Inquiry: The Journal of the Virginia Community Colleges

Volume 28 | Number 1 Article 5

4-7-2025

Physician Assistant Student Well-being: Where Do We Go from Here?

Richard Gilbert Jr.
Shenandoah University, rgilbert07@su.edu
Michael Asbach
Shenandoah University, asbach.mike@gmail.com

Physician Assistant Student Well-being: Where Do We Go from Here?

Cover Page Footnote

Affiliations: Shenandoah University Doctorate of Medical Science Program

Physician-Assisted Student Well-being: Where Do We Go from Here?

Richard Gilbert, Jr. and Michael Asbach

ABSTRACT

Burnout and mental wellness have become a focus for both practicing providers and individuals in medical training programs. While techniques that assist in burnout and stress mitigation can vary, few techniques have been evaluated in the physician assistant student population. Green spaces have been utilized to reduce stress, improve cognitive function, and improve an individual's well-being. To evaluate what is currently being utilized to improve physician assistant student well-being this study utilized the PubMed search engine for collection of a scholarly review. A qualitative review of the literature was completed along with a comparison of what green space exposure could offer to the physician assistant student population. The review showed that there is limited literature evaluating wellness initiatives within physician assistant programs. Green spaces have been shown to improve well-being in other populations, but to date, no studies have been completed on the physician assistant student population. Each individual responds differently to different stress mitigation techniques. With the increasing rates of stress, burnout, and worsening mental well-being in physician assistant students, further research into a variety of mitigation and coping techniques such as green space exposure needs to be completed.

Introduction

Burnout has been described as a state of mental and emotional fatigue, resulting in poor performance, and depersonalization, which leads to other mental illnesses such as depression and suicidal ideation (Halasy et al., 2021; Johnson et al., 2020; Orozco et al., 2016; Pospos et al., 2018). Topics like burnout and well-being have gained increasing focus from many in the healthcare community, including organizations such as the American Academy of Physician Assistants (AAPA). Tetzlaff et al. (2020) issued an article from the AAPA highlighting the growing concern about burnout and its effects on the mental well-being of physician assistants, along with the need for the creation of a mitigation task force. The effects of burnout in healthcare can be catastrophic, impacting patient outcomes due to medical error as a result of reduced mental clarity and creates a spiral of poor performance (Johnson et al., 2020; Tetzlaff et al. 2020). While there have been many studies that have highlighted the rates and impacts of poor mental well-being in the physician population, few have evaluated the rates of poor mental well-being in the physician assistant population (Halasy et al., 2021). Halasy et al. (2021) found that approximately 33% of physician assistants showed significant burnout symptoms. Orozco et al. (2019) found that 80% of physician assistants have elevated markers for burnout. Not only can the effects of poor well-being and burnout be devastating to the individual provider, but it can also have detrimental effects on the healthcare system through provider attrition. Zhang et al. (2020) found that at the current rate of provider attrition, by the year 2030, there will be a shortage of nearly 140,000 physicians alone. Halasy et al. (2021) estimate that due to the current rate of provider attrition, the cost to the American Healthcare System is nearly $4.6 billion annually. With the rising rates of burnout and poor mental well-being in practicing physician assistants, the question of when these symptoms begin remains.

Elevated levels of stress and burnout symptoms, reducing the well-being of a provider, can begin during medical training and fester into a provider's career (Johnson et al., 2020; Orozco et al., 2019). Suffering from burnout has been linked to increased rates of depression, but also to higher rates of suicide (Orozco et al., 2016; Pospos et al., 2018). Similarly to the research in clinical practice, there have been limited studies on the mental well-being or mitigation techniques for the physician assistant student population (Johnson et al., 2020). While there has been a growing concern for improving provider and student well-being, to date, studies have focused on utilizing mechanisms such as mindfulness training and mediation for stress reduction to name a few (Hoover et al., 2020; Hoover et al., 2022a; Hoover et al. 2022b; Neary et al., 2023; Wallace, 2023; Smith et al., 2021). However with the growing use of green spaces in other populations, no studies have specifically utilized natural environments or green space exposure to assist in stress reduction specifically in the physician assistant student population.

Exposure to green spaces has been shown to reduce both perceived and physiologic stress while also improving cognitive function (Daniels et al., 2022). Green spaces are used in different ways and may include parks, forests, and natural settings. These green spaces can be designed in several ways including providing places for activity or allowing for passive rejuvenation in the forms of athletic venues, gardens and green landscapes within a setting such as a university (Sun et al., 2021). These exposures could include activities such as hiking, exercising, gardening, or meditation while in a natural space. Due to the varying array of spaces, the experience an individual has can differ. In a systematic review performed by Shuda et al. (2020), green spaces showed a reduction in all-cause mortality and a reduction not only in the perceived stress levels of the individuals studied but also a reduction in cortisol levels and blood pressure. Song et al. (2022) identified in their meta-analysis that green space exposure has been shown to reduce negative emotions, improve mental clarity, and reduce overall levels of fatigue. These attributes of fatigue reduction and improved cognitive function are vital to healthcare providers. There has been a continued growth of physician assistant programs across the country, a number of these are located within Virginia. In areas with access to green spaces, utilizing these can only benefit those students who choose to complete their education there. With the growing research evaluating the benefits of green spaces, the utilization of green space could improve the well-being of physician assistant students throughout their training.

Materials and Methods

To evaluate the question of the efficacy of green space exposure for improving the well-being of physician assistant students, the database PubMed was utilized for an initial search. The inclusion criteria were set as full-text research publications on the use of green space exposure for improving well-being in physician assistant students, published within the last 5 years, completed within the United States, and published within

a peer-reviewed journal. The terms physician assistant student green spaces (all fields) were utilized for the search terms. There were no articles that met the search criteria within the search engine. Due to the limited research, the research question was updated to evaluate what techniques were currently being utilized to improve physician assistant student well-being and what green spaces could offer to assist in this effort. A second search was run expanding the search field to physician assistant student well-being (all fields). The revised inclusion criteria were set as full-text publications published within the last 5 years, completed within the United States, focusing on well-being techniques utilized within physician assistant programs, and published within a peer-reviewed journal. The exclusion criteria were set as excluding publications outside 5 years from publication, articles not focusing on the general physician assistant student population, articles only focusing on the impact of COVID-19 (due to augmented stress levels), articles not focusing on well-being improvement techniques, and research studies performed outside of the United States. After reviewing the resulting articles, 11 articles met the inclusion criteria for utilization.

Results

An in-depth review, by one primary investigator in a qualitative fashion, evaluating the methods, outcomes and limitations of the 11 articles yielded varying ways of improving physician assistant student well-being. Several of the studies utilized curricular innovation to improve the well-being of physician assistant students. Four of the studies utilized mindfulness training, which showed an improvement in the mental well-being of the participants (Hoover et al., 2020; Hoover et al., 2022a; Hoover et al. 2022b; Neary et al., 2023). Individual studies evaluated app-based meditation techniques (Smith et al., 2021), mental health first aid training (Forbes et al., 2022), sleep hygiene (Moen & Moverley, 2024), curricular revisions (Sivahop et al., 2022), and pre-emptive approaches (Roman, 2023) to improve students' well-being. Two studies reviewed the current processes that programs can utilize to incorporate well-being measures for their students with mixed results (Banning et al., 2023; Wallace, 2023).

Discussion

Mental Well-being

Provider well-being has been a growing concern within the healthcare community (Johnson et al., 2020; Orozco et al., 2019; Osborn et al., 2019; Tetzlaff et al., 2020). Stress and burnout can lead to medical errors, poor patient outcomes, poor job satisfaction with early retirement, and harm to a provider's health (Johnson et al., 2020; Orozco et al., 2019; Osborn et al., 2019). Studies have reported that in the physician population, the rates of suicide are increased compared to the general population (Neary et al., 2021). The effects of poor well-being can begin early in a provider's career and be catastrophic.

A growing observation within studies addressing well-being in the physician assistant population is that symptoms of burnout can begin during the individual's training (Johnson et al., 2020; Orozco et al., 2019). Orozco et al. (2019) suggested that due to the comparable rates of burnout between both practicing providers and those in training, the effects of burnout may start during the educational journey and continue into clinical practice. Johnson et al. (2020) completed a survey-style review of 320 physician assistant students in the state of Virginia and found that 79% of the students surveyed exhibited high levels of emotional exhaustion correlating to reduced mental well-being. Orozco et al. (2019) in a similar fashion found that 86% of their 230 students surveyed scored high in at least one area of the Maslach Burnout Inventory indicating a risk of burnout and poor well-being. This can be from worsening stress or interpersonal toxicity as identified by Sierra et al. (2022). Neary et al. (2021) reported that, compared to their baseline levels, physician assistant students are four to five times more likely to suffer from major depression disorder, along with having an increased risk of suicidal thoughts during the initial phase of their education. Excessive stress levels can adversely affect an individual's overall well-being and their ability to perform a given task (Johnson et al., 2020; Orozco et al., 2019). In the population of physician assistant students, this could mean poor concentration or the inability to retain information resulting in the potential for poor academic performance (Johnson et al., 2020).

Not only can poor well-being adversely affect a physician assistant student's health and performance, but it can also affect their decision to continue or withdraw from their educational program (Johnson et al., 2020; Orozco et al., 2019). Orozco et al. (2019) identified that 24% of the students surveyed had considered withdrawing from their respective medical training programs. The students who considered withdrawing also had significant elevation in their burnout scores compared to their counterparts in physician assistant training programs who had not reported considering this (Orozco et al., 2019). Kilstrom et al. (2022) found that physician assistant students who consider dropping out of school have higher levels of perceived loneliness and isolation, reducing their overall well-being. Johnson et al. (2020) not only identified elevated rates of burnout and emotional exhaustion in physician assistant students but also found that over 90% of the students surveyed reported an interest in learning about stress and burnout reduction techniques. Studies have not only shown the prevalence of burnout in the physician assistant student population but a need for the implementation of wellness programs as well.

Well-being Options

Physician assistant student well-being has come to the forefront of concerns. The Accreditation Review Commission on Education for the Physician Assistant (ARC-PA, 2023) has included the need for promoting provider well-being and educating physician assistant students during their training on burnout

preventative techniques in the 2020 accreditation standards. Studies have looked at how to incorporate wellness programs and reduce stress on students in different ways and with differing results. Programs have utilized mindfulness training in their curricula with improved mental well-being rates (Hoover et al., 2020; Hoover et al., 2022a; Hoover et al., 2022b; Neary et al., 2023; Wallace, 2023). This type of training can focus on being present in the moment and the realization that stress and negativity are temporary (Hoover et al., 2020). Others have utilized unique programs such as meditation apps (Smith et al., 2021), and mental health first aid training (Forbes et al., 2022) to improve student well-being. Moen and Moverley (2024) found that improving physician assistant students' sleep habits had a positive effect on the student's well-being. Roman (2023) focused on a pre-emptive technique to remind the students of why they decided to become physician assistants through a gift box of notes written by the individual student and also faculty that could be opened when the student's mental well-being was poor. Roman (2023) found that although further studies need to be completed, the pre-emptive intervention had positive results on well-being. In clinical practice, Putrino et al. (2020) utilized a technology-based, nature-inspired room to assist in stress reduction for practicing providers.

While there have been several interventions that have shown promise, there have been some conflicting findings. Sivahop et al. (2022) looked at two different curricular designs to mitigate stress, reduce burnout, and improve well-being. While not generalizable, since each physician assistant program has different curricula, Sivahop et al. (2022) found that there was no change in the level of stress or burnout between the different curricula. While studies have shown positive results with different means of student-focused wellness, Banning et al. (2023) found that there was not one specific way that programs approached mental wellness that was superior to another, showing that different wellness programs may work better for different people in different contexts and settings.

Green Spaces

Green spaces have been studied over recent years for the reduction of stress and improvement in mental well-being. Systematic reviews have shown that exposure to green spaces and nature has a positive effect on lowering both perceived and physiologic stress levels thereby improving mental well-being (Shuda et al., 2020; Song et al., 2022). This reduction of stress could improve cognitive function in the classroom or clinical setting for physician assistant students. In a randomized control study, Daniels et al. (2022) found that exposure to green spaces during the normal workday improved the cognitive function of the participants, reduced perceived stress levels, and also showed a reduction in physiologic stress marks in the study group compared to the control group. Holt et al. (2019) found that when exposed to green spaces, especially during active involvement such as walking or exercising, university students felt less stress and had improved well-being. To further derive a comparison of green space exposure and the benefits on the mental well-being of

individuals of college age, Sun et al. (2021) evaluated the perceived restorative effects in multiple environments within a college campus. Sun et al. (2021) found that green spaces were ranked highly among college-age individuals for the restorative effects on their psychological well-being.

Outside of the psychological effects of green spaces, several articles have identified the benefits to physical well-being and the feeling of community while interacting in green spaces. Through a meta-analysis, Soga et al. (2016) evaluated the beneficial effects of gardening and found that not only did gardening improve participants' mental well-being, but there was also an elevated sense of community along with an overall improvement in the participants' physical well-being. With the multimodal effects on an individual's health, Soga et al. (2016) also saw that there may be a lingering effect from gardening that continued well after the exposure. With some of the top reasons students drop out of physician assistant programs being loneliness and poor mental well-being, building a sense of community and belonging amongst cohorts along with improving mental well-being is imperative to the future of physician assistant students and the healthcare system.

Analysis & Critique

With growing literature showing the presence of elevated stress levels, increased risk of burnout, and poor mental well-being in physician assistant students, it is imperative to optimize the use of mitigation and prevention techniques. Recent studies have utilized several types of wellness programs and many of these utilized a survey methodology alone. Studies like Roman (2023), Hoover et al. (2022a), Hoover et al. (2022b) and Neary et al. (2023) utilized surveys on a small cohort of participants which may lend itself to survey bias. Due to the smaller sample sizes in these studies, it is hard to extrapolate the data to the larger population. Johnson et al. (2020) and Orozco et al. (2019) utilized the Maslach Burnout Inventory, which has been utilized in practicing clinicians but has not been validated in physician assistant students. Other studies have utilized varying measurement tools, which makes it difficult to compare the data. Several of these studies, such as Hoover et al. (2020) and Neary et al. (2023) have incorporated wellness programs into the classroom. However, for students who may see this as another assignment, they may not put their full effort or attention into the process which can skew the results.

Green spaces have been shown to reduce stress while improving both physical and mental well-being. Several of these studies, however, either focus on an undergraduate population of students, which have different stressors than those in a physician assistant program or have been performed outside of the United States. With regional and cultural differences, along with the differences in the level of stress affecting an individual's well-being, it would be difficult to generalize the current study results to the physician assistant student population. To stop the cycle of burnout and improve physician assistant student well-being, further

research needs to be done into the effects that stress reduction programs like exposure to green spaces have, thereby setting students up for success in their future careers.

Conclusion

While caring for another individual is an immense honor as a healthcare provider, it can take a heavy toll on their mental well-being. The rates of burnout and poor mental well-being have become an increasing focus for practicing providers and those undergoing their medical training. Self-care and mitigation techniques that allow providers to build healthy coping mechanisms and improve mental well-being are imperative to implement for providers at every point in their careers. With new research into improving well-being becoming available, specifically in the physician assistant student population, there is not one specific technique that works for everyone. While for this article, well-being was utilized to discuss mental wellness, many forms of well-being can be considered. Emotional, mental, physical, and spiritual wellness are a few of the components of an individual's overall well-being. Green spaces have been shown in multiple capacities to improve several facets of an individual's well-being both perceived and physiological (Daniels et al., 2022; Shuda et al., 2020). Green spaces can come in many shapes and forms and be changed to fit an individual's needs while promoting a healthy lifestyle. In addition to the techniques that are currently available to physician assistant students, green spaces could hold the key to improving the well-being of the future of healthcare throughout their careers.

References

Accreditation Review Commission on Education for the Physician Assistant, Inc. (2023). *Accreditation Standards for Physician Assistant Education ©, 5th ed.* 1-25. https://www.arc-pa.org/wp-content/uploads/2023/10/Standards-5th-Ed-September-2023.pdf

Banning, A., Coplan, B. & LeVasseur, M. T. (2023). Teaching provider wellness and physician assistant student well-being. *The Journal of Physician Assistant Education. 34*(3): 245-250. DOI: 10.1097/JPA.0000000000000528.

Daniels, S., Clemente, D. B. P., Desart, S., Saenen, N., Sleurs, H., Nawrot, T. S., Malina, R., & Plusquin, M. (2022). Introducing nature at the work floor: A nature-based intervention to reduce stress and improve cognitive performance. *International Journal of Hygiene and Environmental Health. 240*: 1-9. DOI: 10.1016/j.ijheh.2021.113884.

Forbes, J., Noller, D.T., Henriquez, M., Scantamburlo, S., Ward, I., & Lee, H. (2022). Assessing the utility of mental health first aid training for physician assistant students. *The Journal of Physician Assistant Education. 33*(4): 325-330. DOI: 10.1097/JPA.0000000000000467.

Halasy, M. P., West, C. P., Shanafelt, T., O'Laughlin, D. J., Satele, D., & Dyrbye, L. N. (2021). PA job satisfaction and career plans. *Journal of the American Academy of Physician Assistants. 34*(6). DOI: 10.1097/01.JAA0000750968.07814.d0.

Holt, E. W., Lombard, Q. K., Best, N., Smiley-Smith, S., & Quinn, J. E. (2019). Active and passive use of green space, health, and well-being amongst university students. *International Journal of Environmental Research and Public Health. 16*(424). DOI: 10.3390/ijerph16030424.

Hoover, E. B., Butaney, B., Bernard, K., Coplan, B., LeLacheur, S., Straker, H., Carr, C., Bless-Hampton, L., Naidu, A. & LaRue, A. (2022a). Comparing the effectiveness of virtual and in-person delivery of mindfulness-based skills within healthcare curriculums. *Medical Science Educator. 32*: 627-640. DOI: 10.1007/s40670-022-01554-5.

Hoover, E. B., Butaney, B., LeLacheur, S., Straker, H., Bernard, K., Coplan, B., Carr, C., Blesse-Hampton, L., & Naidu, A. (2022b). Wellness in physician assistant education: exploring mindfulness, well-being, and stress. *The Journal of Physician Assistant Education. 33*(2): 107-113. DOI: 10.1097/JPA.0000000000000427.

Hoover, E. B., Butaney, B., Stoehr, J. D. (2020). Exploring the effectiveness of mindfulness and decentering training in a physician assistant curriculum. *The Journal of Physician Assistant Education. 31*(1): 19-22. DOI: 10.1097/JPA.0000000000000288.

Johnson, A. K., Blackstone, S. R., Simmons, W., & Skelly, A. (2020). Assessing burnout and interest in wellness programs in physician assistant students. *The Journal of Physician Assistant Education. 31*(2): 56-62. DOI: 10.1097/JPA.0000000000000303.

Kilstrom, J., Neary, S., Roman, C., Garrubba, C., LeLacheur, S., & Van Rhee, J. (2022). Factors influencing physician assistant student attrition rates. *The Journal of Physician Assistant Education. 33*(4): 341-345. DOI: 10.1097/JPA.0000000000000468

Moen, J. & Moverley, J. (2024). Accelerated education intervention: A pilot study to assess the effectiveness of a brief, self-paced intervention to prevent burnout in physician assistant students. *Journal of Allied Health. 53*(1): 38-44.

Neary, S., Ruggeri, M., & Roman, C. (2021). Assessing trends in physician assistant student depression risk, suicidal ideation, and mental health help-seeking behavior. *The Journal of Physician Assistant Education. 32*(3): 138-142. DOI: 10.1097/JPA.0000000000000369.

Neary, S., Ruggeri, M., Roman, C., Hoover, E., Butaney, B., & Weller, I. (2023). Foundational skill-building in a novel well-being curriculum. *The Journal of Physician Assistant Education. 34*(3): 224-230. DOI: 10.1097/JPA.0000000000000510.

Orozco, J. M, Furman, J. A., Roman, C., Guthrie, J. & Jackson, C. (2016). Burnout prevalence in PA students. *Journal of the American Academy of Physician Assistants.* DOI: 10.1097/01.JAA.0000490115.04561.27.

Orozco, J. M., Furman, J., McAndrews, K. K., Keenan, M. M., Roman, C., Guthrie, J., Lloyd, C. J., & Wilson, A. B. (2019). Assessing burnout among advanced practice providers (APPs) compared with APP trainees. *Medical Science Educator. 29*: 1023-1031. DOI: 10.1007/s40670-019-00799-x.

Osborn, M., Satrom, J., Schlenker, A., Hazel, M., Mason, M., & Hartwig, K. (2019). Physician assistant burnout, job satisfaction, and career flexibility in Minnesota. *The Journal of the American Academy of Physician Assistants. 32*(7): 41-47. DOI: 10.1097/01.JA.0000558344.55492.5a.

Pospos, S., Young, I. T., Downs, N., Iglewicz, A. Depp, C., Chen, J. Y., Newton, I., Lee, K., Light, G. A., & Zisook, S. (2018). Web-based tools and mobile applications to mitigate burnout, depression and suicidality among healthcare students and professionals: a systematic review. *Academic Psychiatry. 42*(1): 109-120. DOI: 10.1007/s40596-017-0868-0.

Putrino, D., Ripp, J., Herrera, J. E., Cortes, M., Kellner, C. Rizk, D., & Dams-O'Connor, K. (2020). Multisensory, nature-inspired recharge rooms yield short-term reductions in perceived stress among frontline healthcare workers. *Frontiers in Psychology. 11*: 1-6. DOI: 10-3389/fpsyg.2020.560833.

Roman, C. (2023). A gift you give yourself: A pre-emptive intervention for student mental health. *The Journal of Physician Assistant Education. 34*(1): 69-71. DOI: 10.1097/JPA.0000000000000482.

Shuda, Q., Bougoulias, M. E., & Kass, R. (2020). Effect of nature exposure on perceived and physiologic stress: A systematic review. *Complementary Therapies in Medicine. 53*: 1-8. DOI: 10.1016/j.ctim.2020.102514.

Sierra, T., McCall, T., Brown, H., & Smith, N. (2022). The role of interpersonal toxicity on healthcare students' well-being. *The Journal of Physician Assistant Education. 33*(3): 198-204. DOI: 10.1097/JPA.0000000000000440.

Sivahop, J., Broadfoot, K., Bower, J. (2022). A tale of two curriculums: The implications of curriculum design on student burnout. *The Journal of Physician Assistant Education. 33*(3): 248-252. DOI: 10.1097/JPA.0000000000000446.

Smith, J.L., Allen, J.W., Haack, C.I., Wehrmeyer, K.L., Alden, K.G., Lund, M.B., & Mascaro, J.S. (2021) Impact of app-delivered mindfulness meditation on functional connectivity, mental health, and sleep disturbances among physician assistant students: randomized, wait-list controlled pilot study. *JMIR Formative Research. 5*(10): 1-21. DOI: 10.2196/24208.

Soga, M., Gaston, K. J., & Yamaura, Y. (2016). Gardening is beneficial for health: A meta-analysis. *Preventative Medicine Reports. 5*: 92-99. DOI: 10.1016/j.pmedr.2016.11.007.

Song, S., Tu, R., Lu, Y., Yin, S., Lin, H., & Xiao, Y. (2022). Restorative effects from green exposure: A systematic review and meta-analysis of randomized control trials. *International Journal of Environmental Research and Public Health. 19*: 1-22. DOI: 10/3390/ijerph192114506.

Sun, S., Chen, Y., Mu, S., Jiang, B., Lin, Y., Gao, T., & Qiu, L. (2021). The psychological restorative effects of campus environments on college students in the context of the COVID-19 pandemic: A case study at Northwest A&F University, Shaanxi, China. *International Journal of Environmental Research and Public Health. 18*: 1-12. DOI:10.3390/ijerph18168731.

Tetzlaff, E. D., Coplan, B., Bernard, K., Sierra, T. Dominguez, D., & AAPA Task Force on PA Burnout. (2020). Addressing PA burnout. *The Journal of the American Academy of Physician Assistants. 33*(7): 10-11. *DOI:* 10.1097/01.JAA.0000668840.02042.2c.

Wallace, M.M. (2023). Strategies for improving mental health in physician assistant students. *The Journal of Physician Assistant Education. 34*(2): 157-159. DOI: 10.1097/JPA.0000000000000507.

Zhang, X., Lin, D., Pforsich, H., & Lin, V. W. (2020). Physician workforce in the United States of America: forecasting nationwide shortage. *Human Resources for Health. 18*(8): 1-9. DOI:10.1186/s12960-020-0448-3.