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Investigating the Role of the Red Crescent Society in Shelter Management and Psychosocial Support for Crisis the Vulnerable People (Case Study: Kermanshah, Sistan & Baluchistan, Khuzestan, Golestan and Lorestan Provinces)

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Original Article

Abstract

INTRODUCTION: This study aimed to investigate the role of the Iranian Red Crescent Society (IRCS) in managing shelters and providing psychosocial support to survivors of natural disasters, including the 2017 Sarpol-e Zahab earthquake (Kermanshah province) and the floods of 2019 to 2022 in the provinces of Sistan and Baluchistan, Khuzestan, Golestan, and Lorestan provinces.

METHODS: This quasi-experimental study was conducted with a pretest-posttest design among 80 survivors of RCS natural disasters in Kermanshah, Sistan and Baluchistan, Khuzestan, Golestan, and Lorestan provinces. The subjects (40 people) were randomly assigned to experimental and control groups. The experimental group underwent psychosocial interventions including psychological first aid training, stress management skills, relaxation techniques, and resilience building, while the control group did not receive any intervention. Data were then collected using validated General Health Questionnaires (GHQ), the Connor-Davidson Resilience Scale (CD-RISC) and a researcher-made questionnaire on shelter management and psychosocial support, and data analyzed by ANCOVA.

FINDINGS: According to the findings, the RCS's psychosocial interventions significantly improved mental health, increased resilience, and enhanced the capacity of disaster shelter management. Also, training in Kermanshah province had the greatest impact on reducing anxiety among students and families, while in Sistan and Baluchistan and Khuzestan provinces, adults' resilience was affected by the interventions. In addition, the effect of the intervention on psychosocial support for children under 15 years of age was smaller and insignificant.

CONCLUSION: The results showed that psychosocial interventions and systematic management of shelters by the RCS reduced the psychological distress of disaster survivors and improved their resilience and capacity to manage shelters. Therefore, continuity of psychosocial services are recommended as a key factor for improving long-term outcomes. In fact, these results emphasize the importance of combining practical and psychological interventions in reducing the psychological and social consequences of crises.

Keywords: Red Crescent Society (RCS); Shelter Management; Psychosocial Support; Resilience; Natural Disasters.

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Introduction

Natural disasters are sudden and destructive phenomena that can lead to extensive human, financial and social losses, and in the meantime, the survivors of these events, in addition to basic needs, survivors face profound

psychological and social challenges that require special attention (1).

Providing psychosocial support alongside operational services is recognized as an integral component in the rehabilitation process of affected communities; so, relief organizations, especially the RCS play a vital role in crisis

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management, providing temporary shelter and support services (2).

Research in earthquake and flood affected areas in Iran and around the world showed that combining psychological education with social and relief services can help reduce destructive behaviors, self-blame, and mental disorders in the affected people and accelerate the social rehabilitation process (3&4).

Moreover, attention to the age, gender, and cultural differences of survivors in the design of these trainings and interventions will also increase significantly (5).

Recent natural disasters in Iran, such as the Sarpol-e-Zahab earthquake and recent floods, have reinforced this need, as many people faced problems such as anxiety, stress, and depression, and receiving social support played a vital role in their return to normal life (6&7).

Rahimi and Soleimani (2022) examined the role of social support in the adaptation process of college entrance exam students after the Sarpol-e-Zahab earthquake crisis and found that the support received from family, friends, teachers, and social institutions played a fundamental role in reducing psychological stress, increasing academic motivation, and improving students' academic adaptation. They also found that without adequate social support, students experience reduced academic performance, increased academic anxiety, and feelings of helplessness, a phenomenon that can have long-term and irreversible consequences for their educational path. The study emphasized the importance of building strong support networks, both formal and informal, in schools, conducting skills training workshops, and empowering families in times of crisis as key strategies (3).

In the context of the psychological consequences of disasters on wider populations, Teyuri et al. (2023) examined the psychological effects of recent floods in Golestan, Lorestan, and Khuzestan provinces and found that approximately one-third of survivors experienced some level of psychological distress and more than one-fifth experienced symptoms of depression. This study also analyzed the factors affecting the occurrence of mental disorders and determined that the extent of the losses, limited access to health and mental health services, unfavorable economic status, lack of adequate social support, and problems resulting from forced displacement and loss of financial resources are

among the most important factors associated with the exacerbation of mental distress. In addition, it emphasized the importance of emergency training, preventive information before the crisis, local community empowerment, and building psychosocial capacities among survivors (6).

Shabani et al. (2024) also examined the prevalence of post-traumatic stress disorder among survivors of the same flood and found that a significant percentage of adults had PTSD and that factors such as severity of injury, history of mental illness, employment status, lack of social support, and exposure to multiple stressful events after the disaster were significantly associated with the occurrence of this disorder. This research clearly showed that beyond immediate intervention, long-term follow-up, providing ongoing psychological support, specialized counseling, and comprehensive social rehabilitation programs are essential to mitigate and reduce the long-term effects of the crisis (7).

Some research has also emphasized the need to integrate psychoeducation, social empowerment, and operational support in crisis situations, indicating that providing psychoeducation along with social and relief services helps reduce destructive behaviors, self-blame, and mental disorders in the affected population and accelerates the social rehabilitation process. Furthermore, considering the age, gender, and cultural differences of survivors in the design and implementation of these trainings and interventions significantly increases the effectiveness of support measures (3&4).

Despite these efforts, a significant structural and research gap is observed in the Iranian literature: a) Lack of effective integration between logistical management of shelters; b) Mental Health and Psychosocial Support (MHPSS) in a single and indigenous framework.

Existing studies have either focused only on operational dimensions or have addressed only psychological aspects. While practical experience shows that the quality of shelter, physical security, and psychological support are interrelated in the rehabilitation process.

In response to this gap, this study seeks to design and evaluate the effectiveness of an integrated framework that adapts the operational mechanisms of the RCS's emergency shelter management with psychosocial support components in the Iranian cultural context, and simultaneously measures the impact of this

integration on key variables including mental health, resilience, and shelter management efficiency. It also provides a unified model to improve coordination between operational units and psychological support by overcoming the structural disconnect between relief guidelines and local needs for psychological interventions, examining the role of the RCS in managing shelters and providing psychosocial support to survivors of natural disasters.

Methods

This study employed a quasi-experimental interventional design with a pretest–posttest control group approach, aiming to evaluate the effectiveness of the IRCS's psychosocial educational and supportive interventions on mental health, resilience, and shelter management competence.

The statistical population consisted of survivors of natural disasters who were accommodated in emergency camps and shelters under the coverage of the IRCS. These disasters include the 2017 Sarpol-e Zahab earthquake and the floods of 2019, 2021, and 2022 in the provinces of Sistan and Baluchistan, Khuzestan, Golestan, and Lorestan. The statistical sample was selected using a stratified random method; first, the province where the incident occurred was considered as the primary category. Then, based on the number of survivors covered by the RCS, a proportional share of the sample was selected from eligible individuals (settled in shelters and willing to participate) using a simple random method. The final sample size was determined to be 80 people, who were purposefully divided into two groups to compare the effect of the intervention in different age groups: children under 15 years of age (40 people); adults 15 years of age and older (40 people). Individuals from each age group were randomly assigned to two experimental and control groups.

Due to implementation limitations and critical conditions after disasters, the sample size is limited and generalization of the results to the entire population of disaster survivors should be done with caution.

The independent variables of the study were RCS educational interventions and psychosocial support, and the dependent variables were disaster survivors' mental health (including anxiety, depression, PTSD symptoms, and social

adjustment), resilience, and ability to manage shelter.

The experimental group underwent comprehensive psychosocial interventions by the RCS, which included psychological first aid training, stress management skills, muscle relaxation techniques, emotion management, and resilience building (Table 1).

The control group did not receive any intervention during the study, but in order to comply with ethical considerations, basic psychological first aid training was provided to this group after the study ended.

The following questionnaires were used to collect data:

A) General Health Questionnaire (GHQ-28):

A 28-item questionnaire with four subscales of physical disorder, anxiety and restlessness, social disorder, and depression which was used to assess the general state of mental health and diagnose mild to moderate mental disorders;

B) The Connor-Davidson Resilience Scale (CD-RISC): A 25-item questionnaire used to measure a person's ability to cope with pressures and crises;

C) A researcher-made questionnaire on shelter management and social support: This questionnaire was developed to assess the effectiveness of the RCS's actions based on domestic and foreign research (3,6,7), which included two main sections: 1) shelter management (shelter, security, nutrition, health); 2) psychosocial support (counseling, resilience training).

The content validity of the questionnaire was reviewed and confirmed using the opinions of 5 experts in the fields of mental health, crisis management, and relief and rescue. The reliability of the questionnaire was also calculated using Cronbach's alpha coefficient, which was 0.82 for the entire instrument, indicating appropriate reliability of the instrument.

For data analysis, descriptive statistics (mean, standard deviation, and frequency) were used using SPSS-21 software, and for inferential statistics, analysis of covariance (ANCOVA) was used to compare the experimental and control groups in the post-test, while controlling for the effect of the pre-test. Before performing ANCOVA, the assumptions of normal data distribution, homogeneity of variances, and homogeneity of regression slopes were reviewed and confirmed.

Table 1. Educational-supportive intervention sessions

Session	Educational Objectives	Activities	Techniques
First	Familiarity with research objectives and the importance of psychosocial support; Providing the basics of psychological first aid	Conducting pre-test; Introducing the research goals; Training in identifying symptoms of anxiety and stress	Immediate psychological first aid (PFA) training; Creating a safe environment; Basic relaxation techniques
Second	Emotional expression and reducing psychological tension	Psychological retelling exercise and group discussion; Anxiety reduction exercises	Controlled breathing; Mindfulness exercises; Stress reduction techniques
Third	Stress management in dealing with traumatic memories; Enhancing resilience	Mental imagery training; Gradual exposure to fears	Gradual exposure; Cognitive restructuring; Stress response reduction exercises
Fourth	Reducing physiological tension and coping with fear and avoidance	Training in muscle relaxation and deep breathing	Advanced relaxation techniques; Coping with fear and avoidance; Controlled exposure exercises
Fifth	Anger and emotion management; Mental focus and relaxation	Anger control skills practice; Relaxation and mindfulness exercises	Deep breathing; Advanced mindfulness; Intense emotion control
Sixth	Reviewing materials and evaluating intervention impact	Summarizing content; Gathering participant feedback; Conducting post-test	Techniques review; Q&A; Post-intervention test

Table 2. Mean and standard deviation by province and group

Province	Group	Shelter Management		Resilience		Mental Health	
		Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test
Kermanshah	Exp.	65.0 ± 5.5	55.2 ± 6.8	41.1 ± 7.0	55.2 ± 6.8	33.2 ± 7.5	42.0 ± 9.0
	Ctrl.	56.0 ± 6.8	55.0 ± 7.0	54.5 ± 7.2	55.0 ± 7.0	41.0 ± 8.9	41.8 ± 9.2
Sistan & Baluchistan	Exp.	66.0 ± 5.0	55.5 ± 7.4	45.0 ± 6.5	55.5 ± 7.4	34.8 ± 7.9	40.5 ± 8.3
	Ctrl.	56.2 ± 6.9	55.0 ± 7.1	53.0 ± 7.0	55.0 ± 7.1	41.0 ± 8.7	41.2 ± 8.9
Khuzestan	Exp.	65.5 ± 5.2	55.0 ± 7.0	43.5 ± 6.8	55.0 ± 7.0	34.2 ± 8.0	41.0 ± 9.1
	Ctrl.	56.5 ± 7.0	55.0 ± 7.1	52.5 ± 7.1	55.0 ± 7.1	40.8 ± 8.8	41.1 ± 9.0
Golestan & Lorestan	Exp.	65.8 ± 5.1	55.2 ± 7.0	44.0 ± 6.6	55.2 ± 7.0	34.5 ± 7.8	41.5 ± 8.8
	Ctrl.	56.3 ± 6.9	55.0 ± 7.0	53.5 ± 7.2	55.0 ± 7.0	40.7 ± 8.9	41.0 ± 8.9

Findings

The study sample consisted of 80 natural disaster survivors housed in camps and shelters under the coverage of the IRCs in the provinces of Kermanshah (2017 earthquake), Sistan and Baluchistan (2019 and 2022 floods), Khuzestan (2019 and 2021 floods), and Golestan and Lorestan (2019 floods).

In terms of geographical distribution, the sample was selected in such a way that a proportionate share of each province was present in the study. This distribution was made considering the severity and extent of the disasters that occurred in each region, as well as access to survivors living in shelters. Accordingly, 32 people (20%) each from Kermanshah and Sistan and Baluchistan provinces were present in the sample, and 16 people (10%) each from Khuzestan, Golestan, and Lorestan provinces were present in the sample.

Participants, consisting of equal numbers of children and adults, were randomly divided into two groups of 40: an experimental group who received psychosocial educational-supportive

interventions; and a control group who did not receive these interventions.

In terms of age composition, 40 children were under 15 years of age (50%) and 40 adults were 15 years of age and older (50%). The mean age of the entire sample was 24.7 years with a range of 8 to 58 years. This age stratification was done to examine the differential effects of psychosocial interventions on different age groups and to identify the specific needs of children compared to adults.

In terms of gender distribution, 42 (52.5%) of the participants were female and 38 (47.5%) were male, indicating a relatively balanced gender distribution in the research sample, which allowed for the examination of the interactive effects of gender with other variables. To examine the impact of psychosocial interventions, the mean and standard deviation of mental health, resilience, and shelter management were calculated at the pre- and post-test stages. (Table 2)

The findings showed that the decrease in GHQ-28 scores in the experimental group indicated an improvement in mental health and

the increase in CD-RISC scores indicated an increase in resilience, and the improvement in shelter management scores indicated a positive effect of the intervention. In addition, the greatest improvement in mental health was observed in Kermanshah province and the greatest increase in resilience was observed in Sistan and Baluchistan and Khuzestan provinces.

Before analysis, the necessary assumptions were checked. The Shapiro-Wilk test was used to assess the normality of the data, and the results showed that the data distribution was normal ($P>0.05$). Also, the homogeneity of variances was confirmed by Levene's test ($P>0.05$). Examination of scatter plots and convergence analysis showed that the pre-test regression slope was similar in the groups, so the assumption of homogeneity of slopes was valid. These studies confirmed the validity and appropriateness of conducting ANCOVA to control the effect of the pre-test. The results of multivariate analysis of covariance (MANCOVA) showed a significant difference between the experimental and control groups in composite variables ($P<0.001$); $\text{sig}=0.000$; $\text{df Error}=31$ and hypothesis $\text{df}=4$. (Table 3)

Table 3. Results of multivariate analysis of covariance (MANCOVA)

Indicator	F	Effect size
Wilks' Lambda	0.565	0.34
Hotelling's Trace	14.80	0.36
Roy's Largest Root	14.91	0.37
Pillai's Trace	0.656	0.35

Interventions had a significant effect on mental health, resilience, and shelter management, but had a smaller and non-significant effect on children's psychosocial support. Therefore, psychosocial training in Kermanshah province showed the greatest reduction in anxiety and depression among students and their families. A significant increase in resilience was observed in the adult group in the provinces of Sistan and Baluchistan and Khuzestan. Furthermore, an enhancement in the competence of survivors and aid workers regarding the provision of shelter, nutrition, sanitation, and security was evident across all provinces. On the other hand, no significant change was observed, highlighting the need to design child-specific interventions and play-based activities. Also, the RCS's psychosocial interventions, especially for adults, reduced psychological stress, increased resilience, and improved shelter management capabilities.

Early initiation and continuation of these services can prevent the emergence of chronic psychosocial problems.

Univariate ANCOVA results showed that the interventions had significant effects on mental health, resilience, and shelter management. However, the effect of the intervention on psychosocial support for children under 15 years of age was not significant ($P=0.39$). The effect size for mental health and shelter management was large ($\eta^2=0.46$ and 0.45) and for resilience was medium ($\eta^2=0.36$). The effect size for psychosocial support for children was reported to be very small ($\eta^2=0.02$). (Table 4)

Table 4. Univariate ANCOVA results by components (controlling for pretest effect) ($\text{df Error}=34$) ($\text{df group}=1$)

Dependent variable	F	P	Effect size (η^2)
Mental health	29.23	<0.001	0.46
Resilience	19.92	<0.001	0.36
Shelter management	28.79	<0.001	0.45
Psychosocial support for children	1.36	0.39	0.02

The results of the interaction analysis showed that none of the interaction effects were statistically significant ($P>0.05$). The effect sizes for all dependent variables in these analyses were small to medium. Furthermore, although the data indicated a tendency for the greatest increase in resilience in adults in Sistan and Baluchistan and Khuzestan provinces and the greatest decrease in anxiety and depression in children in Kermanshah province, these differences were not statistically significant. (Table 5)

Table 5. Interaction analysis of group, age, province and gender (interaction ANCOVA) ($P=>0.05$) ($\text{df Error}=30$) ($\text{df group}=3$)

Dependent Variable	F	P	Effect Size (η^2)
Mental health	1.42	<0.001	0.12
Resilience	1.55	<0.001	0.13
Shelter management	1.38	<0.001	0.11
Psychosocial support for children	1.36	0.39	0.10

Discussion and Conclusion

The present study aimed to investigate the impact of the IRCS interventions on shelter management and psychosocial support for natural disaster survivors across Kermanshah, Sistan and Baluchistan, Khuzestan, Golestan, and Lorestan provinces.

The findings demonstrate that the educational-psychosocial support interventions exerted a significant positive effect on all three

primary variables: mental health, resilience, and shelter management ($p < 0.001$). The significant improvement in survivors' mental health aligns with previous research by Karimi and Ahmadi (2020) and Alizadeh et al. (2022) (2 & 8).

Furthermore, the combined effectiveness of the IRCS interventions in enhancing resilience and shelter management competence is consistent with the findings of Teyuri et al. (2023) and Shabani et al. (2024), as well as Norris et al. (2017). Specifically, Teyuri et al. (2023) previously demonstrated that targeted psychosocial interventions can substantially mitigate psychological distress among flood survivors, a result that mirrors our current observations (6,7&10).

Theoretically, the observed improvements in shelter management suggest that when survivors perceive a sense of physical safety and receive psychological support, their capacity to organize and manage crisis-related tasks is significantly enhanced. The variations in intervention efficacy across provinces—notably the superior mental health improvements in Kermanshah and the heightened resilience in Sistan and Baluchistan and Khuzestan—may be attributed to distinct cultural characteristics, the nature of the disasters experienced, and the existing regional infrastructure. These regional nuances are consistent with Hobfoll et al. (2020) five-factor model of crisis intervention, which underscores the critical roles of safety, calm, connectedness, self-efficacy, and hope in successful psychosocial recovery (9).

Moreover, the significant increase in survivors' resilience ($p < 0.001$) supports the community-based resilience theory proposed by Norris et al. (2018), which emphasizes that resilience is a social and indigenous process rather than a purely individual trait (10). This is further corroborated by Patel and Rogers' (2023) longitudinal study, which indicated that psychosocial interventions can foster long-term resilience in survivors (11).

Additionally, the efficacy of improving shelter management capacity ($p < 0.001$) reinforces the findings of Miller and Rivera (2022), who argued that an integrated approach combining operational shelter management with psychosocial support yields superior outcomes compared to fragmented interventions (12).

The findings are also in line with the IFRC guidelines, which emphasize the necessity of training aid workers in psychosocial support and

ensuring seamless coordination between operational units and mental health teams (5).

Regarding the regional disparities, the findings highlight the importance of culturally sensitive interventions.

As emphasized by Kirmayer et al. (2019) and Rodriguez-Llanes et al. (2023), psychosocial support must be tailored to the specific socio-cultural contexts of a community to leverage local capacities effectively (13&14).

A notable and unexpected finding was the non-significant effect of the interventions on the psychosocial support of children under 15 years of age ($p = 0.39$). This lack of significance is consistent with the systematic review by Chen et al. (2022), which suggested that general psychosocial interventions are often less effective for children (15). Instead, there is a critical need for specialized, child-centered programs, such as play therapy, art therapy, and parental education. As Makwana (2019) cautioned, implementing inappropriate or non-specialized interventions may inadvertently lead to secondary harm to children (16).

Finally, it should be noted that the implementation of these interventions encountered several challenges, including a shortage of specialized personnel, diverse cultural nuances, infrastructural limitations, and the inherently unstable conditions following natural disasters. Furthermore, as emphasized by Duckers and Tormar (2021), the long-term stability of intervention effects remains to be fully determined, highlighting the critical necessity for longitudinal follow-up studies to assess sustained impact (17).

In conclusion, the findings of the present study underscore the efficacy of the IRCS's integrated intervention model and provide novel evidence supporting the necessity of merging logistical shelter management with psychosocial support within the Iranian context. However, the lack of significant impact on children under the age of 15 necessitates a strategic shift toward designing specialized, child-centered programs. Based on these findings, it is highly recommended that the IRCS establish a dedicated unit for the "Psychological Management of Emergency Accommodation" and mandate formal coordination between operational field units and mental health teams. Furthermore, policymakers should prioritize the development of tailored intervention frameworks specifically designed for highly vulnerable populations, with an urgent

focus on the unique developmental needs of children.

Compliance with Ethical Guidelines

Ethical principles were strictly observed throughout all stages of this research, and data confidentiality was guaranteed. Given the inclusion of children under 15 years of age, informed consent was obtained from the parents or legal guardians of all participants. For children, age-appropriate informed consent forms were utilized; specifically, a visual consent tool was employed for participants aged 8 to 14. All participants were informed of their right to withdraw from the study at any stage without any negative consequences. Following the conclusion of the study, basic training was provided to the control group.

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Author's Contributions

This study was conceptualized by Hojatollah Khalili Dehkalbali, who was also responsible for data collection and analysis. The remaining authors, Maral Talakoub, Javad Khalili, Majid Nemati, and Morteza Sharifi contributed to the study design, supervision, and methodology. Hojatollah Khalili Dehkalbali was responsible for the editing of the final manuscript.

Conflict of Interests

The authors declare no conflict of interest.

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