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BRIEF REPORT

Innovative Virtual Wellness Interventions at an Academic Medical Center: A Pilot Feasibility Study

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ABSTRACT

Introduction: There is generally a concerning likelihood of burnout in healthcare workers. Given the impact of COVID-19 on healthcare workers, our institution identified the need for wellness interventions to foster adaptive functioning and mitigate burnout. The purpose of this pilot project was to assess the feasibility of virtual holistic interventions like meditation, art, laughter therapy and dance and their impact on overall well-being of physicians and advanced practice providers (APPs).

Methods: A series of 12 virtual sessions (art therapy, dance therapy, mindfulness-based practices/meditation and laughter therapy) were offered to providers over a 6-month period. Participants completed an online survey reporting stress levels on Likert scale 0-10 after each session. These sessions followed an open group format. Data obtained were analyzed using mixed methods.

Results: A total of 72 participants attended the sessions (mean: 6, range 2-12), and 40% (29) completed the surveys. Most respondents were white (62%), female (90%) and physicians (69%, with 31% APPs). More than half worked in specialty services (66%), with the rest in primary care (34%). 41% were above the age of 60. Approximately 93% reported statically significant reduction in stress level following the intervention period (pre mean score: 6.3 versus post mean score 2.4, $p < .0001$). Comments indicated post-intervention stress reduction and relaxation. Subjects appreciated the program and enjoyed the sessions. Some participants felt a sense of accomplishment and connectedness.

Conclusion: This virtual program was well received by the providers, who demonstrated significant, immediate stress reduction and reported feeling relaxed after the sessions. These preliminary data are encouraging and point toward the feasibility of holistic approaches to support overall provider well-being. Larger, multi-centered comparative studies should evaluate the impact of different well-being activities, with attention to improving engagement.

INTRODUCTION

Physician burnout is not new among US physicians. Almost half of physicians reported burnout prior to COVID-19 [1, 2], but the COVID-19 pandemic led to a dramatic increase [3]. The COVID-19 pandemic was associated with various personal and professional challenges. Health care providers experienced demoralization, stress, anxiety, depression and posttraumatic stress disorder. One of the most common reported stressors among physicians was work. Furthermore, physicians reported a decrease in satisfaction with work-life integration between 2020 and 2021 [4]. Burnout not only impacts physicians' well-being; it also impacts patient care and healthcare systems due to deterioration in the quality of services provided [5].

The impact of COVID-19 on frontline healthcare workers was multifactorial. Most reported loss in revenue and impact on their livelihood [6]. Many women in healthcare either delayed their plans to have children or left work due to pregnancy [7]. The pandemic impacted physicians differently by specialty, with the greatest impact on emergency medicine, hospital medicine, critical care medicine, infectious disease, and other procedure-oriented specialties [4]. Some clinicians retired early [8], while others switched jobs and even specialties [6]. These factors led to increased job demands on those who were working [9]. Healthcare systems faced challenges in maintaining optimal healthcare workforces, further increasing burnout.

One of the most serious impacts of burnout among healthcare workers is worsening mental health and risk of suicide [10, 11]. The rate of suicidal ideation among physicians is almost twice the general population pre-COVID-19 (7.2% vs. 4%), and these rates are predicted to climb due to the COVID-19 pandemic, with increased suicides among healthcare workers expected based on admittedly limited data [10, 11]. Physician

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suicide impacts grieving families but also other healthcare providers and the healthcare system [12]. There is an urgent need to provide support to healthcare providers who struggle with burnout or severe mental health crises [13].

Evidence has shown that organizational interventions can create cultures that cultivate professional fulfillment [4]. Many healthcare organizations provided resources during COVID-19 for individuals in distress, such as peer support, wellness interventions, mental health care and counseling. We created a holistic virtual wellness program to promote wellness through several activities with prior evidence of effectiveness: meditation [14], art therapy [15], laughter therapy [16] and dance therapy [17]. These interventions support physical and emotional well-being and foster adaptive functioning in day-to-day life by promoting relaxation. Social connectedness impacts overall wellbeing, representing another challenge of pandemic restrictions. The intervention in this study was conducted using a virtual platform. We assessed the feasibility and impact on overall well-being of physicians and advanced practice providers (APPs) at an academic medical center in central Pennsylvania.

METHODS

Wellness Program

From January to June 2021, we offered a program consisting of 12 sessions of wellness activities using art therapy, dance therapy, laughter yoga—also known as "hasya yoga" — and meditation. The study was approved by the Institutional Review Board and appropriate guidelines were followed (IRB # 00016096).

Format

Sessions were held virtually through Zoom™ on Monday from 6:00-7:00 pm every 2 weeks, consistent with restrictions to limit COVID-19 transmission.

Sessions occurred in following sequence:

- 2 sessions of laughter therapy, including dance, numerous laughter techniques and meditation;
- 2 sessions of dance;
- 2 sessions of meditation; and
- 6 sessions of art therapy.

The format of these sessions was open group—participants were allowed to join and leave the groups at their convenience. However, full attendance at each session was encouraged. Activities were scheduled for 45 min; 5 minutes in the beginning to check in and review the session's objectives, 30 minutes of the activity, and 10 minutes for discussion and feedback about the session. The number of sessions of each intervention were decided based on available resources and discussions between facilitators. To improve the participation, sessions lasted no longer than one hour.

Facilitators

An art therapist from the community was hired for the art therapy sessions. Laughter therapy and meditation sessions were conducted by the first and second authors, respectively, who are trained in both. Dance sessions were conducted by the first author, who practices Zumba for her own wellness.

Participants

This wellness program was started for faculty (physicians and APPs). Initial invitations were sent through email listservs and the organization's newsletter. Reminders were sent every 2 weeks during the series to improve recruitment. Registered participants were provided with art supplies for 6 sessions of art therapy.

Analysis

Data were collected by surveys directly in REDCap and analyzed using mixed methods. Surveys were sent after individual sessions to gauge pre- and post-session stress levels, employing a Likert scale from 1-10, with 10 being the most stress and 0 being no stress at all. Additionally, there were open-ended questions to express the benefit of the sessions as well as to invite participants' feedback to improve future sessions. The qualitative data was analyzed using thematic analysis where feedback was coded and categorized based on different themes. The evaluators read through all participant responses separately, and all comments by participants were acknowledged. If participant responses included more than one theme, all themes were identified. The surveys included questions on socio-demographic data (gender, age, race), department affiliation, and workplace roles. Participants' dates of birth were collected to create an 8-digit unique identifier to identify participants who attended more than one session. Deidentified data were analyzed by paired t- test. The primary outcome of this study was to assess the feasibility of implementing wellness interventions through a virtual platform. The secondary outcome was reduction in stress levels after each wellness activity session.

RESULTS

The socio-demographic data appears in **Table 1**. A total of 72 participants attended the sessions. The surveys were administered directly after sessions, with a response rate of 40% (n = 29). The 12 total sessions had a mean of 6 subjects, with 2.42 average responses per session. A total of 72 participants attended the sessions, and 29 filled the survey. Different numbers of participants (range 2-13) attended each session. Participants were predominantly female. Forty-one percent of the participants were above the age of 60. The subjects answered a before and after intervention "stress level" question when they took the survey. Around 93% reported reduction in stress level following the interventions (pre mean score: 6.3 versus post mean score 2.4, $p < .0001$ and Cohen's $d = 1.6$).

Participants reported reduction in stress levels in the comments after each session (**Table 2**), including a few participants (n = 4) who reported they had no stress at all after the session. Most participants felt comfortable and enjoyed all sessions they attended. Many expressed appreciation (n = 18) for these sessions; some brought their families to laughter therapy, dance therapy and art therapy. Participants felt as if they were able to distract themselves from work and could truly relax (n = 8), focusing their energies on the wellness activity. Four subjects

Table 1: Respondents of the Survey

Respondents	N = 29 (%)
White	18 (62.07)
Asian or Pacific Islanders	11 (37.93)
Gender	
Female	26 (89.66)
Male	1 (3.45)
Did not respond	2 (6.90)
Physician	20 (68.97)
Advanced Practice Provider	9 (31.03)
Specialty Services	19 (65.52)
Psychiatry	11 (37.93)
Surgery	1 (3.45)
OBG	1 (3.45)
Orthopedics	1 (3.45)
Neurosurgery	2 (6.90)
Radiology	3 (10.34)
Primary Care	10 (34.48)
Medicine	3 (10.34)
Pediatrics	7 (24.14)
Age Range (years)	
20-40	4 (13.79)
40-50	9 (31.03)
50-60	4 (13.79)
>60	12 (41.38)

Table 2: Response of the Participants Across the Sessions

Themes	Number of comments	Participant's Quotes
Benefits of the program		
Appreciative of the Program	18	*"Kudos for organizing such an excellent program: Holistic approach towards well-being in this very much-needed hour of pandemic and self-care."*
Stress Reduction	11	*"The ability to empty my mind of all the stressors and work projects of today, and finally truly relax."* *"Helped me to destress after a long week of work"*
Increased Relaxation and Focus	8	*"Once I started focusing on the watercolor, mixing the colors, etc., I felt myself relaxing and having fun."* *"Focused on making an art and totally forgetting about work and stress it brought"*
Enjoyment	7	*"I enjoyed this because the stress relief was quick and tangible."*
Others	10	*"Sense of accomplishment and connectedness"* *"Concentrating on doing something that I am not good at, it made me really feel good about that."* *"I appreciate the group interaction and the laughter."*
Areas of improvement		
Nothing else to suggest	17	*"I truly felt more relaxed. I thought it was well done, and wouldn't change a thing"*
Session organization	7	*"Better way to accommodate participants arriving late in the session and things were done to help everyone to come fully prepared with supplies for the art session"*
Wish to have in person	4	*"While I really enjoyed these, they still clearly would have been more fun in person"*
Technical challenges	2	*"Better connectivity and issues with Zoom link one-time"*

indicated a preference for the wellness sessions to occur in person to strengthen social connection. They enjoyed group interaction and laughter even in a virtual platform.

Participants also shared their preferences for individual sessions. For example, for art therapy, participants reported that a calm environment with background music was relaxing. Another participant described a sense of accomplishment in making a piece of art with guided instructions from the art teacher, though prior they did not view themselves as being artistic. The same subject noted helpful encouragement and inclusive behavior of the instructor. Based on the survey results and feedback, these sessions were overall well received, with art therapy sessions receiving the most positive ratings.

Participants desired wellness sessions to continue after the study period. They suggested offering these sessions during working hours, not wanting to miss the opportunity to join wellness activities after working hours due to other responsibilities. Some participants suggested recording the sessions, which would give participants the ability to watch them at a later time. Participation in various wellness sessions correlated with reduction of stress and improvement in overall well-being of providers. Facilitators enjoyed their sessions but did remark a preference for in person instructor.

DISCUSSION

In this pilot project, participants reported beneficial effects of various wellness interventions during COVID-19. Most participants reported a reduction in their stress levels following all individual interventions. The sessions helped reduce participants' social isolation despite being remote and promoted relaxation after a workday. The sessions focused on several dimensions of overall wellness: wellness, including physical, emotional, intellectual, social, spiritual, vocational, financial and environmental [18].

Practicing self-care is an important step to support one's well-being, particularly for healthcare workers facing the unprecedented challenges associated with the COVID-19 pandemic. Wellness can be achieved through various approaches, such as eating healthy food, getting enough sleep, taking walks in nature, mindfulness and meditation exercises, journaling, taking a run, dancing, listening to music, engaging in art or craft work and spending time with family or calling a family member or friend [19].

Routine physical activity is associated with improved emotional well-being and reduction in chronic physical illnesses [20]. Some of the wellness interventions in our wellness program, like dance and laughter therapy, increase physical activity. Laughter is known to help with the effects of stress by decreasing stress hormones and altering the activity of neurotransmitters [21]. Meditation has been associated with increased telomerase activity in blood cells, considered a measure of health and longevity [22]. Meditation studies in young and middle-aged adults have shown alterations in brain structure and function, particularly in frontal and limbic structures, as well as in the insula. Age-related gray matter volume reduction was decreased in a group of meditators when compared to non-meditators [22].

Various other wellness interventions, like gratitude journaling and practicing religiosity or spirituality, were studied during COVID-19. Gratitude practices have been associated with more positive affect, less negative affect, and improved overall well-being [23]. A study in internal medicine and pediatric

interns found improved coping strategies and less burnout with religious or spirituality practice prior to COVID-19 [24]. Peer support, meditation, mindfulness training, and positive affirmations also showed promise during the pandemic [25]. Moving art therapy online opened a new platform for communication and creativity for much needed connection during COVID-19 [26].

Importantly, the COVID-19 pandemic provided an opportunity for a cultural shift in how healthcare systems perceive and manage the mental health of frontline providers [27]. Collaborative efforts are needed to fight burnout not only during the COVID-19 era but also in the future. The issue of burnout among healthcare providers needs to be a shared responsibility across government, academic organizations, and hospitals through funding for burnout prevention programs [28].

Limitations

This study is limited due to its open group format, lack of blinding, low survey response rate, uneven gender mix, and small number of participants from a single academic medical center. This multimodal nature of the wellness intervention, and variable number of sessions, limits determination of which modality was most effective. Results of this study may not be generalized to the larger population. Participation in the wellness initiative was incentivized with art supplies for six sessions as well as the opportunity to bring family members, which could have influenced providers' decisions whether to participate. Virtual wellness interventions could engender different benefits than in-person sessions. However, virtual interventions have benefits to participants such as convenience and time commitment for commute.

Future studies of similar initiatives would benefit from randomization to diminish bias and measurement of long-term outcomes in mental and physical health. Furthermore, larger multi-centered comparative studies could evaluate the impact of in person versus virtual sessions.

CONCLUSION

Healthcare continues to have an urgent need for efforts to mitigate provider burnout. This pilot study supports the feasibility and effectiveness of wellness activities, even when done virtually over a brief period. More work is required to fully understand the utility and long-term impact of online wellness interventions.

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