Doi: 10.32592/jorar.2021.13.3.1

The Effectiveness of Psychological Interventions in the Well-Being of Adolescents Surviving Natural Disasters in East Azerbaijan Province

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Date of submission: 23 Dec. 2020 *Date of acceptance: 7 Aug. 2021*

Original Article

Abstract

INTRODUCTION: Given that Iran is among the top five earthquake-prone countries in the world and no region of the country is safe from unforeseen crises, raising awareness regarding the victims' mental health issues is one of the top priorities limiting the extent of problems and subsequent consequences. The present study aimed to investigate the effectiveness of psychological interventions in the well-being of adolescents surviving natural disasters as opposed to regular individuals.

METHODS: The study population in the present cross-sectional comparative study consists of high school students (13–18 years old) from the earthquake-stricken village of Sarand in East Azerbaijan Province, and normal students from Zarnaq in the same province. They were assessed through the total population sampling method. The data collection tool utilized was a questionnaire (Ryff) to assess anxiety and depression. Data is analyzed and screened by measures of central tendency (mean and standard deviation) for the first section of variables. In the second section, the analysis of variance (ANOVA) was employed to test the research questions.

FINDINGS: The earthquake group achieved the lowest and highest mean scores in the aspects of environmental mastery (9.46), personal growth (10.93), and purpose in life (10.90), respectively. In the Non-Affected group, the lowest mean score is associated with paranoia (2.25) and the highest mean score is linked to anxiety (3.86). The post-test revealed the lowest mean score in the control group was related to autonomy (11.09), and the highest mean score pertained to personal growth (14.38). The scores are normally distributed in all dimensions. Eventually, the obtained data indicated that the psychological interventions performed for the benefit of the disaster-stricken group were significantly more than the group that was not subjected to psychological interventions. However, there was no statistically significant difference between the two groups in terms of sex.

CONCLUSION: Providing post-crisis social psychosocial support programs for adolescents consolidates cognitive and behavioral rehabilitation, diminishes stress and vulnerability, enriches relationships with peers, decreases psychosomatic disorders caused by the crisis, and modifies social performance. Moreover, spending time with their peers, family members, and relatives ameliorates various disorders and issues.

Keywords: Adolescence; Natural Disasters; Psychological Interventions; Well-being.

How to cite this article: Zargham Zanjani S, Sirafi MR, Hedayati M, Ahmadi Marzaleh M. **The Effectiveness of Psychological Interventions in the Well-Being of Adolescents Surviving Natural Disasters in East Azerbaijan Province.** Sci J Rescue Relief 2021; 13(3): 171-76.

Introduction

In the recent decade, the severity and frequency of natural and man-made disasters have increased significantly around the globe. Disasters such as hurricanes, earthquakes, floods, outbreaks of contagious diseases, radioactive leaks of nuclear substances and petroleum harm the economies of countries, cause environmental degradation, and the emergence of

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[DOI: 10.32592/jorar.2021.13.3.1]

mental illness annually (1-5). Natural disasters are among the inevitable hazards that lead to death, injury, and destruction of human habitation. For instance, approximately 771,911 people were killed due to disasters and 1,917,557 people were affected by disasters from 2006 to 2015 (6).

Iran is one of the most disaster-prone countries in the world. As statistics demonstrate, out of 40 types of natural disasters that arise in the world, 31 take place in Iran. The occurrence of such natural catastrophes placed Iran among the top 10 disaster-prone countries in the world (7). Iran accounts for only 1% of the world's population. Meanwhile, it accounts for 6% of the world's disaster casualties (8).

Once the emergencies have passed, people are exposed to various stressors. These factors include all sorts of physical injuries that cause pain and discomfort, lack of a safe place to rest and relax, shortage of food and beverages to relieve hunger and thirst, exposure to heart-wrenching scenes, e.g., bodies of passed relatives and acquaintances, hearing the cries of people stuck under the debris asking for help, destruction of buildings and losing one's property and assets, which puts a great deal of psychological pressure on the individual. Natural disasters lead to several psychological issues such as depression, sleep disorders, post-traumatic stress disorder (PTSD), panic, and anxiety in disaster-affected people and even rescuers. When children and adolescents are encountered with an incident that imperils their lives, they display a sharper reaction. These reactions are natural responses to an unnatural event (9, 10).

Newman et al. (2014) investigated and analyzed psychological interventions performed on children surviving natural disasters and man-made crises. The results indicated that considering the symptoms of post-traumatic stress disorder (PTSD), the performance of children and adolescents who received psychological interventions was significantly better than those in the control group or waiting list. Furthermore, according to the observations, intervention packages, treatment methods, service providers' education level, psychological intervention environment, parental involvement, age of the participant, duration of treatment, time set for psychological interventions, and accuracy of selected methods functioned as moderators (11).

Attending to the psychological aspect is the first post-disaster step, which is contemplated in most countries nowadays. Unfortunately, that is not the case in Iran. Through participation in education, people feel in control of their lives and can face obstacles and make judgments. Proper and immediate intervention impedes potential future devastations. Given that Iran is among the top five earthquake-prone countries and no region of the country is immune from catastrophes, raising awareness of the mental health issues of the victims is one of the crucial priorities deterring further dilemmas and aftermaths. The present study aimed to investigate the effectiveness of psychological interventions in the well-being of adolescents surviving natural disasters.

Methods

In the present study, all high school students in the disaster-stricken village of Sarand and the non-stricken village of Zarnaq were surveyed in 2016. All the adolescents in Sarand, a village in Heris County, East Azerbaijan Province are disaster-affected. Meanwhile, all the high school students in Zarnaq, the Central District of Tabriz County, and East Azerbaijan Province are Non-Affected adolescents.

The sampling method of the present research is total counting. 29 high school students in Sarand village and 41 students in Zarnaq village were selected as the study sample. The selected individuals gave consent to participate in the study and were enabled to share their knowledge and experiences.

The target population was selected from the adolescents from Sarand who lived in the village at the time of the earthquake. However, several families who had been present in the region at the time of the earthquake but then migrated and thus did not live in the village any longer were not included in the research. Considering that the study aimed to investigate the psychological well-being of the affected adolescents as opposed to Non-Affected adolescents, Sarand, in the earthquake-stricken Heris county, and Zarnaq, which was not affected by the aforementioned earthquake, were evaluated.

In the current study, the data collection tool was the 1989 42-item Psychological Well-being (PWB) Scale, developed by psychologist Carol D. Ryff, assessing six aspects of psychological

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well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. The Ryff Psychological Well-Being Scale consists of 18 items to measure 6 sub-scales of psychological well-being scored using a 7-point scale (1 = strongly agree; 7 = strongly disagree). The internal consistency coefficient of the subscales of the shortened psychological scales as well as the internal consistency coefficient of the whole test has been reported to be approximately 0.5. The convergent validity of the psychological well-being test suggests that six factors of psychological well-being have a positive relationship with life satisfaction, self-esteem, and morality and a negative relationship with depression, luck, and external control (Awang, 2009). To assess the performance of the Red Crescent Society and organizations involved in crisis management in terms of providing psychological support to the affected people, one question was added to the questionnaire taking into account the viewpoint of the supervisor. Ultimately, the questionnaires were distributed among the participants with 29 questions.

Questionnaires (Ryff) were handed to all 29 high school students in the village and the data were extracted. Moreover, the study was carried out on all high school students in Zarnaq village which was not a part of the disaster area. Similarly, the questionnaires were distributed to 41 high school students in this village and the data were extracted. Questionnaires completed by both groups were analyzed. The level of post-crisis psychological well-being (stress, anxiety, depression) of the disaster-affected adolescents was compared with the disorders of Non-Affected adolescents having the same culture and standard of living.

The reliability of the questionnaire was measured in Iran by Bayani et al. in 2008 and the value is 0.82. Abbott et al. (2006) and Burns and Machin (2009) analyzed the Ryff Psychological Well-being (PWB) Scale and the results confirmed high coefficients of reliability. In the present study, the Ryff PWB questionnaires were distributed among 29 students in the disaster-stricken village of Sarand and 41 in the non-disaster-prone village of Zarnaq. Cronbach's alpha value was obtained at 0.86 within SPSS software. SPSS Statistics 23 was used for data analysis and statistical tests.

Findings

Table 1 shows that the mean and standard deviation scores in the disaster-affected group are 62.47 and 6.729, respectively. The minimum score is 49 and the maximum is 76. The distribution is positively skewed and is within the two standard deviations.

Table 2 shows that the lowest mean score of the disaster-affected group is related to the aspect

Table 1. Descriptive indicators of total well-being scores in groups

Group		Number	Minimum	Maximum	Mean	Standard Deviation	Skewness	Indices	Stretch	Indices
Affected	Well-Being	29	49	76	62.47	6.729	.012	.434	-.098	.845
Non-Affected	Well-Being	41	39	92	76.52	10.951	-1.198	.369	1.852	.724

Table 2. Descriptive indicators of well-being aspects in groups

Group		Number	Minimum	Maximum	Mean	Standard Deviation	Skewness	Indices	Stretch	Indices
Affected	Autonomy	29	6.00	15.00	10.60	2.084	.114	.434	-.187	.845
	Environmental Mastery	29	5.00	14.00	9.46	١2.89	-.005	.434	-.812	.845
	Personal Growth	29	7.00	13.00	٣10.9	٩1.64	-.493	.434	-.421	.845
	Positive Relations	29	6.00	15.00	10.51	2.192	.062	.434	-.166	.845
	Purpose in Life	29	7.00	15.00	10.90	2.471	-.199	.434	-1.324	.845
	Self-Acceptance	29	5.00	13.00	10.06	1.774	-.765	.434	.914	.845
Non-Affected	Autonomy	41	3.00	18.00	11.09	٤2.67	.130	.369	1.963	.724
	Environmental Mastery	41	6.00	18.00	13.18	3.498	-.551	.369	-.580	.724
	Personal Growth	41	7.00	18.00	14.38	2.655	-.529	.369	.048	.724
	Positive Relations	41	4.00	17.00	٥11.7	2.850	-.322	.369	.013	.724
	Purpose in Life	41	7.00	18.00	13.89	2.634	-.588	.369	.394	.724
	Self-Acceptance	41	3.00	18.00	12.22	٦3.26	-.623	.369	.403	.724

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of environmental mastery (9.46) and the highest mean score is linked to the aspects of personal growth (10.93) and purpose in life (10.90). In the Non-Affected group, the lowest mean score is related to paranoia (2.25) and the highest mean score is related to anxiety (3.86). In the post-test, the lowest mean score in the control group is related to autonomy (11.09) in the control group. Meanwhile, the highest mean score is related to personal growth (14.38). The scores are normally distributed in all aspects.
(F = 256.013, degree of freedom 1.67; P < 0.001; eta = 0.276)
Table 3 shows that there is a significant difference between the intervention and control groups in terms of environmental mastery. The effect size is 0.276 and is moderate. (F = 49.329, degree of freedom 1.67; P < 0.001; eta = 0.424)

Table 3. Analysis of variance (ANOVA) test comparing well-being scores in groups

Source of Difference	Dependent	Total Squares	Freedom Degree	Mean Squares	F	Significance	Eta Squares
Group	Autonomy	8.031	1	8.031	1.580	.213	.023
	Environmental Mastery	256.013	1	256.013	25.576	.001	.276
	Personal growth	222.556	1	222.556	49.329	.001	.424
	Positive Relations	29.714	1	29.714	4.473	.038	.063
	Purpose in Life	155.573	1	155.573	23.430	.001	.259
	Self-Acceptance	95.809	1	95.809	15.011	.001	.183
Error	Autonomy	340.494	67	5.082			
	Environmental Mastery	670.654	67	10.010			
	Personal Growth	302.283	67	4.512			
	Positive Relations	445.047	67	6.642			
	Purpose in Life	444.875	67	6.640			
	Self-Acceptance	427.635	67	6.383			
Total	Autonomy	348.525	68				
	Environmental Mastery	926.667	68				
	Personal Growth	524.839	68				
	Positive Relations	474.761	68				
	Purpose in Life	600.449	68				
	Self-Acceptance	523.444	68				

There is a statistically significant difference between the intervention and control groups in terms of personal growth. The effect size is 0.341 and is high.
(F= 4.473, degree of freedom 1.67; P < 0.038; eta = 0.063)

There is a significant difference between the groups in terms of positive communication. The effect size is 0.638 and is small.
(F= 23.430, degree of freedom 1.67; P < 0.001; eta = 0.259)

There is a statistically significant difference between intervention and control groups in terms of purpose in life. The effect size is 0.259 and is moderate.
(F= 15.011, degree of freedom 1.67; P < 0.001; eta = 0.183)
There is a statistically significant difference between the groups in terms of their self-acceptance. The effect size is 0.183 and is small.

Comparisons of effect size showed that the greatest impact is on personal growth, environmental mastery, purposes in life, self-acceptance, and positive relations with others, respectively.

The results of Bonferroni test presented in table 4 are as follows:

In environmental mastery, the mean score of the non-affected group (13.18) is significantly higher than the mean score of the affected group (9.46).

In personal growth, the mean score of the non-affected group (14.38) is significantly higher than the mean score of the affected group (10.93).

In positive relations, the mean of the non-affected group (11.75) is significantly higher than the mean score of the affected group (10.51).

In purpose in life, the mean of the non-affected group (13.89) is significantly higher than the mean score of the affected group (10.904).

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Table 4. Pairwise comparison of total well-being scores in groups

Dependent	(I) Group	(J) Group	Mean Difference	Standard Error	Significance	95% Confidence Interval	
						Lower Limit	Upper Limit
Autonomy	Affected	Non-Affected	-.691	.550	.213	-1.789	.406
	Non-Affected	Affected	.691	.550	.213	-.406	1.789
Environmental Mastery	Affected	Non-Affected	-3.902	.772	.000	-5.443	-2.362
	Non-Affected	Affected	3.902	.772	.000	2.362	5.443
Personal Growth	Affected	Non-Affected	-3.638	.518	.000	-4.672	-2.604
	Non-Affected	Affected	3.638	.518	.000	2.604	4.672
Positive Relations	Affected	Non-Affected	-1.329	.629	.038	-2.584	-.075
	Non-Affected	Affected	1.329	.629	.038	.075	2.584
Purpose in Life	Affected	Non-Affected	-3.042	.628	.001	-4.296	-1.788
	Non-Affected	Affected	3.042	.628	.001	1.788	4.296
Self-Acceptance	Affected	Non-Affected	-2.387	.616	.001	-3.617	-1.157
	Non-Affected	Affected	2.387	.616	.001	1.157	3.617

In self-acceptance, the mean of the non-affected group (12.22) is significantly higher than the mean score of the affected group (10.06).

Discussion and Conclusion

Psychological interventions can improve adolescents' mental health. As studies have revealed, the chief objective of these interventions is to modify and accelerate the return to normal life, diminish stress in adolescents surviving the earthquake, set the ground for decreasing their vulnerability, halt their inappropriate habits and behaviors, and refine adolescents' mental health. Psychological interventions are beneficial in lessening the vulnerability of survivors. Nevertheless, the passage of time and being denied psychological and physiological needs might influence the susceptibility of surviving girls and boys.

Data analysis and comparing the results of the girls with the boys indicated that there is no significant difference between the two sexes in terms of psychological interventions. The results of the present study reflected that in terms of mean scores, the total well-being scores of the affected (62.47) are significantly different from the unaffected (76.52). Furthermore, descriptive indicators for well-being aspects show the highest mean belongs to the personal growth (10.93) and purpose in life (10.90) in the affected group. In the Non-Affected group, the lowest mean is associated with paranoia (2.25) and the highest mean is for anxiety (3.86). In the post-test, the lowest mean in the control group was related to autonomy (11.09), and the highest mean was related to personal growth (14.38). Moreover, Cronbach's alpha value was obtained at 0.86 using SPSS software. This result implies that the positive impact of psychological interventions has significantly improved and accelerated the return to a normal and purposeful life. In addition, anger management skills curtail

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anxiety and depression, which consequently facilitates an individual's social functioning and promotes mental health.

Therapy ought to be the first immediate response once the episode is over and the body is healthy. The child should not be compelled to recount the incident to justify anxiety and stress. Individual treatment models are impractical and should be replaced with group therapies. Notably, a consensus of approaches that comprise psychological first aid during the post-disaster period is more beneficial. Last but not least, psychological first aid should be contemplated and deemed. PAF (Prevention, Appraisal, and Failure) Model endeavors to develop safety, composure, hope, and reliance by creating opportunities for individual care within the community that establishes a sense of control over individual effectiveness and efficiency. In most cases, psychological support is the best action to take in the post-disaster response phase (9, 10). Providing post-crisis social psychosocial support programs for adolescents consolidates cognitive and behavioral rehabilitation, diminishes stress and vulnerability, enriches relationships with peers, decreases psychosomatic disorders caused by the crisis, and modifies social performance. Moreover, spending time with their peers, family members, and relatives ameliorates various disorders and issues.

Acknowledgments

The authors would like to express their gratitude to all those who contributed to the conduction of this research project.

Conflict of Interests

Authors declared no conflict of interests regarding the publication of the present study.

References

1. Zhang Z, Wang W, Shi Z, Wang L, Zhang J. Mental health problems among the survivors in the hard-hit areas of the Yushu earthquake. PLoS One. 2012;7(e46449.(
2. Pietrzak R, Tracy M, Galea S, Kilpatrick D, Ruggiero K, al e. Resilience in the face of disaster: prevalence and longitudinal course of mental disorders following hurricane Ike. PLoS One. 2012;7(e38964).
3. Usami M, Iwadare Y, Kodaira M, Watanabe K, Aoki M, al e. Relationships between traumatic symptoms and environmental damage conditions among children 8 months after the 2011 Japan earthquake and tsunami. PLoS One. 2012;7(e50721).
4. White H, Hsing P, Cho W, Shank T, Cordes E, al e. Impact of the deepwater horizon oil spill on a deep-water coral community in the Gulf of Mexico. Proc Natl Acad Sci U S A. 2012;109:20303–8.
5. Xu G, Ying Y, Liu Y, Chang W, Ni H, al e. Incidences, types, and influencing factors of snow disaster-associated injuries in Ningbo, China, 2008. Disaster Med Public Health Prep. 2012;6:363-9.
6. Sanderson D, Sharma A. World Disasters Report 2016. Resilience: saving lives today, investing for tomorrow International Federation of Red Cross and Red Crescent Societies. 2016.
7. Naderi N, Mohammadi J. Locating Temporary Housing after the Earthquake, Using GIS and AHPTechniques) A Case Study: 15 Districts of Isfahan City). Journal of Social Issues & Humanities. 2015;3(12):71-5.
8. Taheri Azad l, Taheri Azad A. The role of education in reducing the effects of natural disasters (earthquake case study). Conferences deal with natural disasters in 2006; Iran2006.
9. Danese A, Smith P, Chitsabesan P, Dubicka B. Child and adolescent mental health amidst emergencies and disasters. The British Journal of Psychiatry. 2020;216(3):159-62.
10. Newnham EA, Gao X, Tearne J, Guragain B, Jiao F ,Ghimire L, et al. Adolescents' perspectives on the psychological effects of natural disasters in China and Nepal. Transcultural psychiatry. 2020;57(1):197-211.
11. Newman E, Pfefferbaum B, Kirlic N, Tett R, Nelson S, Liles B. Meta-analytic review of psychological interventions for children survivors of natural and man-made disasters. Current psychiatry reports. 2014;16(9):462.

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