

Peer Review

Review of: "Effect of Clown Therapy on Symptoms and Emotions of Children with Neoplastic Disease: A Systematic Review with Meta-Analysis"

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This systematic review and meta-analysis addresses a clinically relevant and underexplored supportive-care intervention in pediatric oncology by evaluating the effectiveness of clown therapy on symptom and emotional outcomes among children with neoplastic disease. The study demonstrates several methodological strengths, including protocol registration in PROSPERO, adherence to PRISMA guidelines, comprehensive database searching, application of the RoB 2 tool, use of random-effects meta-analysis, and structured evidence grading using GRADE. The inclusion of multiple psychosocial outcomes such as anxiety, pain, fatigue, fear, and mood provides a broad evaluation of patient-centered benefits and highlights the importance of nonpharmacological supportive therapies in pediatric oncology.

However, the conclusions are substantially limited by the quality and consistency of the available evidence. All included studies were quasi-randomized and judged to have a high risk of bias, particularly due to lack of blinding and potential outcome assessment bias. The small number of studies and participants, along with extremely high statistical heterogeneity ($I^2 > 90\%$ for several outcomes), weakens the reliability of pooled estimates. Additionally, considerable variability in intervention delivery—including duration, professional training of clown therapists, individual versus group sessions, and procedural versus inpatient settings—limits comparability and generalizability. The inclusion of one study available only as an abstract further restricts interpretability of methodological rigor and intervention details.

The large reported effect sizes, particularly for anxiety reduction, should therefore be interpreted cautiously, as they may reflect methodological bias or contextual variability rather than true clinical

magnitude. The discussion appropriately acknowledges these limitations but could further emphasize the risk of overestimating treatment effects and the need for standardized intervention protocols and outcome measures. Future research should prioritize multicenter randomized controlled trials with blinded outcome assessment, standardized clown therapy training frameworks, and longer follow-up periods to evaluate sustained psychological and quality-of-life outcomes.

Overall, this review provides a valuable synthesis of emerging evidence supporting clown therapy as a promising adjunctive intervention in pediatric oncology. Nevertheless, current evidence remains insufficient to support routine clinical implementation, and further high-quality trials are required to establish definitive effectiveness and implementation guidelines.

Declarations

Potential competing interests: No potential competing interests to declare.