Addressing the Mental Health Gap in War-Affected Children: A Pilot Study of a Scalable Story-Based CBT Intervention

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ABSTRACT

Background
Children affected by war face high levels of psychological distress, yet access to scalable, evidence-based mental health interventions remains limited. We examined the association between a new story-based, cognitive behavioural intervention (Magic Mitten) and changes in well-being and social-emotional functioning among children affected by war and displacement.

Methods
In this mixed-methods pilot study, 140 Syrian children aged 8–14 years were recruited from schools, educational centres, and informal settlements in the Beqaa Valley, Lebanon (2023–2025). The intervention was delivered in groups with around 10 children per group, one session per week over 8 weeks. Outcomes included well-being (WHO-5) and social and emotional learning (SEL). Qualitative data were collected through focus groups with children and interviews with caregivers and facilitators.

Findings
Mean WHO-5 scores increased from 13.95 to 17.84 (Δ +3.89; $p<0.001$), corresponding to an increase from 55.8 to 71.4 on a 0–100 scale; 81.4% of participants improved. SEL scores increased from 12.15 to 15.24 (Δ +3.09; $p<0.001$), with 78.6% showing improvement. Qualitative findings indicated high engagement and perceived relevance, with evidence of skill transfer to daily life and sharing within families.

Interpretation
The findings suggest that a low-threshold, narrative-based cognitive behavioural intervention may support improvements in well-being and social-emotional functioning among children affected by war. These findings support further evaluation through controlled studies and highlight the potential of scalable, low-resource interventions in conflict-affected settings.

BACKGROUND

The negative effect of armed conflict on child health and development is well documented (Kadir, Shenoda & Goldhagen, 2019), also from so-called modern wars (Silwal et al., 2026). Children affected by war often live in environments characterized by ongoing uncertainty, including exposure to distressing news, economic hardship, and family stress. Further, war-associated displacement exposes children to multiple stressors, including adapting to new educational systems, forming new relationships, navigating unfamiliar environments, and adjusting to new cultural norms and languages. Hence, they often need to deal with intense emotions, including fear, anger, sadness, and confusion. Strengthening coping and stress-management skills can enhance children's ability to adapt and function in challenging circumstances.

Evidence indicates that focused psychosocial interventions can support both mental health and broader developmental outcomes in low-resource humanitarian settings (Purgato et al.,

2018). For children affected by war, social and Emotional Learning (SEL) contributes not only to mental health, but also to academic engagement and overall functioning, reflecting the strong interdependence between psychosocial well-being and learning outcomes. Encouraging children to talk about their feelings promotes emotional understanding, validation, and peer support (Portela-Pino et al., 2021). Sharing experiences with peers can reduce feelings of isolation and foster a sense of belonging and community (Blum et al., 2022). In addition, the acquisition of basic cognitive behavioural skills has been shown to support emotional regulation and help prevent the development of mental health difficulties (Nakao et al., 2021).

Preventive, low-threshold psychosocial interventions are therefore strongly recommended for children affected by war (WHO, 2014; UNICEF, 2022). Programs that strengthen social and emotional skills can help children manage stress, regulate emotions, and build resilience (Lawson et al., 2019; Smart et al., 2019). Providing safe spaces for emotional expression and access to practical coping tools is particularly important in conflict-affected settings (INEE, 2016).

In response to the needs of children growing up in a war zone, the Magic Mitten Program was developed following the outbreak of war in Ukraine in 2022. The program combines storytelling with cognitive behavioural principles to provide children with practical tools for emotional regulation and coping. The narrative, based on a Ukrainian fairy tale, follows twin characters supported by a guiding figure, the bird Syla, who introduces coping strategies embedded in a “magic mitten.” The intervention assumes that narrative engagement facilitates emotional processing, which, when combined with structured cognitive behavioural techniques, supports skill acquisition and improved well-being.

Table 1. Overview of the Magic Mitten Program.

Session	Story	Learning Objectives	Tasks
1	Introduction	Set a positive tone for the group – so the children understand that these are hours for well-being and good development.	Evaluation form
2	Day 1	Increase awareness of emotions and that we can influence our emotions with what we do.	Draw what you feel! Flex your muscles!
3	Day 2	Increase thought awareness. Learn about red and green thoughts. Intro to the problem-solving system "Helping Hand".	Helping Hand Take a picture of a nice memory!
4	Day 3	Increase awareness of feelings, thoughts, and coping. Learn more about relaxation and what we can do to feel good.	Log what you feel in your body! Learn to breathe with your stomach! Take up old traditions again! Use the Helping Hand
5	Day 4	Increase awareness of feelings, thoughts, coping, and social interaction.	What can I influence? Stretch like a tree! Help others and help yourself. Helping Hand

Session	Story	Learning Objectives	Tasks
6	Day 5	Increase awareness of feelings, thoughts, coping, and social interaction. Experience focusing on what we master, how it affects us.	Things I can do! Helping Hand Touch to feel safe
7	Day 6	Increase awareness of feelings, thoughts, coping, and social interaction. Reflections on how we can learn something from what is painful and difficult.	Complete the sentences about superpowers New things you've learned Make a treasure chest
8	Day 7	Reflections on saying goodbye - endings, grief, letting go. How we can cultivate good memories and thus make farewells a bit easier.	Helping Hand Write a letter to Syla!
9	Post-test	Evaluation	Evaluation form

Table 1 provides an overview of the chapters in The Magic Mitten, learning objectives, and the tasks given in each session.

The MM program builds on the Helping Hand, a CBT-based self-help tool (Raknes, 2010a; 2010b), which has demonstrated effectiveness and symptom reduction over time when delivered as a school-based intervention (Haugland et al., 2020; Wergeland et al., 2023), and helpful for traumatized adolescents (Raknes et al., 2017). Its simplicity and flexibility make it easy to spread (Husabø et al., 2021), hence particularly suitable for low-resource and high-stress environments. When implemented among war-affected adolescents in Lebanon, the intervention has been well received and associated with substantial reductions in symptoms of anxiety and depression when delivered as a universal intervention in fragile contexts (Raknes, Townsend, Ghostine, & Hammoud, 2024; Raknes, Al-Khayat, & Schuler, 2024). Evidence further suggests that delivery in small groups of approximately 10 adolescents optimizes its perceived usefulness and impact (Schuler & Raknes, 2022).

While the HH is a program for adolescents, the MM program is a program targeting children 8-12 years old. A preliminary study of the MM among Ukrainian refugee children in Norway (N = 8) showed promising results (Raknes, 2023). Lebanon, with its long-standing experience hosting displaced Syrians and a well-developed network of trained psychosocial support workers familiar with CBT-based interventions, provided a relevant context for further implementation and evaluation of the MM.

Despite growing interest in digital and scalable mental health interventions, evidence for their use among war-affected children remains limited. A recent scoping review identified only one relevant study, highlighting a significant gap and the need for further development and evaluation of accessible interventions in conflict settings (Danese et al., 2025).
Prioritizing preventive healthcare for children is a strategic investment in human capital, with the potential to reduce long-term health, economic and social burdens. Early interventions not only improve individual outcomes but also ease pressure on health and social care systems over time. In line with this, UNICEF highlights that school-based mental health interventions improve well-being and learning outcomes while generating substantial long-term economic returns (UNICEF, 2024). At the same time, in crisis-affected contexts such as Ukraine, there is an urgent need for coordinated, multisectoral mental health and psychosocial support

(MHPSS) systems that integrate services across health, education and community settings, and include scalable, low-threshold interventions at the preventive level (UNICEF, 2024). Within this framework, there remains a need for accessible, evidence-based tools that can be implemented early and at scale. The present study addresses this gap by examining Magic Mitten, a low-threshold, guided self-help approach designed to strengthen children's social-emotional skills and well-being, with potential for integration into school- and community-based systems of care.

METHODS

This mixed-methods study was conducted in Bekaa, Lebanon, from 2023 - 2025. The study utilized a pre-post assessment design without a control group to evaluate the potential program's impact on participants' well-being and social and emotional learning (SEF).

Participants and procedure

Participants were recruited from a mix of schools, educational centres, and informal settlements for displaced Syrians in the Beqaa Valley, Lebanon. The sample comprised 140 Syrian children (90 girls, 50 boys) aged 8–14 years (M = 10.27), recruited across trials conducted in Lebanon between 2023 and 2025. All had been exposed to ongoing conflict and adversity, including experiences of loss; approximately 30% had lost one or both parents. To reduce stigma associated with help-seeking, a universal recruitment strategy was applied: all eligible children were invited to participate regardless of mental health status or coping level.

The groups were facilitated by a psychologist with lived experience of displacement, which supported cultural and contextual relevance. All groups received a weekly session of 60 - 90 minutes over an 8-week period. The MM manual was used to structure the sessions. The group facilitator´s role in the group was to create a safe and welcoming group atmosphere and facilitate listening to the Magic Mitten story, doing the exercises, games and sharing their experiences.

Evaluation instruments

The World Health Organization's well-being index (WHO-5) was used to assess changes in well-being (Topp et al., 2015; Halliday et al., 2017; Sibai et al., 2009). A 5-question SEL-scale composed for this study was made for this study, rated on a scale from 1 (very hard) to 4 (very easy), for more details see Table 1. Qualitative data were collected through focus group discussions with participating children and caregivers, as well as key informant interviews with group facilitators**.** These data provided deeper insight into participants' experiences, engagement, and perceived impact of the intervention.

RESULTS

1. Quantitative findings

Changes in Well-being (WHO-5)

Participants demonstrated a clear improvement in overall well-being. Mean WHO-5 scores increased from 13.95 to 17.84, corresponding to an increase of +3.89 points.
When converted to the standard 0–100 scale, this corresponds to an increase from 55.8 to 71.4. The increase was statistically significant ($p < .001$). A large majority of participants (81.4%) showed an improvement in well-being scores from pre- to post-intervention.

Changes in the Social and Emotional
Participants showed a clear improvement in overall social and emotional competencies. Mean SEL total scores increased from **12.15 at pre-intervention to 15.24 at post-intervention**, corresponding to an increase of **+3.09 points** on a 5–20 scale. This corresponds to an average increase of approximately **0.62 points per item**, indicating a substantial improvement across domains such as emotional awareness, self-control, empathy, communication, and problem-solving. The increase was **statistically significant (t = 12.04, p < .001)**. A large majority of participants (**78.6%**) showed improvement from pre- to post-assessment.

All (N = 140)	**Pre**	**Post**	**Change**
Understand feelings	2.31	3.24	+0.93
Anger self-control	2.41	3.12	+0.71
Help a friend	2.66	3.03	+0.37
Talk about my feelings	2.33	2.96	+0.63
Cope with being scared	2.41	2.90	+0.49
SEL Total	12.15	15.24	+3.09

2. Qualitative Findings

Qualitative feedback from participating children and their caregivers indicated high levels of engagement, emotional resonance, and perceived relevance of the intervention.

Children's Experiences
Children consistently described strong engagement with the program, particularly highlighting the narrative elements and characters. Several participants expressed emotional connection to the story and its protagonists, noting that it reflected experiences like their own context: *"Every session I felt excited to know what would happen next."*
"The story reflects real situations that happen every day, especially in war."

The character of Laura the bird emerged as a positive and memorable figure, with children expressing a desire to emulate her qualities: *"Laura the bird is very beautiful, and I wish I could be like her."*

Children also demonstrated active uptake of the intervention content, particularly the Helping Hand model, where the basic CBT problem solving system is placed on a hand, giving an overview of the trigger-situation and associated feelings, "red and green thoughts", as well as behaviour alternatives and support. They reported applying and sharing the HH-model with peers and family members: *"We learned the Helping Hand and have taught it to our friends and sisters."*

Caregivers' Observations
Caregivers reported noticeable positive changes in children's emotional well-being, behaviour, and engagement. Increased enthusiasm and motivation were frequently described, with children sharing their learning at home and expressing eagerness to attend sessions: *"Parents contacted the centre requesting enrolment after seeing the happiness and enthusiasm their children showed after each session."*

Several caregivers reported that children independently practiced and transferred skills learned in the program, including relaxation techniques: *"Children taught breathing exercises at home, such as placing a book on the stomach."*

In some cases, children assumed a facilitative role within the family, guiding others through the exercises: *"My daughter now leads the exercises at home for her siblings and mother."*

Caregivers also described improvements in social functioning and behaviour. One parent noted a reduction in aggressive behaviour and increased peer acceptance: *"My son used to be aggressive and had difficulty making friends. Now he has friends and encourages others to join the program."*

Caregivers' responses further highlighted the perceived relevance of the intervention in a conflict-affected context. Several parents expressed a desire for additional programming and awareness-raising related to the psychological impact of war on children: *"Parents requested awareness sessions about the effects of war on children's psychological development."*

DISCUSSION

This study examined the association between the Magic Mitten program and changes in well-being and social and emotional functioning among children affected by war. The findings indicate significant improvements across both domains, with a large proportion of participants demonstrating positive change. These results should be interpreted as preliminary and non-causal due to the pre–post design without a control group, but they suggest that the intervention is promising.

One key finding is the consistent improvement across multiple dimensions of SEL, including emotional awareness, self-control, communication, and problem solving. These changes are theoretically meaningful, as such skills are central mechanisms in cognitive behavioural approaches and are closely linked to resilience and mental health in adverse contexts (Nakao et al., 2021; Lawson et al., 2019).

The qualitative findings provide important insight into potential mechanisms underlying these changes. High levels of engagement with the narrative elements of the program suggest that storytelling may play a central role in facilitating learning and emotional processing. Narrative has been described as a fundamental mode through which children make sense of their experiences (Bruner, 1990; White & Morgan, 2006), and engagement in stories can enhance understanding, memory, and emotional involvement (Oatley, 2016). In the present study, children not only engaged with the story but also identified with characters and situations, suggesting that the narrative created a safe and relatable framework for exploring difficult emotions.

A second key mechanism appears to be the integration of narrative with structured cognitive behavioural techniques. While the story provides emotional engagement and meaning making, the accompanying exercises offer concrete tools for emotion regulation and problem-solving. This combination may facilitate both emotional processing and skill acquisition, increasing the likelihood that children can apply what they learn in everyday life (Oatley, 2016; Mayer, 2019).

Importantly, both children and caregivers reported transfer of skills beyond the intervention setting, including sharing techniques with peers and family members. This suggests that the program may have effects that extend beyond the individual participant, contributing to diffusion of coping strategies within social networks. In low-resource and high-stress environments, such spillover effects may be particularly valuable, as they can enhance the overall reach and impact of an intervention without increasing resource demands.

The findings also highlight the relevance of low-threshold, scalable interventions within broader mental health and psychosocial support (MHPSS) systems. Global frameworks emphasize the importance of layered care models, where preventive and community-based interventions form the foundation of service delivery (UNICEF, 2024, 2025). Within such systems, interventions like Magic Mitten may help bridge the gap between population-level needs and access to specialized services by providing accessible tools that can be delivered in schools and community settings.

Several limitations should be considered. The absence of a control group limits causal inference, and observed improvements may partly reflect external factors or natural changes over time. The SEL measure was developed specifically for this study and has not undergone formal validation, which may affect measurement precision. Also, reliance on self-report from children introduces the possibility of response bias. In addition, the involvement of the program developers in the study introduces a risk of researcher allegiance bias. The intervention was designed by the authors, and groups were led by a facilitator closely connected to the program, which may have influenced implementation, participant responses, and interpretation of findings toward more favourable outcomes. Finally, the lack of follow-up data limits conclusions regarding the sustainability of the observed effects.

Despite these limitations, the study has several strengths, including a relatively large sample size for a pilot study, one well established wellbeing scale, and a mixed methods design that provides both outcome data and insight into underlying processes. The inclusion of multiple perspectives further strengthens the credibility of the findings.

Future research should prioritize implementation studies to examine feasibility, reach, and integration into real-world MHPSS systems. Given the scalability and low resource requirements of the program, such research has the potential to contribute meaningfully to addressing the large unmet mental health needs among children affected by war.

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