

The Effectiveness of Visual Art on the Psychological Response in Stroke Survivors : A Systematic Review

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ABSTRACT

Background: Stroke causes disability and has an impact on the psychological needs of patients who are often not met so they are at risk for depression, anxiety, stress, isolation, and other negative impacts.

Purpose: This study is a systematic literature review aimed at identifying and discussing the benefits and effectiveness of visual arts interventions on psychological responses in post-stroke patients.

Methods: Article searches are performed from Pubmed, ProQuest, Sage, and other search results databases.

Results: A total of 8 articles were selected and a discussion was carried out regarding visual art interventions on psychological responses in post-stroke patients. Visual arts therapy (drawing, painting, and digital) has been to be effective for psychological responses in stroke survivors.

Conclusion: The benefits and effectiveness of therapy can be felt from 7 to >20 sessions with varying durations for each session. Apart from having a positive impact on psychology, visual arts therapy can also train motor, cognitive, and memory functions in post-stroke patients.

Keywords: psychological response, stroke, visual art

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BACKGROUND

Stroke is a cerebrovascular disease that can cause physical disabilities such as paralysis to death if not treated quickly and appropriately (Ting Lo et al., 2018). Stroke does not only cause physical problems, but all aspects of the patient's life including psychosocial well-being and quality of life (Chan et al., 2021). Psychosocial needs that are not met can cause stressful conditions in post-stroke patients. These conditions can be in the form of negative feelings, achievement of reality, increased risk of health problems, and can cause depression (Mare et al., 2019).

Mare et al (2019) said that 1 in 3 post-stroke patients tend to experience depression in the first 1 year. The prevalence of depression in post-stroke patients is 31.1% (Schottke & Giabbiconi, 2015 in Mare et al., 2019). Whereas Frey et al (2020) said that the prevalence of depression in post-stroke patients can reach 33%. Gu & Chang (2017) said that 50% of post-stroke patients experience depression. In a cohort study involving 12,000 post-stroke patients, approximately more than all post-stroke patients with depression had poor adherence to antidepressants. So the results of treatment in post-stroke patients with depression are inadequate (Wijeratne et al., 2022).

Post-stroke patients should be suspected of having depression if there is a delay in recovery from the estimated estimate, the patient's cooperative level with therapy, and unstable emotions. Depression in post-stroke patients can reduce the effectiveness of therapy and the recovery process (Mare et al., 2019). Previous studies have shown that depression that persists after a stroke can predict a decrease in quality of life in the long term (Wijeratne et al., 2022).

Art is one of the interventions that can be applied in health services and has been carried out in various international articles. Patient participation in artistic activities is a model of psychological treatment, especially in stroke rehabilitation patients. This intervention allows for increased well-being, preventing increased psychological problems, self-esteem, self-efficacy, and self-confidence. Previous research using a randomized controlled trial (RCT) design with a total of 118 patients showed that interventions by making visual arts actively improve depression, quality of life, and self-awareness when compared with post-stroke care in general (JH Morris et al., 2019).

Art therapy can help post-stroke patients to vent conflicts and emotions thereby reducing mental and emotional problems. The benefit of art interventions, especially drawing, is neurorehabilitation based on the Hebbian principle of neuroplasticity. This principle explains that the existence of multimodal stimulation will result in the activation of neurons. Activation of such neurons leads to increased synaptogenesis. Creative arts therapy or creative art therapy (CAT) improves mood, physical function, quality of life, concentration, and self-motivation in post-stroke patients. A cohort study in Korea on post-stroke patients using color in art interventions showed an increase in life goals variables (Wijeratne et al., 2022).

Art therapy in the context of visual art interventions in the form of drawing or painting in post-stroke patients with psychological problems is rarely studied. So this article aims to conduct a systematic literature review on the use of visual arts interventions in post-stroke patients on psychological responses.

METHODS

This study is a systematic literature review that aims to find, analyze, and conduct a discussion on the literature on the effectiveness of drawing art interventions on psychological responses in stroke patients.

Search Strategies and Data Sources

Article searches were performed on the Pubmed, Sciencedirect, and other search results databases. The search uses “AND” and “OR” to find articles with the keywords “art therapy” OR “creative art” AND “stroke” OR “after stroke” OR “aphasia”. Keyword search based on the title and abstract of the article.

The total number of articles is 306, 424 from the mentioned database. The results of the search articles were selected by selecting full text, reviews, and publications between 2008 and 2022 with a total of 24,253 articles. A total of 24,245 articles were excluded because they were not relevant to the study objectives and did not have access to the full text, so they received 8 articles for review.

Selection Criteria of The Studies

The inclusion criteria in this study were research studies conducted from 2008 to 2022, studies involving the effectiveness of the art of drawing or painting on psychological responses and/or post-stroke patients, as well as quantitative studies with empirical designs, qualitative studies, and case reports. While the exclusion criteria in this study were experimental studies on animals, and literature review.

The search result data is entered into Mendeley and identified based on the PRISMA 2020 flow diagram using Microsoft Word. Several items were cataloged to be presented in the results, namely: article title, author, year of publication, type of research, subject, variable, intervention, analysis, and results.

This study uses the PICO conceptual framework to define the clinical question or problem of the study. The PICO conceptual framework in this study is as follows:

P (Population): Post-stroke patients or stroke survivors

I (Intervention): Art therapy (drawing or painting)

C (Comparison): None

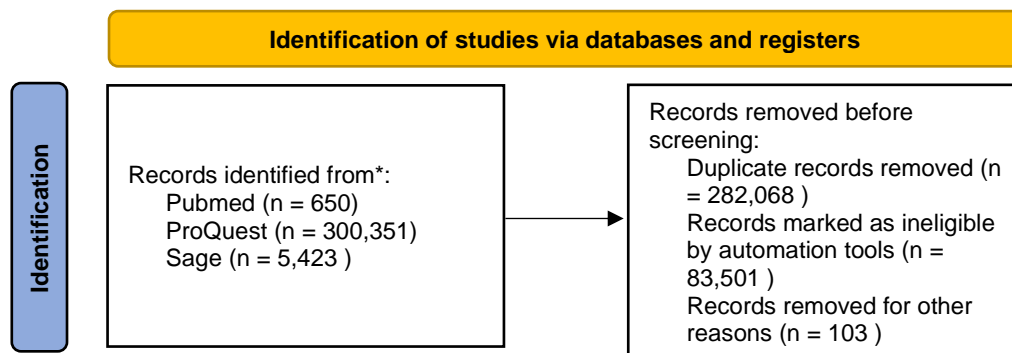
O (Outcome): Psychological response

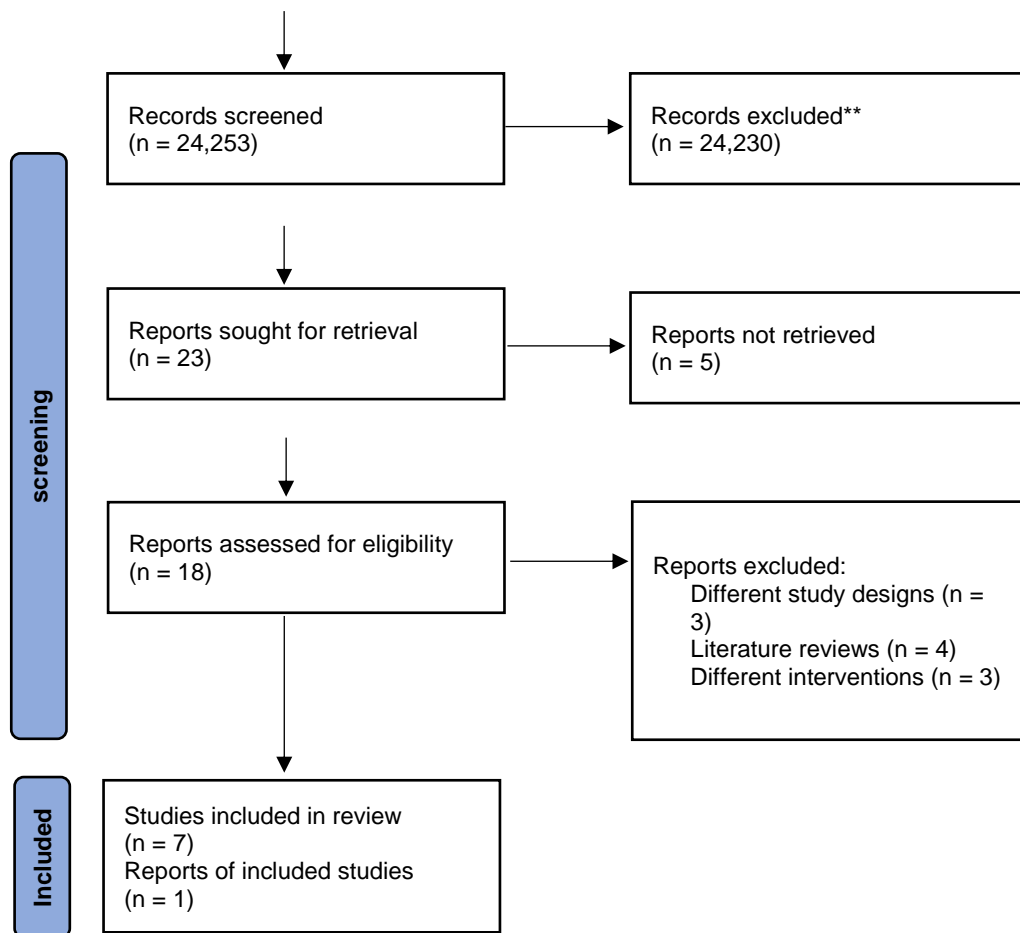
Quality Appraisal

Study articles were selected using an article quality assessment. Quality appraisal or quality assessment of various included studies uses The Joana Briggs Institute (JBI) Critical Appraisal Tools. The selected articles were then entered into the Mendeley program for review.

RESULTS

Search results for articles from various databases with PRISMA guidance resulted in 306,424 articles for inclusion in the study. After the selection process was carried out, there were 8 articles to be included in the study.





Figures1PRISMA 2020 Flow Diagrams

Table1 Literature Review

No.	Title and author	Method	Results
1.	Creative art therapy to enhance rehabilitation for stroke patients: a randomized controlled trial (Kongkasuwan et al., 2016)	<p>Design RCT with blinded assessor</p> <p>subject There are 113 stroke inpatients aged ≥ 50 years who can communicate verbally</p> <p>Variable a. Creative arts therapy b. Rehabilitation of stroke patients</p> <p>Intervention Treatment group: conventional physical therapy program 5 days/week (20 sessions) for 1-2 hours/day and Creative art therapy 1.5-2 hours with 5-10 patients in 1 group (total 8 sessions) Control group: physical therapy only</p> <p>Analysis Differences between the two groups using unpaired t-test and chi-square analysis for categorical data.</p>	<p>The mean difference for the intervention group was significantly higher than for the control group on depression(-4.5, 95% CI -6.5, -2.5, $p < 0.001$), physical function (1.2, 95% CI 0.1, 2.3, $p = 0.043$), and quality of life (8.9, 95% CI 3.8, 13.8, $p < 0.001$). when compared to baseline measurements, both groups experienced improvements in cognition, physical function, and quality of life and decreases in anxiety and depression. 85% of respondents were satisfied with creative art therapy and reported an increase in concentration (68.5%), emotion (79.6%), self-confidence (72.2%), and motivation (74.1%).</p>
2.	Art participation for psychosocial wellbeing during stroke rehabilitation: a feasibility randomized controlled trial (JH Morris et al., 2019)	<p>Design Single blind randomized controlled trial or randomized controlled trials</p> <p>Subject Patients diagnosed with stroke during the rehabilitation period were in the treatment group $n = 41$ and the control group $n = 40$</p> <p>Variable</p>	<p>A total of 81 participants (29%) took part in the study from 315 populations. 88% ($n = 71$) of participants completed the session, and 77% ($n = 62$) followed up. Completion of study results varies from 97% and 77%. The level of effectiveness cannot be determined from this study but the impact size shows that participation in the arts</p>

No.	Title and author	Method	Results
		<p>a. Participate in activities to create works of art</p> <p>b. Psychosocial well-being</p> <p>Intervention Art interventions (drawing, collage, printing, painting, and mixed media techniques). The number of sessions is 8</p> <p>Analysis Covariance analysis to analyze group variability, magnitude, and mean</p>	<p>is capable of providing benefits to emotional well-being, positive and negative affect, and self-efficacy towards art.</p>
3.	<p>Fight like a ferret: a novel approach of using art therapy to reduce anxiety in stroke patients undergoing hospital rehabilitation</p> <p>(Ali et al., 2014)</p>	<p>Design Pilot study</p> <p>Subject A total of 6 stroke patients are in rehabilitation at the Sussex Rehabilitation Center (SRC), Princess Royal Hospital-Haywards Health. Subjects aged >16 years, have the ability to give informed consent in the study, medically stable condition.</p> <p>Variable</p> <p>a. Art therapy</p> <p>b. Anxiety and depression</p> <p>Intervention Art therapy by drawing and painting using white paper, pencils, crayons, making figures with clay, digital art using an iPad, and doing photography using a camera. Subjects were intervened for 6 weeks, with 2 sessions/week with a duration of 50 minutes/session.</p>	<p>Six male subjects with an average age of 69 years (38-85). Group discussions help the subject to express feelings openly, namely frustration and hopes for physical and emotional rehabilitation: "fight like a ferret", an expression used by the group. The group in the study produced several art and photographic objects to be made into a film. The median score for the Hospital Anxiety and Depression Scales (HAD) in the group was 8 (abnormal) at the start of the study, and changed to 6 at the end of the study (normal).</p>

No.	Title and author	Method	Results
4.	Social context, art making processes and creative output: a qualitative study exploring how psychosocial benefits of art participation during stroke rehabilitation occur (J. Morris et al., 2016)	<p>Analysis Thematic analysis, cross-referenced.</p> <hr/> <p>Design The exploratory qualitative approach study uses an in-depth semi-structured interview subject Subjects consisted of 3 artists and 11 non-artists participants (n=14)</p> <p>Variable a. Psychosocial benefits of art b. Stroke rehabilitation</p> <p>Intervention Tayside Creative Engagement Intervention(TCEI): Identifying and generating ideas, working with materials and creating works of art about something lost during a stroke. The intervention was carried out for 8 weeks, 8 sessions, 40 minutes/session.</p> <p>Analysis Interview data were recorded in audio and transcribed, a systematic approach to data management and using Vivo 9.2, thematic analysis. The framework approach is used to identify themes and develop a conceptual scheme.</p>	<p>Non-medical and social contexts in art facilitate social interaction, provide pleasure, distraction from stroke, and rebuild social identity thereby elevating mood. The process of making art creates self-confidence and self-efficacy, creative attainment, communication, and physical recovery and control over experienced situations and expectations. Creative output involves completing a work of art and displaying the work. It maximizes self-esteem and elevates mood, creating a new identity through positive judgment.</p>

No.	Title and author	Method	Results
5.	Promoting Holistic Well-Being in Chronic Stroke Patients Through Leisure Art-Based Creative Engagement (Sit et al., 2017)	<p>Design This study uses a qualitative design</p> <p>Subject A total of 24 post-stroke patients participated in the study using purposive and snowball sampling</p> <p>Variable a. Holistic well-being in stroke patients b. Leisure Art-Based Creative Engagement</p> <p>Intervention Leisure Art-Based Creative Engagement for 7 weeks, 7 sessions, 2.5 hours/session.</p> <p>Analysis The analysis was carried out by qualitative content manually through an iterative process</p>	<p>A total of 24 participants completed the study: 4 themes emerged from the study subjects' experiences with LACE: 1) Appreciation of opportunity; 2) Appreciation of yourself; 3) Appreciation of others; 4) Appreciation of life. From the perspective of the participants, it shows that LACE maximizes the process of self-expression and enjoyment. Furthermore, LACE creates affirmations for life and empowers the process of strengthening connection and appreciation with oneself and others.</p>
6.	The Effects of Art and Craft Activities on Anxiety and Stress of Stroke Patients (Hoons, 2019)	<p>Design Experimental study with intervention group and control group</p> <p>Subject Patients diagnosed with stroke, 9 patients received interventions for making art, and 9 patients as a control group received conventional occupational therapy.</p> <p>Variable a. Effects of arts and crafts activities b. Anxiety and stress in stroke patients</p> <p>Intervention The intervention was carried out for 30 minutes/session,</p>	<p>The results of the study based on the comparison of the two groups showed that the intervention group had more significant results on anxiety and stress ($p < 0.05$). These results demonstrate that arts and crafts activities can reduce anxiety and stress in stroke patients</p>

No.	Title and author	Method	Results
		3x/week, for a total of 8 weeks. Analysis The study uses the t-test	
7.	Art Therapy Outcomes in the Rehabilitation Treatment of a Stroke Patient: A Case Report (Kim et al., 2008)	Design Case report Subject Patients with subarachnoid hemorrhage due to ruptured cerebral aneurysm Variable a. Drawing therapy b. Stroke rehabilitation patient Intervention Drawing therapy for 10 weeks, 2x/week, 40 minutes/session Analysis Descriptive	Drawing therapy assists patients in increasing emotions and meanings, as well as monitoring emotions and meanings that cannot be detected with conventional rehabilitation therapy. The results of the MMSE, MVPT, and psychological tests showed an increase in visual perception and meaning, motor activity, and function as a secondary effect. Studies conclude that art therapy can have a positive effect on chronic stroke patients.
8.	Without Words: Relational Neuropsychology and Creative Arts Therapies with People Managing Aphasia (Chilcote, 2021)	Design Case studies with quantitative and qualitative approaches Subject Two post stroke participants with aphasia Variable a. Creative arts therapy b. Cognitive and clinical therapeutics Intervention Creative arts psychotherapy 5-6 sessions (weekly), 75 minutes/session. Materials use crayons, paper, watercolors, pencils, etc. Analysis WAB-R AQ Program, Linguistic Inquiry and Wird Ciunt (LIWC),	Creative Arts Therapy on cognitive impact shows significantly that there are perceptual-motor changes, executive function, memory, differences in limitations on language production. Meanwhile, the clinical therapeutic results show an increase in mood, involvement, and relational experiences.

DISCUSSION

The results of the article search found 8 studies to be reviewed. This study aims to identify and discuss the benefits and effectiveness of visual arts interventions on psychological responses in stroke survivors. Kongkasuwan et al. (2016) conducted a study of 113 patients with the intervention group receiving conventional therapy and creative arts therapy and the control group only receiving conventional therapy. The study showed that art therapy 2 times a week in combination with conventional physical therapy 5 times a week for 4 weeks reduced depression, improved function and quality of life. Art therapy can affect patient well-being, combat and prevent self-isolation, and improve stroke patient expectations.

JH Morris et al. (2019) conducted a single-blind study with a randomized controlled trial in the form of a visual art intervention for 1 session/week with artists and 1 session with other respondents and the intervention was carried out in 8 sessions. The results show that art interventions in stroke patients during the rehabilitation period can be carried out and can improve post-stroke patient welfare, positive affect, and self-efficacy. However, the challenges of art interventions require adjustments and ensuring that participants are really interested in participating in research until the final stage.

Research results by JH Morris et al. (2019) also corroborated by previous studies conducted by Ali et al. (2014) that art therapy can and should be done in hospital rehabilitation for stroke patients. Art therapy has been shown to facilitate emotional support for participants, assist them in expressing themselves, and socializing with other participants. Participants in the study also received safe facilities in expressing their worries and fears about the future, engaging in creative and memorable activities. Respondents also learned new things such as using an iPad to create digital images.

J. Morris et al. (2016) in his qualitative study shows that participation in art for stroke rehabilitation patients stimulates positive mood, gets pleasure through the process of making art, and regenerates his social identity. Art therapy also provides distraction from the effects of illness, increases self-esteem, helps in communicating through art, trains the upper extremities that are affected through art, and increases confidence in creating works of art and in life.

Art therapy for stroke patients can also be performed by nurses on the basis of Jean Watson's caring theory. The theory is proved by Sit et al. (2017) that creative art-based activities are a suggestion in providing caring to stroke patients. This arts-based intervention maximizes patients' self-expression, enjoyment, strengthening self-appreciation, connection with others, and affirmation of life. Creative art therapy can also be a caring modality to restore harmony between one's mind and body, especially in stroke patients.

Brain damage in patients often results in anxiety, depression, decreased self-esteem as a result of a person's decreased capabilities. Based on study studies by Hoons (2019) showed that arts and crafts activities can reduce anxiety and stress in stroke patients. This is reinforced by previous studies by Kim et al. (2008) that art therapy provides strong motivation for patients to increase capacity in daily life and through art-making activities that involve motor function, visual perception, and cognitive function. In addition to the positive impact on psychology, other benefits of art therapy have been proven by Chilcotes (2021) that such therapy train cognitive function, perceptual-motor, executive function, and memory.

CONCLUSION

Visual arts therapy with various methods such as drawing, painting, and digital has proven to be effective for psychological responses in stroke sufferers. The benefits and effectiveness of visual arts therapy can be felt from 7 to >20 sessions. Visual arts therapy can

and/or is appropriate in the hospital for post-stroke patients. Apart from having a positive impact on psychology, visual arts therapy can also train motor, cognitive, and memory functions in post-stroke patients.

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