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Research Article

Comparing the Effectiveness of Child-Friendly Space Services and SAHAR Red Crescent Teams on Children's Behavioral Problems

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Abstract

Introduction: Children are at greater danger in natural disasters and thus require more help than adults. This research assessed the effectiveness of the intervention provided by the SAHAR units of the Red Crescent Youth Organization and child-friendly spaces in reducing behavioral disorders in children aged 3 to 12 years, one year after the flood that occurred in Lorestan Province, Iran.

Methods: This descriptive-analytical study employed a causal-comparative design. The statistical population included all children aged 3 to 12 years who were affected by the 2019 flood in Lorestan Province. A convenience sampling method was applied, and the sample (105 children; 35 in each group) included parents or caregivers of children receiving services from the SAHAR team (first case group), children using child-friendly space services (second case group), and children reporting no benefit from services (control group). Data were collected using a demographic questionnaire and the Child Behavior Checklist (CBCL). Data analysis was conducted using analysis of variance and the Kruskal-Wallis test.

Results: The control group showed higher average aggression levels compared to the other groups. The SAHAR team group exhibited higher levels of attention problems, emotional reactivity, social problems, anxiety/depression, somatic complaints, and withdrawal. The child-friendly space group had lower mean scores for all these variables. Among children aged 6 to 12 years, those who received services from the SAHAR team had the highest mean scores for all behavioral variables, whereas the child-friendly space group had the lowest.

Conclusion: Children in the child-friendly space group exhibited significantly fewer behavioral problems than those who received interventions from the SAHAR team or no services at all. Hence, medium-term supportive interventions, like child-friendly spaces, in critical situations following natural disasters have positive effects on the social and mental health of affected children.

Keywords: SAHAR Teams, Children, Natural Disaster, Child-Friendly Space, Behavioral Problems

Introduction

Evidence shows that most cities in Iran are at risk of natural disasters.[1] Due to its climatic conditions, topography, and geomorphology, Iran is at risk of disasters, such as earthquakes, floods, storms, and droughts, every year.[2] Natural disasters affect the health of all those exposed to them, and children are among the most vulnerable groups in critical situations caused by natural disasters.[3] Providing protection and support for children following natural disasters is therefore one of the most important components of emergency response

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and child protection. The framework of child protection can include measures that can reduce or prevent abuse, neglect, and violence against children.[4]

Children, as the most vulnerable population, are influenced by disasters globally.[5] Children, due to their cognitive development, limited physical strength, and emotional resilience, are highly vulnerable to long-term psychological harm and immediate injuries.[6,7] Natural disasters can lead to profound emotional, physical, and cognitive disorders in children, which may persist for years or decades post-event.[8,9] Such events destabilize schools, communities, and family units as the important social structures that support children's development.[7,10,11] Therefore, vulnerability is not simply an individual characteristic, but a social construct and is affected by the fragility or strength of caregiving environments.[8,9] The limited attention to children's needs in several emergency responses increases their vulnerability[5]. It can expose them to displacement, loss of caregivers, grief, and the loss of safe spaces, like schools and homes, with no adequate psychosocial support.[12,13] Consequently, such experiences increase their vulnerability to mental health issues, including depression, anxiety, academic difficulties, social withdrawal, and behavioral issues.[14,15] As a result of geographic and climatic factors, Iran is very susceptible to natural disasters, like frequent earthquakes, droughts, floods, and landslides. Some examples of these include the 1990 Manjil-Rudbar and the 2003 Bam earthquakes and many floods, among which are the disastrous March 2019 floods that hit Lorestan, Golestan, and Khuzestan provinces. The 2019 floods left an estimated 10 million Iranians impacted, leading to more than 70 deaths and the displacement of 500,000 people. They also destroyed or damaged buildings and schools, as well as raised questions about the well-being of children in affected areas.

The Red Crescent Society of the Islamic Republic of Iran is the main organization that provides psychological support to victims following natural disasters. It delivers these services under the SAHAR National Plan, "Organizing Psychosocial Support after Disasters" (SAHAR/A Persian Abbreviation), through the deployment of SAHAR teams. These teams include volunteer members of the Youth Organization of the Iranian Red Crescent who are trained in psychosocial support during natural disasters, such as first aid and psychological reactions, and also emergency psychosocial care following natural disasters. SAHAR teams are supported by UNICEF and global partners, and include social workers, psychologists, trained volunteers, and educators. They deliver recreational and psychosocial activities to increase children's resilience and mental health. Recreational activities, organized games, and supportive educational activities for children are among their activities.[16]

On the other hand, the United Nations Children's Fund in Iran and many other international organizations have launched interventions known as child-friendly spaces (CFSs). These interventions aim to protect children, including during the Bam earthquake and the flood in Pol-e Dokhtar. CFSs are established by humanitarian organizations to protect children during emergencies.[17] CFSs are recognized as an effective global approach to meeting children's complex needs during emergencies.[18,19] They may improve children's psychosocial well-being and skills and decrease behavioral problems, although limited evidence is available regarding their prolonged effects and applicability across age groups.[15]

Child-friendly spaces provide secure settings that allow children to engage in informal learning, organized play, and psychosocial support that is developmentally appropriate for them. The ease of use and quickness with which they can be implemented allow humanitarian organizations to protect the rights of children to receive psychosocial care, well-being, and education during emergencies. Studies of CFS from around the world, including research among Somali refugees in Ethiopia, reveal positive impacts on children's psychosocial development and behavior. It is still unclear what long-term impacts there may be and how effective they are for children of various ages.

Both the nature of the intervention and its modes of delivery play an important role in determining the success of psychosocial interventions for children affected by disaster situations. Factors like intensity, time duration, frequency of interaction, consistency, and amount of structure involved can impact the ability of children to form positive relationships, attend programs consistently, and benefit from the learning and psychosocial components of the program. Programs where there is frequent and consistent interaction can give children more opportunities to build up trust, familiarity, and a feeling of security. In contrast, brief and mobile programs can increase geographical coverage and reach out to children in difficult locations.

In theory, these features would be especially significant after disasters, where the psychological well-being of children may depend on the re-establishment of routines, safety, social support, and the chance to learn and play.[7,8,10,11] As such, programs that vary in terms of their frequency, duration, continuity, or setting might produce varying degrees or patterns of improvement, despite aiming to achieve similar objectives. It would be necessary to take into consideration the circumstances under which an intervention takes place when analyzing differences in psychosocial outcomes.

In this context, CFSs and SAHAR teams reflect two distinct models of psychosocial intervention. CFSs provide children with a structured, stable, and continuous environment in which they are able to participate in supervised activities and receive psychosocial support on a regular basis. In contrast, SAHAR teams use a mobile, short-term model that enables trained personnel to reach several communities and provide timely psychosocial and educational services. Such differences—particularly in continuity, exposure duration, and fixed-site versus outreach delivery— offer a valuable theoretical basis for examining their potential effects on children's psychosocial health.

After the floods in Lorestan Province, two child-oriented interventions were implemented to address the immediate psychosocial needs of children:

The SAHAR team intervention: The SAHAR teams of the Iranian Red Crescent Society (SAHAR beneficiaries) provided brief, periodic services across many rural and urban areas. In each area, supportive and educational activities were conducted by trained teams for 2–4 hours per day for 1–2 weeks before relocating to another area. Each location was visited only once. Thus, this model involved limited continuity, brief exposure, relatively extensive geographic coverage, and high mobility, allowing psychosocial services to reach children across many damaged communities.

Child-friendly spaces (CFS beneficiaries): The CFS program, which was implemented in Pol-e-Dokhtar City, operated daily from 10:00 a.m. to 8:00 p.m. for three months. It included developmentally appropriate activities, such as emotional support, psychosocial engagement, and structured play. Unlike the SAHAR model, CFSs provided greater continuity, repeated opportunities for participation, a stable physical environment, and regular contact with peers and service providers. Such characteristics may have helped establish positive relationships, predictable routines, and sustained participation, which are valuable for children recovering from disruptive and stressful experiences.

Although these interventions have been implemented, their effectiveness has received limited research in the Iranian context. Evidence-based policymaking can facilitate the effective management of human and financial resources; however, when policymakers lack accurate information regarding the interventions' effectiveness, less effective interventions may be implemented. Comparing SAHAR teams and CFSs can help organizations supporting children affected by natural disasters determine the most beneficial intervention and allocate resources more effectively depending on scientific evidence. Assessing their effectiveness can inform policymakers within the Crisis Management Organization, the Red Crescent Society, and other support organizations.

To our knowledge, this study is the first study in Iran comparing the psychosocial outcomes of the SAHAR team intervention and CFSc among children affected by a natural disaster. There is no study in Iran comparing these two child-oriented post-disaster interventions, specifically their relative psychosocial effects. This study is significant because they differ in the provided activities and also their delivery duration, format, continuity, geographical coverage, and chances for repeated child participation. Hence, comparing the two models can provide context-specific evidence on how different models of psychosocial service delivery are linked to children's recovery after disasters. Recent policy analyses in Iran have reported the need for systematic documentation, monitoring, and assessment of psychosocial interventions following disasters, particularly for susceptible groups, like children.[20]

Equally significant is that this comparative analysis does not imply the effectiveness of the former model in all circumstances compared to the latter. Rather, the significance lies in the fact that different intervention features make the difference in terms of how well each delivery mode works in varying post-crisis situations. A portable and short-term intervention will be effective in the event that speed and accessibility to several affected communities become a priority. On the contrary, a sustained and structured intervention might be ideal in situations where normalcy can easily be restored. This view aligns with recent evidence indicating that the

length, total number of sessions, intervention provider, delivery method, and implementation context may affect children's psychosocial outcomes following natural disasters.[21]

Thus, this research will provide a more nuanced understanding of the situation since it evaluates SAHAR teams and CFSs based on how they operate in reality and not as an either/or scenario.

Accordingly, it addressed a gap in the Iranian disaster and child-protection literature by offering the first comparison of CFSs and SAHAR team interventions in Iran. Since the interventions were provided under real-life disaster circumstances, children could not be assigned randomly to either group. Rather, the research compared existing intervention groups. This way, differences in intervention characteristics and implementation settings were considered essential contextual variables in understanding the differences between the two groups. The findings can not only enhance the existing evidence but also offer guidelines to the disaster response team in terms of when and how to intervene, geographic reach, duration of services, deployment of professional staff, referral of psychologically vulnerable children, and logistics and funding. The results may also assist policymakers and humanitarian organizations, including the Iranian Red Crescent Society, the National Disaster Management Organization, UNICEF, and other related organizations, in making more context-sensitive and evidence-informed decisions to promote children's well-being during future crises.

Methods

Study Design and Setting

This research used a non-experimental design to examine differences between children regarding their behavioral and psychosocial outcomes, based on their involvement in various types of post-disaster interventions after the 2019 Lorestan flood. The lack of any manipulation of the independent variable by the researcher, as well as the absence of random assignment, makes it impossible to draw causal conclusions from the research. Thus, the obtained results can be considered to be differences associated with involvement in specific types of interventions and not causal effects of an intervention.

In April 2019, a flood occurred in Pol-e-Dokhtar in the province of Lorestan. The SAHAR teams and CFSs then performed interventions that continued until September 2019. The evaluation took place in October 2019.

Participants and Sampling

Children aged 3 to 12 years living in the affected regions of Pol-e-Dokhtar and Mamulan counties formed the sample. The participants were referred to the researchers through referral from intervention teams as well as through direct approaches to their parents or main caregivers. Nonrandom voluntary participation and nonprobability sampling technique were used. The inclusion criteria were presence in the affected regions, undergoing one of the intervention condition programs, and families being ready to take part in the study and fill out the questionnaire forms.

The nonrandom recruitment process may have introduced selection bias because families who agreed to participate and children who remained engaged with the intervention services may have differed systematically from those who did not participate or were not reached by the intervention teams.

The inclusion criteria were residence in one of the flood-affected regions during and following the flood, an age of 3–12 years, willingness of both the parent and the child or primary caregiver to participate, and completion of the questionnaires. For children in the intervention groups, participation in at least 70% of the scheduled intervention sessions was also required. Children whose parents or primary caregivers declined to participate or withdrew from the study, as well as those with incomplete questionnaires were excluded from the analysis.

Sample Size and Groups

A total of 105 children participated and were assigned to three groups, with 35 participants in each group:

Case group 1: CFS beneficiaries: This group consisted of 35 children who received services from the CFS in Pol-e-Dokhtar. Although 43 children had access to or participated in the CFS, 35 eligible participants were selected through a voluntary, nonrandom recruitment process.

Case group 2: SAHAR beneficiaries: This group comprised 35 children who received short-term, periodic psychosocial and recreational services from SAHAR teams. Of the 68 children in the accessible SAHAR participant population, 35 eligible children were recruited using the same voluntary, nonrandom procedure.

Control group: This group consisted of 35 children from flood-affected areas who had not received child-protection or psychosocial services from SAHAR teams or CFSs during the post-flood response period. They were recruited directly through their parents or primary caregivers from locations selected to be as comparable as possible to the intervention areas.

The three groups were deliberately composed of 35 participants each to support statistical comparisons. Nonetheless, the equal group sizes were obtained by selecting eligible individuals from the available populations, rather than through random assignment.

Recruitment Procedure

Children in the CFS group were identified from records of those who attended the Pol-e-Dokhtar CFSs and met the eligibility requirements. The SAHAR group was recruited from children who had received services from SAHAR teams in flood-affected urban and rural communities. Participants in the control group were selected from flood-affected areas and had not participated in either the SAHAR or CFS programs.

Although the researcher did not allocate participants to particular intervention conditions, recruitment nonrandom. Group membership reflected the children's previous access to the available services and their families' voluntary consent to participate. Thus, the study compared naturally formed groups in a real-world post-disaster context rather than experimentally randomized groups.

Study Groups and Intervention

CFS, being a fairly lengthy intervention process, was introduced in Pol-e-Dokhtar for three months, during which daily organized play activities, psychosocial programming, informal education, and emotional support were offered to the children based on their developmental needs.

The SAHAR program consisted of brief, periodic visits to urban and rural communities affected by the flood. During these visits, SAHAR teams provided supportive, educational, psychosocial, and recreational activities for approximately 2–4 hours per day for 1–2 weeks. Each selected area received one intervention period.

Children in the control group did not receive services from SAHAR teams or CFSs during the post-flood intervention period. Because the study used a nonrandomized observational design, observed differences between groups may also have been influenced by pre-existing variations in the children's characteristics, family circumstances, locations, levels of disaster exposure, access to services, or baseline psychosocial well-being.

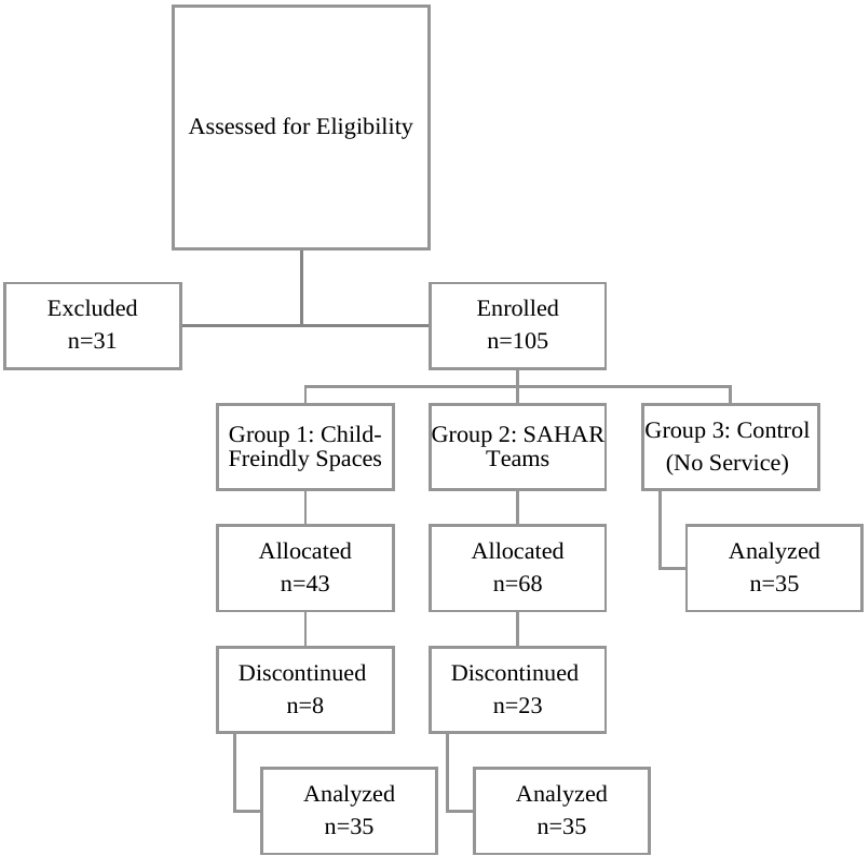


Figure 1: CONSORT flow diagram illustrating participant recruitment, group assignment, and inclusion in the final analysis for the Child-Friendly Spaces (CFS), SAHAR Red Crescent teams, and control groups.

Research Instruments

Data were obtained through the use of two major tools. The first was a demographic questionnaire that gathered information about the child's age and sex; the respondent's relationship to the child; family status (whether the family lives together, divorced parents, or one parent has died); how many children there are in the family; occupation and education of the parents; income level of the family; and use of the services (CFS, SAHAR Red Crescent team, or neither).

The Child Behavior Checklist (CBCL) is a popular and standardized tool for evaluating a broad spectrum of behavioral and emotional problems of children aged 6 to 18 years. It consists of 113 questions and uses a 3-level Likert scale (3-level) with regard to the frequency of certain behaviors for the last 6 months (0 – not true, 1 – somewhat or sometimes true, 2 – very true or often true). The results of the test give 8 empirically defined syndrome subscales: anxious/depressed, withdrawn/depressed, somatic complaints, social problems, thought problems, attention problems, rule-breaking behavior, and aggressive behavior. These subscales give two broadband composite scales: internalizing and externalizing problems. The scale has high internal consistency (Cronbach's alpha equals 0.70 to 0.95).[22]

Psychometric studies of the CBCL in both Iranian and other populations have found satisfactory levels of reliability and validity of the instrument. The internal consistency values for subscales and totals vary from 0.40 to 0.94, while the test-retest reliability values vary from 0.32 to 0.87. The normative studies for both versions of the instrument have been completed on Iranian populations, providing evidence of their adequacy as screening and diagnostic tests for different age groups. The content validity of the instrument can be demonstrated by its logically sound construction and the results of Item Response Theory analysis. The

criterion validity of the instrument has been established because of the significant correlation with psychiatric interviews and other tools like the CSI-4.

Age-based measures of the ASEBA system were applied to measure behavioral and emotional problems. The Persian version of CBCL 1½-5 was applied to a group of children aged 3-5 years (n=49). It has demonstrated very high internal consistency and good psychometric validity for Iranian preschoolers (α = 0.82-0.90). The Persian version of CBCL 6-18 was applied to children aged 6-12 years (n=56). It has been validated and normed for use in Iran (α = 0.80-0.94)[23]. T-scores obtained from standardized age-related measures were compared using psychometrically comparable statistics.[24]

In the course of the fieldwork, the interviews were conducted using the CBCL to maintain precision and comprehensiveness. CBCL can be used extensively both as a screening device and as an outcome measure to evaluate the efficacy of psychological intervention.

These carefully selected and validated tools enable a precise assessment of behavioral outcomes among children affected by the 2019 Lorestan floods.

The CBCL was administered and scored by one trained evaluator. Because no independent second evaluator participated in the assessment or scoring process, inter-rater reliability could not be evaluated. To minimize variability attributable to the evaluator, the same standardized assessment procedure was used for all participants.

Participants were informed about voluntary participation and signed written informed consent after receiving complete information about the research. The confidentiality of participants' data was considered, and they were informed of their right to withdraw from the study at any time without giving a reason.

All collected data were used only for research purposes. Parents of those children who suffered from behavioral disorders received advice and referrals for counseling. The results of this research were reported truthfully and accurately.

Data Analysis

Data analysis was performed using SPSS 24. The Kolmogorov-Smirnov test assessed data normality. Behavioral problem scores were compared across groups using analysis of variance (ANOVA) for parametric data and the Kruskal–Wallis test for nonparametric data.

This comprehensive methodological framework enabled a rigorous examination of psychosocial outcomes associated with various post-disaster child support interventions in Iran.

Results

Table 1 presents the demographic and background characteristics of the participants.

A total of 105 caregivers of children were studied. The sample included more children aged 6–12 years (n=56), because they generally able to use the services). In contrast, fewer children aged 3–5 years were included (n = 49), because of their age and need for the presence and supervision of a primary caregiver(n=49).

Table 1. Demographic Characteristics of the Participants (n=105)

Variable	Category	No.	%
Child gender	Male	58	55.1
	Female	47	44.9
Child age (year)	3-5	49	46.66
	6-12	56	53.34
Group	Child-friendly spaces	35	33.33
	SAHAR	35	33.33
	Control	35	33.33
Caregiver	Mother	104	98.0
	Grandmother	1	2.0
Location	Pol-e-Dokhtar	66	62.86
	Mamulan	39	37.14

Table 2. Descriptive Statistics for Behavioral Problems by Intervention Group and Age Category

CBCL	Age (year)	CFS Mean (SD)	SAHAR Mean (SD)	Control Mean (SD)	P-value (Kruskal-Wallis test)	Overall Effect Size	95% CI	Power
Aggressive problems	3-5	9.88 (5.02)	11.80 (7.81)	11.96 (7.58)	<0.001	0.02	0.00, 0.11	0.22
	6-12	3.22 (3.47)	10.95 (5.79)	9.22 (6.01)	<0.001	0.32	0.15, 0.46	0.99
Attention problems	3-5	2.75 (2.12)	3.40 (2.35)	3.00 (2.11)	<0.001	0.01	0.00, 0.09	0.11
	6-12	1.59 (2.27)	6.15 (3.01)	5.33 (3.80)	<0.001	0.29	0.12, 0.43	0.99
Emotionally/ Reactive problems	3-5	3.25 (3.01)	3.93 (1.94)	3.69 (2.82)	<0.001	0.01	0.00, 0.08	0.09
Social problems	6-12	1.15 (1.56)	5.20 (4.12)	2.89 (2.42)	<0.001	0.23	0.07, 0.38	0.78
Anxious/ Depressed	3-5	4.63 (2.92)	5.60 (2.47)	5.08 (3.01)	<0.001	0.01	0.00, 0.09	0.11
	6-12	1.85 (1.85)	6.05 (3.54)	3.44 (2.96)	<0.001	0.26	0.10, 0.41	0.56
Somatic complaints	3-5	3.00 (1.51)	4.87 (4.40)	4.19 (3.33)	<0.001	0.04	0.00, 0.15	0.32
	6-12	0.59 (0.88)	2.55 (2.64)	0.67 (1.41)	<0.001	0.19	0.04, 0.34	0.06
Withdrawn	3-5	1.88 (2.10)	3.07 (2.71)	2.27 (1.88)	<0.001	0.03	0.00, 0.13	0.12
	6-12	0.78 (0.97)	3.15 (2.39)	1.67 (1.58)	<0.001	0.22	0.06, 0.37	0.61
Total behavioral problems score	3-5	35.75 (17.50)	48.93 (25.36)	45.65 (24.44)	<0.001	0.05	0.00, 0.17	0.33
	6-12	13.63 (11.28)	50.45 (24.84)	34.00 (19.94)	<0.001	0.38	0.20, 0.51	0.99

Abbreviations: CFSs, Child-friendly spaces; CBCL, Child Behavior Checklist.

The mean total behavioral problem score and the means of its subscales differed significantly among the three groups in each of the two age groups (3-5 and 6-12 years old) (P<0.05).

In the 3- to 5-year-old age group, children who did not receive any services had the highest mean score for aggression problems. Conversely, children in the SAHAR team group showed higher mean scores for attention problems, emotionally reactive behaviors, anxiety/depression, somatic complaints, and withdrawal compared to both the CFS and control groups. The CFS group demonstrated lower mean scores across all variables compared to both the SAHAR and control groups.

Among children aged 6 - 12 years, those in the SAHAR team group had the highest mean scores across all behavioral problem variables, whereas those receiving CFS services had the lowest scores.

The effect sizes for all variables were greater in the 6- to 12-year-old group than in the 3- to 5-year-old group. The effect sizes in the 3- to 5-year-old group were very small, indicating that the observed differences had small effects, whereas the effect sizes in the 6- to 12-year-old group were medium. The statistical power for the 6- to 12-year-old group was also greater than that for the 3- to 5-year-old group.

Bonferroni post hoc tests indicated that the average scores for total behavioral problems and their subscales in the SAHAR team group were significantly higher than those in the CFS and control groups. The CFS group demonstrated significantly lower mean scores for aggression, attention difficulties, social problems, anxiety/depression, and withdrawal compared with the SAHAR team group ($P < 0.001$). Therefore, CFS interventions may be more effective than SAHAR team services or no intervention in reducing behavioral problems among children aged 3 to 12 years following disasters.

Discussion

As a result of natural catastrophes like floods, children may experience various psychosocial difficulties that cause behavioral problems. Such difficulties can comprise developmental regression, regression to previous behavior, and physiological, emotional, and behavioral responses to such situations. The prevalence of depression among children and teenagers who have experienced natural disasters varies widely and ranges between 7.5% and 44.8%.[9,25] This variation reflects differences in disaster severity, cultural setting, access to support services, and individual resilience.

Furthermore, children are particularly susceptible to severe stress reactions after such events. These reactions may result in clinical and behavioral health concerns, including PTSD, functional difficulties, traumatic stress symptoms, anxiety disorders, and other mental health conditions. Children who lose their homes, belongings, or loved ones may experience enduring grief and emotional distress.[9,15] The severity and duration of these psychological effects often depend on the timeliness and quality of psychosocial support provided after the disaster.

According to Metzler et al., short-term participation in CFSs improved children's psychosocial well-being and developmental assets, with particularly positive effects observed among girls and children attending higher-quality programs. However, the evidence was inconclusive regarding whether these benefits persisted after children stopped attending CFSs.[26] Hermosilla et al. assessed child protection and well-being across different humanitarian settings and identified beneficial effects of CFSs in several countries.[13] In Australia, CFSs have also played an important role in addressing children's needs following recent bushfires and floods.[27]

After the flooding occurred in Pol-e Dokhtar and Ma'mulan, child protection was supported by CFS and SAHAR services. This research paper is among the first studies conducted in Iran that analyze the effectiveness of CFS and SAHAR interventions in comparison one year after the disaster, providing important evidence about their efficiency. The flood-affected children had behavioral problems because of stressful conditions and communication with adults. CFS worked with children for three months on a permanent basis, whereas SAHAR worked occasionally.

Disruptions to routine were one way in which the flood affected the welfare of the children post-flood. Restoring routine after disasters is vital for the protection of the children, as well as for creating normality and engagement with the community.[28] Predictable routines play an important role in promoting children's overall health and there is a need for consistent activities integrated into daily life.[29,30] Whereas the temporary intervention of the SAHAR program would make it difficult to develop stable routines or establish professional relationships with the children, the CFS program that was run in the Sazmaniha community for 3 months would help to ensure stability for the children through the activities that they had come to know before.

This study assessed behavioral problems among children who received SAHAR and CFS interventions. Effective psychosocial support during emergencies should be provided from immediate relief through long-term recovery, through structured services delivered by trained professionals and volunteers.[31,32] Disaster survivors frequently experience post-traumatic stress symptoms, like depression and isolation, highlighting the importance of sustained mental health support.[33] In developing countries, like Iran, limited mental health resources, inadequate disaster preparedness, and socioeconomic difficulties can intensify the social and psychological consequences of flooding.[34]

Pol-e Dokhtar, where the CFS included volunteers from the local community who were well-versed in the culture of the community, resulting in increased cultural awareness and communication skills, thus making the affected families more trusting and accepting, and consequently increasing the effect of the intervention process. However, on the other hand, the SAHAR teams were made up of people who were not part of the local community and had trouble comprehending the dialect and local practices of the community.

Moreover, games, drama, arts, and programming that are specifically designed for various ages would likely cover several dimensions of the psychological and social needs of children, fchildren'ssing their emotions to learning social skills. By addressing their needs through various activities, CFS interventions could build children's resilience and coping skills better than any short-term program ever could. Furthermore, by integrating parents' involvement and educating them on how to cope with their children, CFS interventions created a more protected environment for the children.

Although this study examined the 2019 Lorestan floods and its findings may not be generalizable to other disasters or locations, it provides additional important evidence on child psychosocial interventions in Iran. Future research should include larger and more diverse samples, use longitudinal designs to examine outcomes over longer periods, and use qualitative methods to explore children's and caregivers' experiences. Extensive cost-effectiveness evaluations can guide policy decisions regarding the expansion of CFS and SAHAR programs.

While providing information on the psychosocial effects of children after the 2019 Lorestan floods with CFS and SAHAR programs, there is still a need to point out some limitations of the research. The first one lies in the fact that the research was performed in real-life situations after the disaster struck, which means that participants were not randomly allocated to the experimental groups. This implies that there might be some differences between the groups in terms of their initial features and environments. Even though the research compared pre-existing intervention groups, no conclusions can be drawn about the causal effects.

Secondly, the interventions were quite different in terms of the level of intensity, duration, consistency,

geographic spread, and contextual setting in which they were implemented. CFS took place for three months in an environment that was stable in relation to other variables, but the SAHAR intervention consisted of more intermittent activities across numerous locations. This means that the differences seen in behavior can be due not just to the type of intervention, but also to exposure and implementation.

Third, various potential confounders, including family circumstances, socioeconomic status, the extent of exposure, displacement, access to other health or psychosocial services, and the availability of family support, may have affected the children's behavioral outcomes. Some of these factors may not have been adequately assessed or statistically controlled.

Fourth, the focus was on the impact of flooding that occurred in 2019 in Lorestan Province, where the children were impacted and living in the CFS and SAHAR areas. Thus, the results cannot be generalized to children who were affected by other types of disasters like droughts and earthquakes or in other places in Iran and elsewhere.

Fifth, behavioral outcomes were assessed approximately one-year post- disaster. Although this follow-up provides valuable insight into longer-term effects, it does not show how children's behaviors changed before, during, and immediately after the interventions. In addition, the lack of repeated assessments over time limits the ability to determine whether the observed differences represent sustained intervention effects or changes due to the natural process of post-disaster recovery.

The sixth potential reason for the disparities in results is that there were distinctions in the background and training of the individuals providing interventions. The CFS intervention program was conducted by local staff who knew the affected areas well, whereas the SAHAR intervention might have involved staff from places outside those areas. However, even though this point must be taken into consideration when evaluating the results, it was not the intention of the research to look into this matter.

Additionally, there was no control group in the study since the withholding of psychosocial support to children affected by disasters would have raised some ethical concerns. This means that the differences or improvements observed between the two intervention groups cannot be taken as absolute proof that any one intervention was solely responsible for bringing about all the changes. More research needs to be done in the future using longitudinal and prospective designs with bigger sample sizes and appropriate comparisons. The use of randomized or quasi-experimental designs and a thorough evaluation of baseline characteristics, disaster experiences, intervention dosage, and confounding variables would provide better evidence.

Conclusion

Disasters expose children to dangers not only in their families but also within the community and even at the societal level. In the family context, disasters may affect the caregiving situation and, in extreme cases, deprive children of proper care from their parents and family members, making them prone to neglect and exploitation. On the community level, damage to schools, forced migration, and disrupted education may negatively impact the developmental processes of children, destroying their educational process, relationships with peers, and access to the safe environment that is vital for their well-being. On the societal level, disasters can hinder the work of the government and social organizations in the field of education, protection, and psychosocial assistance.

The results need to be understood, bearing in mind the huge discrepancy between the ways the two programs were implemented. The CFS in Pol-e Dokhtar worked for about three months and provided consistent and developmentally appropriate activities for the children. On the other hand, the teams of SAHAR provided their services through temporary visits and provided limited and discontinuous services at various sites. Consequently, the differences among the two groups might be due not only to the type of program that was applied but also to its duration, consistency, frequency of contact, etc.

It is possible that the CFS could have helped children recover psychologically and socially by assisting in the restoration of their routines and providing them with a safer and more stable and predictable environment through medium-term intervention. The constant presence, consistent interaction, and constant involvement in activities with the facilitators and peers could have helped in building children's feeling of safety, familiarity, and sociability. In contrast, SAHAR interventions may not have provided children with an opportunity to build stable relationships with service providers and receive consistent help due to their short-term and discontinuous character. This does not mean

that the SAHAR approach is not effective, but that mobile and short-term interventions are useful for other goals.

The CFS also used local volunteers who knew the local language, culture, and community. This may have made it easier for them to communicate with children and parents and helped people trust the program. Activities were also arranged by age group, which may have made children feel safer and helped the facilitators meet their different needs. The SAHAR teams, however, stayed in each area for only a short time and may not have known the local community as well. Because of this, they may have had less time to notice ongoing problems, follow children's progress, build trust with families, or arrange further help and referrals for children who needed special support.

The findings suggest that the way a program is delivered is important. The positive results linked to CFS may be because the program lasted longer, followed a clear structure, took place in a stable location, and allowed children to attend regularly. Grouping children by age and using trained local staff may also have helped. These benefits may not come from the CFS name alone SAHAR should also be judged by what it is designed to do, such as reaching people quickly, moving between communities, and covering large areas. Some results may need more time and regular contact to appear. This agrees with other research showing that the length, level of support, regularity, delivery method, and local situation can affect how well psychosocial programs help children after a disaster.

The results indicate that helping children after a natural disaster requires more than brief activities designed only for them. Parents and other main caregivers should also receive support, since they help children return to regular routines, feel emotionally secure, and manage everyday needs. Programs for children should be connected to their usual homes, schools, and communities. They should also include ways to notice serious or long-lasting emotional, behavioral, developmental, or safety problems early, monitor affected children, and connect them with appropriate services.

From a practical disaster-response planning perspective, the results support an integrated, phased policy model rather than the exclusive selection of one intervention approach. In such a situation, the SAHAR team would be well placed to offer a fast-moving, mobile first-response effort in the immediate post-disaster period, offering geographical coverage, psychosocial services, basic recreation and educational opportunities, identifying any issues with child protection, and referral of children at risk. In the recovery phase, child-friendly spaces would offer continuing, community-level psychosocial services, especially where a stable location, trained staff and continued participation of children can be ensured. As far as disaster response goes, it is better to use various interventions combined than rely on one solution alone. In the first days following a disaster, mobile SAHAR teams could move quickly between affected communities. They could offer basic emotional support, organize simple educational and recreational activities, identify urgent child-safety concerns, and refer children facing serious risks to specialized services. As the situation begins to stabilize, child-friendly spaces could provide regular psychosocial support within the community. These spaces would be most effective where they have a dependable location, trained personnel, and opportunities for children to attend regularly.

Such an integrated approach may allow for the advantages of both the mobility and flexibility of SAHAR teams as well as the continuity, consistency, culturally sensitive approach, and planned programming of CFSs. Such successful implementation of this approach will necessitate the recruitment and training of local staff, engagement of parents and other caregivers in meaningful ways, development of developmentally and age-appropriate activities, the creation of standardized evaluation measures, referral to other professionals, including mental health, social workers, educators, and child protection experts, as well as cooperation between the Iranian Red Crescent Society, the National Disaster Management Organization, UNICEF, schools, and health facilities.

At the policy level, the findings emphasize the importance of including child-centered psychosocial services in national disaster preparedness and response plans. Planning needs to happen prior to a disaster. It should consist of mapping of vulnerable areas, identifying safer areas for creation of CFSs, training of volunteers and service providers, availability of child-friendly information materials, provision of a mechanism of referral and resource allocation. Such preparedness can help ensure the continuity of child protection services and psychosocial support, as well as strengthen the capacity of the disaster response system to respond to the needs of children—both in the

immediate phase of the emergency and in the longer period of recovery and reconstruction.

However, this conclusion does not imply that CFSs will always be better than SAHAR teams. The two programs are meant for different purposes and encounter diverse challenges. One of the advantages of using SAHAR teams is that they can respond promptly, cover large territories, and provide psychosocial help to various dispersed and distant communities. However, due to the infrequent and short duration of their meetings, they have a poor opportunity to keep in contact with children, follow up with them, involve other people such as parents, and discover any long-term psychosocial problems. On the other hand, CFSs offer a consistent environment where they can take part in several activities.

However, in order for CFSs to operate effectively, they will need a secure location, adequate funding, well-trained personnel, and consistent participation. Such demands may prove hard to fulfill in rural settings or in communities with scattered populations. That is why these programs must be considered as complementary services to children rather than substitutes for one another.

Authors' Contributions

Fatemeh Nourshargh (Data management, Drafting, Write and review), Mansoureh Karimzadeh (Conceptualization, Write and review, Project management), Samaneh Hosseinzadeh (Data analysis, Validation of the study, Study advice), Soheila Shahshahanipour (Supervision, Preparation of study materials and equipment, Study advice)

Ethical Considerations

To adhere to ethical principles, the participants' information was kept confidential, and they were assured that it would remain confidential. This study received ethical approval from the Research Ethics Committees of the University of Social Welfare and Rehabilitation Sciences (approval ID: IR.USWR.REC.1399.148).

Conflicts of Interest

The authors declared no conflicts of interest.

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Declaration of Generative AI and AI-assisted technologies

The authors declare that the ChatGPT was used for language editing. However, all scientific content, expert analysis, data interpretation ,and final conclusions were produced, reviewed, and verified directly by the authors.

Supplementary Material

None.

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