INPLASY

Effects of Art Therapies on Schizophrenia: A Systematic Review and Network Meta-Analysis of Randomized Controlled Trials

Corresponding author:
Yuyin Wang

wangyuy2@mail.sysu.edu.cn

Author Affiliation:
Department of Psychology, Sun Yat-sen University.

LI, JD; Ji, SN; Jiang, YX; Wang, YY.

ADMINISTRATIVE INFORMATION

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 September 2024 and was last updated on 16 September 2024.

INTRODUCTION

Review question / Objective Which Art Therapies are Used for Schizophrenia?Do Art Therapies Benefit Schizophrenia?Which Art Therapies are Most Effective?

Condition being studied Schizophrenia is a debilitating disease, ranked among the top 10 causes of disability worldwide. According to the World Health Organization (2023), it affects approximately 24 million people, or 1 in 300 (0.32%), globally, impacting all areas of life, including personal, family, social, educational, and occupational functioning. This meta-analysis aims to assess the impact of art therapy on four key areas in individuals with schizophrenia: symptom management, cognitive functioning, quality of life, and social functioning.

METHODS

Search strategy The search strategy will include terms: art therapy[MESH], art psychotherapy, creative arts therapies, expressive arts therapy, painting therapy, music therapy, music intervention, musical therapy, psychodrama, drama therapy or dramatherapy, sandplay therapy, sandplay therapies, Calligraphic therapy, Chinese calligraphy handwriting, dance therapy, writing therapy, therapeutic writing, writing as therapy, schizophrenia, psychosis , psychoses, psychotic disorder and schizophrenic disorder. Electronic databases include Web of Science, Scopus, PubMed, MEDLINE, PsycINFO, EMBASE, Cochrane Library, ScienceDirect, CNKI, Wanfang, and VIP databases.

Participant or population Patients with schizophrenia.

Intervention Art therapy. Referring to the definitions of the American Art Therapy Association (AATA) and the British Association of Art Therapists (BAAT), we define art therapy as a psychotherapy that uses art media as a means of self-expression and communication. The types of art therapies include music therapy, painting therapy, writing

therapy, dance therapy, clay therapy, drama therapy, play therapy, and more. Any intervention using art media as a therapeutic tool for schizophrenia was included. However, we did not require the therapy to be formally stated as art therapy.

Comparator Standard treatment, or treatment as usual (TAU). It refers to the usual care received by individuals with schizophrenia outside the research context. In our analysis, waiting list control groups were categorized as TAU. Studies with untreated control groups were excluded.

Study designs to be included Randomized Controlled Trials (RCTs).

Eligibility criteria Only papers published in peer-reviewed journals, in either English or Chinese, that report findings from randomized controlled trials (RCTs) will be included. Conference papers, unpublished data, and papers reporting findings from non-experimental or observational studies will be excluded.

Information sources Web of Science, Scopus, PubMed, MEDLINE, PsycINFO, EMBASE, Cochrane Library, ScienceDirect, CNKI, Wanfang, and VIPdatabases.

Main outcome(s) We defined symptoms (including positive and negative symptoms), cognition, quality of life, and social functioning as primary outcomes. Numerous instruments are available to measure each of these outcomes, and we imposed no prior limitations on the instruments used for measurement, allowing for flexibility in capturing a wide range of outcomes. However, to ensure methodological rigor, we identified the instruments used for each outcome from the included literature and counted their frequency of use. In the primary analysis, the most frequently used and validated instruments were prioritized. If only one eligible instrument was available for a given outcome, that instrument was used.

Data management To screen studies, we will first remove duplicate records in EndNote. Then, two researchers will independently screen each title and abstract for duplicates. Any discrepancies in study selection will be resolved through consultation with a third reviewer, ensuring consistency across all stages. The same approach will be used for full-text screening. Subsequently, two researchers will independently extract post-mean, SD, and n, or other appropriate data from the selected studies, considering both main reports and supplementary materials, and will enter

the relevant information into a Microsoft Access database specifically created for this study.

Quality assessment / Risk of bias analysis We will assess the risk of bias using the Cochrane Collaboration's risk of bias tool 2 (RoB 2) (Sterne et al., 2019), which includes biases arising from the randomization process, deviations from intended interventions, missing outcome data, measurement of the outcome, and selection of the reported result. Discrepancies in quality assessments will be addressed through discussion, and if needed, negotiation with a third reviewer. To assess the credibility of each comparison, we will use CINeMA (Confidence in Network Meta-Analysis). This online tool, designed by the Cochrane Comparing Multiple Interventions Methods Group, is an adaptation of GRADE for network meta-analyses (Nikolakopoulou et al., 2020; Papakonstantinou et al., 2020). In line with recommended guidelines, we will make judgments for each comparison regarding within-study bias, reporting bias, indirectness, imprecision, heterogeneity, and incoherence. Similar to GRADE, we will initially consider the evidence for comparisons to show high confidence and then downgrade it based on concerns in each domain.

Strategy of data synthesis We will perform random effects NMA in a frequentist framework using the netmeta package (Balduzzi et al., 2023) in R 4.3.3. A map of the network will be generated for each analysis. NMA will provide between-group standardized mean difference (SMD) effect sizes based on direct and indirect evidence between each intervention, as well as 95% confidence intervals (95% CI). If the 95% CI does not include 0, the effect will be considered statistically significant. Cohen's d interpretations will be used to describe the effect sizes: small (0.2), medium (0.5), and large (0.8). Publication bias will be assessed using adjusted funnel plots.
To verify the assumption of transitivity and ensure the consistency of our network, we will apply two methods: chi-squared statistics for the full model and p-values for the direct vs. indirect standardized mean differences (SMD) in each connection. When evidence of inconsistency is identified, the source will be explored in sequence: (1) investigation of errors in data entry and intervention categorization, (2) inconsistencies in population/study quality that could explain the discrepancy, and (3) reassessment of the intervention categorization.
We will use P-scores to rank treatments, which measure the certainty that one treatment is better than another, averaged over all competing treatments. P-scores range from 0 to 1, with higher

values indicating a higher probability of being the best treatment. A higher P-score will indicate that this treatment is more likely to be effective compared to others. The P-score has been shown to be equivalent to the SUCRA (Surface Under the Cumulative Ranking) score (Rücker & Schwarzer, 2015).

Subgroup analysis Subgroup analyses will perform to identify sources of heterogeneity by categorizing the trials into (1) English vs. Chinese, (2) below vs. above the median intervention duration, and (3) high-risk vs. low-risk studies.

Sensitivity analysis To ensure the robustness of our findings, we will conduct a series of sensitivity analyses, including: (1) pooling multiple effect sizes from a single study into one effect size, (2) sequentially analyzing the three most frequently used scales, and (3) including only follow-up data.

Language restriction English and Chinese.

Country(ies) involved China.

Keywords network meta-analysis, art therapy, schizophrenia, symptoms, cognition, quality of life, social functioning.

Contributions of each author
Author 1 - Jinde Li - Author 1 contributed to the conceptualization of the study, performed the data analysis, and drafted the manuscript.
Email: lijd37@mail2.sysu.edu.cn
Author 2 - Shuning JI - Author 2 conducted the literature search, performed the literature screening, and extracted the data.
Author 3 - Yuxing Jiang - Author 3 conducted the literature search, performed the literature screening, and extracted the data.
Author 4 - Yuyin Wang - Author 3 provided guidance on the manuscript writing and contributed to the revision of the draft.
Email: wangyuy2@mail.sysu.edu.cn