy.

DISCUSSION

This study made two significant findings in relation to factors associated with burnout in physician assistant students. First, the study identified that one's cohort year of PA training significantly influences their level of exhaustion.

An appraisal of the above findings indicates that third year students in the PA program reported significantly lower exhaustion rates than either first year or second year students. A plausible explanation of these results could be that because third year students are on clinical rotations, they are relieved of the constant stress of studying and test taking found abundantly in the first two years of training.

Secondly, the study confirmed that one's cohort year of training significantly influences their level of cynicism. An appraisal of this specific finding also indicates that third year students in the PA program reported lower levels of cynicism than first year or second year students. A likely explanation of that finding mirrors the explanation for the previous finding in that third-year students are enjoying practicing what they intended and no longer have the perpetual anxiety of studying and test taking.

The results of the sixth hypothesis showed that cohort year did not significantly influence professional efficacy. However, an appraisal of the directionality of ratings seemed promising with students in the third-year cohort reporting the highest levels of

professional efficacy followed by the second-year cohort and then the third year cohort suggesting efficacy may actually be improving as students move through the program. While this cannot be concluded at this point, a more powerful experimental design might prove it true.

Similarly, the results of the first three hypotheses failed to show meditation influencing the factors associated with burnout in physician assistant students. More specifically from the first hypothesis, meditation did not influence levels of exhaustion. The second hypothesis concluded that meditation did not influence cynicism. The results of the third hypothesis showed that meditation did not influence professional efficacy. This finding is not consistent with recent studies that show perception of stress can be mitigated with meditation.^{5,6}

Summarily, it may be argued that the reason that these first three hypotheses cannot be accepted rests within the limitations of the measure of meditation. Sometimes referred to as a restriction of range problem, the meditation measure only consisted of three items and could only produce a small range of scores. Similarly, it was noticed that the vast majority of individuals had very low meditation scores, and therefore it would be impossible to prove the role of meditation on any dependent variable when there are too few participants with high meditation scores. While this present study grouped participants on meditation scores and with a consideration of balance numbers in the groupings, future investigations must include a more robust "high" meditation group such that the differences in group membership are more meaningful.

Implications of the Study

The findings of this study did not show any influence of meditation on burnout. There were multiple limitations to this study including size of cohort, asynchronous vs synchronous education, and variation in length of PA school education. There was also no pre or post test included in this study. However, this study does describe a method to educate PA students about burnout and highlights the need for meta cognitive teaching about this subject. The findings of this study contributed meaningfully to the existing literatures on student burnout.

Most importantly, this study has affirmed the strong need for faculty in PA programs to recognize that students navigate through factors associated with burnout but that things tend to improve as they matriculate through the program. Additionally, this pattern may exist in training programs for other disciplines and faculty can thus reassure students that these factors subside with time. However, a better take away from these findings might be that PA faculty need to play a greater role in reducing the factors of burnout for all students, regardless of their year of placement in the program.

CONCLUSION

Meditation may play a key role in reducing PA student burnout, but this study did not demonstrate this. However, more investigation of education related activities with more robust design is needed to confirm this hypothesis. While this study was limited by only the three cohorts of students, it still affirmed the need for faculty to stay attuned to aspects of student burnout.

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