

Resident-Led Physical Wellness Initiative Linked to Less Burnout for Emergency Physicians during COVID-19 Pandemic

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DOI: 10.18297/jwellness/vol3/iss3/1

Website: <https://ir.library.louisville.edu/jwellness/>

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Recommended Citation: Calderón, Camila A.; Kosoko, Adeola A.; Bhandari, Salil K.; Lesnick, Jason A.; Herkes, Derek R.; and Huebinger, Ryan M. (2021) "Resident-Led Physical Wellness Initiative Linked to Less Burnout for Emergency Physicians during COVID-19 Pandemic," *Journal of Wellness*: Vol. 3 : Iss. 3, Article 1.

Received Date: July 10, 2021

Revised Date: Oct 18, 2021

Accepted Date: Nov 5, 2021

Publication Date: Nov 29, 2021



ABSTRACT

Introduction: The COVID-19 pandemic has taken a significant toll on societal, physical, and psychological health. Emergency physicians (EPs) are susceptible to burnout under ordinary circumstances and may be particularly vulnerable during the pandemic. To reduce pandemic-related burnout, we implemented a residency-led physical wellness initiative and evaluated the effect on burnout among EPs.

Methods: In the spring of 2020, we invited all resident and attending EPs in our department to participate in a four-week physical wellness initiative as part of a prospective study. After completing or opting out of this wellness initiative, EPs responded to an online survey comprised of five sections: demographics, participation, opinion on wellness initiative, opinion on the impact of COVID-19, and the Maslach Burnout Index (MBI-HSS). We stratified respondents by initiative participation, described the characteristics of each group, and then compared the perceived impact of COVID-19 and the MBI-HSS results between the two groups.

Results: Out of 110 eligible participants, 57 EPs completed the survey (51.8%). Thirty-five respondents completed the wellness initiative. Few (37.1%) documented their progress, though most worked with accountability partners (85.7%). Most enrollees enjoyed participation (Likert Score 3.2-5, CI 2.9-3.5) and would participate again (3.3, CI 3.0-3.6). The reported effect of the COVID-19 pandemic on mental wellbeing was lower for participants, although this was not significant (2.1, CI 1.5-2.1 vs 2.4, CI 2.0-2.7, $p=0.312$). On the MBI-HSS, participants had a lower emotional exhaustion score (1.4, 95% CI 0.9-1.8) than non-participants (2.2, 95% CI 1.8-2.6, $p=0.005$).

Conclusion: Participation in a residency-led, physical wellness initiative was linked to lower emotional exhaustion for EPs during the COVID-19 pandemic.

INTRODUCTION

Studies of the COVID-19 pandemic and prior pandemics have shown that isolation and distancing are associated with higher rates of anxiety, depression, post-traumatic stress disorder (PTSD) and anger [1-9]. Even under pre-pandemic circumstances, emergency physicians (EPs) in general are more susceptible than other physicians to burnout, an end-stage manifestation of being chronically unwell or stressed [10-13]. The Accreditation Council for Graduate Medical Education (ACGME) has declared that psychological, emotional and physical well-being are critical facets in the development of resident physicians; thus all accredited residencies must address well-being in their curriculums [14]. COVID-19 has led to the introduction of new stressors that could endanger the well-being of an already high-risk physician group [10-13]. Burnout is a prevalent problem for medical trainees [15, 16].

In addition to mitigating mental health disorders, physical activity has been inversely associated with burnout among physicians. [17-19]. The purpose of this study was to implement a pilot, resident-led, goal-based physical wellness initiative for resident EPs and to evaluate whether this intervention was useful in promoting well-being and combating burnout.

METHODS

Setting and participants

In April 2020, we invited all EPs, both residents and faculty at one large, university-based emergency medicine (EM) residency training program to participate in a pilot four-week physical wellness initiative. The department hosts a three-year residency program with 60 residents and 50 faculty. After this initiative, we distributed a follow-up survey to both participants and non-participants.

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This study received institutional review board approval, HSC-MS-20-0417. The survey was distributed with a letter of information and consent.

Interventions

The physical wellness initiative was created as an open-ended, participant designed achievement program that encouraged participants to pursue a goal during the stressors of the pandemic. As prior structured programs have found mixed results, we created an original, flexible program that encouraged participants to create a goal that they would enjoy pursuing [20]. Invitations to participate in the wellness initiative were distributed to all residents and faculty via email in April 2020. Participants choose a physical wellness goal; examples included reducing stress, losing weight, optimizing nutrition, and exercising. The physical wellness goal was intentionally vague to give the participant the freedom to choose a plan that was as detailed as the participant wanted, with no specific criteria to quantify the goal. They could indicate either working towards that goal alone or as part of a team (with an accountability partner(s)). Participants in accountability groups were encouraged to communicate throughout the initiative; for example by creating a group text message thread, having weekly phone meetings, or meeting in person. Mode of communication and extent of participation in the accountability group was at their discretion. Participants in the wellness initiative tracked their own progress in fitness apps, journals, excel sheets, and group text messages. At the end of this initiative, participants reflected on the experience in the form of a personal narrative. These narratives were rated at the end, with an award in form of a small gift certificate for the winner (the results of these narratives were not evaluated as part of this analysis).

At the conclusion of the four weeks, in May 2020, all residents and faculty in the department were invited to take an original online survey consisting of 40 questions and four sections: demographic intake questions, participation in the initiative, opinion questions on the initiative (Likert scale), opinion questions on the impact of COVID-19 (Likert scale), as well as the 22 question Maslach Burnout Index for Human Services, Medical Personnel, and Educators (MBI-HSS). The MBI-HSS consists of questions evaluating three domains of burnout: emotional exhaustion, depersonalization, and personal achievement. The MBI-HSS is a burnout index that has been previously validated with emergency medicine residents and attending physicians [13, 16, 21].

Outcomes measured

We collected demographic characteristics including age, gender, training status (resident or attending) and year of training or practice. Wellness initiative characteristics included wellness initiative participation, wellness activity, utilization of daily progress documentation, and

utilization of an accountability partner or team. Wellness initiative evaluation included enjoyment of wellness initiative, helpfulness or hindrance of accountability partner, perception of wellness initiative's effect on mental health, desire to participate in the wellness initiative again and attainment of wellness initiative goal. Outcomes were Likert score for the impact of the COVID-19 pandemic on mental health as well as the composite MBI-HSS scores for each section: emotional exhaustion, depersonalization and personal accomplishment.

Analysis of the outcomes

Survey respondents were stratified into two groups: participants (those who enrolled after the recruitment email and documented their activity) and non-participants. We then described the characteristics of each group. For participants, we calculated the average Likert score for each component of the initiative evaluation. We then calculated the average Likert score for the perceived impact of COVID-19 on well-being for each group, comparing the average score for each group using a t-test. Stratifying for participation, we then calculated the average composite MBI-HSS scores. We then compared the variance of those scores for each test subsection between participants and non-participants using the Levene test, and all compared strata were found to have equal variance. Lastly, we compared the average section scores for each group using a t-test. All analyses were performed using Stata 15.1 (College Station, TX).

RESULTS

A total of 57 physicians (35 resident and 21 attending) responded to the post-intervention survey. Thirty-five respondents (25 resident and 10 attending) participated in the wellness initiative. Median age was similar between the groups, but the participant group had a larger number of female participants (37.1% v 23.8%) and a larger proportion of residents (71.4% v 47.6%) compared to the non-participant group. Fifteen (71.4%) non-participants engaged in their own personal wellness initiative. Exercise was the most popular activity for both participants and non-participants (**Figure 1**).

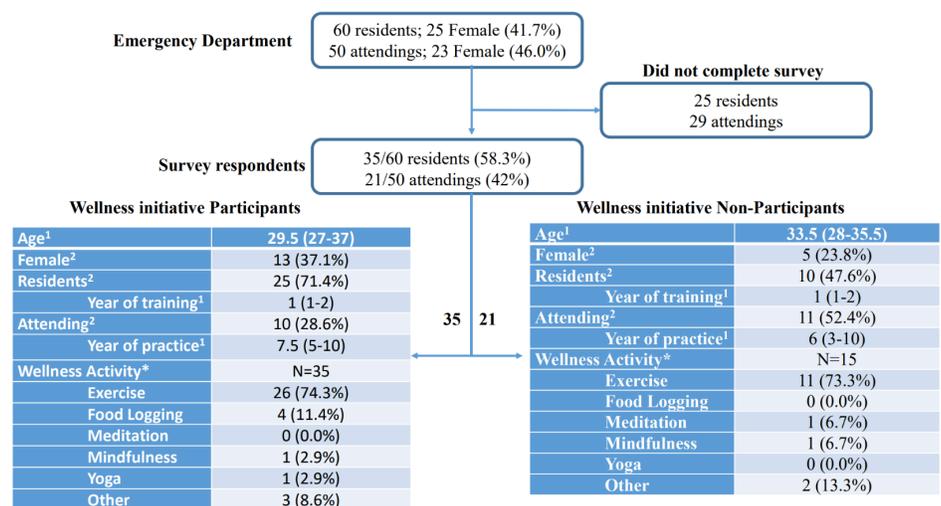


Figure 1. Characteristics of survey participants stratified by survey completion, participation in wellness initiative, and wellness initiative participation details

Of enrolled wellness initiative participants, a minority (37.1%) documented their daily progress. A large proportion utilized an accountability partner (85.7%). Overall, participants enjoyed their participation in the wellness initiative (average Likert score 3.2, 95% CI 2.9-3.5) and felt that they would participate in a wellness initiative again (average Likert score 3.3, 95% CI 3.0-3.6). Participants also felt that the wellness initiative diminished the negative effects of the COVID-19 pandemic on their mental health (average Likert score 2.9, 95% CI 2.5-3.2) (Table 1).

Table 1: Evaluation of wellness initiative by wellness initiative participants

Evaluation of the initiative	Participant (N=35) Average Likert score ³
I enjoyed participating in the wellness initiative	3.2 (2.9-3.5)
Having an accountability partner(s) made the wellness initiative more effective	2.8 (2.5-3.1)
Having an accountability partner(s) was a hindrance to my progress	0.5 (.3-0.7)
I would choose to participate in the wellness initiative again	3.3 (3.0-3.6)
I attained the goal I set for myself at the beginning of the wellness initiative	2.5 (2.1-2.9)
The wellness initiative helped my mental health regarding the Covid-19 pandemic	2.9(2.5-3.2)
Documented daily progress	13 (37.1%)

Participants in the wellness initiative felt less affected by the pandemic (average Likert score 2.1 95% CI 1.5-2.1) than non-participants (average Likert score 2.4, 95% CI 2.0-2.7), though this difference was not statistically significant (p=0.3) (Figure 2).

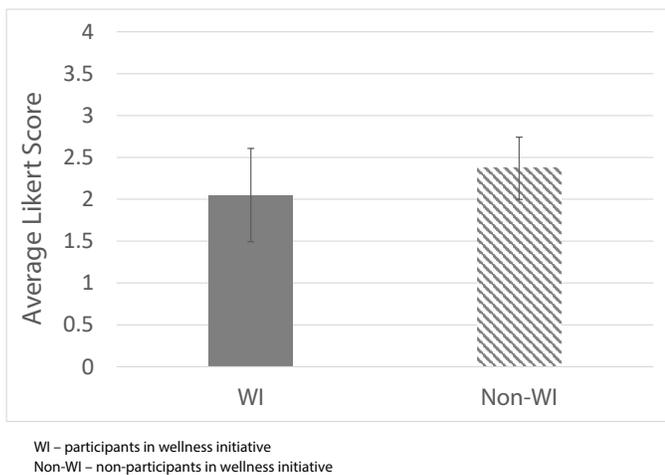


Figure 1. Likert score for answer to “The Covid-19 pandemic has affected my mental health” - Stratified by participation in wellness initiative

On the MBI-HSS, overall respondent subsection mean scores for emotional exhaustion was 1.9 (95% CI 1.6-2.2; median 1.8 IQR 1-2.7; skewness 0.5), depersonalization was 1.8 (95% CI 1.5-2.1; median 1.6, IQR 1.2-2.2; skewness 1.2) and accomplishment was 4.2 (95% CI, 3.9-4.5; median 4.4, IQR 3.8-5; skewness

-1.3). For emotional exhaustion, wellness initiative participants had a lower average score (1.4 out of 9, 95% CI 0.9-1.8) than non-participants (2.2, 95% CI 1.8-2.6, p=0.005). Participants had a lower score for depersonalization (1.2 out of 5, 95% CI 0.8-1.9) than non-participants (1.5, 95% CI 1.0-1.9), though this was not significant (p=0.09). Participants also had a higher score for personal achievement (4.5 out of 8, 95% CI 3.9-5.0) compared to non-participants (4.1, 95% CI 3.7-4.4) (p=0.16) (Figure 3).

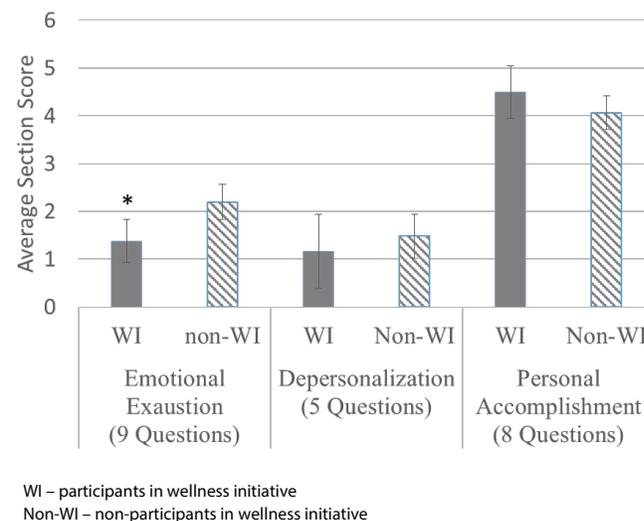


Figure 3. Human Services Maslach Burnout Inventory categorical scores stratified by participation in wellness initiative

DISCUSSION

Participants in our resident-led physical wellness initiative during the COVID-19 pandemic generally enjoyed their participation and felt that they would participate in a physical wellness initiative again. We believe the flexibility of the wellness initiative gave participants the autonomy to create what best suited their wellness goals. Participants also felt that the wellness initiative helped their mental health regarding the COVID-19 pandemic. Participation in the wellness initiative was linked to significantly lower MBI-HSS scores for emotional exhaustion as well as to lower average scores for depersonalization and higher scores for personal achievement.

Resident burnout is an important problem for medical trainees, and EPs are particularly prone to burnout [12, 13, 15, 16, 22, 23]. In 2017, resident wellness became an area of focus in the common program requirements by the ACGME, and many residencies across the country have since implemented wellness initiatives [14]. Additionally, other resident-led wellness initiatives have been particularly effective at improving wellness during residency [21, 24-26]. We found participation in our initiative to be protective of emotional exhaustion.

Prior pandemics and disasters such as Hurricane Harvey, the Middle Eastern Respiratory Syndrome (MERS) pandemic, and the Severe Acute Respiratory Syndrome (SARS) pandemic have caused anxiety, depression, and PTSD in healthcare workers and patients, and initiatives to combat the negative effects of

these stressful times are important [1, 2, 4, 27]. More research is urgently needed to combat physician burnout during the COVID-19 pandemic.

While not a major focus of research, prior studies have identified the importance of physical wellness, and physicians who exercise regularly get sick less often and handle their rigorous schedules much better [30-32]. Both participants and non-participants reported exercise as the most popular activity for stress reduction. It is possible the non-participants were aware of the initiative and participated in their own wellness activities or were already practicing exercise prior to the initiative and reported exercise as a continued baseline activity. Accountability partners were frequently used by initiative participants. Accountability partner(s) and “fitness communities” promote increased physical activity and should be a focus of future physical wellness initiatives [33-35]. Interestingly, despite making up 43.6% of the department, female residents and attendings had lower participation in the wellness initiative (22 female versus 22 male) and lower response rates for the survey (18 female versus 38 male). Female EPs are more prone to burnout and female physicians have been found to have a lower participation and response rates than males in prior fitness studies [28, 29, 36]. Future initiatives should aim to increase the involvement of this at-risk population [28, 29].

Our results provide promising insight into burnout prevention among EPs during the COVID-19 pandemic. Prospective, controlled, and multi-centered studies would more robustly evaluate the efficacy of wellness initiatives. Future studies could focus on female physician participation in physical wellness activities, promoting resident leadership of such activities, and evaluation wellness initiatives for other medical specialties.

LIMITATIONS

This study is limited due to its non-randomized nature and survey response rate. A major limitation was not surveying prior to the intervention to assess the respondents’ wellness baseline. Burnout could have affected some physicians’ decision to enroll in the wellness initiative in the first place, and burnout could have likewise biased the decision to complete the survey. Additionally, half of the non-participants engaged in their own wellness activities. While this might bias results, the most likely impact would be to favor the null hypothesis. Finally, participation in the wellness initiative was incentivized with an award consisting of a small gift certificate for the best narratives, which could also have influenced physicians’ decision to participate. Future studies regarding similar initiatives would benefit from randomization to mitigate these biases.

CONCLUSION

Participation in an emergency medicine resident-led physical wellness initiative was linked to decreased emotional exhaustion during the COVID-19 pandemic among resident and attending physicians in a large academic department.

Acknowledgments: The authors would like to thank the McGovern Emergency Department for responding to the call of duty every day.

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