

The Efficacy of an Educational Protocol Derived from the Model of Exploring the Damages in Families of Veterans with PTSD on the Function and Hardiness

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ABSTRACT

Objective: This study examines the efficacy of an educational protocol derived from the model of exploring the damages in families of veterans with post-traumatic stress disorder (PTSD) on family hardiness and functioning.

Methods and Materials: The research is a quasi-experimental study with a pre-test and post-test control group design and is classified as applied research. The population of the study included all spouses and children of veterans with PTSD in Kermanshah province. The sample consisted of 60 participants, conveniently selected and randomly assigned to either the experimental or control group. The experimental group received training over nine 90-minute sessions spanning two and a half months, following the derived educational protocol, while the control group received no intervention. The research tools used were the Family Assessment Device (FAD) and the Family Hardiness Index (FHI), which were administered in three stages: pre-test, post-test, and follow-up.

Findings: Data were analyzed using repeated measures analysis of variance. The results indicated that the educational protocol derived from the model significantly affects the performance and hardiness of the families of veterans with PTSD, with significant differences between the post-test scores of the experimental and control groups.

Conclusion: Based on the findings, it is recommended to utilize the model derived from the damage exploration pattern to improve the function and hardiness of families of veterans with PTSD, thereby reducing their damages.

Keywords: Efficacy, Damage exploration model, Family function, Family hardiness, Post-traumatic stress disorder

1. Introduction

Family functioning is one of the key indicators that ensures the life and mental health of the family and its

members, and its negative correlation is considered one of the most significant factors in creating and sustaining mental and emotional disorders. Research has shown that families with close and understanding interactions among members

are relatively resistant to life's pressures. Families with poor functioning lead to emotional separation and lack of intimacy among members, poor adaptability, and low levels of family satisfaction, consequently leading to maladjustment and psychological issues in individuals. Family functioning is linked to the mental health of its members, and any deficiencies in family functioning are significantly associated with children experiencing physical symptoms, anxiety, sleep disturbances, depression, and impaired social functioning (Momeni & Alikhani, 2013).

Family hardiness is a key variable that contributes to positive family functioning and is defined as the family's ability to cooperate cohesively, combat stressors, and find solutions to problems. Family hardiness includes three key elements: viewing change as a challenge, commitment to life, and a sense of control over life events (Peng et al., 2021).

Families of veterans suffering from post-traumatic stress disorder (PTSD) face psychological damages and stress. Thus, for adaptation and adjustment, hardiness is one of the personal resources to cope with these conditions. Hardiness is recognized as a skill that prepares individuals to face life's challenges and problems. Highly resilient individuals do not see themselves as victims of change but rather as agents determining the outcomes resulting from these changes (Hamidi & Ansari, 2016; Maddi & Khoshaba, 1994). Hardiness, a set of personality traits, acts as a source of resistance in facing life's stressful events. This personality variable consists of three interrelated components: commitment, control, and challenge. Individuals high in hardiness are more committed to what they do (commitment), feel that they are in control of their circumstances (control), and view life changes as opportunities for growth and progress rather than limitations and threats (challenge) (Maddi & Khoshaba, 1994; McCubbin, 1987; Mohsenzadeh et al., 2018). The attitude of hardiness enhances resistance. Hardiness involves commitment, control, and challenge. Whenever negative situations occur, challenge helps you to naturally find life stressful, commitment involves you in what is happening, and control aids in converting it to an advantage. Hardiness can be learned at any point in life through hardiness training programs. What is particularly important in learning hardiness is that your parents or mentors support you in problem-solving, coping with social interactions, self-support, and self-care, and also show you how to use feedback from rigorous solutions to strengthen hardiness attitudes (Sabzmanesh Jafari et al., 2021; Sayyedi &

Baghherian, 2011; Thomassen et al., 2018). Results show that family hardiness is associated with less stress, anxiety, depression, and has a positive relationship with overall health, well-being, and parenting styles. Moreover, family hardiness has a negative relationship with family stress and a positive relationship with family life satisfaction, adaptation, and cohesion. The effect size between family hardiness and indices of positive parental and family functioning is greater than those indices that inhibit stress (Dunst, 2021). Family hardiness specifically refers to the family's ability and endurance, a sense of control during hardships, viewing change as a positive and beneficial phenomenon, and a more active orientation in adapting to and managing stressful situations, leaving effects such as preventing further problems and protecting individuals from the damaging effects of problematic events (Mohsenzadeh et al., 2018). Family hardiness defines the overall atmosphere of family interaction and is considered as family hardiness. In other words, it is perceived as abilities and strengths in adopting new strategies to protect the family nucleus and assist in positive family functioning. Individuals with low hardiness power feel alienation and incapacity when facing stressors. This affects the family as a unit, as all family members impact each other (Ahlberg et al., 2023).

Isanejad & Heydarian (2020) conducted a study examining the effectiveness of hardiness training on the quality of marital life and family hardiness of freed prisoners (Isanejad & Haydarian, 2022). Gams (2018) investigated secondary injury stress and family functioning in military families (Gams, 2017). Darvishaliaj (2015) studied family hardiness in dealing with stress in families with children with developmental disabilities. Research indicates that the ability of families to cope with stress is influenced by the resources available to them and how they manage these resources (Dervishaliaj, 2015). Woodson et al. (2014) assessed children with chronic diseases and factors associated with family hardiness in families of children in dealing with medical actions related to a chronic disease (Woodson et al., 2015). Thomassen et al. (2018) studied the impact of hardiness on post-traumatic stress disorder (Souri et al., 2021). The family hardiness approach provides a practical and positive framework that guides actions to strengthen the family in solving existing problems. This approach goes beyond problem-solving and addresses prevention; it not only amends families but also prepares them to face future challenges. By creating a family hardiness process, families become more effective in dealing with unexpected problems and coping with them. Therefore,

in strengthening family hardiness, every intervention is also a preventive action (Walsh, 2016). The current research was conducted to examine the following hypotheses:

The educational protocol derived from the model of exploring damages in families of veterans with post-traumatic stress disorder (PTSD) affects the functioning of these families.

The educational protocol derived from the model of exploring damages in families of veterans with PTSD affects the hardiness of these families.

2. Methods and Materials

2.1. Study Design and Participants

The research method employed in this study was a quasi-experimental design of pre-test - post-test with a control group and a two-and-a-half-month follow-up. The research population consisted of all families of veterans with post-traumatic stress disorder (PTSD) in Kermanshah province who had referred to the counseling center. The sample for the current study was selected based on convenience sampling from among families of veterans with PTSD. A total of 60 individuals were selected and randomly assigned to experimental and control groups (30 individuals in the experimental group and 30 individuals in the control group). Subsequently, the experimental group received an educational intervention based on a model extracted from the exploration of traumas in families of veterans with PTSD for 9 sessions, 90 minutes each, once a week, for two and a half months, while the control group did not receive any educational intervention during the research process.

The inclusion criteria for the study were: 1) attendance at the educational sessions, 2) absence of psychological disorders, and 3) voluntary consent to participate in the sessions. The exclusion criteria were: 1) absence in 4 consecutive sessions, and 2) unwillingness to continue the educational sessions.

2.2. Measures

2.2.1. Family Hardiness

Family Hardiness Index (FHI): Developed by Marilyn A. McCubbin and colleagues in 1991, this questionnaire aims to assess family hardiness against anxiety and stress. The FHI consists of 20 questions and has established reliability and validity with a scoring system based on a 4-point Likert scale (0 = "Completely Incorrect," 1 = "Largely Incorrect," 2 = "Largely Correct," 3 = "Completely Correct"). In this

research, the standard score of the Family Hardiness Index is the score given by the individual to the 20-item questionnaire. McCubbin et al. (1996) reported a Cronbach's alpha of 0.82, and Sayedi et al. (2011) reported 0.78 (Hamidi & Ansari, 2016). The current study calculated a Cronbach's alpha reliability coefficient of 0.797.

2.2.2. Family Functioning

Developed by Epstein and colleagues in 1980, this 60-item questionnaire evaluates family functioning based on the McMaster model of family functioning as perceived by family members. It includes six subscales: problem-solving, communication, roles, emotional responsiveness, emotional involvement, and behavior control, along with a general functioning scale that measures overall family functioning. Each item has four response options (1 = "Strongly Agree," 2 = "Agree," 3 = "Disagree," 4 = "Strongly Disagree"), and each item is related to one dimension, describing either healthy or unhealthy functioning. Scores range from 1 (healthy) to 4 (unhealthy). Initial research (Epstein, Baldwin, & Bishop, 1983) reported Cronbach's alpha values ranging from 72% to 90% for these subscales: problem-solving: 74%, communication: 75%, roles: 72%, emotional responsiveness: 83%, emotional involvement: 78%, behavior control: 72%, and general functioning: 92%. In Iranian students, alpha coefficients were reported as follows: 63%, 62%, 48%, 56%, 74%, 59%, 74%, 90% (Sanaei, 2008). In research by Najarian et al. (1995), the Cronbach's alpha for the Family Functioning Questionnaire ranged from 38% to 90% (Birak et al., 2023). The current study found Cronbach's alpha values ranging from 45% to 78%.

2.3. Intervention

First session: Introduction and familiarization of group members with each other, presentation of primary and secondary objectives, and discussion of secondary and collective goals.

Second session: Introduction to PTSD - symptoms and signs.

Third session: Proper ways to communicate with a patient suffering from PTSD - understanding expressed emotions.

Fourth session: Introduction to the concept of stress and its consequences - understanding stresses associated with having a spouse with PTSD - introducing various coping and stress management strategies.

Fifth session: The role of quality of life in psychological well-being and self-efficacy - quality of life-based treatments in mental health and well-being.

Sixth session: Recognizing emotions and expressing them - learning active listening skills and conflict resolution - practicing and applying active listening.

Seventh session: Hardiness - flexibility, sense of coherence, positive outlook, hope, optimistic bias, transcendence, and reorientation.

Eighth session: The role of the family in hardiness and resistance to hardships - characteristics of resilient individuals.

Ninth session: Summary and conclusion of the training sessions - post-test implementation.

2.4. Data analysis

Descriptive information about the research participants was provided first, followed by hypothesis testing using repeated measures analysis of variance. In this study, both descriptive statistics (mean and standard deviation) and inferential statistics were used. The Shapiro-Wilk test was applied to assess the normality of the variable distributions, the Levene's test for the homogeneity of variances assumption, mixed-design ANOVA in the context of repeated measures MANOVA to examine the point of

difference, and repeated measures ANOVA for the time effects (from post-test to follow-up). Bonferroni tests were used for time-point comparisons.

3. Findings and Results

As observed in Table 1, the descriptive findings include the mean and standard deviation. According to the results of this table, the mean and standard deviation of the total score of family functioning for the experimental group are 139.03 and 15.893 at pre-test, 111.77 and 9.460 at post-test, and 115.00 and 14.603 at follow-up, respectively. The mean and standard deviation of the total score of family functioning for the control group are 140.43 and 19.606 at pre-test and 140.40 and 19.049 at post-test. In other words, the family functioning scores of the participants in the experimental group decreased after the educational sessions. Also, the mean and standard deviation of family hardiness in the experimental group were 10.73 and 3.023 at pre-test, 12.81 and 2.920 at post-test, and 37.30 and 5.730 at follow-up, respectively. The mean and standard deviation for the control group at pre-test were 10.69 and 3.011, and at post-test were 11.04 and 3.144. In other words, participants in the experimental group were more resilient after the educational model sessions.

Table 1

Descriptive statistics findings

Stage	Mean (Experimental)	SD (Experimental)	Mean (Control)	SD (Control)
Pre-test Problem-solving	12.17	2.767	12.93	2.333
Post-test Problem-solving	10.50	2.583	12.70	2.902
Follow-up Problem-solving	10.90	2.412	--	--
Pre-test Communication	20.50	4.531	22.07	4.201
Post-test Communication	17.50	3.181	21.20	4.374
Follow-up Communication	17.97	4.206	--	--
Pre-test Roles	26.43	4.360	25.53	4.447
Post-test Roles	22.47	2.285	26.80	3.316
Follow-up Roles	23.83	3.405	--	--
Pre-test Emotional Responsiveness	14.30	3.631	14.63	4.489
Post-test Emotional Responsiveness	11.13	2.763	13.93	2.924
Follow-up Emotional Responsiveness	11.80	3.033	--	--
Pre-test Emotional Involvement	17.77	4.099	16.27	3.814
Post-test Emotional Involvement	13.57	1.794	16.80	3.800
Follow-up Emotional Involvement	13.83	3.384	--	--
Pre-test Behavioral Control	20.33	3.252	20.33	3.477
Post-test Behavioral Control	15.77	2.285	20.57	3.510
Follow-up Behavioral Control	15.70	2.184	--	--
Pre-test Overall Functioning	27.53	5.251	28.67	7.448
Post-test Overall Functioning	20.83	3.957	28.40	6.631
Follow-up Overall Functioning	20.97	5.359	--	--
Pre-test Family Functioning	139.03	15.893	140.43	19.606
Post-test Family Functioning	111.77	9.460	140.40	19.049

Follow-up Family Functioning	115.00	14.603	--	--
Pre-test Commitment	12.50	2.910	12.37	2.859
Post-test Commitment	13.37	3.935	12.77	4.023
Follow-up Commitment	12.57	3.645	--	--
Pre-test Challenge	10.80	2.952	10.90	3.231
Post-test Challenge	12.53	3.060	11.00	2.560
Follow-up Challenge	12.50	3.288	--	--
Pre-test Control	8.90	3.209	8.80	3.253
Post-test Control	12.53	1.766	9.37	2.580
Follow-up Control	12.23	2.609	--	--
Total Pre-test Score	10.73	3.023	10.69	3.011
Total Post-test Score	12.81	2.920	11.04	3.144
Total Follow-up Family Hardiness	37.30	5.730	--	--

The results of the Kolmogorov-Smirnov test indicate that the assumption of normality of scores in the family hardiness variable and all its subscales in the three situations (pre-test, post-test, and follow-up) for the experimental and control groups is satisfied ($p > .05$). The Levene's test was also used to verify the assumption of equality of variances, and the Box's test ($F = 68$, Box's $M = 4.376$, $p \geq .659$) was not significant, thus the condition of homogeneity of variance/covariance matrices has been properly maintained for the family functioning variable (and its subscales). Additionally, the results of the Levene's test and its non-

significance for the variable of family functioning and its subscales ensure the condition of equality of intergroup variances.

In this section, the research questions were tested using mixed-design ANOVA with repeated measures.

Research Question 1: Does the protocol derived from the model of exploring damages in families of veterans with PTSD affect family functioning?

Research Question 2: Does the protocol derived from the model of exploring damages in families of veterans with PTSD affect family hardiness?

Table 2

Results of Mixed ANOVA with Repeated Measures on Pre-test, Post-test, and Follow-up Scores of Family Functioning and Family Hardiness and Their Subscales in Experimental and Control Groups

Dependent Variable	SS	DF	MS	F	P	Effect Size	Statistical Power
Problem-solving	25537.422	1	25537.422	2152.099	.000	.974	1
Communication	54357.689	1	54357.689	2685.575	.000	.979	1
Roles	97022.450	1	97022.450	4860.014	.000	.988	1
Emotional Responsiveness	52702.222	1	52702.222	4437.044	.000	.987	1
Emotional Involvement	40860.800	1	40860.800	3199.433	.000	.982	1
Behavioral Control	60683.472	1	60683.472	5008.581	.000	.989	1
Overall Functioning	97860.050	1	97860.050	2395.550	.000	.976	1
Total Family Functioning Score	2874083.472	1	2874083.472	7038.555	.000	.992	1
Commitment	29465.606	1	29465.606	2270.433	.000	.975	1
Challenge	23347.222	1	23347.222	2975.984	.000	.981	1
Control	22826.272	1	22826.272	521.000	.000	.900	1
Total Family Hardiness Score	193388.889	1	193388.889	3087.786	.000	.982	1

Results from Table 2 demonstrate that mixed ANOVAs with repeated measures related to the effect of time (from post-test to follow-up) on the total score of the dependent variable of family functioning and its subscales and family hardiness and its subscales are significant. Therefore, it can be stated that there is a significant difference between the

mean scores of the family functioning variable and its subscales and family hardiness and its subscales between the experimental and control groups. The Bonferroni test was used for comparing measurement times, and the results are presented in the following.

Table 3

Bonferroni Test Results for Comparing Pre-test, Post-test, and Follow-up Scores of Family Functioning and Its Subscales in the Experimental Group

Variable	Mean Difference	Std Error	P
Problem-solving			
Pre-test vs. Post-test	1.67	0.669	≤ .04
Follow-up vs. Post-test	-0.40	0.669	1
Pre-test vs. Follow-up	1.67	0.247	≤ .04
Communication			
Pre-test vs. Post-test	3.00	1.036	≤ .014
Follow-up vs. Post-test	-0.47	1.036	1
Pre-test vs. Follow-up	2.53	1.036	≤ .050
Roles			
Pre-test vs. Post-test	3.97	0.948	≤ .000
Follow-up vs. Post-test	-1.03	0.948	≤ .836
Pre-test vs. Follow-up	2.93	0.948	≤ .008
Emotional Responsiveness			
Pre-test vs. Post-test	2.83	0.755	≤ .001
Follow-up vs. Post-test	-0.033	0.755	1
Pre-test vs. Follow-up	2.83	0.755	≤ .004
Emotional Involvement			
Pre-test vs. Post-test	4.70	0.838	≤ .000
Follow-up vs. Post-test	-0.17	0.838	1
Pre-test vs. Follow-up	4.83	0.838	≤ .000
Behavioral Control			
Pre-test vs. Post-test	7.27	0.676	≤ .000
Follow-up vs. Post-test	0.43	0.676	≤ .000
Pre-test vs. Follow-up	7.70	0.676	≤ .000
Overall Functioning			
Pre-test vs. Post-test	3.27	0.264	≤ .000
Follow-up vs. Post-test	0.13	0.264	≤ .000
Pre-test vs. Follow-up	3.40	0.264	≤ .000
Total Family Functioning Score			
Pre-test vs. Post-test	3.33	0.526	≤ .000
Follow-up vs. Post-test	-0.30	0.526	1
Pre-test vs. Follow-up	3.63	0.526	≤ .000

Based on the data from Table 3, the results indicate that there is a difference between within-group scores from pre-test to post-test (intervention effect) and from pre-test to follow-up (time effect) on family functioning scores ($P \leq .001$). There is no difference between mean scores of post-

test and follow-up (maintenance of intervention effect) on the family functioning variable and all its subscales. In other words, family functioning scores and its subscales in the experimental group remained stable over time during post-test and follow-up.

Table 4

Bonferroni Test Results for Comparing Pre-test, Post-test, and Follow-up Scores of Family Hardiness and Its Subscales in the Experimental Group

Variable	Stage	Mean Difference	Std Error	P
Commitment	Post-test vs. Pre-test	-2.63	0.807	≤ .000
	Follow-up vs. Post-test	-0.33	0.807	1
	Pre-test vs. Follow-up	2.30	0.807	≤ .000
Challenge	Post-test vs. Pre-test	-2.30	0.740	≤ .000
	Follow-up vs. Post-test	0.74	0.740	1
	Pre-test vs. Follow-up	-2.27	0.740	≤ .000

Control	Post-test vs. Pre-test	-3.63	0.671	≤ .000
	Follow-up vs. Post-test	0.30	0.671	1
	Pre-test vs. Follow-up	-3.33	0.671	≤ .000
Total Family Hardiness	Post-test vs. Pre-test	-6.40	0.531	≤ .000
	Follow-up vs. Post-test	1.13	0.531	1
	Pre-test vs. Follow-up	-5.27	0.531	≤ .000

Based on the data in Table 4, the results indicate that there is a significant difference between intra-group scores of pre-test and post-test (intervention effect) and pre-test and follow-up (time effect) scores in family hardiness variable and all of its subscales ($p \leq .000$). There is no significant difference between the mean scores of post-test and follow-up (intervention stability) in the family hardiness variable and all subscales. In other words, the scores of family hardiness variable and its subscales remained constant in the post-test and follow-up over time.

4. Discussion and Conclusion

The present study aimed to investigate the effectiveness of an educational protocol extracted from the exploration pattern of family traumas on the performance and hardiness of families of veterans with post-traumatic stress disorder (PTSD) in Kermanshah province. The research findings indicated that the educational protocol extracted from the exploration pattern of family traumas significantly affects the performance and hardiness of families of veterans with PTSD. The results of this study are consistent with the findings of previous research (Ahlberg et al., 2023; Dervishaliq, 2015; Dunst, 2021; Hamidi & Ansari, 2016; Mohsenzadeh et al., 2018; Peng et al., 2021; Sabzmanesh Jafari et al., 2021; Sayyedi & Baghherian, 2011; Woodson et al., 2015; Zali et al., 2019). For instance, Sharifpour Shirazi and Ghaderi (2022) found that family functioning positively predicts family performance, and psychological capital also plays a positive and significant role in predicting family performance. Self-compassion was unable to predict three family performance subscales, including problem-solving, roles, and behavioral control, but significantly predicted relationship, emotional support, emotional fusion, and overall performance subscales. Based on the results of this research, the quality of family performance is influenced by various factors (Sharifpour Shirazi & Ghaderi, 2022).

Heydari and Mashkinyazd (2020) focused on the meaningful effect of group therapy on the quality of life, which can be used to improve the quality of life of the community, especially veteran families (Heydari & Meshkinyazd, 2022). Others highlighted the role of hardiness training components in the workplace in

enhancing self-efficacy components and increasing awareness and improving their social self-efficacy (Ahlberg et al., 2023; Bekesiene et al., 2023; Dervishaliq, 2015; Dunst, 2021; Sayyedi & Baghherian, 2011). Llistosella et al. (2023) found that they expect interventions, coping skills increase hardiness capacity in adolescents. The effectiveness of an intervention is described based on individual and environmental hardiness models aimed at increasing hardiness in at-risk adolescents (Llistosella et al., 2023). In addition, the intervention aims to strengthen the resources and protective factors of adolescents, especially self-regulation skills, which contribute to the hardiness process and also has a positive impact on well-being, social relationships, and psychological outcomes.

5. Limitations & Suggestions

In summary, the education of a protocol extracted from the exploration pattern of family traumas resulted in high performance and hardiness of families of veterans with PTSD. The present study faced some limitations: due to time and location constraints, the therapeutic design was carried out in 9 weekly sessions. Given the problems and traumas of families of veterans with PTSD, therapeutic protocols that include more sessions are likely to be more beneficial. It is recommended that all relevant professionals use this educational program as a selected intervention to increase and improve the performance and hardiness of families of veterans with PTSD in coping with their stresses and problems, as well as to enhance the effectiveness of these families.

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Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

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