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The role of puppetry in mental health promotion: A scoping review of its efficacy and applications

Wahiba Abu-Ras [a], Ahmed Al-Kubaisi [b], Leena Babiker Idris [c], Basil H. Aboul-Enein [d,e,*]

[a] Adelphi University, School of Social Work, Garden City, NY, USA
[b] Qatar university, College of Arts, Department of Social Sciences, Doha, Qatar
[c] Sudan Medical Specialization Board Khartoum, Sudan
[d] University of Massachusetts Dartmouth, College of Arts & Sciences Health & Society Program, 285 Old Westport Rd, North Dartmouth, MA 02747, USA
[e] London School of Hygiene & Tropical Medicine, Faculty of Public Health and Policy, 15-17 Tavistock Place, London WC1H 9SH, United Kingdom

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ABSTRACT

Puppetry-based interventions have gained recognition as a potential tool in therapeutic, educational, and social contexts, offering unique benefits in emotional expression, anxiety reduction, and social skills development, thereby contributing to mental health promotion. This review aims to bridge the gap between practice and theory, providing a comprehensive understanding of the role of puppetry in therapeutic and educational settings for promoting mental health. A scoping review was conducted using the PICOS framework and PRISMA-ScR guidelines, examining studies across 16 databases up to August 2024. This review evaluated 30 studies to assess the effectiveness of puppetry-based interventions across diverse populations, including children, adolescents, and vulnerable groups such as refugees and the elderly. The findings demonstrate significant improvements in emotional regulation, anxiety management, and social interaction, particularly in pediatric and educational settings. However, the review also identifies critical gaps in the literature, including the limited use of large-scale randomized controlled trials, a scarcity of longitudinal studies, and inconsistent application of theoretical frameworks. These gaps highlight the need for more rigorous and theoretically grounded research to fully optimize the benefits of puppetry-based interventions. This review consolidates existing evidence and offers a roadmap for future research, emphasizing the importance of standardized protocols and long-term outcome evaluations. The findings contribute to the growing recognition of puppetry as a valuable tool in therapeutic and educational practices, offering insights into how these interventions can be effectively tailored to meet the needs of diverse populations.

Introduction

Historically, puppetry-based interventions have been recognized for their therapeutic potential, particularly in engaging individuals across different age groups in expressive and transformative experiences (Bertrand & Bertrand, 1979; Borkin & Frank, 1986). Rooted in the tradition of storytelling and performance art as tools for education and healing, puppetry offers a dynamic medium through which complex emotions and social issues can be explored in a non-threatening, creative manner. This versatility has led to its application in various settings, including mental health care, education, public health, and social work, where traditional therapeutic methods may be less effective or accessible (Bernier & O'Hare, 2005; de Droog et al., 2017; Karaolis, 2023a, 2023b; Kroflin & Amsden, 2022; Segal et al., 2024; Tilbrook et al., 2017).

Research has shown that puppetry can significantly enhance communication, reduce anxiety, and promote emotional regulation, particularly among children and adolescents (Aminimanesh et al., 2019; Rajesh & Jasline, 2022). For instance, in educational contexts, puppetry has facilitated learning and social interaction, helping students articulate their thoughts and feelings more effectively (McLachlan et al., 2009; Moula, 2021). In clinical settings, puppetry has been employed to alleviate preoperative anxiety in pediatric patients, with studies demonstrating its effectiveness in reducing both emotional distress and

* Corresponding author at: University of Massachusetts Dartmouth, College of Arts & Sciences Health & Society Program, 285 Old Westport Rd, North Dartmouth, MA 02747, USA.
E-mail addresses: abu-ras@adelphi.edu (W. Abu-Ras), aa2104253@qu.edu.qa (A. Al-Kubaisi), dr.leenababiker95@gmail.com (L.B. Idris), baboulenein@umassd.edu, Basil.Aboul-Enein@lshtm.ac.uk (B.H. Aboul-Enein).

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physiological responses to stress (Roshanzadeh et al., 2020; Suzan et al., 2020).

In this review, effectiveness is defined as the extent to which puppetry-based interventions achieve meaningful and measurable outcomes in real-world settings, addressing participants' emotional, psychological, and social needs. It encompasses statistically significant improvements in primary outcomes (e.g., anxiety reduction, behavioral change) and the intervention's relevance, acceptability, and sustainability within its context (Glasgow et al., 1999; Kazdin, 2001). This approach integrates both quantitative and qualitative measures to assess the practical impact of interventions beyond controlled research environments.

Beyond clinical and educational applications, puppetry has also been utilized to address mental health stigma and enhance emotional resilience among vulnerable populations, such as refugees, prisoners, and individuals with chronic mental health conditions (Beauregard et al., 2024; Segal et al., 2024). These interventions often combine puppetry with other forms of creative expression, such as drama, music, and visual arts, creating a holistic approach to healing and personal development (Gaiha et al., 2023; Page et al., 2022).

However, despite the growing body of evidence supporting the efficacy of puppetry-based interventions, significant limitations persist in the current literature. Many studies are constrained by small sample sizes, lack of control groups, and short-term follow-up periods, limiting the generalizability and long-term applicability of the findings (Butler et al., 2009; Ceylan & Erkut, 2023). Additionally, the theoretical frameworks underpinning these interventions are often inconsistently applied, leading to a fragmented understanding of the mechanisms through which puppetry exerts its therapeutic effects (Ingraham et al., 2019; Reid-Searl et al., 2017).

Given the diverse applications of puppetry in therapeutic, educational, and social settings, a comprehensive scoping review is essential to assess its effectiveness across these domains. This review will systematically examine the existing literature, categorizing and analyzing studies based on population demographics, theoretical frameworks, types of interventions, methodologies, and outcomes. By identifying areas where further research is needed—particularly in standardizing intervention protocols, integrating theoretical models, and evaluating long-term outcomes—this review aims to bridge the gap between practice and theory, offering a more comprehensive understanding of the role of puppetry in various contexts. Ultimately, this work seeks to inform the design of future studies, promoting the development of more effective and theoretically sound puppetry-based interventions in mental health promotion.

Methods

Search strategy

This review used the PRISMA-ScR extension for scoping reviews guidelines (Tricco et al., 2018). A comprehensive search was conducted within 16 bibliographic databases using a combination of subject heading keywords, terms, phrases, and Boolean operators (see Table 2). Search strategies were adapted based on the indexing systems of each respective database used (see supplemental material). Two of the authors [B.A.E. and W.A-R.] conducted the searches for relevant articles. Author [B.A.E] utilized Rayyan QCRI software (Ouzzani et al., 2016) to assist in the screening process while author [A.A-K.] used the Elicit software to elicit more relevant articles to the review. All retrieved articles were screened for relevance to the topic. Another author [W.A-R.] used the Elicit software to elicit more relevant articles to the review. In addition, reference lists from retrieved articles were also hand-reviewed to identify any additional relevant publications. Titles and abstracts were screened for relevancy, and potentially relevant journal abstracts were reviewed by two authors [W.A-R. and A.A-K.]. Potential articles for inclusion in this review were evaluated independently for relevance, merit, and inclusion/exclusion criteria. Articles accepted for inclusion were individually reviewed by each author. Additionally, each study was assessed by an independent reviewer, and the reference list of each included article was screened for potentially eligible articles. Any disagreement was resolved by consensus. Fig. 1 provides the PRISMA flowchart leading to selected articles for this review (see Fig. 1). We explored the characteristics of interventions, target audiences, and program outcomes and tabulated the included studies (see Table 3). Given that methodological quality assessment is not a prerequisite for scoping reviews, we did not appraise the included studies (Peters et al., 2020).

Table 1
PICOS Criteria for inclusion and exclusion of studies.

Parameter	Inclusion Criteria	Exclusion Criteria
Date Range	Up to and including August 2024	N/A
Population	• Adults > 18years • children and young people aged 0–17years	• Chronic or acute conditions • Developmental disabilities
Intervention type	Any mental health intervention using any form of puppetry either as the primary intervention or as part of a multi-componential intervention	• Interventions that are not based on the use of puppetry. • Interventions that do not address mental health-related outcomes.
Focus of study	• Studies focusing on primary mental health intervention	• Studies excluding mental health interventions and other interventions • Studies discussing mental health as an afterthought in the discussion
Outcomes of interest	• Any mental health-related outcomes of interest	• N/A
Language	English	All other languages
Study Type	Intervention studies, RCTs, quasi-experimental, longitudinal, cross-sectional, qualitative studies, or conference papers with mental health intervention component assessment outcomes, case studies with an intervention component	Commentaries, narratives, editorial communications, opinion pieces, government reports, guidance documents, book reviews, theses and dissertations, systematic, scoping, rapid and literature reviews

Abbreviations
N/A – Not applicable
RCTs – Randomized control trials

Table 2
Electronic Databases Used with Relevant Search Period and Terms.

Databases	Search Period	MeSH keywords, terms, phrases, and Boolean operators
PubMed; MEDLINE; Embase; BioMed Central; ScienceDirect; ArticleFirst; BioOne; BIOSIS; CINAHL; EBSCOHost; ProQuest; SAGE Reference Online; Scopus; SpringerLink; Taylor & Francis; and Wiley Online	Up to and including August 31st 2024	(All fields) mental health OR mental wellbeing OR mental wellness OR psychosocial OR psychological AND (All fields) Puppets OR puppetry OR puppeteer OR puppet show OR marionette OR ventriloquy OR ventriloquism AND (All fields) Intervention OR education OR promotion OR program

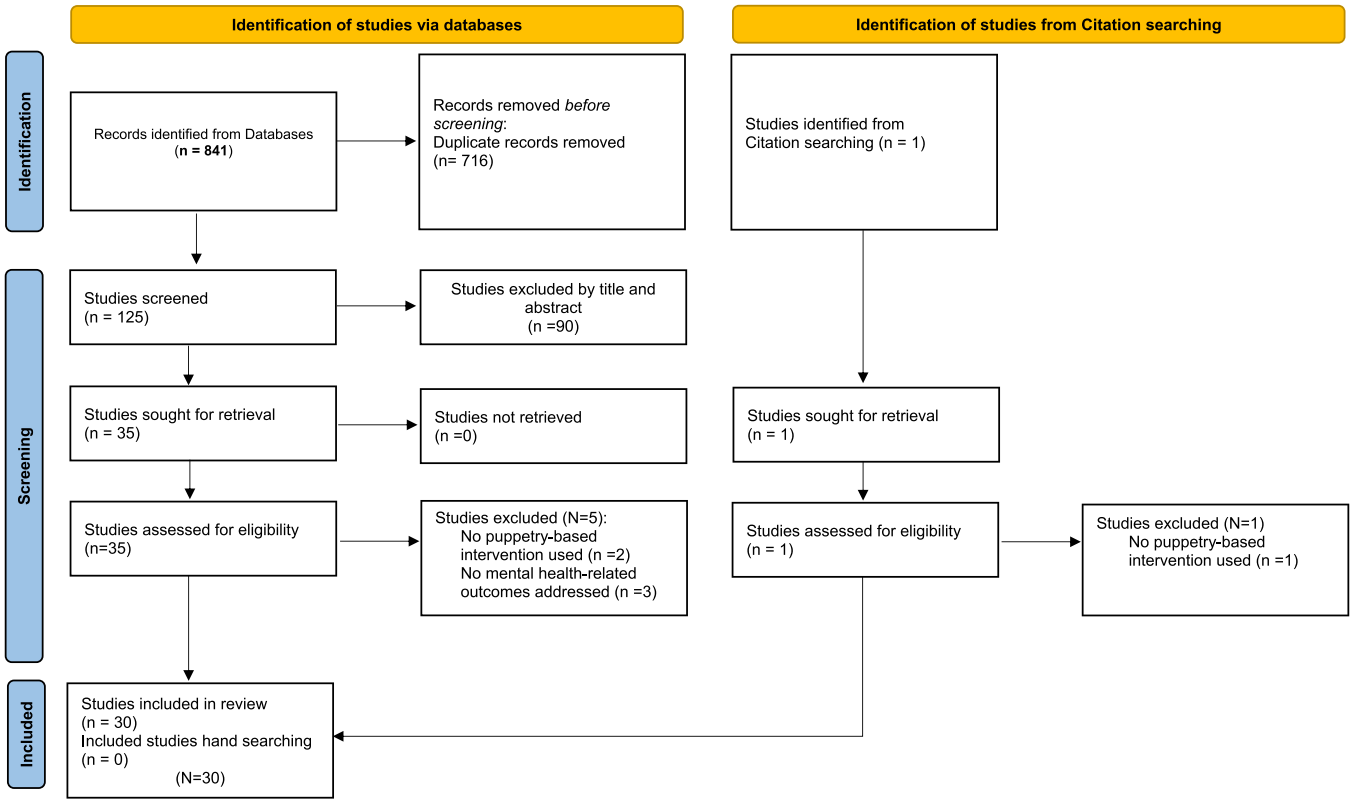

Fig. 1. PRISMA Flow diagram.

Selection criteria

The Population, Intervention, Comparison, Outcomes, and Study (PICOS) design guidelines (Higgins et al., 2019) were incorporated to develop the research question: 'Do populations of all age groups" (P) that are offered puppetry-based interventions (I) have improved mental health and wellness parameters (O) compared with those that do not participate in puppetry-based interventions(C)?'. This framework informed the inclusion and exclusion criteria (see Table 1). Peer-reviewed articles published in the English language were included. Interventions reported outside traditional peer-reviewed articles were excluded in this review. The search was conducted in the summer of 2024, and the results communicate the literature published up to and including August 2024.

Results

This narrative summary organizes the findings from 30 included studies, detailing their focus on populations, use of theoretical frameworks, types of interventions, methodologies, and intervention results.

Country and population of the studies

The reviewed studies spanned multiple countries and targeted a diverse range of populations. Children were the primary focus in 21 studies, ranging from preschool to adolescence. In Iran, Aminimanesh et al. (2019) studied preschool children, Roshanzadeh et al. (2020) targeted children aged 3–6 years, and Zavariani et al. (2023) focused on children in general. In Turkey, several studies focused on children undergoing surgery, including Suzan et al. (2020), Ceylan and Erkut (2023), Metlek and Çağlar (2024), Oluç and Sarialioğlu (2023), Bayar et al. (2024), Kostak et al. (2021), Kurt and Seval (2021), Yaz et al. (2024), and Tuncay and Sarman (2024). Additionally, McLachlan et al. (2009) in the USA and Topan and Sahin (2019) in Turkey studied school-aged children, while Wang et al. (2024) in Turkey examined children aged 4–8 years.

Adults were the main population in five studies. Gaiha et al. (2023) focused on college youth in India, Ingraham et al. (2019) targeted primary care providers in the USA, Reid-Searl et al. (2017) studied nurses in pediatric care in Australia, Ward-Miller et al. (2019) focused on women with self-injurious behavior in the USA, and Page et al. (2022) conducted research on prisoners in England. Special populations were examined in four studies. Beauregard et al. (2024) conducted a case study of a 7-year-old Syrian refugee in Canada, Segal et al. (2024) focused on refugees in the USA, Lestari et al. (2022) targeted elderly individuals in Indonesia, and Pitre et al. (2007) addressed mental illness stigma in elementary school children in Canada.

Type of interventions

The review shows two type of interventions: participant-created puppets, and pre-made puppets.

Studies using participant-created puppets

Two studies utilized participant-created puppets. Gaiha et al. (2023) involved college students creating puppets as part of an arts-based intervention aimed at reducing mental health stigma and fostering empathy. Moula (2021) engaged primary school children in creating puppets as part of art therapy, facilitating emotional expression and improving well-being. These studies show enhanced emotional expression and well-being, demonstrating diverse applications across healthcare, education, emotional development, and professional training.

Studies using pre-made puppets

The remaining 28 studies employed pre-made puppets across various contexts:

Table 3
Summary of literature search (N = 30).

Authors (Year)	Target Population/ Country	Type of Study	Sample Size	Type and details Intervention	Theoretical Framework	Measured Parameters	Main Results	Main Recommendations
Aminimanesh et al. (2019)	Preschool children aged from 3 to 5 years. Iran	Interventional study using pretest-post-test design	N = 75 children	Exposing 2 test groups to musical puppet shows and storytelling.	Social Learning Theory	PCBP "aggression, inattention, withdrawal, and anxiety"	Compared to storytelling, puppet shows have a stronger influence on improving PCBP. Socially favorable behaviors were more common among puppet shows group.	Kindergartens are encouraged to exploit children's passion for puppets and stories to improve their BP instead of solely relying on drugs.
Beauregard et al. (2024)	7-year-old Syrian refugee Canada	School arts-based intervention	Single Case Study	Examining the case of refugee young girl who invested the Art school-based creative expression program.	N/R	Senses of control and agency in post-crisis context	By the process of meaning-making, the girl's engagement in art-creativity helped her find a balance and regain a sense of agency and emotional stability.	School art-based interventions held in open environments that foster listening to refugees can be used as a coping strategy to enhance their adaptability.
Burarak (2021)	Junior high school students Thailand	Participatory Action Research	N = 79	Focus group discussions coupled with in-depth interviews with the participators in puppet activities.	Communication Framework	School Violence	Participatory puppet shows encourage discussion of school violence issues, foster empathy, inhibit students' violence, and raise their awareness.	Puppet shows that match students' prior experiences is a potential strategy for alleviating violence as it fosters their mutual understanding and acceptance.
Butler et al., (2009)	8-year-old male student USA	Clinical application	Single Case Study	Interventional sessions were made with the use of puppets to externalize clients' problems	Narrative Therapy	Aggressive behaviour	With the use of puppets, narrative therapy helps externalising the problem and separating the client from it.	Integrating puppets into narrative therapy can help objectify the problem and create a playful space, but it depends on clients' consent.
Domek et al. (2020)	Caregiver-child pairs USA	Pilot Investigation	N = 34	Caregivers were given finger puppets and learnt how to use them. Then, ASQ−3 was used to check their satisfaction with the puppets as an intervention.	Attachment Theory	Language development	More frequent use of puppets is significantly associated with higher ASQ−3 total scores across all age levels and higher puppet usage is associated with stronger communication.	Finger puppets offer a simple and affordable way of augmenting early infancy linguistic capabilities and promoting language interactions.
Gaiha et al. (2023)	College youth India	Pilot arts intervention	N = 371	Participants were required to create art works (e.g., puppet shows) that help them understand the causes and signs of mental ills.	Stigma and Social Identity Theory	Mental health-related stigma	Out of 371, 194 participants developed a better understanding of mental issues and stronger empathy for mentally ill people.	Studying the effectiveness of arts-based intervention in reducing stigma associated with mental health issues using mixed-method and pre-and post-intervention
Ingraham et al. (2019)	Primary care providers USA	Pilot study Pre-and-Post training assessment	N/R	Simulated training environment is designed to develop physicians' preparedness to address NSSI.	N/R	Physicians' preparedness to address suicidal behavior	Based on gestures and head movements, digital puppets that mimic patients' behavior may help refine physicians' ability to address NSSI.	Adopting gesture-based virtual puppetry system creates an effective environment for scenario rehearsal which approximates real-life behaviors.
Lestari et al. (2022)	Elderly people Indonesia	Pre-posttest Quasi-experimental	N = 34	Using consecutive sampling, and then distributing DASS	N/R	Elderly anxiety	Laughter therapy using shadow puppets' video effectively	Healthcare centers are suggested to integrate laughter therapy into playing videos of

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Table 3 (*continued*)

Authors (Year)	Target Population/ Country	Type of Study	Sample Size	Type and details Intervention	Theoretical Framework	Measured Parameters	Main Results	Main Recommendations
				among participants.			reduced elderly anxiety with a $p = 0.001$	puppets to reduce elderly anxiety.
McLachlan et al. (2009)	6–8 years old students USA	Pre and posttest	N/R	Applying motion locomotion program to teach children how to recognize and treat others' emotions using language cards and puppets	Emotional Learning Theory	Recognition and healthy treatment of emotions	Students' role-playing during puppet shows increased the legitimacy of their emotion expression and developed their dealing with others' emotions.	School nurses are assumed to widen their impact on students' health by adopting creative health education programs. Motion locomotion program can be one of them.
Moula (2021)	Primary school children England	Pilot randomized controlled study	N = 62	Four art therapy programs were distributed across four schools, then children were interviewed to understand their experiences of performing creative arts.	Empowerment Theory and PERMA	Mild emotional and behavioral difficulties	The creative arts that affected children's wellbeing greatly were story-making and storytelling, drawings, puppetry, and songwriting as they led to emotional expression and group-bonding.	Creating opportunities for school children to engage in creative arts may help fulfill their wellbeing needs especially in crisis contexts like covid−19 pandemic.
Page et al. (2022)	Prisoners, some with autism. England	Art-based prison projects	N = 45	Four art programs were implemented including drama, dance, puppetry, and singing. Then, prisoners were interviewed to examine the effect of the art project on their mental health	Desistence Theory and Social Learning Theory	Sex offending and autistic traits	Prisoner-based arts enhance self-esteem and confidence, develop better relationship with inmates and jail staff, and build up a better prison culture. Across all arts, dance stood out due to its effect on prisoners' physical fitness and sleep.	Facilitating the attendance of prisoners' family and friends at their arts performance is needed. Training jail staff and prisoners on how to treat prisoners with behavioral issues is needed.
Pitre et al. (2007)	Elementary school children Canada	Pre and posttest	N = 36	Exposing the experimental group to hand puppets that represent individuals with mental ills to challenge their stereotype, then, distributing OMIS to them.	Attribution Theory	Stigmatizing attitudes toward mental illness	Scores for the test group improved significantly on three of six factors of OMIS including Separatism, Restrictiveness, and Stigmatization.	Puppetry plays can be used as part of anti-stigma programs, and they should be further examined.
Rajesh and Jasline (2022)	Hospitalized children India	Pre and posttest	N = 100	Exposing the test group to puppet plays. Then, a comparison between the test and control group was conducted statistically.	N/R	Anxiety	Puppet plays effectively reduce anxiety among hospitalized children.	N/R
Reid-Searl et al. (2017)	Nurses use puppets in pediatric settings Australia	Focus group sessions using open-ended questions	N = 13	Allowing nurses to learn, implement, and evaluate the use of puppets with children, then eliciting their experiences.	PUP-ED (KRS) Framework	Nurses' experience with the use of puppets with children	Using puppets helps nurses reduce children's fear and break down the barriers	Nurses should integrate play puppets into their pediatric healthcare to soothe the burden on children, but their practice should be guided by a developed framework such as PUP-ED.
Roshanzadeh et al. (2020)	3–6 years old Children Iran	Clinical trial and	N = 90	Allowing children to watch 15 minutes of	N/R	Anxiety	Children's anxiety reduced significantly after	Visual deviant techniques can be used with children

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Table 3 (*continued*)

Authors (Year)	Target Population/ Country	Type of Study	Sample Size	Type and details Intervention	Theoretical Framework	Measured Parameters	Main Results	Main Recommendations
		interventional study		animation and puppet shows shortly before doing the surgery			the intervention ($P = 0.02$) and puppet shows had a greater effect on anxiety compared to animation ($p > 0.001$).	before surgery because of its profound impact on their anxiety
Segal et al. (2024)	Refugees USA	Pre-and post-puppet show	N = 107	Puppet shows were used as educational tools, then, participants were requested to provide their feedback on the efficacy and entertainment of puppets.	N/R	Refugees' experience with resettlement	Respondents aged 29 and younger found the puppet shows more valuable than other ago groups. Elderly people found it more entertaining but less valuable.	The audiovisual use of puppets is suggested to present issues that may be difficult to be discussed using conventional verbal means
Suzan et al. (2020)	7–11 years old Children having surgery Turkey	Randomized controlled experiment	N = 81	Pain-rating and State-Trait Anxiety Inventory for Children scales were to measure the score of pain.	N/R	Children's anxiety and pain	The median pain score of the test group during and after the procedure was significantly lower than the control one. Puppet show played during the surgery effectively reduced pain and anxiety.	Healthcare providers in pediatrics are suggested to perform puppet shows during the surgery. Further research is needed to examine the effect of video-recorded puppet shows on children's anxiety and pain.
Van der Hoeven et al. (2021)	Children, mothers, and professionals in DV shelters Netherlands	Interventional study using 8-sessions therapeutic program	N = 34	Executing a play therapy program using hand puppets and seeking interviewees' feedback on its perceived benefits and barriers.	Emotional Security Theory	Domestic violence	Three themes emerged from interviews including "tunny is nice and funny", "the tunny is just like us" and "tunny invites us to ask questions and give advice on sensitive issues"	Children may use puppets to project their own problems onto it and to address their concerns.
Ward-Miller et al. (2019)	Women with self-injurious behavior USA	Pre-and post-intervention	N = 16	A psychoeducation program was implemented using hand puppets as a teaching technique then, RS was distributed to measure resourcefulness.	Resourcefulness Theory	Resourcefulness skills	Based on participants' reports, hand puppets were useful in performing resourcefulness skills. The scale scores increased insignificantly.	To strengthen participants' involvement in psychoeducation programs and skills acquisition, the use of therapeutic puppets is essential.
Zavariani et al. (2023)	Children Iran	Pre-and posttest	N = 20	Implementing 30-sessions training program with the use of puppet shows as an assistive technique.	Social Cognitive Theory	Social aptitude and behavioral issues	Virtual life competencies education using puppet shows promoted children's social skills in the posttest ($P < 0.005$). Virtual training reduced behavioral issues in the posttest ($P < 0.005$)	Further research should use randomized controlled trials with a large sample size, as the research subject is still inadequately investigated.
Topan and Sahin (2019)	School-aged children Turkey	Quasi-experimental study using pre and posttest design	N = 617	MOF Likert scale was used in the pretest phase to measure students' fears. Then, puppets representing doctors were exposed to afraid	N/R	Medical fears	Educational level ($P = 0.001$), age ($P = 0.0001$), previous hospitalization ($P = 0.0001$), and the fear of being sick ($P = 0.0001$) were factors that	N/R

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Table 3 (*continued*)

Authors (Year)	Target Population/ Country	Type of Study	Sample Size	Type and details Intervention	Theoretical Framework	Measured Parameters	Main Results	Main Recommendations
				students. The same scale was applied to measure their fear after the intervention.			affected students' medical fears. Puppet shows representing doctors and parent-son relationship reduced such fears.	
Ceylan and Erkut (2023)	Children aged between 3 and 6 years. Turkey	Interventional study using randomized controlled trial	N = 80	FLACC and CEM scales were distributed to control and test groups. Then, a comparison was made.	N/R	Pain and emotional manifestation	The mean FLACC pain scores of children in the test group were lower than those of control group ($P < 0.001$). CEMS scores before and during the surgery were lower than those of the control group ($P < 0.001$).	Finger puppets can be hired to reduce fears and emotional responses of children undergoing surgery such as blood collection.
Metlek and Çağlar (2024)	Children aged between 3 and 6 years and their mothers Turkey	Prospective and randomized clinical trial using the pre and posttest design	N = 120 Test group N = 80 control group	Children and their mothers used play dough before and after the circumcision. Then, scales were distributed to collect data in pre and post intervention phases	N/R	Children's and Mother's anxiety	The pain and anxiety levels of children and their mothers were statistically lower than the control group ($P < 0.05$). A correlation between children's pain and anxiety and mothers' anxiety was found in the control group ($P < 0.05$).	Therapeutic play TP should be used in pediatric settings during the surgery to relieve the pain of painful medical procedures. TP also enhances communication and mutual trust between nurses and children and their parents.
Oluç and Sarialioğlu (2023)	Children aged from 3 to 6 years. Turkey	Randomized controlled experiment	N = 60 control group N = 60 test group	Therapeutic play method was applied using hand puppets. Then, data were collected using interviews and scales.	N/R	Children's fear and pain	Differences between mean fear and pain level scores between the groups were statistically significant ($P < 0.05$). Pain and fear felt by surgery were reduced using hand puppets.	Owing to their ease of use, affordability, and usefulness, hand puppets are advised to be used when performing surgeries to reduce the pain and fear felt by children.
Bayar et al. (2024)	Children aged from 6 to 12 years. Turkey	Pre posttest unmatched group model	N = 85	Children were randomly split into test and control groups, then children's anxiety in the test group was observed before and after the intervention.	N/R	Children's anxiety	A statistically significant difference between the pre and post intervention in finger puppet and distraction card groups, while there was no difference in the control group.	Non-pharmaceutical methods such as puppets and distraction cards can help manage the anxiety produced by the surgery.
Kostak et al. (2021)	Children aged between 5 and 10 years Turkey	Prospective, randomized, and controlled study	N = 70	Finger puppet play was used with the test group, while providing the control group with a routine care.	N/R	Fear of surgery	Before the surgery, no significant difference was noticed. However, during and after the operation, the hand puppet groups scored less fear compared to the control one ($p < 0.001$)	The use of finger puppet play by parents and nurses is recommended in pediatric clinics to reduce children's fears before, during, and after the operation.

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Table 3 (*continued*)

Authors (Year)	Target Population/ Country	Type of Study	Sample Size	Type and details Intervention	Theoretical Framework	Measured Parameters	Main Results	Main Recommendations
Kurt and Seval (2021)	Children aged between 1 and 5 years Turkey	Randomized controlled trial	N = 90	The control group with routine care, test group 1 and 2 was given hand puppets used by nurses.	N/R	Postoperative pain	Children in the control group scored stronger fears compared to test group 1 and 2 ($P < 0.001$). Control group satisfaction was lower than test ones ($P < 0.001$).	Finger puppet plays can be used to decrease fears felt by children.
Yaz et al. (2024)	3–6 years children Turkey	Randomized controlled study	N = 105	Children were split into control and test groups. Then, WBFPR and CF scales were used to collect data.	N/R	Pain and Fear	A statistically significant difference was found between the bee buzzy and puppet groups and the control group in pain scores ($p < 0.05$). Pain scores were lower in Bee buzzy group compared to the puppet and control ones.	Because of their role in developing communication, decreasing fear, and distracting attention, the use of bee buzzy and puppets during phlebotomy and by nurses is recommended.
Tuncay and Sarman (2024)	5–10 years children Turkey	Time-series randomized controlled trial	N = 72	Based on a random list, children were split into ventriloquist and control groups, then the test group was exposed to male and female puppets before they undergo their surgery.	N/R	Pain, anxiety, and fear	During the surgery, both groups experienced fear, pain, and anxiety. Nevertheless, these emotions were less strong in the ventriloquist group. The same result applies to post-surgery period ($p < 0.05$).	Ventriloquist intervention, integrated with drama techniques, is advised to be used with children to reduce their fear, pain, and anxiety.
Wang et al. (2024)	4–8 years children Turkey	Within participant design using self-report questions	N1 = 70 N2 = 73 N3 = 30	Allowing children to watch two puppet videos on a laptop one representing a prosocial puppet and the another represents an antisocial puppet. Then, children's emotions, concerns, judgements, and behaviors toward both puppets are elicited using 5-point cartoon scale.	Emotional Selectivity Theory	Emotional reactions	Children felt sad after watching the pain of prosocial and antisocial puppets, but they sympathized less with antisocial ones. Second, they were happy with the pleasure of both, but they felt less happy with the antisocial ones. Third, they did not feel happy at others' pain, nor did they feel sad at others' pleasure. This applies for both types of puppets.	Future studies should investigate children's emotional responses to antisocial and prosocial behaviors using people or real-life scenarios instead of video puppets. To validate the study findings, further research may examine emotional responses using facial expression coding or psychological measurements instead of self-report questions.

Abbreviations
PCBP: Pre-school Children behavioral problems
ASQ-3: Ages-Stages Questionnaire – third edition
OMIS: Opinions About Mental Illness Scale
PUP-ED: Puppet-preparation phase, understanding the learner, play in action, evaluation, and debrief.
DV: Domestic Violence
RS: Resourcefulness scale
MOF: medical operations fears
FLACC: Face, Legs, Activity, Cry, Consolability scale.
CEM: Emotional manifestation scale
WBFPR: Wong-Baker Faces Pain Rating Scale
CF: Children's fear scale
N/R: Not reported

Educational and behavioral interventions

Four studies (Aminimanesh et al., 2019; Burarak, 2021; McLachlan et al., 2009; Zavariani et al., 2023) used puppet shows to improve children's social behaviors and reduce aggression and anxiety.

Healthcare and anxiety reduction

Eleven studies (Bayar et al., 2024; Ceylan & Erkut, 2023; Kurt & Seval, 2021; Metlek & Çağlar, 2024; Oluç & Sarialioğlu, 2023; Rajesh & Jasline, 2022; Roshanzadeh et al., 2020; Suzan et al., 2020; Topan & Sahin, 2019; Tuncay & Sarman, 2024; Yaz et al., 2024). These interventions demonstrated that puppet shows reduced children's pre-surgical anxiety and pain and were effective in pediatric healthcare settings to improve communication and alleviate fear.

Training and professional development

Two studies (Domek et al., 2020; Ingraham et al., 2019) utilized puppets for caregiver and physician training, showing improvements in language development and clinical preparedness.

Emotional and psychological development

Six studies (Beauregard et al., 2024; Butler et al., 2009; Lestari et al., 2022; Page et al., 2022; Segal et al., 2024; Van der Hoeven et al., 2021) used puppets to address emotional needs in children in domestic violence.

Training and professional development

Four studies (Domek et al., 2020; Ingraham et al., 2019; Reid-Searl et al., 2017; Ward-Miller et al., 2019). These studies have shown to foster child language development, highlighting their value in early education settings, improved physicians' preparedness to address non-suicidal self-injury, provided a practical tool for clinical education, and improved resourcefulness among women with self-injurious behavior and building their therapeutic skills, respectively.

Type of theoretical framework

The scoping review of 30 studies on puppet-based interventions revealed that 14 studies utilized explicit theoretical frameworks. These frameworks guided the design and interpretation of the research, reflecting the diverse applications of puppetry in different contexts.

Social Learning Theory was used by Aminimanesh et al. (2019) and Page et al. (2022) to explore how behaviors are learned through observation and modeling. Narrative Therapy, employed by Butler et al. (2009), helped clients externalize and reframe their problems using puppets in therapeutic settings. Attachment Theory was applied by Domek et al. (2020) to enhance language development through caregiver-child interactions. Stigma and Social Identity Theory guided Gaiha et al. (2023) in reducing mental health-related stigma through creative expressions. Communication Framework was utilized by Burarak (2021) to address school violence through participatory puppet activities. Emotional Learning Theory, used by McLachlan et al. (2009), focused on emotional recognition and management in educational settings.

Empowerment Theory and Positive Emotions, Engagement, Relationships, Meaning, and Achievement (PERMA), explored by Moula (2021), promoted well-being and emotional expression among children through creative arts. Desistance Theory, investigated by Page et al. (2022), examined the role of arts in promoting behavioral change among prisoners. Social Cognitive Theory was used by Zavariani et al. (2023) to enhance social competence through virtual puppetry.

Attribution Theory, employed by Pitre et al. (2007), addressed stigmatizing attitudes towards mental illness using puppet interventions. Emotional Security Theory, applied by Van der Hoeven et al. (2021), focused on restoring emotional security in children exposed to domestic violence. Resourcefulness Theory, explored by Ward-Miller et al. (2019), used puppetry to build coping skills in women with self-injurious behavior.

The PUP-ED (KRS) Framework (Puppet-preparation phase, understanding the learner, play in action, evaluation, and debrief) described by Reid-Searl et al. (2017), structured the use of puppets in educational and therapeutic settings. Finally, Emotional Selectivity Theory, utilized by Wang et al. (2024), examined children's emotional responses to prosocial and antisocial puppet characters.

Methodology of included studies

The methodologies used in the 30 studies reviewed spanned a wide range of experimental, quasi-experimental, and qualitative approaches.

Randomized Controlled Trials (RCTs) were the most frequently used methodology, appearing in 11 of the studies. RCTs, known for their ability to minimize bias and establish causal relationships, were utilized in studies such as Ceylan and Erkut (2023), Kurt and Seval (2021), Yaz et al. (2024), Suzan et al. (2020), Metlek and Çağlar (2024), Oluç and Sarialioğlu (2023), Bayar et al. (2024), Kostak et al. (2021), Tuncay and Sarman (2024), Moula (2021), and Roshanzadeh et al. (2020). These studies employed RCTs to assess the effectiveness of various puppetry interventions in clinical and educational settings, focusing on outcomes such as pain management, anxiety reduction, and emotional well-being.

A total of nine studies employed different control groups to compare intervention outcomes. These included:

Standard Care Control**:** Two studies (Aminimanesh et al., 2019; Roshanzadeh et al., 2020) used the standard care control group providing participants routine care or baseline interventions to serve as a comparator for the experimental intervention.

Waitlist Control**:** Suzan et al. (2020) assessed the effects of puppet shows in reducing children's anxiety and pain compared to a waitlist group, allowing for a temporal comparison.

Active Comparator**:** Three studies (Rajesh & Jasline, 2022; Topan & Sahin, 2019; Zavariani et al., 2023) provided participants in the control group with an alternative intervention to compare its effectiveness with the puppet-based intervention. In some studies, control groups participated in alternative interventions, such as animation-based interventions or standard educational sessions, to evaluate relative effectiveness (Zavariani et al., 2023).

No-Intervention Control: A few studies (Bayar et al., 2024; Ceylan & Erkut, 2023; Kurt & Seval, 2021) employed control groups with no intervention, serving as a baseline for assessing the impact of the experimental approach

Quasi-experimental designs were employed in three studies, offering a methodological alternative when random assignment was not feasible. These designs were used by Lestari et al. (2022), Topan and Sahin (2019), and Zavariani et al. (2023), allowing researchers to examine the effects of puppetry interventions while accounting for potential confounding variables. These studies focused on outcomes such as anxiety reduction in the elderly during the COVID-19 pandemic, reducing fears of medical procedures in children, and enhancing social competence through virtual puppetry training.

Pre-Post-Test Design were employed in five studies utilized pre- and post-test designs, which measure changes in outcomes before and after an intervention but do not include a control group. Aminimanesh et al. (2019), Rajesh and Jasline (2022), Pitre et al. (2007), McLachlan et al. (2009), and Segal et al. (2024) employed this approach to assess the impact of puppetry on behavioral problems, anxiety reduction, stigmatizing attitudes, emotional recognition, and mental health stigma, respectively.

Pilot studies, conducted in four of the reviewed studies, served as preliminary investigations to test the feasibility and initial effectiveness of puppetry interventions. Domek et al. (2020), Gaiha et al. (2023), Ingraham et al. (2019), and Page et al. (2022) conducted pilot studies to explore the use of puppetry in early childhood development, mental health festivals, physician training, and arts-based interventions with prisoners. These studies provided valuable insights that could inform

larger-scale research.

Single case studies were employed in three studies to conduct in-depth qualitative investigations of puppetry interventions. Beauregard et al. (2024), Butler et al. (2009), and Reid-Searl et al. (2017) used this approach to explore the experiences of individuals or small groups, providing detailed narratives on the integration of puppetry in therapeutic and educational settings.

Participatory Action Research (PAR) was used in one study by Burarak (2021). This approach involved collaboration between researchers and participants to identify issues, develop interventions, and implement changes. The study focused on reducing school violence behavior in early adolescence through folk puppet theater, highlighting the active role of participants in the research process.

Finally, three studies employed interventional designs without using RCTs. These studies, conducted by Van der Hoeven et al. (2021), Ward-Miller et al. (2019), and Wang et al. (2024), implemented puppetry interventions and observed their effects in settings such as domestic violence shelters, therapy for women who self-injure, and children's emotional responses to pain and pleasure.

Types of interventions

Studies were classified based on intervention type, revealing a diverse range of approaches to using puppetry in various contexts. These approaches include standalone, multi-component, multimodal, therapeutic, and educational and training interventions.

Standalone Puppetry Interventions. Six studies utilized puppetry as the primary and sole method of intervention. These studies focused on the direct application of puppetry without integrating other therapeutic or educational methods. Aminimanesh et al. (2019) examined the effectiveness of puppet shows and storytelling on children's behavioral problems, while Butler et al. (2009) used puppetry within narrative therapy to help children externalize their problems. Rajesh and Jasline (2022) evaluated the impact of puppet play on reducing anxiety among hospitalized children, and Suzan et al. (2020) explored the effect of puppet shows on reducing anxiety and pain levels in children undergoing circumcision. Roshanzadeh et al. (2020) investigated children's anxiety in surgical waiting rooms after watching puppet shows, and Topan and Sahin (2019) assessed the efficiency of puppet shows in alleviating fears of medical procedures among school-aged children.

Multicomponent-Based Interventions. Six studies integrated puppetry as one component within a broader set of interventions, each designed to address various aspects of a problem. Multicomponent interventions consist of several distinct components, each designed to address different aspects of a problem or contribute to an overall goal. These components may or may not involve different sensory modalities but are distinct parts of the intervention. Beauregard et al. (2024) integrated puppetry into a creative expression program that included art and storytelling, aimed at supporting immigrant and refugee children. While Gaiha et al. (2023) combined puppetry with other forms of art and performance during a youth creative expression festival to address mental health issues. Page et al. (2022) examined male prisoners' experiences with drama, dance, singing, and puppetry as part of a multicomponent arts-based intervention. Similarly, Moula (2021) included puppetry as part of a multicomponent arts therapy intervention to promote children's well-being. Reid-Searl et al. (2017) used puppetry as one component of an educational intervention in an acute pediatric unit, alongside other teaching methods. Segal et al. (2024) combined puppetry with other creative modalities such as drama, music, and visual arts to address mental health stigma and emotional resilience among refugees.

Multi-Modal Interventions. Eight studies employed multi-modal interventions, which used puppetry in conjunction with other sensory modalities, enhancing the effectiveness of the intervention. Tuncay and Sarman (2024) utilized ventriloquism and puppetry combined with drama techniques to manage pain, anxiety, and fear in children during invasive procedures. Yaz et al. (2024) combined puppetry with vibrating cold application to reduce pain and fear during phlebotomy in children, while Oluç and Sarialioğlu (2023) integrated hand puppetry with therapeutic play to address fear and pain during blood collection in preschool children. Bayar et al. (2024) used finger puppets alongside distraction cards and kaleidoscopes to reduce anxiety in children undergoing day surgery. Additionally, McLachlan et al. (2009) incorporated puppetry into a program that included various sensory activities to promote emotional health by teaching children to recognize and express emotions. Ceylan and Erkut (2023) used finger puppets combined with other techniques to manage pain and emotional distress during venous blood collection in children, and Kurt and Seval (2021) employed finger puppets to manage postoperative pain in children.

Therapeutic Interventions. Four studies incorporated puppetry within therapeutic contexts aimed at addressing psychological, emotional, or behavioral issues. Ward-Miller et al. (2019) used puppetry as a tool to teach resourcefulness skills to women who self-injure. Van der Hoeven et al. (2021) employed a hand puppet in a program for young children in domestic violence shelters to facilitate emotional expression and communication. Lestari et al. (2022) utilized *Wayang Kulit* (a traditional form of shadow puppets originally found in the cultures of Indonesia) video media as part of laughter therapy to reduce elderly anxiety during the COVID-19 pandemic. Metlek and Çağlar (2024) integrated therapeutic play and puppetry to reduce pain and anxiety in children during circumcision.

Educational and Training Interventions. Four studies used puppetry as an educational or training tool, often within learning or healthcare contexts. Ingraham et al. (2019) employed digital puppetry to prepare physicians for addressing non-suicidal self-injury among teens as part of a training program. Domek et al. (2020) used finger puppets to support caregivers in communicating with infants, focusing on enhancing early childhood development. (Reid-Searl et al., 2017) integrated puppetry into an educational program for nurses working in pediatric settings, combining it with other teaching methods. Finally, Zavariani et al. (2023) implemented puppetry as part of a virtual training program aimed at enhancing social competence and managing behavioral challenges in children.

Interventions outcomes

The interventions investigated across the 30 articles revealed diverse and nuanced outcomes. These studies have been categorized based on the level of success in achieving their intended outcomes. Interventions were categorized as *highly successful* if they showed statistically significant or consistent, meaningful improvements. *Moderate success* indicated positive trends or partial improvements without consistent statistical significance. *Limited success* referred to minimal or localized benefits with no broader applicability.

Highly successful outcomes

Several studies demonstrated significant positive outcomes in reducing anxiety, managing pain, and enhancing social-emotional skills among children and other populations. For instance, Aminimanesh et al. (2019) found that puppet shows demonstrated effectiveness in reducing aggression and fostering pro-social behaviors among children. Similarly, Bayar et al. (2024) conducted a pre-and post-test study in Turkey, which found that finger puppets and distraction cards significantly reduced anxiety in children aged 6–12 years undergoing surgery. In a single case study by Beauregard et al. (2024), an art-based school intervention integrating puppetry helped a 7-year-old Syrian refugee in Canada regain a sense of agency and emotional stability. Another study by Ceylan and Erkut (2023) in Turkey demonstrated that finger puppets effectively reduced pain and emotional responses in children undergoing surgery. Kurt and Seval (2021) showed that finger puppet plays significantly reduced fears and postoperative pain in children aged 1–5 years in a RCT in Turkey, while McLachlan et al. (2009) found that

puppetry and motion locomotion programs significantly improved emotional regulation and social skills in students aged 6–8 years in the USA. Roshanzadeh et al. (2020) also reported that puppet shows before surgery significantly reduced anxiety in children compared to animation in a clinical trial in Iran. Additionally, Suzan et al. (2020) demonstrated that puppet shows during surgery significantly reduced pain and anxiety in children aged 7–11 years in Turkey, and Tuncay and Sarman (2024) found that ventriloquist puppet shows significantly reduced pain, anxiety, and fear in children aged 5–10 years undergoing surgery in Turkey. Finally, Yaz et al. (2024) found that puppet shows significantly reduced pain and fear in children aged 3–6 years during phlebotomy in a randomized controlled study in Turkey, and Moula (2021) highlighted the effectiveness of creative arts, including puppetry, in improving children's emotional and behavioral well-being in primary schools in Iran.

Moderate success

Several studies reported positive outcomes, although with certain limitations. Butler et al. (2009) conducted a study in the USA where narrative therapy using puppets effectively managed aggressive behavior in an 8-year-old boy, though the study was limited by its single-case design. Domek et al. (2020) found that training caregivers to use finger puppets showed positive feedback on satisfaction, but the effectiveness in reducing children's anxiety was unclear. Gaiha et al. (2023) demonstrated that arts-based interventions, including puppetry, were moderately effective in reducing mental health stigma among college students in India. In the USA, Ingraham et al. (2019) found that digital puppetry in a simulated training environment effectively enhanced primary care providers' preparedness, though the effects were moderate. Rajesh and Jasline (2022) conducted a pre-and post-test study in India, which showed that puppet plays effectively reduced anxiety among hospitalized children, though the sample size was relatively small. In Australia, Reid-Searl et al. (2017) found that training nurses to use puppets in pediatric care was positively received, though the impact on clinical practice varied. Lastly, Segal et al. (2024) utilized puppet shows as part of an arts-based intervention for refugees, showing improvement in engagement but inconsistent effects on emotional stability, and Suzan et al. (2020) reported that puppet shows were effective in reducing pain and anxiety during surgery in Turkey, though the long-term impact on anxiety reduction was not fully established.

Mixed results

Some studies reported both positive and less effective outcomes, indicating that while the interventions had some benefits, they were not consistently effective across all measures. Van der Hoeven et al. (2021) implemented a therapeutic play program using hand puppets in domestic violence shelters, showing some improvement in emotional expression but limited impact on reducing anxiety. Lestari et al. (2022) conducted a quasi-experimental study in Indonesia that used laughter therapy with shadow puppets to reduce anxiety among elderly participants, but the results were not consistent across all participants. In Turkey, Metlek and Çağlar (2024) found that therapeutic play with playdough before and after circumcision had mixed success in reducing anxiety in children and their mothers. Oluç and Sarialioğlu (2023) conducted a randomized controlled experiment in Turkey that showed therapeutic play using hand puppets had mixed impacts on fear and pain reduction in children undergoing surgery. Page et al. (2022) utilized art-based prison projects, including puppetry, to enhance the mental health of prisoners, showing some positive engagement but inconsistent improvements in mental health outcomes. Segal et al. (2024) also reported mixed results when using puppet shows as part of an arts-based intervention for refugees, showing some improvement in engagement but inconsistent effects on emotional stability. Ward-Miller et al. (2019) implemented a psychoeducation program using puppets to teach resourcefulness skills to women with self-injurious behavior, with mixed results in terms of skill acquisition and retention. Zavariani et al. (2023) implemented a 30-session puppet show training program in Iran, which showed mixed outcomes with only marginal improvements in social skills and behavior.

Limited success

Lastly, a few studies reported minimal or limited success, indicating that the interventions had little impact or that the study design limited the ability to observe significant outcomes. Beauregard et al. (2024) found that although the intervention showed positive outcomes in a single case study of a Syrian refugee, the impact was limited by the study's scope and generalizability. Pitre et al. (2007) focused on reducing mental health stigma in Canada using arts-based interventions, including puppetry, which showed limited success due to inconsistent participation and engagement. Suzan et al. (2020) reported that while puppet shows were effective during surgery in Turkey, the long-term impact was limited, highlighting the need for additional follow-up studies. Lastly, Topan and Sahin (2019) found that puppetry was somewhat effective in reducing anxiety and fear in children in Turkey, but the intervention had limited success in older age groups.

Discussion

This scoping review explored the diverse applications and outcomes of puppetry-based interventions across various populations and settings, revealing the significant potential of this creative tool in addressing a range of emotional, psychological, and social challenges. The studies reviewed employed a variety of methodologies, including experimental, quasi-experimental, pilot, and qualitative intervention designs, each contributing unique insights into the effectiveness and limitations of puppetry as a mental health-focused intervention.

The use of puppetry has emerged as a versatile intervention, producing significant positive mental health outcomes across different age groups—from children and adolescents to adults and the elderly—and in various contexts, including healthcare, education, and therapeutic settings. High success was reported in studies such as those by Aminimanesh et al. (2019) and Rajesh and Jasline (2022), where puppetry interventions significantly improved behavioral outcomes and reduced anxiety among children. These findings align with existing literature highlighting the effectiveness of puppetry in enhancing social-emotional learning and reducing anxiety in young children (Díaz-Rodríguez et al., 2021; Komang et al., 2024). Similarly, Lestari et al. (2022) reported significant reductions in anxiety among elderly participants through laughter therapy using puppets, supporting broader evidence that creative interventions can be particularly effective in geriatric care (Galassi et al., 2022).

In educational settings, puppetry enhanced language development and emotional recognition and reduced stigma associated with mental illness, as demonstrated by studies such as Domek et al. (2020) and Pitre et al. (2007). These results are consistent with research suggesting that puppetry can be a powerful pedagogical tool, particularly in early childhood education (Kröger & Nupponen, 2019; Timmins & King, 2024). The mixed-methods study by Gaiha et al. (2023) further demonstrated the potential of puppetry to reduce mental health stigma among college students, reflecting the growing interest in creative arts-based interventions to address complex psychosocial issues (Nathan et al., 2023).

The studies achieving highly successful outcomes often shared several common characteristics that contributed to their effectiveness. The review highlights diverse methodological approaches, with some studies employing pre-post designs and others using randomized controlled trials. For instance, Aminimanesh et al. (2019) and Suzan et al. (2020) designed interventions that directly addressed children's specific anxieties and behavioral issues using engaging, age-appropriate puppet shows. The success of these studies can also be attributed to their use of RCTs, which provided robust evidence of effectiveness. Moreover, the settings of these interventions, often clinical or educational environments with structured and supportive frameworks, allowed for the

consistent application of the intervention, further contributing to their success. Positive outcomes in studies such as those by Roshanzadeh et al. (2020) and Tuncay and Sarman (2024) highlight the importance of integrating puppets with other therapeutic practices, such as pain management protocols, which enhanced the overall impact of the interventions.

Interventions that showed moderate success often faced challenges related to their implementation or the populations they targeted. While these studies generally reported positive outcomes, the effects were not as pronounced or consistent as in the highly successful cases. For example, Butler et al. (2009) and Gaiha et al. (2023) implemented contextually relevant interventions but faced limitations due to small sample sizes or the complexity of the issues being addressed. In some cases, the interventions may have been beneficial but were not comprehensive enough to produce significant changes across all measured outcomes. The moderate success of these studies suggests that while puppetry can be an effective tool, its impact may be enhanced by combining it with other interventions or by tailoring it more precisely to the population's needs.

Studies reporting mixed results highlight the challenges of applying puppetry-based interventions across diverse populations and settings. These studies often showed that while some participants benefited from the intervention, others did not experience significant improvements. For instance, Van der Hoeven et al. (2021) and Lestari et al. (2022) found that while puppetry helped some individuals express emotions or reduce anxiety, the results were inconsistent across all participants. This inconsistency could be due to several factors, including cultural differences, the varying receptiveness of participants to the intervention, or the specific way the intervention was implemented.

The studies that achieved limited success provide essential insights into the challenges associated with puppetry-based interventions. These interventions often faced difficulties related to the scale of implementation, participant engagement, or a lack of alignment with contextual factors that influence their effectiveness. For example, Beauregard et al. (2024) and Pitre et al. (2007) conducted innovative interventions, but their small scale and challenges in maintaining consistent participant engagement limited their impact. Similarly, interventions such as those by Suzan et al. (2020) and Topan and Sahin (2019) showed short-term benefits but lacked sustained follow-up, which may have reduced their long-term effectiveness. These findings suggest that the success of puppetry-based interventions depends not only on their design and implementation but also on their ability to address the specific needs and contexts of the populations they serve. Moreover, the absence of long-term engagement highlights the importance of incorporating follow-up strategies to maintain the benefits of these interventions over time. This underscores the need for comprehensive approaches that include thoughtful intervention design, long-term evaluation, and a deeper understanding of how puppetry influences behavior and emotional well-being.

One of the significant limitations contributing to mixed and limited outcomes was the small sample size in many studies, which constrained the generalizability of findings. For example, studies such as Domek et al. (2020) and Lestari et al. (2022) involved relatively small cohorts, reducing statistical power and raising concerns about the broader applicability of results. This issue is common in creative and therapeutic intervention research, where logistical constraints often limit sample sizes (Rickson & McFerran, 2014). However, the insights gleaned from smaller-scale studies remain valuable, especially in exploring innovative approaches like puppetry-based interventions.

Another challenge was the reliance on qualitative methods and subjective measures in some studies, such as Van der Hoeven et al. (2021) and Burarak (2021), which relied on participant feedback to assess outcomes. While qualitative methods provide essential insights into participants' subjective experiences and contextual factors, their findings are not typically generalizable, and variations in participant perceptions can influence results. This highlights the importance of combining qualitative methods with quantitative approaches to achieve a more balanced understanding of intervention outcomes. Far from being a limitation, the complementary use of qualitative methods enriches the evidence base by capturing the nuanced, lived experiences that quantitative data alone may overlook (Creswell & Poth, 2024).

The design and methodology of several studies also posed challenges. For instance, the absence of control groups in studies such as Zavariani et al. (2023) and Page et al. (2022) limited the ability to definitively attribute observed outcomes to the intervention. Single-case study designs, while providing in-depth insights, lacked the broader applicability needed for general conclusions, as seen in Butler et al. (2009) and Beauregard et al. (2024). In contrast, experimental and quasi-experimental designs offered stronger evidence of effectiveness. For example, Rajesh and Jasline (2022) and Suzan et al. (2020) used randomized controlled trials (RCTs) to demonstrate the impact of puppetry-based interventions on reducing anxiety, providing robust data to support these approaches.

The use of mixed-methods approaches in studies such as Page et al. (2022) and Gaiha et al. (2023) was particularly effective in capturing both measurable outcomes and participants' subjective experiences. By combining quantitative and qualitative data, these studies offered a comprehensive understanding of the interventions, illustrating how methodological diversity can strengthen creative arts research. Mixed-methods approaches allow researchers to assess both the efficacy of the intervention and the nuanced ways in which participants engage with and benefit from it, making them a valuable tool for future studies.

Strength and limitations of included studies

The diversity of frameworks, ranging from Social Learning Theory to Emotional Security Theory, provides a comprehensive understanding of issues such as behavioral problems, emotional expression, and stigma reduction. This theoretical variety allows researchers to tailor interventions to specific populations, enhancing their relevance and effectiveness. These frameworks were applied across various settings, including schools, healthcare facilities, and prisons, demonstrating puppetry's versatility in addressing a wide range of social, emotional, and psychological issues. Additionally, frameworks such as PUP-ED (KRS) and Empowerment Theory offer structured approaches to intervention design and implementation, ensuring consistency and replicability in puppet-based interventions.

While the use of theoretical frameworks is commendable as it adds rigor and structure to the research, there are some critiques to consider. First, not all studies explicitly mentioned their theoretical underpinnings, which can lead to ambiguity in understanding the mechanisms behind the interventions. The absence of guiding theories in some studies may limit the depth of analysis and understanding of the interventions' impact. Additionally, there is an over-reliance on familiar theories, such as Social Learning Theory, which may restrict the exploration of new perspectives and narrow the understanding of puppet-based interventions. Most studies also relied on a single theoretical framework, limiting the opportunity for cross-theory integration that could provide a more holistic analysis, such as combining Social Cognitive Theory with Emotional Learning Theory. The depth of theoretical engagement varies significantly, with some studies offering detailed guidance while others merely mention a framework without thorough integration, potentially weakening the theoretical foundation. Furthermore, challenges in applying and measuring constructs such as "empowerment" or "emotional security," especially when relying on self-reported measures or qualitative feedback, may complicate the accurate assessment of the interventions' true impact. For example, Beauregard et al. (2024) and Segal et al. (2024) likely utilized relevant theories in their trauma and social work-focused interventions, but these were not explicitly stated in the references provided, potentially weakening the studies' conceptual foundations. Furthermore, some studies, such as Suzan et al. (2020), seem to imply the use of frameworks such as

Cognitive Behavioral Therapy, but without clear articulation, theoretical application remains speculative.

As a delimitation for this review, it is important to note that studies involving chronic or acute conditions and developmental disabilities were excluded. This review excluded studies involving chronic, acute, or developmental conditions, such as autism spectrum disorders, to focus on puppetry interventions for general mental well-being. While this aligns with the scope of the current review, it limits the applicability of our findings to broader therapeutic contexts. We acknowledge the wealth of research on puppetry's role in supporting individuals with specific conditions, as detailed in a complementary scoping review currently under review. Together, these reviews aim to provide a comprehensive understanding of puppetry's applications in both general and condition-specific contexts.

Implications for practice and future research

The findings from this scoping review underscore the significant potential of puppetry-based interventions in therapeutic, educational, and clinical settings while also highlighting important considerations for future research and practice. These results have multifaceted implications, addressing the design and implementation of interventions, the importance of context, and the need for further research to strengthen the evidence base.

The review revealed that well-designed puppetry-based interventions, particularly those using RCTs and tailored to the specific needs of the target population, consistently produced the most favorable outcomes. This suggests that careful attention to the design of puppetry interventions, including selecting appropriate methodologies, clear objectives, and using control groups, is critical to their success. Practitioners and researchers should prioritize these elements to maximize the effectiveness of interventions. Furthermore, the findings highlight the importance of integrating puppetry with other therapeutic practices, such as pain management protocols or educational curricula, to enhance the overall impact. This integration supports the therapeutic goals and helps create a more holistic approach to treatment and education.

Interventions using participant-created puppets, common in art therapy, foster self-expression and emotional exploration, making them ideal for building personal insight. In contrast, pre-made puppets, often used in play and drama therapy, facilitate immediate role-play, storytelling, and social interaction. Practitioners should align the choice of puppet style with intervention goals, integrating both approaches when appropriate to balance personal creativity with structured engagement. This distinction allows for more targeted and effective use of puppetry-based interventions.

Contextual considerations are another important issue. The mixed and limited success of some studies points to the critical role of context in the effectiveness of puppetry-based interventions. Cultural differences, the specific population characteristics, and the setting in which the intervention is implemented can all significantly influence outcomes. For instance, highly successful interventions in clinical or educational environments with structured support may not be as effective in less controlled or resource-limited settings. This suggests that practitioners should be mindful of the context when designing and implementing puppetry-based interventions, adapting them to the cultural and environmental conditions of the population they aim to serve. This also includes considering participants' receptiveness to the intervention and ensuring that the delivery of the intervention is culturally sensitive and appropriate. The review highlights several methodological limitations in the current body of literature, such as small sample sizes, lack of control groups, and reliance on qualitative methods. These limitations reduce the generalizability and robustness of the findings, making it difficult to draw definitive conclusions about the effectiveness of puppetry-based interventions across different settings and populations. Therefore, there is a pressing need for more rigorous research, including large-scale RCTs, to establish stronger evidence for the efficacy of these interventions. Future studies should also incorporate long-term follow-up to assess the sustained impact of puppetry-based interventions, which are currently underexplored. By addressing these gaps, researchers can contribute to a more comprehensive understanding of how puppetry can be effectively utilized in diverse contexts.

The effectiveness of puppetry-based interventions in reducing anxiety, managing pain, and enhancing social-emotional skills suggests that these interventions could be widely adopted in various settings, including schools, hospitals, and community centers. Policymakers and practitioners should consider incorporating puppetry into existing therapeutic and educational programs, particularly those aimed at children, adolescents, and vulnerable populations. Additionally, the review suggests there is value in developing standardized protocols for puppetry-based interventions to ensure consistency and quality in their application. These protocols could be used to train practitioners, educators, and therapists, thereby expanding the reach and impact of these interventions.

The review also raises important considerations regarding equity and access to puppetry-based interventions. While these interventions have shown promise, their effectiveness may be limited in under-resourced settings where access to training, materials, and support is constrained. To address this, efforts should ensure these interventions are accessible to all populations, regardless of socio-economic status or geographic location. This might involve the development of low-cost or easily replicable puppetry programs and initiatives to train local practitioners in delivering these interventions. Additionally, policymakers should consider funding and supporting research and programs to bring puppetry-based interventions to minoritized, marginalized, and underserved groups and communities.

The use of puppetry-based interventions, particularly in vulnerable populations such as children, displaced populations, refugees, and individuals with mental health issues, necessitates careful ethical consideration. Practitioners must ensure that these interventions are delivered in a manner that respects participants' dignity, autonomy, and well-being. This includes obtaining informed consent, ensuring confidentiality, and being sensitive to participants' emotional and psychological needs. Additionally, the potential power dynamics between the facilitator and participants should be carefully managed to avoid any form of coercion or undue influence.

The implications of this review point towards several future directions for research and practice. First, there is a need to explore the use of puppetry-based interventions in new and diverse populations, such as adults with chronic conditions or communities affected by trauma. Second, integrating technology with puppetry, such as digital puppetry or virtual reality, presents a promising avenue for innovation in this field. Finally, interdisciplinary collaborations between researchers, practitioners, and artists could lead to developing more creative and effective puppetry-based interventions, expanding their applicability and impact.

Reflection on interventionists

A critical gap identified in this review is the lack of detailed reporting on the qualifications and roles of interventionists conducting puppetry-based interventions. Few studies specified whether the interventions were delivered by mental health professionals, educators, artists, or other facilitators. This absence of information limits the understanding of how the expertise and training of interventionists influence the design, delivery, and outcomes of puppetry-based interventions.

The professional background of facilitators is particularly significant in clinical contexts, where ethical considerations such as maintaining therapeutic boundaries and managing participant vulnerabilities are paramount. For example, interventions led by mental health professionals may prioritize psychological well-being, while those conducted by educators or artists might focus on creative expression or skill development. Future studies should explicitly report on the roles and

qualifications of interventionists to explore how these factors shape the intervention process and outcomes. Additionally, this focus could guide the development of standardized training and ethical guidelines for implementing puppetry-based interventions in clinical and non-clinical settings.

Conclusion and implications

Future research should investigate the influence of specific puppetry styles, particularly folk or culturally significant forms, on intervention efficacy. Understanding how cultural narratives and aesthetics contribute to therapeutic outcomes could inform the design of more contextually relevant interventions. Moreover, systematically examining the qualifications and roles of interventionists is essential for developing best practices, particularly when implementing puppetry in clinical and therapeutic contexts. By addressing these gaps, researchers can enhance the evidence base and ensure the ethical and effective application of puppetry-based interventions.

While puppetry-based interventions show considerable promise across various settings and populations, their effectiveness can vary significantly depending on the design, implementation, and contextual factors. To maximize the impact of these interventions, future research should address these limitations by employing more different rigorous methodologies, theories, control groups, increasing sample sizes, and incorporating long-term follow-up to better understand the sustained effects of puppetry-based interventions.

Compliance with Ethical Standards

Given the nature of this review, no ethical oversight was found to be necessary and, therefore, no institutional review board was acquired.

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CRediT authorship contribution statement

Wahiba Abu-Ras: Writing – review & editing, Writing – original draft, Supervision, Software, Resources, Project administration, Formal analysis, Data curation. **Basil H. Aboul-Enein:** Writing – review & editing, Writing – original draft, Supervision, Software, Resources, Project administration, Methodology, Data curation, Conceptualization. **Ahmed Al-Kubaisi:** Writing – review & editing, Writing – original draft, Software, Resources, Formal analysis, Data curation. **Leena Babiker Idris:** Writing – review & editing, Writing – original draft, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.aip.2025.102251.

Data availability

No data was used for the research described in the article.

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