Can an Arts Course Help Mitigate Medical Student Burnout?

Rebecca L. Volpe1 · Claire de Boer2 · Emily Wasserman3 · Lauren Jodi Van Scy4

Accepted: 15 July 2022 / Published online: 30 July 2022
© The Author(s) under exclusive licence to International Association of Medical Science Educators 2022

Abstract

Introduction Burnout in healthcare providers begins early, with about half of medical students experiencing symptoms of burnout, and as many as one-quarter experiencing depression. While organizational, systemic-level changes certainly contribute to mitigation, organizationally sponsored individual-level changes may also play a significant role. Although the nature of the burnout epidemic and its impact on trainee wellness is fairly well understood, and interventions have been studied, there remains a gap in the empirical research examining the impact of the arts on medical student well-being.

Methods We designed a convergent mixed methods study to evaluate whether a 9-month course for fourth-year medical students called Art as Self Care (AASC) would help trainees develop habits that supported their well-being. An online survey was used to collect data at the beginning and end of each academic year on two consecutive cohorts of students. A focus group explored students’ experience with and perceptions about the course.

Results Qualitative results indicated that the AASC course provided positive distraction that is calming and allowed students to shift focus from the stresses of daily medical school life. Our quantitative results suggest that art might provide a slight protective effect in medical students: whereas 22% of the non-AASC students saw a worsening of their psychological distress across the fourth year of medical school, this was observed in only 13% of the AASC students.

Discussion Our study presents pilot and feasibility data to better inform future research and practice around the use of art to support medical student well-being.

Keywords Burnout · Undergraduate medical education · Arts · Mixed methods design

Background

Burnout, a work-related syndrome involving emotional exhaustion, depersonalization, and a sense of reduced personal accomplishment, is now considered an epidemic [1], and the COVID-19 pandemic has amplified the problem [2]. The psychological distress of clinicians begins early: about half of medical students in the USA experience symptoms of burnout, and up to one-quarter are depressed [3]. Cross-sectional data suggest that the prevalence of burnout is higher for students in more advanced years of training [4]. The consequences of the burnout epidemic are both professional and personal. A multi-institutional study of US medical students found that those with burnout were substantially more likely to engage in unprofessional behaviors, and less likely to report impaired colleagues [5] or endorse appropriate self-prescribing practices [6]. The personal impact of medical students with burnout can include suicidal ideation [4], alcohol abuse or dependence [7], and serious thoughts of dropping out of medical school [8].

Medical student burnout is driven by the medical school learning and work environment, and not the mental health profile of individual medical students [4]. Thus, the solutions to medical student burnout should begin with organizational, environmental interventions. Such organizational interventions to address psychological distress among medical students range from creating curriculums about self-care,
well-being, and resilience [9, 10] to changing the grading structure in the pre-clerkship years [11], and creating learning communities [12] or longitudinal clerkships [13].

Although the first-line response to burnout in medical students should be focused on modifying the environment, there is evidence that individual medical students can take steps to mediate their own well-being while they wait for organizational change. Medical students who report higher levels of social support are less likely to have burnout symptoms [14], and engaging regularly in recreation, hobbies, or exercise lowers the risk of burnout in residents [15]. Although the arts can promote socialization, we could find no peer-reviewed literature exploring empirically the use of the arts as a modality to promote medical student well-being. What does exist is a robust empirical literature that describes the use of arts in medical student populations to promote clinical skills such as observation and visual thinking strategies [16, 17], as well as a budding literature regarding the use of the arts to support the development of professional identity in medical students [18, 19]. Concurrently, there is evidence that engagement with the arts can support health-promoting behaviors [16, 17], as well as a budding literature regarding the use of the arts to support the development of professional identity in medical students [18, 19].

What does exist is a robust empirical literature that describes the use of arts in medical student populations to promote clinical skills such as observation and visual thinking strategies [16, 17], as well as a budding literature regarding the use of the arts to support the development of professional identity in medical students [18, 19].

Although the first-line response to burnout in medical students should be focused on modifying the environment, there is evidence that individual medical students can take steps to mediate their own well-being while they wait for organizational change. Medical students who report higher levels of social support are less likely to have burnout symptoms [14], and engaging regularly in recreation, hobbies, or exercise lowers the risk of burnout in residents [15]. Although the arts can promote socialization, we could find no peer-reviewed literature exploring empirically the use of the arts as a modality to promote medical student well-being. What does exist is a robust empirical literature that describes the use of arts in medical student populations to promote clinical skills such as observation and visual thinking strategies [16, 17], as well as a budding literature regarding the use of the arts to support the development of professional identity in medical students [18, 19].

Methods

Art as Self Course (AASC) and Fourth Year Selectives

Medical students at Penn State College of Medicine enroll in a Humanities course of their choosing during their fourth year, called a selective. Course offerings range from Graphic Medicine to Narrative Medicine; students pick their selective based on their schedule and interest. The objective of the AASC course is to support students in forming and sustaining habits of self-care. The AASC course is therefore longitudinal, while other selectives are typically four intensive consecutive weeks.

The AASC course has three components. First, students must attend ten art events during the year, either onsite events offered at no cost to students or art events outside of our institution or even online, so long as they meet the course criteria. Second, students design their own individualized art-for-wellness program—such as drawing, playing a musical instrument, or writing poetry—which they regularly practice. Third, they attend four in-person class seminars and discuss readings, art making, and share strategies for using art for wellness. The complete AASC course syllabus is available in Appendix A.

Study Design, Recruitment, and Sample Size Considerations

This study used a convergent mixed methods design [24], which involved collecting both quantitative and qualitative data to examine how the AASC course may have impacted well-being and self-care (defined as an activity that is done deliberately for one’s mental, emotional, and/or physical health).

An online Self-Care Survey (Appendix B1) was used to collect data at the beginning and end of each academic year on two consecutive cohorts of fourth-year medical students (2018–2019 and 2019–2020). All fourth-year students in 2018–2019 (n = 149) and 2019–2020 (n = 144) were invited to participate. An additional survey, the AASC Course Survey (Appendix B2), was sent to all students who completed the AASC course in 2018–2019 (n = 16) and 2019–2020 (n = 10). The AASC Course Survey included both quantitative and qualitative (open-ended) questions in accordance with our convergent design [24]. We originally intended to convene one focus group per year with students who completed the AASC course. However, due to the COVID-19 pandemic, the second year’s focus group was cancelled. The focus group followed a guide (Appendix C) and explored students’ experience with and perceptions about the course. Results from the qualitative and quantitative datasets were analyzed separately and then integrated by comparing and contrasting conclusions [25, 26]. The study was approved by the Penn State Hershey Institutional Review Board (CATS 00,010,224).

Participants were recruited via an email that was sent to each fourth-year class. Students received a $5 gift card for each survey. Focus group participants were given a $20 gift card.

Survey Design and Implementation

The two de-identified surveys were administered for both years using a secure REDCap database [27].

1. The Self-Care Survey consisted of 15 questions that included demographics (7 items), the validated Medical Student Well-Being Index (MSWBI; 7 items) [28], and one open-ended question about the effects of arts-based self-care activities.
2. The AASC Course Survey consisted of four questions, one asking whether the course had helped establish arts-based self-care activities and three open-ended questions about what had either facilitated or impeded their pro-
gress towards course goals, the impact the course had on well-being, and overall course feedback.

Focus Group

The focus group at the end of the 2018–2019 academic year was conducted by a trained, qualitative interviewer who was not involved in the conception of the course. The 40-min focus group was audio recorded and transcribed verbatim.

Analysis

Quantitative Analysis

The analysis sample includes participants who responded to at least one item on either survey at the pre- or post-class time point. Descriptive demographics are reported, stratifying by the selective course taken. Continuous measures are summarized by means and standard deviations, along with medians, 25th and 75th percentiles. Categorical measures are reported as frequencies and percentages.

The number of students endorsing each of the MSWBI items is summarized at both the pre-class and post-class time points independently, stratified by selective selection. The difference in the number of endorsements at each time point and also the difference in the independent time point endorsements are presented under the assumption of independent observations collected at each time point. MSWBI scores at pre- and post-class time points are calculated as the sum of the seven items. The composite MSWBI score was set to missing if > 1 value was missing. Paired differences between MSWBI scores at the pre- and post-class time points were then calculated for each respondent. Differences between pre- and post-class MSWBI scores were summarized, stratified by selective choice. The frequencies of each categorical difference value pattern observed between pre- and post-class MSWBI scores within a participant are summarized and classified as each participant experiencing a score worsening, improvement, or no change between assessments. Continuous MSWBI scores are similarly summarized.

Qualitative Analysis

We interpreted our data using a postpositivist framework, which is commonly used in the health sciences, and which suggests that the social world is patterned and that causal relationships are discoverable and testable [29]. Two experienced qualitative analysts used a phenomenological approach, which emphasizes the experiential and lived aspects of a phenomena, to perform descriptive content analysis [29, 30] on the open-ended responses to the AASC Course Survey and the focus group transcript. We chose a descriptive content analysis as our methodology because the nature of open-ended free-text questions commonly prohibits in-depth theoretical development due to the relative brevity of responses and infeasibility of in-depth follow-up questioning. One analyst (LJVS) was a physician-scientist with expertise in qualitative and mixed methods research who was not involved in the conception or implementation of the AASC course and does not currently teach in the Humanities curriculum. The second analyst (RLV) was a doctorally prepared bioethicist and medical educator who was a course director and designer of the AASC course. This researcher bracketed bias to the extent possible by consistently checking methodologic and analytic decisions with the non-invested team member.

Each analyst reviewed all qualitative data and independently created categories that emerged from their review. It was decided that a single codebook could be applied to both the focus group transcript and the open-ended survey responses, thus the datasets were combined and treated as one thereafter. It was at this point that data saturation of open-ended responses and the focus group transcript was evaluated. Since the second year’s open-ended responses were similar in nature to the first year’s responses and focus group, additional data collection was deemed unnecessary.

Categories from the two independent analysts’ reviews were organized into a preliminary codebook that was applied to ~33% of the data using the constant comparison method [31]. Codes were reviewed and discrepancies resolved by discussion, resulting in a final codebook that was honed to ensure similar use and understanding between coders and to incorporate new data findings. The final codebook was then applied to the remainder of the data by both analysts independently using NVivo software (NVivo 12). Inter-rater reliability was obtained by discussion and there were no unresolved differences in coding. Codes were then organized into themes by three authors (CdB, LJVS, RLV). Exemplar quotations were examined within each theme to ensure accuracy of the fit to the data. Throughout analyses, researchers overtly discussed potential biases to maximize neutrality, repeatedly reviewing raw data throughout analysis. Upon completion of the analysis, integration was achieved by reviewing the independently derived conclusions from each dataset and “weaving” them together in narrative format [24].

Results

Participant Demographics

The 2 years of medical students (N = 293) eligible to participate in this study had an average age of 27.97 (SD = 2.15). Of these, 53.24% (N = 156/293) were female, about 61% (N = 179/293) identified as White, 5.80%
identified as Black or African American, 21.84% (N=64/293) identified as Asian, 4.44% (N=13/293) identified as more than one race or other races, and 6.83% (N=20/293) were missing a reported race.

When survey respondents from both years were combined, there were 130 students who responded to at least one item on the Self-Care Survey at both pre-class and post-class time points (130/293, 44.4% response rate), 17 of those being students who enrolled in the AASC course. Of those 130, only 7 were unable to have a total MSWBI score calculated at both time points (Table 1). Sixty-four percent (N=83/130) of the responding participants identified as female, 67.69% (N=88/130) identified as White, 4.62% (N=6/130) identified as Black or African American, 21.54% (N=28/130) identified as Asian, 4.62% (N=6/130) identified with more than one race or other races, and 1.54% (N=2/130) preferred not to answer (Table 2).

Medical Student Well-Being Index Scores

The mean score on the medical student well-being index (7 = high burnout, 0 = low burnout) for students enrolled in the AASC course was 4.44 (SD = 1.79) at the beginning of the academic year and 3.63 (SD = 2.03) at the end of the academic year. This score improved by 0.81 points, versus 0.57 points for non-AASC students (Table 3). The number of medical students endorsing individual MSWBI items by selective choice, summarized as independent observations at each of the pre- and post-class time points, is summarized in Table 4 and shows that a lower percentage of the post-class sample (both AASC and non-AASC groups) endorsed five of the seven items (items #1, #2, #5, #6, and #7) as compared to the pre-class sample.

Table 3 shows that while approximately 50% of individual students in both AASC and non-AASC groups had an improvement in their MSWBI scores, only 12.50% of students in the AASC course had a worsening of their scores between pre-class and post-class assessments, compared to 22.43% worsening of students in the non-AASC group. Eighty-one percent (N = 13/16) indicated that they believed the AASC course had helped them establish arts-based self-care activities.

Qualitative Perceptions of Art as Self-Care

The focus group and open-ended data collection yielded substantial insights into fourth-year medical students’ use of art for self-care that provide further insights into the results from the survey data. The focus group was comprised of 5 students and the open-ended AASC Course Survey data included responses from seventeen students. Using content analysis, we identified four themes. Each quote below indicates whether it is from a survey or the focus group and includes an identifying student number; note that the student numbers for the focus group and the student numbers for the surveys are independent. For example, a single student might be labeled as student #5 in the focus group, and student #29 in the survey.

Theme 1. Medical Students Report that Participating in the Arts Provides Positive Distraction that is Calming and Allows them to Refocus from the Stresses of Daily Medical School Life

The students noted that creating or consuming art helped them disconnect from the everyday stressors of medical school. Student comments included: art helps me “get out of my head” and “stop [my] brain.” Whereas in a medical school context distraction is normally unwelcome, in this instance, art served as a positive distraction mechanism that helped the students to refocus:

I think there’s also an element of forcing my brain to stop spinning and focus on something that’s very distinctly different than what I’ve been doing for the rest of the day. (Focus group, student #1)

Students also mentioned that because so much of their day was consumed with medicine, they welcomed the opportunity to engage with a “new activity that’s not medicine.”

...it gives me something that isn’t medicine to focus on solely for a little while every day. (Survey, student #77)

### Table 1: Number of medical students eligible for analysis sample

| Selective selection | 2018–2019 (N=79) | 2019–2020 (N=51) | Total (N=130) | MSWBI score calculated at both pre- and post-class time points (N=123) |
|---------------------|------------------|------------------|---------------|---------------------------------------------------------------------|
| AASC                | 12 (15.19)       | 5 (9.80)         | 17 (13.08)    | 16 (13.01)                                                          |
| Non-AASC            | 67 (84.81)       | 46 (90.20)       | 113 (86.92)   | 107 (86.99)                                                         |

Reported as frequency (column %)
Additionally, students appreciated the benefits of art over and above being a positive distraction. They noted that art provided a “time to pause,” an “escape,” and an “outlet” that helped “reduce stress.”

*The[art] project provides a time where my mind can be calm.* (Survey, student #91)

...*[it’s] a chance to clear my mind and escape (if only for a few minutes each day) the many stresses and worries that have been wracking my brain over the course of the past few months.* (Survey, student #29)
Table 3  Paired differences between pre- and post-class MSWBI scores summarized by selective selection (N=123)

| Categorical MSWBI score change category | AASC (N = 16) | Non-AASC (N = 107) |
|----------------------------------------|--------------|-------------------|
| Score worsened                         |              |                   |
| −5                                     | 2 (12.50)    | 24 (22.43)        |
| −4                                     | 0 (0.00)     | 1 (0.93)          |
| −3                                     | 0 (0.00)     | 0 (0.00)          |
| −2                                     | 0 (0.00)     | 4 (3.74)          |
| −1                                     | 2 (12.50)    | 19 (17.76)        |
| No change in score                     | 6 (37.50)    | 29 (27.10)        |
| Score improved                         | 8 (50.00)    | 54 (50.47)        |
| −4                                     | 0 (0.00)     | 4 (3.74)          |
| −3                                     | 0 (0.00)     | 5 (4.67)          |
| −2                                     | 0 (0.00)     | 1 (0.93)          |
| −1                                     | 0 (0.00)     | 1 (0.93)          |

Continuous MSWBI scores (0 = lowest burnout; 7 = highest burnout)

| AASC (N = 16) | Non-AASC (N = 107) |
|--------------|--------------------|
| Pre score    | Post score         |
| Mean (SD)    | 4.44 (1.79)        | 3.63 (2.03)        |
| Median (25th perc, 75th perc) | 4.50 (3.50, 6.00) | 4.00 (2.00, 5.00) |

Continuous MSWBI score difference (pre- minus post-class scores)

| AASC (N = 16) | Non-AASC (N = 107) |
|--------------|--------------------|
| Mean (SD)    | 0.81 (1.33)        | 0.57 (1.41)        |
| Median (25th perc, 75th perc) | 0.50 (0.00, 1.50) | 1.00 (0.00, 2.00) |

Continuous measures reported as mean (SD) and median (25th percentile, 75th percentile)
Categorical summaries reported as frequency (column %)

Theme 2. Because it was a Course for Credit, the Students Felt Accountable for Completing Art as Self-care and Over Time were Motivated to Incorporate Art into their Routines

Students reported that the course itself, and the way the course was structured, held them accountable for engaging in arts-based self-care in an ongoing way.

I think the primary reason I’ve been able to prioritize art for self-care was having it count for this class. (Survey, student #99)
The reflection journal and posting has helped keep me accountable in developing the habit. If not for this, I think it would be much more difficult to develop a habit. (Survey, student #80)
When I was finishing my last piece, I was like, ‘I need this to graduate! Don’t get in my way!’ (Focus group, student #2)

Additionally, medical students suggested that the course gave them permission to engage in an activity they enjoyed, guilt-free, because it was “for school.”

Since there is a class, it’s taken out a lot of guilt I feel when I typically do art. (Survey, student #99)
…one thing that really helped me was feeling, I’m doing this for school, I have to do this… I wouldn’t do it for myself originally but feeling like, oh, I need to do this as a requirement made me get into the habit a lot more. And that was really beneficial for me. (Focus group, student #5)

Whereas initially the students completed the art activities because they were requirements for the course, over time students reported that engaging in art became more intrinsically motivated. The longitudinal nature of the course was found to help “cultivate habits and change practice” in a way that a shorter course might not:

At first, just knowing there was a requirement to complete my habits, helped me do so. But as time went on, I really enjoyed them and found myself wanting to do them throughout the day. (Survey, student #101)
I think the course has impacted my well-being in a positive way because it gave me the motivation I needed to stick with an arts-based self-care plan. (Survey, student #92)
Table 4 Number of medical students endorsing individual MSWBI items by selective selection, summarized as independent observations at each of the pre- and post-class time points

| MSWBI item                                                                 | Pre N (%) endorsed | Post N (%) endorsed | Difference in total number of endorsements pre- minus post- (%) | AASC (N = 17) | Non-AASC (N = 113) |
|---------------------------------------------------------------------------|--------------------|---------------------|-----------------------------------------------------------------|---------------|-------------------|
| 1. In the past month, have you felt burned out from medical school?       | 14 (82.35)         | 11 (68.75)          | 3 (13.60)                                                       | 88 (78.57)    | 76 (67.86)        |
| 2. In the past month, have you worried that medical school is hardening you emotionally? | 12 (70.59)         | 10 (62.50)          | 2 (8.09)                                                        | 83 (74.11)    | 80 (71.43)        |
| 3. In the past month, have you often been bothered by feeling down, depressed, or hopeless? | 7 (41.18)          | 9 (56.25)           | −2 (−15.07)                                                    | 56 (50.91)    | 49 (43.75)        |
| 4. In the past month, have you fallen asleep while stopped in traffic or driving? | 3 (17.65)          | 3 (18.75)           | 0 (−1.10)                                                      | 10 (9.01)     | 8 (7.14)          |
| 5. In the past month, have you felt that all the things you had to do were piling up so high that you could not overcome them? | 15 (88.24)         | 10 (62.50)          | 5 (25.74)                                                      | 69 (62.73)    | 44 (39.29)        |
| 6. In the past month, have you been bothered by emotional problems (such as feeling anxious, depressed or irritable)? | 15 (88.24)         | 11 (68.75)          | 4 (19.49)                                                      | 94 (83.93)    | 83 (74.11)        |
| 7. In the past month, has your physical health interfered with your ability to do your daily work at home and/or away from home? | 8 (47.06)          | 4 (25.00)           | 4 (22.06)                                                      | 22 (19.64)    | 19 (16.96)        |

Number of endorsements reported as frequency (column %)

*N=1 missing value (non-AASC denominator = 112; AASC denominator = 16)

*N=3 missing values (non-AASC denominator = 110)

*N=2 missing values (non-AASC denominator = 111)

*This column assumes independent (not paired) observations and represents the difference between the reported percentages at each of the independent time points
Theme 3. Having a Tangible End-Product from their Art Created a Sense of Accomplishment for Medical Students More-so Than Other Forms of Self-Care

Medical students noted that having an end-product was a meaningful and important part of art for self-care. For action and results oriented medical students, a central advantage of art was that they could see their progress and have something “tangible” at the end to feel “proud” of what they had accomplished.

“It’s also made me feel more productive and accomplished. Simply because I have an end product to show for the time I spent working on a project. (Survey, student #99)

But it’s just nice to have that progression and have something.....to have a product like, I made this. It’s something to be proud of. (Focus group, student #5)

Having a product at the end was a point of comparison for the students between art and other forms of self-care. In particular, students noted an end-product as an advantage of art as self-care compared to other activities such as exercise or TV watching:

...whenever I just watch TV, it’s nice because I’m not thinking but then I don’t really have a lot to show for it. And then also [I feel] kind of guilty so that’s why I really like making stuff, like cross-stitching. (Focus group, student #3)

Theme 4. Completing Art Activities was Stressful for some Medical Students due to Keeping Up with Course Assignments, which Began to Feel like a Chore

Some students reported that at times the course was stressful due to a need to “keep up” with the requirements during an unpredictable and busy fourth year schedule:

... I think I was a lot busier than I expected to be this year. And so there would be some weeks when I didn’t do anything and then other weeks where I was like, ‘oh shoot, I didn’t do anything last week, I need to catch up’... (Focus group, student #1)

And I found that difficult because I love things to be very scheduled. And so I would have loved to say, ‘every Tuesday, this is when I do my [art as self-care] project.’ But I found that you know....the unpredictable nature of 4th year made it a little bit more difficult for me to make time for this project. (Focus group, student #3)

Finally, some students experienced parts of the course as stressful or a “chore” either due to meeting course deadlines or requirements or because they perceived that they were not good at art.

I am not getting better at my artistic endeavor and so my arts-based self-care activity is more stressful than not. I tend to avoid it unless I make myself do it. (Survey, student #16)

Yeah, I didn’t like when my art as self-care class was the most stressful thing... finishing the last project was stressful. (Focus group, student #4)

Discussion

This study presents pilot and feasibility data to explore using a formalized, curricular arts as self-care intervention to perhaps help improve well-being or possibly even reduce burnout in fourth-year medical students. In particular, this preliminary data shares insight into effects that art interventions may have on fourth-year medical students. We may have observed a slight protective effect in our student sample: whereas 22% of the non-AASC students saw a worsening of their psychological distress across the fourth year of medical school, this was observed in only 13% of the AASC students. These results are important because burnout is a challenge faced by clinicians throughout their career, particularly during residency training, and early establishment of wellness habits (such as arts as self-care, exercise, or others) may help reduce the likelihood of developing burnout. Our findings are aligned with other research demonstrating that residents who engage regularly in hobbies or recreation have a lower risk of burnout [14]. Our qualitative analysis demonstrated that a formalized art curriculum can be a meaningful way to cultivate art as self-care habits.

Our findings are timely and meaningful when considering that the National Academy of Sciences, Engineering and Medicine has called for “attention to burnout early in professional development and the implementation of changes to reduce stressors in the learning environment” [32]. Our study suggests that programs that provide art may offer an innovative and important means for medical schools to begin to address student well-being. Our qualitative data suggest that organizations wishing to use art in this way should consider making a course for credit, providing a set structure, ideally longitudinally, and including a final product. Of note, an art for wellness course will certainly not serve everyone; some will simply not find the activities meaningful or rejuvenating, and thus additional wellness curriculums should be included.
There is a cultural norm of detachment in medical practice and training, whereby students—like clinicians—are expected not to show emotion, even when witnessing profound human suffering [33]. This norm promotes emotional exhaustion and depersonalization, which in turn feature prominently in medical student psychological distress (items #2 and #6 on the MSWB1, Table 4).

Literature has highlighted how medical students suffer from a cycle of inherited abuse and neglect [34], and there have been calls to change how we teach, how we practice, even how we fundamentally think about medical education [35]. It is increasingly recognized that the institution of medicine must play a significant role to prevent burnout of our healthcare force and support clinicians’ well-being [1]. Our study underscores the potential role of arts-based self-care, suggesting there may be value in design and development of institutionally sponsored programs. Such programs may help reduce student and employee perceptions that the burden of coping with stress is their individual responsibility alone, as opposed to a shared institutional-individual responsibility.

Limitations

Our study had several limitations, most notably the overall small sample size and imbalance among the comparison groups. One reason for the imbalance was because the AASC course, like all Humanities selectives at our institution, was capped at 16 or fewer students per year, limiting sizable participation in that course within a reasonable recruitment window (i.e., two academic years). Future studies may consider offering multiple AASC courses within an academic year to overcome this participation barrier. A further inherent limitation is that students chose their own Humanities selective. Therefore, it is possible that students may have already known that art was an effective self-care practice for them. Future studies may consider randomizing students into their electives, although individualized student course schedules will likely always be an obstacle in this design. Additionally, well-being and burnout are complex and multifaceted notions, and there are numerous factors that likely contribute to them that were not measured in this study (or may not be able to be captured, as stressors and habits are not always realized). Students might engage in many other wellness-promoting activities, such as exercising, being in nature, or spending time with family and friends. Finally, the COVID-19 pandemic occurred in the Spring of the second year of the study and precipitated a significant change in students’ daily experience of medical training. In particular, all students were removed from clinical settings for a short period of time, and in-person educational sessions were quickly transitioned online. These adaptations likely affected the students in myriad ways, many of which are unknown, hyper-individualized, and possibly immeasurable outside of a qualitative framework, and may have influenced students’ responses on data collected in 2020 (end of study’s second academic year post-selective measurements).

Strengths

Our study had several strengths, including that it was longitudinal with an intervention-control study design. We followed best practices for rigor in convergent mixed methods [24]. Our quantitative results provided insight about the overall risk and psychological distress in both groups. The qualitative findings help explain why the course may have helped to prevent and/or reduce the risk of psychological distress, including burnout.

Future Research

While our preliminary data suggest a potentially protective nature of arts against burnout in a sample of medical students at a single institution, additional data is needed to further explore this hypothesis more rigorously in broader, more diverse student populations at various medical schools while considering additional factors (e.g., timing of arts interventions in medical training, gender of student, and amount of free time). This area of research would benefit from larger multi-site studies that randomize medical students into their elective courses, and/or possibly explores other measures of burnout and stressors.

Conclusion

There is a clear need to prioritize attention and intervention on the psychological distress of medical students [36]. Our study suggests that arts-based programs during medical school might play a positive role in the psychological well-being of medical students. These programs may be particularly effective if they are formalized and offered as for-credit curriculum and incorporated into existing curriculum. Although a significant body of literature explores the use of arts and humanities in medical education [37], there is a gap regarding the use of the arts for medical student well-being. Future exploration of the role of the arts and medical student psychological distress and how best to design and implement such programming is warranted.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s40670-022-01604-y.

Funding The work was funded by The Kienle Center for Humanistic Medicine, Penn State College of Medicine. REDCap was provided via the Penn State Clinical & Translational Research Institute, Pennsylvania State University CTSA, NIH/NCATS Grant Number UL1 TR000127.
Declarations

Ethics Approval The study was approved by the Penn State Hershey Institutional Review Board (CATS 00010224).

Consent to Participate Subjects provided consent to participate in the study.

Conflict of Interest The authors declare no competing interests.

References

1. West CP, et al. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. The Lancet. 2016;388(10057):2272–81.
2. Raudenská J, et al. Occupational burnout syndrome and post-traumatic stress among healthcare professionals during the novel coronavirus disease 2019 (COVID-19) pandemic. Best Prac Res Clin Anaesthesiol. 2020.
3. Dyrbey LN, et al. Efficacy of a brief screening tool to identify medical students in distress. Acad Med. 2011;86(7):907–14.
4. Dyrbey L, Shanafelt T. A narrative review on burnout experienced by medical students and residents. Med Educ. 2016;50(1):132–49.
5. Dyrbey LN, et al. Relationship between burnout and professional conduct and attitudes among US medical students. JAMA. 2010;304(11):1173–80.
6. Dyrbey LN, et al. A national study of medical students’ attitudes toward self-prescribing and responsibility to report impaired colleagues. Acad Med. 2015;90(4):485–93.
7. Jackson ER, et al. Burnout and alcohol abuse/dependence among US medical students. Acad Med. 2016;91(9):1251–6.
8. Dyrbey LN, et al. Burnout and serious thoughts of dropping out of medical school: a multi-institutional study. Acad Med. 2010;85(1):94–102.
9. Thompson D, Goebert D, Takeshita J. A program for reducing depressive symptoms and suicidal ideation in medical students. Acad Med. 2010;85(10):1635–9.
10. Howe A, Smajdor A, Stöckl A. Towards an understanding of resilience and its relevance to medical training. Med Educ. 2012;46(4):349–56.
11. Reed DA, et al. Relationship of pass/fail grading and curriculum structure with well-being among preclinical medical students: a multi-institutional study. Acad Med. 2011;86(11):1367–73.
12. Slavin SJ, Schindler DL, Chibnall JT. Medical student mental health 3.0: improving student wellness through curricular changes. Acad Med. 2014;89(4):573.
13. Lucey CR. Medical education: part of the problem and part of the solution. JAMA Intern Med. 2013;173(17):1639–43.
14. Dyrbey LN, et al. Factors associated with resilience to and recovery from burnout: a prospective, multi-institutional study of US medical students. Med Educ. 2010;44(10):1016–26.
15. Shanafelt TD, et al. Burnout and self-reported patient care in an internal medicine residency program. Ann Intern Med. 2002;136(5):358–67.
16. He B, et al. The art of observation: a qualitative analysis of medical students’ experiences. BMC Med Educ. 2019;19(1):1–6.
17. Mukunda N, et al. Visual art instruction in medical education: a narrative review. Med Educ Online. 2019;24(1):1558657.
18. Shapiro J, et al. Medical students’ creation of original poetry, comics, and masks to explore professional identity formation. J Med Humanit. 2021;42(4):603–25.
19. Joseph K, et al. Unmasking identity dissonance: exploring medical students’ professional identity formation through mask making. Perspectives on Medical Education. 2017;6(2):99.
20. van Westrenen N, Fritz E. The experiences of professional hospice workers attending creative arts workshops in Gauteng. Health Educ J. 2013;72(1):34–46.
21. Potash JS, et al. Can art therapy reduce death anxiety and burnout in end-of-life care workers? A quasi-experimental study. Int J Palliat Nurs. 2014;20(5):233–40.
22. Jensen A, Bonde L. The use of arts interventions for mental health and well-being in health settings. Perspect Public Health. 2018;138(4):209–14.
23. Tjasink M, Soosaipillai G. Art therapy to reduce burnout in oncology and palliative care doctors: a pilot study. Int J Art Ther. 2019;24(1):12–20.
24. Creswell JW, Clark VLP. Designing and conducting mixed methods research. 3rd ed. Los Angeles: Sage Publications; 2018.
25. Creswell JW, Creswell JD. Research design: qualitative, quantitative, and mixed methods approaches. 2017: Sage Publications.
26. Guetterman TC, Fetters MD, Creswell JW. Integrating quantitative and qualitative results in health science mixed methods research through joint displays. Ann Fam Med. 2015;13(6):554–61.
27. Harris P, et al. Research electronic data capture (REDCap) — a metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inform. 2009;42(2):377–81.
28. Dyrbey LN, et al. Development and preliminary psychometric properties of a well-being index for medical students. BMC Med Educ. 2010;10(1):8.
29. Creswell JW, Poth CN. Qualitative inquiry and research design: choosing among five approaches. 2016: Sage publications.
30. Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005;15(9):1277–88.
31. Glaser BG. The constant comparative method of qualitative analysis. Soc Probl. 1965;12(4):436–45.
32. National Academies of Sciences, E. and Medicine. Taking action against clinician burnout: a systems approach to professional well-being. 2019: National Academies Press.
33. Jennings M. Medical student burnout: interdisciplinary exploration and analysis. Journal of Medical Humanities. 2009;30(4):253.
34. McKeeney CP. Medical education: a neglectful and abusive family system. Fam Med. 1989;21(6):452.
35. Veal CT. We burn out, we break, we die: medical schools must change their culture to preserve medical student mental health. Acad Med. 2020;96(5):629–31.
36. Karp JF, Levine AS. Mental health services for medical students—time to act. N Engl J Med. 2018;379(13):1196–8.
37. Moniz T, et al. How are the arts and Humanities used in medical education? Results of a scoping review. Acad Med. 2021;96(8):1213–22.

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.