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REVIEW ARTICLE

Art Interventions to Mitigate Burnout in Health Care Professionals: A Systematic Review

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Abstract

Burnout in the medical workforce is a growing global concern. Visual arts-based interventions can be a novel way to mitigate burnout and bolster resilience in medicine. Improving tolerance of ambiguity and uncertainty has been associated with decreased rates of burnout in clinicians. No known systematic review exists summarizing the evidence behind the use of visual arts-based interventions to mitigate burnout in clinicians.

The authors conducted a systematic literature review of PubMed, EMBASE, and CINAHL in November 2022 using the terms: art, medicine, burnout, and uncertainty. The authors review the evidence for the effects of visual arts-based interventions on clinician burnout.

The search identified 58 articles, of which 26 met study inclusion criteria and were assessed by 2 reviewers. These studies reported mixed methods assessments of changes in burnout, empathy, and stress. Overall, visual arts-based interventions promoted empathy, connectedness, and tolerance of ambiguity and had positive effects on burnout; however, some results were mixed.

Visual arts-based interventions to mitigate burnout show promise, and additional research should focus on feasibility and longer-term outcomes.

Introduction

Clinician burnout has been increasingly recognized as a major problem in health care.¹ Burnout encompasses the effects of job related stress in health care environments causing a combination of emotional exhaustion, depersonalization from patients, and decreased feelings of personal achievement.² Health care worker burnout has

been a recent focus of intensive research because, in addition to affecting the clinician workforce, it has been associated with an increase in medical errors and poor patient outcomes.³ The issue of clinician burnout has become particularly pressing in the aftermath of the COVID-19 pandemic with decreasing rates of workforce participation and increasing burnout levels.⁴ Despite increasing interest in interventions to reduce burnout,

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Tess Engel, MD, and Somalee Banerjee, MD, MPH, participated in the study design, data gathering, abstraction, drafting, and submission of the final manuscript. Deepthiman Gowda, MD, MPH, MS, and Jaspal S Sandhu, PhD, participated in the review.

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Disclosures

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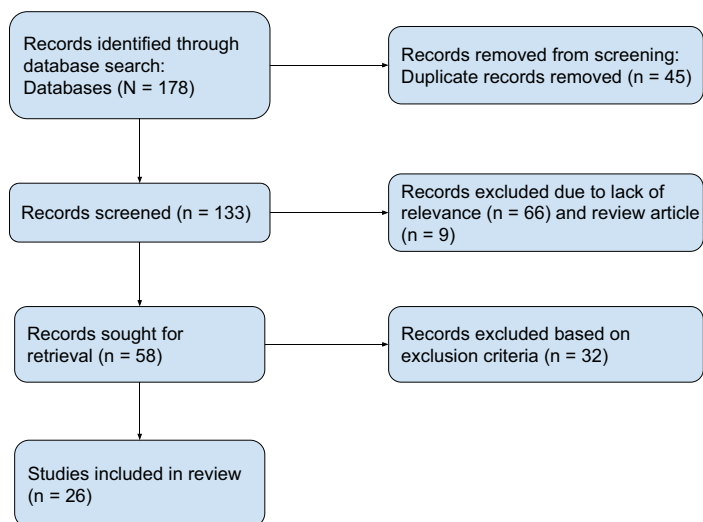


Figure 1: Search strategy inclusion and exclusion criteria and results of the electronic database search.

long-term successful interventions at solving this complex issue have been elusive. The National Academy of Medicine’s Committee on Systems Approaches to Improve Patient Care by Supporting Clinician Well-Being defines the conceptual framework of clinician burnout as being multi-tiered with changes in frontline care delivery being one of the central areas of intervention necessary to prevent burnout. Some of the key recommendations to prevent burnout include improving work and learning environments while providing support for interdisciplinary groups of clinicians to seek ways to alleviate burnout.⁵ A burgeoning area of interest that can be implemented in interdisciplinary groups is the use of the arts and humanities in reducing clinician burnout. With this in mind, customized solutions to burnout for the needs of individual clinicians have been shown to be more effective.⁶

The use of humanities to enhance and enrich medical education and practice has had a long and extensive history. In the era of modern medicine, medical humanities, and specifically visual arts, has established itself as an emerging part of mainstream medical curricula.⁷ Visual arts education as a means to enhance clinician training has been used to improve observation and diagnostic skills, empathy, resilience, and tolerance of ambiguity.⁸ Improvement in these spheres has been shown to improve levels of clinician burnout. A lack of tolerance of ambiguity and uncertainty has been associated with increasing rates of clinician burnout.⁹ Increasing empathy among clinical trainees may be associated with reducing burnout in this population.¹⁰ Therefore,

there has been an increasing interest in applying visual arts-based interventions to improve burnout rates in clinician groups and with it a varied literature base. Interventions using the visual arts can be varied including art creation, art therapy, and more commonly, art observation to promote reflection or discussion about clinical practice.

Prior literature has reviewed the effects of narrative exercises to improve burnout in medicine; however, no such systematic review exists for the use of the visual arts. Due to the relative variation in the implementation and assessment of visual arts-based interventions in this space, there is a dearth of systematic evidence for the use cases of arts-based interventions in improving clinician burnout. In this systematic review, the authors summarize the current evidence for the utility and variety of visual arts-based interventions studied in reducing burnout among clinicians.

Methods

SEARCH STRATEGY

The authors conducted an electronic database search in PubMed, EMBASE, and CINAHL databases in November of 2022. The following search terms were combined initially on PubMed by 2 authors (TE and SB): 1) art, and 2) medicine with 3) ambiguity, and/or 4) burnout. The search was repeated on EMBASE to verify the results. Search terms included: “art and medicine,” “art,” and “burnout” or “ambiguity.” A qualified librarian also performed a third and independent review including PubMed, EMBASE, and CINAHL databases.

DATA EXTRACTION

Articles were independently reviewed and screened for relevance. The authors excluded papers if: 1) no intervention was studied (review, commentary articles); 2) no visual arts-based intervention was utilized; and/or 3) no data related to burnout as a result of the intervention were discussed. Overall, 26 studies were included in this systematic review after the exclusion of non-relevant articles. The PRISMA 2020 statement of reporting systematic review findings were followed (Figure 1).¹¹ Study data were extracted by TE and reviewed by SB independently with abstracted information including: 1) study information, 2) participants, 3) number of sessions, 4) type of art intervention, 5) results, and 6) measures used to report results. Quantitative and qualitative results were highlighted including results from the Maslach Burnout Inventory (MBI) when used.²

While reporting results, categorical variables were expressed as percentages. Statistical tests reported in the studies were used and a p value less than 0.05 was considered to be statistically significant.

Results

The initial search yielded 178 records with 45 publications excluded as duplicates, 66 initially removed due to lack of relevance from the abstract or title, 9 removed as review articles with the remaining 58 records assessed fully. Overall, 26 articles meeting final inclusion criteria after detailed review (Table 1). Eleven articles using themes of narrative medicine and writing only had to be excluded because they did not include visual arts in their intervention and mentioned art in a more general sense. Of these, 21 articles did not describe visual arts-based interventions. Thus, 26 were included for final review. The most common art intervention was using art therapy (12), followed by the use of art for discussion and reflection using structured methods such as visual thinking strategy (10),¹² followed by 3 studies using multiple interventions and 1 study using clinicians as portrait subjects (Figure 2). Many interventions used a combination of multiple modalities within a structured curriculum. Art therapy methods studied varied in the use of mediums and the amount of direct art creation by participants. Interventions using visual thinking strategy methods frequently utilized partnerships between medical schools and neighboring art museums to create curricula for clinician learners. Sample sizes ranged from 9 to 334 and most data were collected via surveys and participant interviews. Most frequent participants were medical students (12 studies), followed by resident physicians (8), physicians (5), nurses and nursing students (5), behavioral health specialists (1), and physician assistants (1), with many studies including an interdisciplinary group. Studies included in this review measured changes in burnout following visual arts-based interventions through well-studied quantitative direct measures of burnout such as the MBI or qualitative reviews of participant impressions. Concepts that were highlighted in the studies reviewed that can mitigate burnout per prior literature¹³ included stress, tolerance of ambiguity, and improving empathy.

IMPACT ON BURNOUT

Overall, multiple studies were identified that used qualitative and quantitative measurement methods to assess changes in burnout among participants surrounding a visual arts-based intervention. Of

these studies, 5 used the validated MBI to assess the impact on burnout, which measures components related to burnout such as emotional exhaustion, distancing, and reduced perceived personal achievement.¹⁴⁻¹⁸ As many of these interventions were single events, many studies may not have been able to use the MBI, as it best assesses the longitudinal development of burnout as noted by Patel et al.¹⁹ The Connor-Davidson Resilience Scale²⁰ was utilized as a measure of burnout in 1 study.²¹ In the qualitative domain, He et al²² surveyed 65 medical students who engaged in visual thinking strategy at their nearby art museum. Some described feeling “reinvigorated” and “healed” after participating in sessions. The authors maintain that reflection stimulated by art is an enjoyable, skills-building endeavor that allows pause and increases well-being in medicine. There was variation in the level of statistical rigor of the studies. The authors also noted that 6 studies used a control group to assess the association of stress or burnout with the art intervention.^{16,18,23-26} The other studies used non-participants from the same clinical groups as controls.

IMPACT ON STRESS

Several studies measured changes in stress and anxiety levels in participants. Of the reviewed studies, 5 used quantitative validated and unvalidated measures or qualitative measures to assess measures of stress and anxiety and overall reported improvement in stress.^{18,23,27-29} Some activities led to increased stress and anxiety associated with being forced out of the participants’ comfort zone, or by taking time away from patient care.³⁰ It was noted in 1 study that participants struggled with the freedom and ambiguity associated with visual arts-based projects and participant reactions may be variable.³¹ Volpe and coauthors noted an decrease in clinician reported stress.²⁶ Another study compared a brief coloring book intervention with therapy dog exposure and saw decreases in salivary cortisol levels and self-reported stress levels, but the results were not statistically significant.²³

TOLERANCE OF AMBIGUITY

Art and its interpretation is inherently ambiguous and thus can help in improving comfort with ambiguity and uncertainty among clinicians. Tolerance of ambiguity has been identified as protective against burnout among clinicians and trainees.³² Of the included studies 6 measured changes in comfort with ambiguity as a result of their visual arts-based intervention.^{22,30,33-35} For measurement 2 studies used the Tolerance of Ambiguity Scale,^{30,35} 1 used the Budner’s Tolerance of Ambiguity Scale,³⁴ 1 used

No.	Title	Authors (year)	Participants	Sessions	Art intervention	Results	Instruments used to measure burnout
1	Understanding the Value of Art Prompts in an Online Narrative Medicine Workshop: An Exploratory-Descriptive Focus Group Study	Nancy S Choe (2022)	Narrative medicine practitioners (N = 11)	Single workshop	Art prompts in place of writing prompts in a narrative medicine workshop	Art prompts allowed participants to enter a flow-like state and were challenged by uncertainty along with personal discovery. Sessions were associated with creativity and insight	Qualitative analyses of workshop products and participant experience
2	Increase in Sharing of Stressful Situations by Medical Trainees through Drawing Comics	Maatman, Minshew, Braun (2022)	Medical students (N = 240)	Single workshop	Drawing comics to share stressful situations with peers in a single workshop	19.2% of trainees shared a stressful experience they had never shared before. The workshop offered a safe space for sharing, and comics were seen as a safe way to communicate	Quantitative survey results of participants and qualitative long format questions postworkshop
3	What Pandemic Portraits Illuminate About Balancing Vulnerability and Inurement	Larimore, Gilbert, Lydiatt (2022)	Health care workers during the COVID-19 pandemic (N = 11)	Single workshop	Participants sitting as a subject for portraiture and their discussions with artists before and during painting	Portrait subjects reported reduced burnout compared to their peers, increased tolerance of uncertainty and vulnerability stemming from processing with artist and viewing other works with a sense of comradeship	Qualitative participant description of perceived level of burnout and resilience
4	The White Coat Public Art Project: Using the White Coat as a Canvas for Reflection for Women in Medicine	Darivemula et al (2021)	Medical students in American Medical Women's Association (AMWA) branches	Creation and display	Call to use white coats as canvases to describe positive attributes and self-reflection which were displayed at the national AMWA meeting	Themes discussed included: challenges, resilience, and humanization of experiences of women in medicine. Authors maintain that this project addresses causes of burnout and serves as a way to create community, address isolation, and empower women in medicine	Postulation about effects of empowerment improving burnout as a result of the intervention
5	Using Visual Arts Education in Dermatology to Benefit Resident Wellness and Clinical Communication	Kumar et al (2021)	Dermatology residents (N = 21)	2 sessions	Artful Thinking program through Harvard Project Zero in 2018 and 2019. Arts observation (visual thinking strategy) and exercises for building communication at a local museum	3 mo after the intervention, 5 of 13 residents (39%) reported novel use of art for mindfulness and stress reduction, 12 of 13 (92%) could offer an example of using observation to better patient communication, and 4 of 13 (31%) described changes to their handoff communication	Postintervention resident survey
6	Overview of an Emergent, Arts-Based Resiliency Curriculum to Mitigate Medical Trainee Burnout	Patel et al (2021)	Surveys from a group of 369 medical students and 25 physician assistant students (N = 73 surveys)	Monthly sessions over 3 years, some students attended > 1 session	Arts-based resiliency curriculum. Faculty introduction of theme, followed by written responses to questions and group discussion led by museum facilitator (visual thinking strategy and personal bias reflection). Next, students underwent creative exercises including theater, sculpture, group art pieces, etc.	The most common words for describing feelings before the art session were "tired (39.7%) and excited (26.0%)" and after were "relaxed (79.5%) and happy (20.5%)"	Qualitative review of written personal reflection from participants about resilience and burnout

Table 1: Characteristics of studies exploring the role of visual art-related activities in clinician burnout (Continued)

Table 1: Continued

No.	Title	Authors (Year)	Participants	Sessions	Art intervention	Results	Instruments used to measure burnout
7	Randomized Trial of Therapy Dogs (vs) Deliberative Coloring (Art Therapy) to Reduce Stress in Emergency Medicine Providers	Kline et al (2020)	122 emergency medicine practitioners (n = 39 control, n = 40 coloring, n = 43 dog)	1 session	50-min interaction with therapy dog compared to art therapy using deliberative coloring	Salivary cortisol levels significantly decreased in coloring and dog therapy groups as compared to controls. Visual analog scales of stress decreased in dog therapy groups, which was not seen in the coloring group. No difference in modified Perceived Stress Scale or patient-reported empathetic behaviors	Quantitative measurement of stress (visual analog scale of cognitive stress and Perceived Stress Scale) and reported empathetic behaviors (via Likert scale)
8	Can the Arts Enhance Postgraduate GP Training?	Forde et al (2020)	Physicians recently graduated: 6 in 6-mo longitudinal course (N = 35)	Variable per individual; 1 to several	Photography, patient poetry, textile, and clay art creation and reflection sessions outside of the hospital	Trainees rated workshops as interesting, enjoyable, and thought-provoking. Most felt that art could increase their competency and humanity as a physician and help them gain appreciation of the patient perspective	Qualitative reports of perceived effect on well-being and improved empathy for patients
9	Resident Self-Portraiture: A Reflective Tool to Explore the Journey of Becoming a Doctor	Tharenos, Hayden, Cook (2019)	2016 and 2017 cohorts of family medicine residents (N = 12)	Sessions over 2 y for the 2016 cohort and 3 y for 2017 cohort	Self-portraits with narratives throughout training	Residents averaged 5 photo self-portraits with accompanying narratives per year as part of their residency training. The most common theme of resident portraiture was "residency is difficult," followed by hobbies, growing as a doctor, coping mechanisms, and family	Analyses of portraits and qualitative review of narratives by participants after the intervention
10	The Fostering Resilience through Art in Medical Education (FRAME) workshop: A Partnership with the Philadelphia Museum of Art	Orr et al (2019)	Senior internal medicine residents (N = 17)	Single 40-h workshop	Workshop on on art observation using visual thinking strategy	Moderate decreases in high emotional exhaustion scores (64.7% down to 55.5%) and high depersonalization scores (70.6% down to 55.5%)	Quantitative survey before and after intervention with abbreviated MBI
11	The Art of Medicine: Arts-Based Training in Observation and Mindfulness for Fostering the Empathic Response in Medical Residents	Zazulak et al (2017)	Family medicine and obstetric and gynecology residents compared to 20 control obstetric and gynecology residents (n = 15)	4 weekly 30-h "Art of Seeing" sessions at a local art museum	Arts-based program integrating facilitated viewing of art and dance, art-making, and mindfulness-based practices into a practitioner-patient context	Participants improved their Mindfulness Scale subsections related to confidence, self-compassion, and self-expression relative to control. Thematic analysis revealed a positive impact on perceived empathy toward colleagues and patients and well-being. "Significant effects for the 'non-judgment of inner experiences' subdomain, F(1,123) = 10.78, p = 0.003, (Figure 1), and the 'describe/self-expression'"	Quantitative survey before and after intervention with Interpersonal Reactivity Index (measures empathy), Compassion Scale, and Mindfulness Scale; thematic analysis based on participant interviews
12	Art-Making in a Family Medicine Clerkship: How Does It Affect Medical Student Empathy?	Potash et al (2014)	Third-year medical students at the University of Hong Kong (N = 161)	Single, 30-h long workshop	Students were randomly allocated into an art-making workshop or a problem-solving workshop during their Family Medicine clerkship	Empathy declined in both groups. Participants in the arts workshop saw greater self-awareness of how emotion can affect judgment. They also reported a better understanding of self, patients, and the role of a doctor	Quantitative survey before and after intervention using Jefferson Scale of Empathy, qualitative review of narratives after intervention

Table 1: Continued

No.	Title	Authors (Year)	Participants	Sessions	Art intervention	Results	Instruments used to measure burnout
13	A Study of the Effect of a Visual Arts-Based Program on the Scores of Jefferson Scale for Physician Empathy	Yang and Yang (2013)	Medical students (n = 92) and first-year postgraduate residents (n = 18)	Single, 40-h long workshop	Out-of-hospital art program focusing on interpreting paintings relating to medicine and human suffering	No significant difference between the pre- and posttest empathy scores. The average pretest empathy scores were lower in PGY1s than medical students (p = 0.0358). Authors posit small proportion of PGY1s limited the power of the study to detect empathy change	Quantitative pre-post intervention survey with Jefferson Scale of Physician Empathy
14	Evaluation and Art Therapy Treatment of the Burnout Syndrome in Oncology Units	Italia et al (2007)	The study included doctors and nurses of an adult (Group A) and a pediatric oncology unit (Group B) (N = 65)	13 sessions over 4 mo	Art therapy program	Statistically significant decreased level of burnout	Quantitative pre-post intervention survey with MBI
15	A Novel Mindful-Compassion Art-Based Therapy for Reducing Burnout and Promoting Resilience Among Health-care Workers: Findings From a Waitlist Randomized Control Trial	Ho et al (2021)	Palliative health care workers (N = 56)	6 sessions	Art observation, reflective writing, and symbolic art	Reduction in mental exhaustion, improvements in emotional regulation, nonreactivity to intrusive thoughts, and acceptance of death compared to control immediately after MCAT completion. Reduced mental exhaustion and increased emotional regulation were maintained at 12 wk follow-up compared to baseline, with new benefits identified: increased ability to observe and describe one's experiences, elevated self-compassion, greater mindful awareness, enhanced common humanity, and better quality of life	Quantitative pre-post intervention survey with MBI
16	Splatter Paint Room Event in the ICU: An Effort to Mitigate Burnout	Ratnani, Fatima, Masud (2022)	Hospital staff (N = 49)	Single splatter paint event	Splatter paint event in which participants selected their own music and color prop, then were left alone to unwind and stay as long as desired	Scoring of 1 (low/not at all) to 5 (high/very). Average stress levels decreased from 4.19 to 2.56. Participants reported the splatter paint intervention was very helpful for compassion fatigue (4.22) and mental exhaustion (4.44). It helped them feel more engaged at work (4.34) and fostered a positive attitude (4.77) toward their organization	Quantitative pre-post intervention surveys on stress level, compassion fatigue, and mental exhaustion
17	The Effectiveness of Emotion-Focused Art Therapy on the Resilience and Self-Image of Emergency Physicians	Eo et al (2022)	Attendings (n = 6) and residents (n = 17) from 3 hospitals in South Korea	Single, 2-h session	"Emotion-focused art therapy" administered by an accredited art therapist. Consisted of emotional processing, sharing feelings, and creating drawings, writing, and painting	The participants' average satisfaction score was 4.52 ± 0.51 (5 being greatest). Resilience scores increased significantly after art therapy (60.61 ± 8.97 vs 68.48 ± 10.25, p < 0.001)	Quantitative pre-post survey with Connor-Davidson Resilience Scale

Table 1: Continued

No.	Title	Authors (Year)	Participants	Sessions	Art intervention	Results	Instruments used to measure burnout
18	Art therapy in the Management of Neurology Wellness and Burnout—A Pilot Study	King et al (2017)	Medical students (n = 5), neurology residents (n = 8), neurology faculty members (n = 8), and senior administrative leaders (n = 3)	Single, 1-h session	Participants given canvas, photos, scissors, tissue, and glue and told to complete a creative task with the supplies and share the art's meaning	21 of 24 participants completed the survey. All respondents found the session to be helpful. Most found it relaxing (20) and said it made them feel better (18). Most desired future participation (20) and had a positive impression of the institution and its concern for physician well-being	Quantitative survey postintervention measured relaxation, feeling better, and impression of institution and concern for physician well-being
19	The Effect of Creative Arts Therapy on Psychological Distress in Health Care Professionals	Moss et al (2022)	Nurses, doctors, and behavioral health specialists (N = 146)	Weekly 90-min group sessions for 12 consecutive wk	"Creative Arts Therapy" workshops after work led by a facilitator	Participants randomized to the intervention had statistically significant improvements in anxiety, depression, and post-traumatic stress disorder scores. This was also seen in burnout scores and intention to leave their job. Participants also reported high satisfaction with the program	Quantitative survey pre-post intervention with MBI, HADS, the PDS-5, PANAS, and Turnover Intention Questionnaire
20	Visual Arts in the Clinical Clerkship: A Pilot Cluster-Randomized, Controlled Trial	Strohben et al (2020)	Medical student programs that were museum-based (n = 10), hospital-based arts (n = 11), hospital-based conventional (n = 13)	Facilitator-guided visual arts-based group discussions	Museum-based arts, hospital-based arts, hospital-based conventional	Focus group participants reported increased implicit bias cognizance and time for reflection, but no significant differences in psychometric or educational outcomes were identified. Although most students felt positively toward the experience, some experienced distress from missed clinical time	Quantitative pre-post survey with Jefferson Scale of Physician Empathy for Students, Tolerance of Ambiguity Scale, Mindfulness Attention Awareness Scale, Short Grit Scale, and qualitative review of focus group discussions
21	Art as Sanctuary: A Four-Year Mixed-Methods Evaluation of a Visual Art Course Addressing Uncertainty Through Reflection	Gowda et al (2018)	Medical students over 4 years (N = 47)	Longitudinal sessions over a semester to fulfill narrative medicine requirement	Museum-based art group discussion led by art educator	Improvement in GRAS scores. No significant increase in Tolerance of Ambiguity Scale or best intentions questionnaire. Student-reported enhancement of observational skills, awareness of the subjectivity and uncertainty of perception, exploration of multiple points of view, and recognition of the course as a place for restoration and connection to classmates	Quantitative survey with GRAS for reflective ability, the Tolerance for Ambiguity scale for ambiguity, and Best Intentions Questionnaire for personal bias awareness; qualitative review of postintervention focus group discussions and interviews
22	Art Rounds: Teaching Interprofessional Students Visual Thinking Strategies at One School	Klugman et al (2011)	Medical and nursing students (N = 32)	90-min sessions where the participants commented on and discussed visual art	Museum-based art group discussion led by art educator	Significant increase in tolerance of ambiguity and positive views toward health care professionals' communication skills	Quantitative pre-post survey with Budner's Tolerance of Ambiguity Scale and the Communication Skills Attitudes Scale
23	The Art of Observation: A Qualitative Analysis of Medical Students' Experiences	He et al (2019)	Medical student evaluations of a course between 2015–2017 (N = 65)	7 2-h sessions discussing topics using visual art as prompts	Museum-based group discussions around visual art	Reported improved physician socialization, enhanced self-awareness, increased tolerance of ambiguity, humanistic view of medicine, reduction in burnout symptoms	Qualitative review of medical student evaluations

Table 1. Continued

No.	Title	Authors (year)	Participants	Sessions	Art intervention	Results	Instruments used to measure burnout
24	More than Visual Literacy: Art and the Enhancement of Tolerance for Ambiguity and Empathy	Bentwich et al (2017)	Medical students over 2 consecutive years (N = 67)	90-min session with lecture, then visual art-based discussions	Hospital-based art observation exercise	Improved self-reported empathy and tolerance of ambiguity following exercise	Quantitative post-intervention survey with Likert scale rating empathy and tolerance of ambiguity
25	Art Therapy to Reduce Burnout in Oncology and Palliative Care Doctors: A Pilot Study	Tjasink et al (2018)	Palliative care and oncology physicians (N = 18)	6 90-120-min sessions once weekly	Art therapist-led sessions in group sculpture and reflective paintings	Significant improvements in emotional exhaustion ($p < 0.001$) and personal achievement (2 of 3 components of MBI)	Quantitative pre-post intervention survey with MBI
26	Can an Arts Course Help Mitigate Medical Student Burnout?	Volpe et al (2022)	Fourth year med students (n = 17) compared to students not enrolled in course (n = 113)	9-mo selective course	10 art events, self-designed art for wellness practice, and 4 art seminars/discussions	Art course offered a protective effect for burnout: 13% of students in art course reported increased burnout at the end of 4th year as compared to 22% in non-art course	Quantitative pre-post intervention Self Care Survey, including the Medical Student Well-Being Index and the Art as Self Course Survey

AMWA = American Medical Women's Association; GRAS = Groningen Reflection Ability Scale; HADS = Hospital Anxiety and Depression Scale; MBI = Maslach Burnout Inventory; MCAT = Medical College Admission Test; PANAS = Positive and Negative Affect Scale; PDS-5 = Posttraumatic Diagnostic Scale-5.

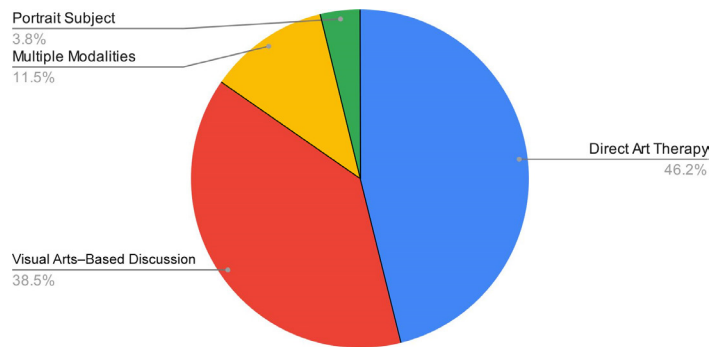


Figure 2: Distribution of types of visual art interventions studied.

a unvalidated Likert scale,³³ and 2 others used qualitative measures.^{22,36} Results were overall mixed in terms of showing changes in tolerance of ambiguity and comfort with uncertainty.

EMPATHY

Multiple studies reviewed focused on empathy generation because increasing empathy has been noted as a means to dissipate burnout symptoms.³⁷ Changes in empathy were identified to be a result of the visual arts-based interventions in 6 of the studies. Another 2 studies had qualitative elements enquiring into empathy.^{30,38} For measurement of empathy generation 5 studies used quantitative measures of empathy including the Jefferson Scale of Physician Empathy,^{24,30,39} the Interpersonal Reactivity Index,²⁵ and an unvalidated Likert scale measure.³³ Overall, studies assessing empathy with validated scales did not see any significant improvements in empathy following the interventions, but qualitative themes reflected improvement in empathy toward patients and peers. In the workshop designed by Maatman et al, 240 medical students drew comic strips to depict stressful situations in medicine with 19.2% of students sharing an experience they had not revealed previously, introducing the opportunity to receive support and reflect together.²⁹ Participants in the Stroben et al art reflection intervention described increased “insight into the biases [...] into certain interactions, especially in the hospital”.³⁰

Discussion

Visual arts-based interventions have been increasingly used in clinical learning environments to support clinicians and reduce risks of burnout; however, systematic evidence for the most effective interventions has been limited. This review analyzed

26 articles exploring visual arts-based interventions and their effects on mitigating burnout and related measures. Overall, the studies showed mixed results regarding the effects of these visual arts-based interventions on burnout directly, but many identified improvements in burnout measurements and other factors affecting burnout. The interventions studied were novel and varied; however, the ability to measure outcomes was limited by small sample sizes, variability in outcome measurements, and lack of rigor in statistical measurements. Measurement of clinician burnout has been variable because the tools used have been traditionally quite heterogeneous.¹ Quantitative outcomes were mixed which could be owed to small sample sizes. Most interventions were single sessions, which could limit the effects measured compared to longer-term longitudinal interventions. King et al noted qualitative themes in their study of clinicians wanting to participate in more longitudinal visual arts-based sessions.⁴⁰ Overarching qualitative themes indicated that art interventions were enjoyable, increased well-being, and often reduced burnout whether directly or indirectly measured. Visual arts-based interventions can provide an opportunity to build additional peer support outside of the clinical environment to help mitigate burnout.

Similarly, measurements of stress and anxiety surrounding the interventions also yielded mixed results. Some art interventions created stress due to discomfort with materials, skills, or difficult topics. It is unclear if any of the stress persisted after the intervention periods. A combination of stress reduction while creating discomfort to improve confidence in uncertainty may have led to some of the mixed results regarding stress and anxiety measures. Changes in empathy were not seen in studies using validated scales, but qualitative themes in multiple studies suggested improvement in empathy toward patients and peers. Qualitative themes also hinted at improvements in peer support and community building as a result of these visual arts-based interventions. Art interventions may perform best outside of the clinical environment where participants can leave behind their professional roles and more readily reflect on their biases and observational skills in a neutral environment.²⁸

Few chronic problems in medicine are solved with a single intervention, so repeated exposure and ongoing investment into these interventions may continue to show greater benefits. In prior studies, interventions aimed at improving burnout have been shown to be helpful whether they are directed

at individual clinicians or organizational changes, however organizational changes in systemic working conditions do lead to larger improvements in burnout.⁴¹ The types of interventions reviewed here are only a part of the solution for this vexing problem. Notably, in this review, many of the greatest impact interventions were those going beyond a single interventional episode. It should be noted, however, that a challenge in medical professional participation is adding these art experiences to an already overwhelming schedule. Tharenos, Hayden, and Cook's photography self-portrait intervention began with a more in-depth session and encouraged participants to capture images throughout their medical training. This lower investment longitudinal intervention was postulated to be more sustainable for clinical schedules.³¹

FUTURE DIRECTIONS

Further systematic research into the variety of visual arts-based interventions that can be used in improving clinician burnout is needed. The authors recommend investigators use validated measures of burnout and its components such as the MBI or Jefferson Scale of Physician Empathy. Directly comparable outcomes will lead to a clearer view of the summative impact of visual art interventions on burnout. Standardization in the types of visual arts-based interventions are also needed. Upon review, museum-based collaborations with medical colleges using visual thinking strategies seem to be the most mature interventions. Detailing methods of various study interventions is also key to future standardization and implementation.

STRENGTHS AND LIMITATIONS

This systematic review has several limitations. Due to the varied nature of burnout measurements and the multiple elements in the theory of change leading to burnout, this review may not have adequately captured the nuanced evidence for improving burnout through visual arts-based intervention. As the authors limited the review to visual arts-based interventions, learnings from narrative medicine and other forms of art in medicine have not been discussed here. However, this review is the first systematic review to assess the role of visual arts-based interventions in mitigating burnout and thus limiting the scope was necessary to allow for any comprehensive conclusions. Most study results used varied quantitative methods or used qualitative methods which were challenging to compare directly. The gold standard in medicine: the randomized controlled trial, does not lend itself well to the lived experience of a practitioner participating in an

art intervention and reporting outcomes in their own life. With this in mind, burnout is a multi-faceted issue that will require creative, mixed methods approaches to assess and address it. The interventions highlighted in this article do not solve the complex root causes of burnout in clinical practice, but have been shown to be useful in alleviating some of the effects of burnout for frontline health care workers.

Conclusions

Novel interventions to mitigate clinician burnout are now more important among the strain put on health care workers due to the global pandemic. Overall, visual arts-based interventions can have positive effects on improving clinician burnout. With some promising early evidence, further research should focus on feasibility and larger-scale implementation of visual arts-based interventions to determine the potential impact on the health care system.

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