

The Effectiveness of Cognitive Behavioral Therapy on Psychological Symptoms and Psychological Hardiness in Single-Parent Adolescents

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ABSTRACT

The present study aimed to determine the effectiveness of cognitive behavioral therapy (CBT) on psychological symptoms and psychological hardiness in single-parent adolescents. This study employed a quasi-experimental method using a pretest-posttest design with one experimental group and one control group. The statistical population consisted of single-parent adolescents referred to counseling centers in Babol in 2023. The sample included 30 single-parent adolescents who were selected using purposive non-random sampling and then randomly assigned to either the experimental group (n = 15) or the control group (n = 15). Data were collected using the Psychological Symptoms Questionnaire and the Psychological Hardiness Questionnaire. Subsequently, cognitive behavioral therapy was administered to the experimental group in eight 90-minute sessions. After the completion of the CBT sessions, a posttest was conducted for both the experimental and control groups. The findings showed that the mean scores of psychological symptoms and psychological hardiness in the posttest of the experimental group were significantly different compared to the pretest. Therefore, cognitive behavioral therapy has an effect on psychological symptoms and psychological hardiness in single-parent adolescents.

Keywords: Cognitive Behavioral Therapy, Psychological Symptoms, Psychological Hardiness, Single-Parent Adolescents.

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Introduction

The family environment is the first setting in which an individual's physical, emotional, and personality patterns are established and plays a vital role in their development and advancement. The family's responsibilities include caring for children, nurturing their upbringing, fostering healthy interpersonal relationships among members, and supporting the children's independence (1). The personality development of children and adolescents is strongly influenced by their parents. The absence of one or both

parents can have adverse effects on their development and may predispose them to mental illness or future behavioral problems. The absence of a father or mother may exert both direct effects (e.g., deprivation of a male or female role model) and indirect effects (e.g., lack of support) on children (2).

Psychological symptoms refer to states of stress, depression, and psychological anxiety that emerge due to actual or imagined problems (3).

Depression, in particular, is an unpleasant psychological state characterized by disengagement, despair, and a tendency toward fatigue. It is often accompanied by varying degrees of anxiety. In such individuals, decreased self-esteem, impaired recognition and expression of emotions, limited self-exploration and self-disclosure, and psychomotor retardation are anticipated. This psychomotor slowing leads to delayed responses to stimuli (4). According to the World Health Organization, depression is one of the leading causes of disability and the fourth major contributor to the global burden of disease (5).

Psychological hardiness is a type of personality trait composed of the components of commitment, control, and challenge, and it encourages growth and development in life. Individuals with high psychological hardiness perceive health-related stressors as challenges. Psychological hardiness functions as a resilience factor in the face of stressful and challenging events (6). Such individuals tend to be more committed to their behaviors, feel a sense of control over their circumstances and life, and view limitations and challenges as opportunities for growth (7).

Cognitive behavioral therapy (CBT) is based on the assumption that anxiety disorders and behavioral disorder symptoms persist due to irrational thinking. These issues can be modified not only during therapy sessions but also between sessions through various behavioral, emotional, and cognitive techniques—such as homework assignments. Because this approach emphasizes observable behavior, it pays comparatively less attention to the cognitive components of the grief process (8). CBT is an educational approach in which cognitive and behavioral techniques are taught through in-session exposure exercises, cognitive restructuring, and eventually, homework assignments (8, 9). This therapeutic method helps individuals identify and evaluate their negative thoughts. The core skill of the cognitive-behavioral approach is largely self-help based, and the therapist's goal is to assist the patient in developing the skills necessary not only to solve current problems but also to address similar future issues (10).

The primary aim of cognitive behavioral therapy is to alter and correct thinking and behavioral patterns in order to change the individual's emotional responses. CBT can help individuals resolve issues related to physical health, social relationships, occupational functioning, and emotional well-being. In fact, CBT, supported by various scientific studies, has demonstrated that most psychological problems and emotional disorders are rooted in individuals' current beliefs and thinking patterns (11).

Therefore, the present study seeks to answer the following question: Does cognitive behavioral therapy affect psychological symptoms and psychological hardiness in single-parent adolescents?

Methods and Materials

Study Design and Participants

The present study utilized a quasi-experimental design with a pretest-posttest structure, including one experimental group and one control group. The statistical population consisted of single-parent adolescents who visited counseling centers in the city of Babol in 2023. The sample comprised 30 single-parent

adolescents selected using purposive non-random sampling. These individuals were then randomly assigned to either the experimental group ($n = 15$) or the control group ($n = 15$). Data were collected using psychological symptoms and psychological hardiness questionnaires. Cognitive behavioral therapy was administered to the experimental group over eight 90-minute sessions. After the completion of the CBT sessions, a posttest was conducted for both the experimental and control groups.

Data Collection

To measure psychological symptoms in this study, the Depression, Anxiety, and Stress Scales (DASS-21) developed by Lovibond and Lovibond (1995) were used. This questionnaire contains 21 items divided into three subscales: anxiety, depression, and stress, scored on a 4-point Likert scale ranging from 1 (never) to 4 (very much) (Brown, Ryan, & Creswell, 2007). Of the 21 questions, 7 measure stress, 7 measure anxiety, and 7 measure depression. Previous studies have reported the reliability coefficients of this questionnaire as approximately 0.73 for depression, 0.81 for anxiety, and 0.71 for stress. Additionally, Alizadeh et al. (2014) conducted a factor analysis of this scale, confirming the presence of the three factors: depression, anxiety, and stress. Their results showed that these three factors together accounted for 68% of the total variance. The eigenvalues for the stress, depression, and anxiety factors were 9.07, 2.89, and 1.23, respectively, with Cronbach's alpha coefficients of 0.97, 0.92, and 0.95 for each factor. In the current study, the internal consistency reliability of the scale, as measured by Cronbach's alpha, was 0.78 for anxiety, 0.83 for depression, and 0.84 for stress.

The Ahvaz Psychological Hardiness Inventory (20-item version) was developed by Kiamehr et al. (1998) to assess "psychological hardiness." The inventory was constructed based on factor analysis using a sample of 523 male and female students from Shahid Chamran University of Ahvaz. It consists of 20 four-choice items: "Never (0)," "Rarely (1)," "Sometimes (2)," and "Often (3)." The minimum possible score is 0, and the maximum is 60. A score between 0–15 indicates low psychological hardiness, 15–30 indicates moderate hardiness, and scores above 30 indicate high psychological hardiness. Pearson correlation tests assessing construct validity showed statistically significant correlations between scores on the hardiness scale and those on the Ahvaz Hardiness Inventory, with correlation coefficients of 0.51 for the overall sample, 0.61 for female participants, and 0.46 for male participants. The internal consistency reliability of the questionnaire in the present study was 0.82 based on Cronbach's alpha.

Intervention

The intervention protocol consisted of an eight-session cognitive behavioral therapy (CBT) program delivered over eight consecutive weeks, with each session lasting 90 minutes. The sessions were conducted in a group format and followed a structured sequence: Session 1 focused on psychoeducation about CBT and establishing therapeutic rapport; Session 2 addressed identification of negative automatic thoughts; Session 3 introduced cognitive distortions and their impact on mood; Session 4 involved cognitive restructuring techniques; Session 5 focused on behavioral activation and increasing engagement in pleasurable activities; Session 6 addressed stress management and relaxation training; Session 7 introduced problem-solving skills and coping strategies; and Session 8 included relapse prevention, summarizing progress, and reinforcing learned skills. Homework assignments were provided at the end of each session to encourage real-life

application of therapeutic techniques. The intervention was administered by a licensed clinical psychologist with expertise in CBT.

Data analysis

Data analysis was conducted using SPSS version 26. Descriptive statistics, including means and standard deviations, were used to summarize the data. To test the assumptions of normality, the Kolmogorov–Smirnov test was employed. Inferential analysis was carried out using univariate analysis of covariance (ANCOVA) to examine the effect of cognitive behavioral therapy on posttest scores of psychological symptoms and psychological hardiness, while controlling for pretest scores. The significance level was set at $p < .05$, and effect sizes were reported using eta squared (η^2).

Findings and Results

Table 1 shows that the means and standard deviations of psychological symptoms and psychological hardiness variables in the statistical sample changed from pretest to posttest.

Table 1. Descriptive Statistics of Variables in the Experimental and Control Groups

Variable	Group	Pretest (n)	Mean	SD	Posttest Mean	Posttest SD
Total Psychological Symptoms	Experimental	15	45.38	5.57	35.87	4.41
	Control	15	43.45	5.14	44.34	5.32
Psychological Hardiness	Experimental	15	26.86	3.57	36.53	4.53
	Control	15	28.35	3.68	27.23	3.47

The results of the Kolmogorov-Smirnov test indicated that the distribution of the research variables was normal. Given that the variables in both pretest and posttest were normally distributed and the measurement scale of the variables was interval, further parametric analysis was justified.

Table 2. Results of Univariate Analysis of Covariance (ANCOVA) for Psychological Symptoms

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.	Effect Size (Eta ²)
Pretest (Psychological Symptoms)	3057.286	1	3057.286	29.37	.001	.59
Group	16853.743	2	8426.871	43.94	.001	.52
Error	3568.698	27	624.212			
Total	48125.186	29				

As shown in Table 2, since the calculated significance level is less than the alpha level of .05, the obtained F value is statistically significant. Therefore, it can be concluded that cognitive behavioral therapy has a significant effect on psychological symptoms in single-parent adolescents.

Table 3. Results of Univariate Analysis of Covariance (ANCOVA) for Psychological Hardiness

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	Sig.	Eta ²
Psychological Hardiness	Pretest	1425.287	1	1425.287	12.45	.001	.53
	Group	1691.698	1	1691.698	28.38	.001	.56
	Error	1201.712	27	44.507			
	Total	29215.325	29				

The ANCOVA results in Table 3 indicate that after controlling for pretest scores, the group variable had a significant effect on posttest scores of psychological hardiness. Specifically, following the administration of

cognitive behavioral therapy, psychological hardiness scores in the intervention group increased significantly compared to the control group. Therefore, cognitive behavioral therapy has a significant effect on psychological hardiness in single-parent adolescents.

Discussion and Conclusion

The findings indicated that the mean scores of psychological symptoms in the posttest of the experimental group were significantly different from those in the pretest. Therefore, cognitive behavioral therapy (CBT) had an effect on the psychological symptoms of single-parent adolescents. This research finding is implicitly consistent with the prior results (12-17).

Cognitive behavioral therapy is a type of psychotherapy designed to modify mood, behaviors, and thought patterns. It is based on the premise that negative actions or feelings stem from current distorted beliefs or thoughts rather than unconscious forces from the past. As such, cognitive therapy focuses on the individual's mood and thoughts, while behavioral therapy specifically targets actions and behaviors. CBT sessions can provide opportunities to identify current life situations that may contribute to depression and thus help participants recognize and confront distorted thought patterns and perceptions leading to depressive states. Beck (1996) argues that in anxiety states, individuals consistently overestimate the risk associated with a particular situation. These overestimations occur automatically and involuntarily, activating anxiety by altering autonomic arousal in preparation for fight or flight and initiating selective scanning of the environment to detect potential sources of threat.

Moreover, the findings showed that the mean scores of psychological hardiness in the posttest of the experimental group were significantly different from the pretest. Thus, CBT had an impact on the psychological hardiness of single-parent adolescents. This research finding is also implicitly consistent with the prior results (18-21).

CBT practitioners emphasize the role of belief systems and cognition in behavior and emotion. Therefore, by identifying distorted beliefs and altering maladaptive thinking through specific cognitive techniques—including emotional and behavioral strategies—individuals can become aware of previously unrecognized thoughts, incorrect beliefs, and cognitive schemas. This awareness enables them to discover ways to modify their beliefs, resulting in improved self-understanding. Psychological hardiness, as a prominent and significant personality trait, plays a vital role in understanding the human being as an autonomous and valuable entity. This trait enables individuals to become efficient and capable, allowing them to respond to even the most critical situations with rational, effective coping strategies while maintaining their mental and physical well-being. In essence, psychological hardiness is driven by an intrinsic motivation and factor, contributing to its high degree of stability and resilience.

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Authors' Contributions

All authors equally contributed to this study.

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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