

# THE IMPACT OF VISUAL ART THERAPY ON ANXIETY: A SYSTEMATIC REVIEW

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## SUMMARY

**Background:** Anxiety disorders are common, affecting about one-third of people globally and often persist despite standard treatments. Visual art therapy, involving guided creative activities such as drawing or painting, has emerged as a complementary approach to alleviate anxiety. We systematically reviewed randomized controlled trials (RCTs) to evaluate the effectiveness of visual art therapy for reducing anxiety in adults.

**Subjects and methods:** A systematic search of PubMed, Embase, Cochrane CENTRAL, Scopus, and Web of Science (October 2017–June 2025) was conducted. We included RCTs of adults (18–65 years) receiving a visual art therapy intervention (e.g., painting, drawing, coloring) versus any control condition. Fourteen RCTs (total N = 1,686) met the inclusion criteria.

**Results:** All 14 trials found significantly greater anxiety reduction in art therapy groups compared to controls, with interventions ranging from a single 15–30 minute art-making session to 5–12 week art therapy programs. Anxiety scores improved more in art therapy participants across both clinical and high-stress non-clinical groups. Although no meta-analysis was performed due to heterogeneity, all trials reported positive outcomes for art-based interventions.

**Conclusions:** Current evidence strongly supports visual art therapy as an effective intervention for reducing anxiety symptoms in adults. It yields meaningful anxiety reductions across diverse formats (from brief art-making sessions to multi-week programs). As an accessible intervention complementing standard treatments, art therapy represents a valuable integrative approach to anxiety management.

**Key words:** art therapy - anxiety disorders - visual arts intervention - randomized controlled trials - systematic review - complementary therapies

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## INTRODUCTION

Anxiety disorders are among the most prevalent mental health conditions worldwide, affecting approximately one in three individuals at some point in their lives (WHO 2017). These disorders, which include generalized anxiety disorder, social anxiety disorder, panic disorder, and specific phobias, lead to significant distress and impairment in daily functioning. Despite the availability of evidence-based treatments such as cognitive-behavioral therapy and pharmacotherapy (National Institute for Health and Care Excellence 2011) many individuals experience residual symptoms, relapse, or treatment intolerance, leaving a substantial treatment gap.

Visual art therapy has emerged as a complementary approach aimed at addressing these challenges. In this modality, clients engage in creative processes - such as drawing, painting, collage, or sculpting - under the guidance of a trained art therapist. The core premise is that non-verbal expression via art materials enables individuals to externalize and process emotions that may be difficult to articulate verbally. Art-making can promote emotional regulation by providing a symbolic outlet for anxiety, facilitating insight, and fostering a mindful flow state that distracts from ruminative thought patterns (Uttley et al. 2015).

Over the past decade, there has been a growing body of research on art-based interventions for anxiety. Early systematic reviews noted promising but limited evi-

dence (Abbing et al. 2018), highlighting a need for more rigorous randomized controlled trials. Since then, several new trials have been published, investigating various art therapies in clinical and non-clinical populations (Joschko et al. 2024).

## SUBJECTS AND METHODS

### Inclusion and Exclusion Criteria

**Population:** Included adults aged 18–65; excluded participants with severe consciousness disorders and those with experimentally induced anxiety reactions.

**Intervention:** Studies applied visual art therapies (e.g., painting, drawing, sculpting, collage) in any form and duration.

**Comparison:** Any type of control group (active, standard care, waitlist, sham).

**Study Design:** Only randomized controlled trials (RCTs).

**Context:** No geographic or cultural restrictions; included both clinical and non-clinical settings.

### Search Strategy

We searched the following databases: PubMed, Cochrane CENTRAL, Embase, Scopus, and Web of Science. Only published studies were included. Combinations of keywords and subject headings related to

visual art therapy, anxiety, and anxiety disorders were used, employing database-specific syntax.

### Language and Publication Period

We included studies published in English or Polish from October 1, 2017, to June 1, 2025.

### Data Management

Two independent reviewers screened titles, abstracts, and full-text articles. Discrepancies were resolved by discussion or, if consensus was not reached, by a third reviewer.

### Data Extraction

Data were extracted from each included study using a standardized extraction form. Two independent reviewers performed the extraction; disagreements were resolved through discussion or, if necessary, consultation with a third reviewer.

### Risk of Bias Assessment

Two independent reviewer teams assessed bias risk using the Cochrane RoB 2.0 tool (Higgins et al. 2022) and its adaptation for psychotherapy trials (Miguel et al. 2025). Within each of the five domains, signaling questions were formulated, domain-level judgments (low/some concerns/high) were assigned, and overall bias risk was determined following Cochrane guide

lines. Discrepancies were resolved by discussion or third-reviewer adjudication.

### Certainty of Evidence

For key outcomes, a narrative certainty assessment was conducted, considering methodological quality, consistency of results, and relevance to review objectives.

## RESULTS

### Study Selection

A total of 10,807 records were identified through database and registry searches. Before screening, 2,953 duplicate or irrelevant records were removed using automated tools, leaving 7,872 records for title and abstract screening. After screening these titles and abstracts, 7,829 records were excluded for not meeting the inclusion criteria. Consequently, 43 reports were sought for full-text retrieval, but 2 could not be obtained, leaving 41 full-text reports for detailed eligibility assessment (Figure 1).

Of the full-text reports evaluated, 27 were excluded for the following reasons: anxiety was not the main outcome (Odeh et al. 2022; Pongan et al. 2017; Joly et al. 2022; Decker et al. 2018; Gever et al. 2022; Sarandöl et al. 2024; Hou et al. 2023; Kang et al. 2023; Nasiri et al. 2024; Vezmar et al. 2024; Chung et al. 2022; Ellis-Hill et al. 2019) the intervention was a mixed approach that did not isolate active visual therapy (Gunnarsson et al. 2018;

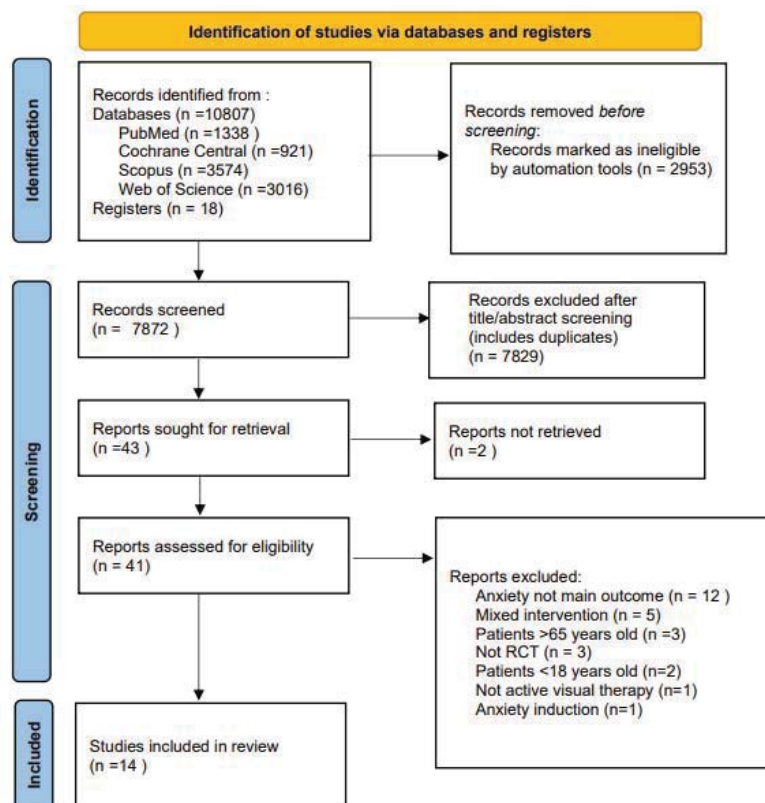


Figure 1. Flow Diagram of Study Selection Process

Zuo et al. 2022; Mollaoğlu et al. 2023, 2024; Gürcan et al. 2025); the study population fell outside the age criteria (Moghaddasifar et al. 2019; Mahendran et al. 2017; Ciaska et al. 2018; Cross & Brown 2019; Rajendran et al. 2020); the study design was not a randomized controlled trial (Akbulak & Can 2023; Zhang et al. 2024; Samuel et al. 2022); the intervention did not involve active visual therapy (Peng et al. 2024); or the study focused on induced anxiety (Campenni 2020). After these exclusions, 14 studies met all eligibility criteria and were included in the systematic review.

### Included Studies

Fourteen randomized controlled trials (RCTs) (total N ≈ 1,686 participants) were included, spanning diverse

adult populations and settings, evaluated a range of visual art-based interventions for anxiety, including single-session art-making activities (e.g. coloring mandalas or drawings) and multi-week art therapy programs. Control conditions varied from waitlist or no-treatment controls to active comparators (such as standard care, unstructured drawing, or other tasks). Most studies measured anxiety outcomes using standard scales (e.g. State-Trait Anxiety Inventory, Beck or Hamilton Anxiety scales) at baseline and post-intervention (with some including follow-ups). Consistent with an earlier systematic review by Abbing et al. (2018), which found preliminary evidence of art therapy reducing anxiety in adults, new trials published from 2018 through early 2025 report significant anxiety improvements with art-based interventions compared to controls (Table 1).

**Table 1.** Characteristics of Included Randomized Controlled Trials

Study (Author, Year)	Population	Intervention vs Control	Anxiety Measure	Anxiety Outcome vs Control
Robinson et al. (2018)	Parents pre surgery n = 102	Coloring (30 min) vs waiting	STAI-6	Significant reduction in anxiety with coloring (p<0.0001)
Abbing et al. (2019)	Adult women with anxiety n = 59	Art therapy (10–12 weekly sessions) vs waitlist	STAI	Reduced anxiety in art therapy group (p=0.001)
Carsley et al. (2020)	University students n = 167	Mindfulness coloring (single 10 min session) vs no-activity control	STAI	Reduced test anxiety in both coloring groups; control group's anxiety increased pre-to-post
Goodarzi et al. (2020)	Female sexual assault victims n = 16	Mindfulness art-making (8 weekly sessions) vs no treatment	BAI	Reduced anxiety in the mindfulness art group (p<0.001)
Beerse et al. (2020)	University students n = 77	Mindfulness-based art therapy (5 weeks) vs clay task	GAD-7	MBAT led to greater anxiety reduction (p=0.008)
Wu et al. (2020)	Hospital patients n = 93	Visual art therapy (6 weeks) + medication vs medication	HAMA	Lower anxiety scores in art group at multiple follow-ups (p<0.05)
Choi et al. (2020)	Patients with depression on medication n = 44	Art psychotherapy (6 weekly sessions) medication vs medication	HAMA, BAI	Art group showed greater improvement in anxiety vs medication-only (p<0.05)
Richesin et al. (2021)	University students n = 42	Drawing vs painting app vs no intervention	STAI	No significant difference in anxiety reduction among the three conditions
Khademi et al. (2021)	COVID-19 inpatients n = 70	Mandala coloring (daily sessions for 6 days) vs standard care	STAI	Mandala coloring significantly reduced anxiety vs control after 6 days (p=0.0001)
Hou et al. (2022)	Adults with anxiety n = 128	Painting therapy + anxiolytic (8 weeks) vs anxiolytic only	HAMA	Anxiety scores were significantly lower in the painting group (p<0.001)
Moss et al. (2022)	Healthcare professionals n = 146	Creative arts therapy (12-week program) vs waitlist	HADS	Intervention group experienced a greater reduction in anxiety (p<0.0001)
Öztürk et al. (2022)	Senior nursing students n = 170	Mandala coloring sessions vs no intervention	STAI	Post-intervention state and trait anxiety were lower (p<0.001)
Hou et al. (2023)	Inpatients with anxiety disorder n = 400	Painting therapy (8 weeks) + medication vs medication	HAMD	Post-treatment HAMD scores were lower in the painting group (p<0.01)
Mantelli et al. (2025)	Healthcare workers n = 168	Creative arts therapy (12 weekly sessions) vs waitlist	HADS	Art therapy group had a significantly greater reduction in anxiety vs controls (p=0.002)

*Legend:* STAI- State-Trait Anxiety; BAI - Beck Anxiety Inventory; GAD-7 - Generalized Anxiety Disorder-7; HAMA - Hamilton Anxiety Scale; BAI - Beck Anxiety Inventory; HADS - Hospital Anxiety and Depression Scale; HAMD - Hamilton Depression Scale

**Table 2.** Risk-of-Bias Assessment (RoB 2.0) in 14 Studies (n=1686)

Study	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Overall
Robinson et al. (2018)	High risk	Some concerns	Low risk	Low risk	Some concerns	High risk
Abbing et al. (2019)	Low risk	Some concerns	Low risk	Low risk	Low risk	Some concerns
Carsley & Heath (2020)	Low risk	Some concerns	Low risk	Low risk	Some concerns	Some concerns
Goodarzi et al. (2020)	Some concerns	Some concerns	Low risk	Low risk	Low risk	Some concerns
Beerse et al. (2020)	Some concerns	High	High	Low risk	Some concerns	High risk
Wu & Lee (2020)	Some concerns	Low risk	Low risk	Low risk	Some concerns	Some concerns
Choi et al. (2020)	Some concerns	Low risk	High	High risk	Some concerns	High risk
Richesin et al. (2021)	Some concerns	Low risk	Low risk	Low risk	Some concerns	Some concerns
Khademi et al. (2021)	Some concerns	Low risk	Low risk	Low risk	Some concerns	Some concerns
Hou & Zhang, 2022)	Some concerns	High	Some concerns	High risk	Some concerns	High risk
Moss et al. (2022)	Some concerns	Some concerns	Low risk	Low risk	Low risk	Some concerns
Sarı Öztürk & Kılıçarslan (2022)	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Hou et al. (2023)	Some concerns	Low risk	Some concerns	High risk	Some concerns	High risk
Avallone et al. (2025)	Some concerns	Some concerns	Low risk	Low risk	Low risk	Some concerns

*Legend:* Domain 1 - Bias arising from the randomization process; Domain 2 - Bias due to deviations from intended interventions; Domain 3 - Bias due to missing outcome data; Domain 4 - Bias in measurement of the outcome; Domain 5 - Bias in selection of the reported result

### Intervention formats

The interventions ranged from brief one-time creative activities (15–30 minute coloring or drawing tasks) to structured art therapy administered in weekly group sessions over 5–12 weeks. Several trials specifically examined mindfulness-based art activities (e.g. mindful mandala coloring) as a way to reduce situational anxiety, while others evaluated art therapy as an adjunct to standard treatment (combining art-making with usual pharmacotherapy or counseling). The artistic media included drawing and coloring (on paper or digitally), painting, clay modeling, and multi-modal creative arts (e.g. a combination of visual art, music, movement, and writing)

### Risk of bias

The overall RoB 2 judgments were determined according to Cochrane’s algorithm: any single domain rated as “high risk” confers an overall high-risk classification, whereas studies with no high-risk domains but at least one rating of “some concerns” are classified as having some concerns. Among the 14 included randomized trials, one study was judged to be at low risk of bias across all five domains, eight studies exhibited at least one domain with some concerns (but no high-risk domains), and five studies contained one or more high-risk domains, resulting in an overall high-risk designation (Table 2).

#### **Domain 1: Bias arising from the randomization process**

Out of 14 trials, 3 fully reported adequate allocation concealment and demonstrated balanced baseline characteristics, warranting a low risk judgment (Abbing

et al. (2019), Hou & Zhang (2022), Öztürk & Kılıçarslan (2022). 10 trials stated randomization without details on concealment, so we rate them as some concerns. 1 trial exhibited a significant baseline imbalance, yielding a high risk judgment (Robinson et al. 2018).

#### **Domain 2: Bias due to deviations from intended interventions**

In psychotherapy and creative-arts trials, masking of participants and therapists is generally not feasible (Miguel et al. 2025). All trials with non-active controls receive Some concerns (Robinson et al. 2018, Abbing et al. 2019, Carsley & Heath, 2020, Goodarzi et al. 2020, Moss et al. 2022, Avallone et al. 2025). We rated High risk only in studies with major protocol deviations and no ITT (Hou et al. 2023; Beerse et al. 2020).

#### **Domain 3: Bias due to missing outcome data**

Low risk in 12 trials with ≥95 % retention or appropriate imputation methods. High risk in 2 trials (Beerse et al. (2020), Hou et al. (2023) with high attrition and no proper handling.

#### **Domain 4: Bias in measurement of the outcome**

11 trials assessed outcomes via validated self-report instruments (anxiety, depression, PTSD, burnout scales) or objective physiological measures, administered identically across arms. Current evidence in psychotherapy trials indicates that unblinded self-reports do not systematically inflate effect estimates when scales are validated and applied uniformly (Miguel et al. (2025). Trials combining unblinded clinician-rated scales with self-reports, or lacking explicit rater-blinding for subjective measures (Choi et al. 2020, Hou & Zhang 2022, Hou et al. 2023).

### **Domain 5: Bias in selection of the reported result**

Low risk in 5 prospectively registered trials whose reported outcomes matched their protocols: Goodarzi et al. (2020), Choi et al. (2020), Moss et al. (2022), Öztürk & Kılıçarslan (2022), Avallone et al. (2025). Some concerns in the remaining 10 trials lacking pre-specified registration or detailed analysis plans.

### **Narrative synthesis**

Due to clinical and methodological heterogeneity (populations, interventions, outcomes), a quantitative synthesis (meta-analysis) was not performed.

### **Anxiety Outcomes with Brief Art-Making Activities**

Several trials demonstrated that even brief, single-session art-making interventions can produce immediate anxiety relief in high-stress situations.

Pre-surgical context: Robinson et al. (2018) showed that parents of pediatric surgery patients who spent 30 minutes coloring a pre-drawn mandala while waiting had a significantly greater drop in state anxiety than those who sat in the waiting room without an activity. This low cost coloring intervention led to an average anxiety reduction of ~4 points in Spielberger State-Trait Anxiety Inventory (on a 20–80 scale) in 30 minutes, versus a ~0.2 point decrease in controls.

Academic test anxiety: In a trial with college students, Carsley and Heath (2020) found that a brief coloring session before an exam reduced self-reported anxiety levels compared to no inactive control. Students were randomized to either mindfulness coloring (coloring a mandala with mindful attention), non-mindful coloring (free drawing/coloring), or a control (sitting quietly). Both coloring groups showed significant pre- to post-activity decreases in test anxiety, while the control group's anxiety increased before the exam. In fact, coloring (with or without explicit mindfulness instructions) appeared to buffer students against the spike in anxiety that the no-activity group experienced. This suggests that engaging in a simple art-making task for even 10–20 minutes can acutely alleviate situational anxiety in students.

Hospitalized patients with COVID-19: A RCT in Iran by Khademi et al. (2021) reported that daily 30-minute mandala coloring significantly reduced anxiety in COVID-19 inpatients. After six days of coloring, the intervention group's mean state anxiety score was ~44, compared to ~68 in the control group receiving standard care ( $p < 0.0001$ ). This finding highlights that brief, self-directed art activities can be a valuable non-pharmacological strategy to ease anxiety even in acute medical settings.

Nursing students during COVID-19: Öztürk and Kiliçarslan (2022) examined mindful mandala drawing

in senior nursing students who had experienced elevated anxiety returning to clinical training post-lockdown. Students who participated in three weekly mindfulness-based mandala sessions showed a greater decrease in state anxiety from pre- to post-intervention compared to those receiving only routine education ( $p < 0.05$ ). The mandala group also reported gains in spiritual well-being, indicating holistic benefits.

Virtual reality art-making: One innovative study explored art-making in virtual reality. Richesin et al. (2021) compared three conditions – (1) creating art in 2D (traditional drawing), (2) creating art in 3D virtual reality, and (3) an active VR control task (a non-art virtual office task) – in a sample of healthy adults. All three groups experienced similar reductions in state anxiety and improved mood after the 15-minute session, with no significant differences between the art and non-art groups. Notably, the VR art-making group showed the largest drop in heart rate, a physiological indicator of relaxation. These results suggest that VR-based art is feasible and produces stress reduction comparable to conventional art activities; however, the act of engaging in a focused, distracting task (artistic or not) may itself be the critical ingredient for short-term anxiety relief in non-clinical populations.

In summary, brief art interventions – from coloring books to virtual painting – consistently led to immediate anxiety reductions across various contexts. Participants often described these activities as absorbing and calming, which likely helped shift attention away from acute stressors. Even without formal therapy or therapist guidance, creative tasks provided a short-term anxiolytic effect relative to inactive control. This evidence supports the incorporation of simple art-making opportunities (e.g. in waiting areas or before stressful events) to mitigate state anxiety.

### **Anxiety Outcomes with Multi-Session Art Therapy Programs**

Longer-duration and therapist-guided art therapy programs produced significant improvements in persistent or clinical anxiety symptoms.

Abbing et al. (2019) conducted a landmark RCT of 10-session anthroposophy art therapy for women with anxiety disorders (mostly GAD). After 8 weeks of therapy, the art therapy group showed a significantly greater decrease in anxiety symptom severity (measured by the Spielberger State-Trait Anxiety Inventory and a Likert anxiety scale) compared to a waitlist control. The between-group effect on anxiety was large (partial  $\eta^2 \approx 0.20$ ) and remained evident at 3-month follow-up. Treated participants also reported improved quality of life and emotion regulation skills relative to controls.

An 8-week mindfulness-based art therapy (MBAT) program in Iran (Goodarzi et al. 2020) yielded marked

anxiety relief for women with trauma-related anxiety. In this small pilot (N=16), the art + mindfulness group experienced significantly lower anxiety scores than a no-treatment control at both post-test and 3-month follow-up. The group  $\times$  time effects were very large (e.g.  $\eta^2 = 0.66$  at post-test). Participants in MBAT showed not only reduced anxiety, but also drops in depression and shame levels compared to controls.

Beerse et al. (2020) examined a 5-week mindfulness-based art therapy program delivered online to university students (vs. a neutral creative task control). The intervention led to significantly greater reductions in anxiety and perceived stress than the control condition. Both self-reported anxiety and stress scores dropped in the art-therapy group, whereas a neutral clay-task group saw smaller changes. Salivary cortisol also decreased over time in both groups, though differences in cortisol were not clearly attributable to the intervention. This study suggests that even in non-clinical young adults, a brief series of art therapy sessions can meaningfully improve anxiety and stress outcomes, beyond the effects of a simple recreational activity

Across these studies, multi-session art therapy consistently produced significant anxiety reductions compared to control conditions (whether waitlist or active controls). Several trials also reported ancillary benefits: for instance, improved emotion regulation (Abbing 2019), increased mindfulness (Carsley 2020), enhanced spiritual well-being (Öztürk 2022), and reductions in co-morbid symptoms like depression or burnout. Importantly, where measured, benefits often persisted weeks or months after the art therapy ended, indicating a lasting therapeutic effect rather than a brief distraction.

### **Art Therapy as an Adjunct to Conventional Treatment**

Several RCTs in clinical settings have evaluated art therapy integrated with standard pharmacotherapy or other usual care, versus usual care alone. These studies reveal that art therapy can amplify the therapeutic effects on anxiety.

In a 2020 trial, Wu & Lee investigated visual art therapy (VAT) as an add-on to medication for patients with chronic PTSD. Over a 3-month period, patients receiving art therapy + antidepressant showed significantly greater improvements in anxiety (Hamilton Anxiety Rating scores) and PTSD severity (Davidson Trauma Scale) at 15 days, 1 month, 2 months, and 3 months, compared to those on medication alone. By the end of treatment, the combined group had markedly lower anxiety and depression levels and better cognitive/social functioning than the control group. In fact, all dimensions of PTSD symptoms (DSM-5 criteria) were significantly reduced in the art +

medication group versus medication alone. This suggests that adding art therapy provided substantial incremental benefit for managing anxiety and mood in PTSD patients.

Choi et al. (2020, as reported by Lee et al. 2022) evaluated art psychotherapy as an augmentation to antidepressant medication in adults with moderate-to-severe major depression. The combined-treatment group (12 art therapy sessions plus ongoing meds) showed greater improvements in anxiety and depression scores than the medication-only group. The trend favored the adjunct art therapy, aligning with other findings that art-based interventions can enhance outcomes in mood/anxiety disorders. The authors concluded that art psychotherapy is a promising add-on strategy in treatment-resistant or severe depression.

Hou et al. (2022) conducted a large trial in patients with GAD comparing tandosirone alone vs. tandosirone + drawing therapy. After 8 weeks, the art + medication group had significantly lower anxiety scores (Hamilton Anxiety Scale) than the drug-only group ( $p < 0.05$ ). Moreover, medication compliance was higher with art therapy, and patients' sleep quality and quality of life improved more when art was included. No differences in adverse effects were noted. Hou et al. concluded that integrating drawing therapy with pharmacotherapy effectively improves clinical symptoms of anxiety and is safe.

In a trial of 400 patients with severe anxiety disorders (Hou et al. 2023), painting therapy plus standard treatment (inpatient care with medication) was superior to standard treatment alone. After 8 weeks, the combined group not only had greater reductions in anxiety and depression (HAM-D) scores, but also showed significantly better mental and social functioning per nursing evaluations. Social skills like competence and interest improved more with art therapy, while problematic behaviors (irritability, withdrawal, etc.) were lower than in controls. The art + care group achieved a higher "remarkable response" (clinical recovery) rate as well. The authors concluded that adding painting therapy enhanced overall treatment efficacy, helping to relieve patients' anxiety symptoms and improve psychosocial outcomes.

Overall, these adjunct studies reinforce that art therapy can synergize with medical treatment. In populations ranging from PTSD to GAD, those who received art therapy in addition to medication experienced greater anxiety reduction than those on medication alone. This pattern was observed consistently across trials. Notably, art therapy often contributed to improvements in medication adherence, sleep, and functional quality of life as well. Such findings are important because pharmacological treatments alone may be insufficient or have side effects; a nonpharmacologic modality like art therapy can enhance outcomes without added risk. It's worth mentioning

that most of these combined-therapy studies used waitlist or treatment-as-usual controls (rather than placebo art activities), so placebo or attention effects cannot be entirely ruled out. However, the magnitude of anxiety reduction and the consistency across independent trials lend weight to the true therapeutic benefit of art-making within comprehensive care.

### **Creative Arts Therapy for Healthcare Workers' Anxiety and Burnout**

Healthcare professionals facing chronic workplace stress and burnout have also benefited from art based interventions. Two recent trials from the United States tested multi-modal creative arts therapy programs in these groups.

Moss et al. (2022) conducted an RCT with 146 hospital workers exhibiting burnout symptoms. Participants were randomized either to a 12-week group CAT intervention (weekly 90-minute sessions facilitated by art, music, dance/ movement, or writing therapists) or to a waitlist control. Program adherence was high (median 9.5 sessions attended). Those randomized to CAT showed significant reductions in anxiety and depression scores compared to controls ( $p < 0.0001$  and  $p = 0.0007$ , respectively). Burnout (emotional exhaustion) levels also dropped markedly in the intervention group ( $p \leq 0.003$ ) and intentions to quit the job were lower relative to controls. Qualitative feedback indicated that engaging in art, music, dance or writing provided an emotional outlet, peer support, and respite from work stress

Avallone Mantelli et al. (2025) reported on a controlled trial (and follow-up) of a similar multi-modal arts therapy program for healthcare professionals. Their findings showed that improvements in anxiety, depression, and PTSD symptoms were not only achieved post-intervention, but were sustained at long-term follow-up. In the intervention group, anxiety and depressive symptom scores remained significantly lower than baseline even months after the program ended, whereas controls showed no such gains. This suggests the effects of creative arts interventions on healthcare workers' mental health can endure, potentially by equipping participants with ongoing coping skills (e.g. creative self-expression, mindfulness) and reducing burnout drivers.

These studies targeting healthcare providers underscore that creative arts therapies can effectively reduce work-related anxiety and burnout. Given the high acceptability and feasibility in busy professionals, such programs represent a promising approach to support caregiver mental health. The use of multiple artistic modalities is notable – allowing individuals to choose visual art, music, movement, or writing – which may maximize engagement and therapeutic reach. The robust decreases in anxiety in these trials mirror those seen in patient populations, reinforcing

that the anxiolytic benefits of art therapy extend to occupational stress and subclinical anxiety as well.

### **Limitations**

Number of trials used waitlists or no-activity controls, which raises the possibility that non-specific effects (attention, expectation, relaxation from taking a break) contributed to the observed improvements. A few studies had small sample sizes (e.g.  $N=16$  in Goodarzi 2020), limiting statistical power and generalizability. There was diversity in populations and instruments, making it challenging to quantify a pooled effect size (no meta-analysis was conducted here, per the narrative synthesis approach). Nevertheless, the consistency of positive outcomes across heterogeneous trials lends credibility to the findings. Another limitation is that most studies focused on short- to medium-term outcomes; only a few assessed long-term anxiety levels after the intervention ended. Those that did suggest maintenance of gains, but more research is needed on durability of art therapy's effects on anxiety.

### **CONCLUSIONS**

The compiled evidence strongly supports the effectiveness of art therapy and art based activities in reducing anxiety in adults. Whether through a simple coloring exercise or a comprehensive 12-week art therapy program, engaging in creative artistic expression provides a meaningful reduction in anxiety symptoms compared to control conditions. This holds true across clinical and non-clinical populations – from patients with anxiety disorders (who experience symptom relief and improved functioning), to students and professionals under stress (who report feeling calmer and less burned out). Art-making likely works through multiple mechanisms: distraction from worry, mindfulness and flow, emotional processing, self-expression, and social connection in group settings. These therapeutic pathways complement traditional talk therapies and medications, making art therapy a valuable integrative approach in the toolkit for managing anxiety. Given its accessibility and acceptability, art-based intervention can be feasibly implemented in many settings (schools, hospitals, workplaces) to help individuals cope with anxiety in a creative and empowering manner. Future research should continue to refine these approaches, examine active control comparisons, and explore long-term outcomes, but the current evidence base provides an endorsement for the anxiety-reducing power of art therapy in adult populations.

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### Contribution of individual authors:

Both authors contributed to the literature search and the drafting of the text.

Both authors approved the final manuscript.

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