

# Effectiveness of Bowen Family Therapy on Resilience Components in Infertile Women

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## Abstract

**Background:** Infertility can be a major source of stress for women, impacting their ability to cope with challenges. This study aimed to investigate whether Bowen family therapy can improve resilience in infertile women, potentially leading to better emotional well-being and coping skills.

**Methods:** We used a quasi-experimental design with pre- and post-intervention assessments and a control group. Follow-up measurements were collected two months post-intervention. The study population comprised all infertile women attending infertility centers in Isfahan, Iran, from April to June 2023. Thirty-two participants were recruited through convenience sampling and then randomly assigned to two groups (n=16 per group): an intervention group receiving Bowen family therapy and a waitlist control group. The intervention group participated in eight 90-minute (one session per week) Bowen family therapy sessions. Participants completed the Connor-Davidson Resilience Scale (CD-RISC) at three time points. Repeated measures ANOVA was conducted using SPSS version 26 to analyze the data.

**Results:** Participants in the Bowen family therapy group demonstrated improvements in several resilience measures. Scores on the hardiness and competence measure increased significantly from the pre-test (25.93±6.92) to the post-test (31.50±7.80), with gains maintained at follow-up (31.37±3.00) (P=0.010). Similar significant increases were observed in trusting one's instincts (pre-test: 22.18±6.46; post-test: 27.43±4.66; follow-up: 26.25±3.66) (P=0.013) and positive attitude toward change (pre-test: 14.62±2.68; post-test: 18.37±3.79; follow-up: 17.12±3.63) (P=0.031). These improvements culminated in a significant rise in total resilience scores from the pre-test (77.68±15.23) to the post-test (94.62±13.84), with a follow-up mean of 90.18 (±9.77) (P=0.009). Notably, the impact of Bowen family therapy on perceived control (P=0.140) and spirituality (P=0.051) was not statistically significant (P=0.140).

**Conclusions:** Overall, this study provides valuable evidence that supports the effectiveness of Bowen family therapy as a therapeutic approach to enhance resilience in infertile women. Tailoring interventions to address specific areas within the context of Bowen family therapy principles could be particularly beneficial for infertile women.

**Keywords:** Family therapy, Resilience, Infertility, Women

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## 1. Introduction

Fertility and reproduction are fundamental aspects of human life and a cornerstone of marriage. Indeed, after survival, the most pressing concern is procreation and the continuation of the human lineage (1). However, infertility poses a significant psychological crisis for those affected (2). Infertility is defined as the failure to achieve a pregnancy following twelve months of regular, unprotected sexual intercourse. Infertility is a complex biological, psychological, and social disorder that profoundly impacts various aspects of the infertile couple's life (3). Globally, 80 to 186 million individuals face infertility, with 100,000 new infertile couples joining the population each year (4). The worldwide prevalence of infertility

ranges from 12 to 15% (5). In Iran, an estimated 3 to 4 million couples are infertile, with an annual increase of 15% (6).

The experience of infertility and inability to conceive are often described by couples as a stressful and distressing situation that can lead to psychological distress, personal and social pain, and social consequences. For many women, especially in sociocultural contexts, infertility can become an identity crisis (7, 8). Infertility has emerged as a social concern, profoundly impacting the very fabric of infertile couples' lives and affecting their relationships. Marital problems also influence couples' resilience. In the realm of family life and family therapy, resilience has gained significant recognition as a variable that positively impacts

marital relationships and conflicts (9, 10). Resilience is conceptualized as a personality trait that enables individuals to achieve positive outcomes under highly stressful conditions (11). Resilience is the individual's ability to cope with changing circumstances, manifested in creative ways of thinking and acting in new situations. It is, in essence, a cognitive skill that reflects an individual's ability to adapt to new situations (12, 13).

Individuals with high resilience tend to exhibit more positive emotions when faced with neutral and ambiguous emotional events (14, 15). This is likely due to their ability to effectively cope in the face of difficult situations, particularly interpersonal ones. Given the complex nature of infertility and its devastating impact on marital relationships, it is crucial to develop effective interventions to assist couples facing this challenge (16). Bowen family therapy conceptualizes the family as an interconnected emotional system (17, 18). This approach emphasizes a multigenerational perspective to understand family dynamics. (19) Central to this theory is the concept of self-differentiation, wherein individuals are able to maintain a sense of self within the family unit (20).

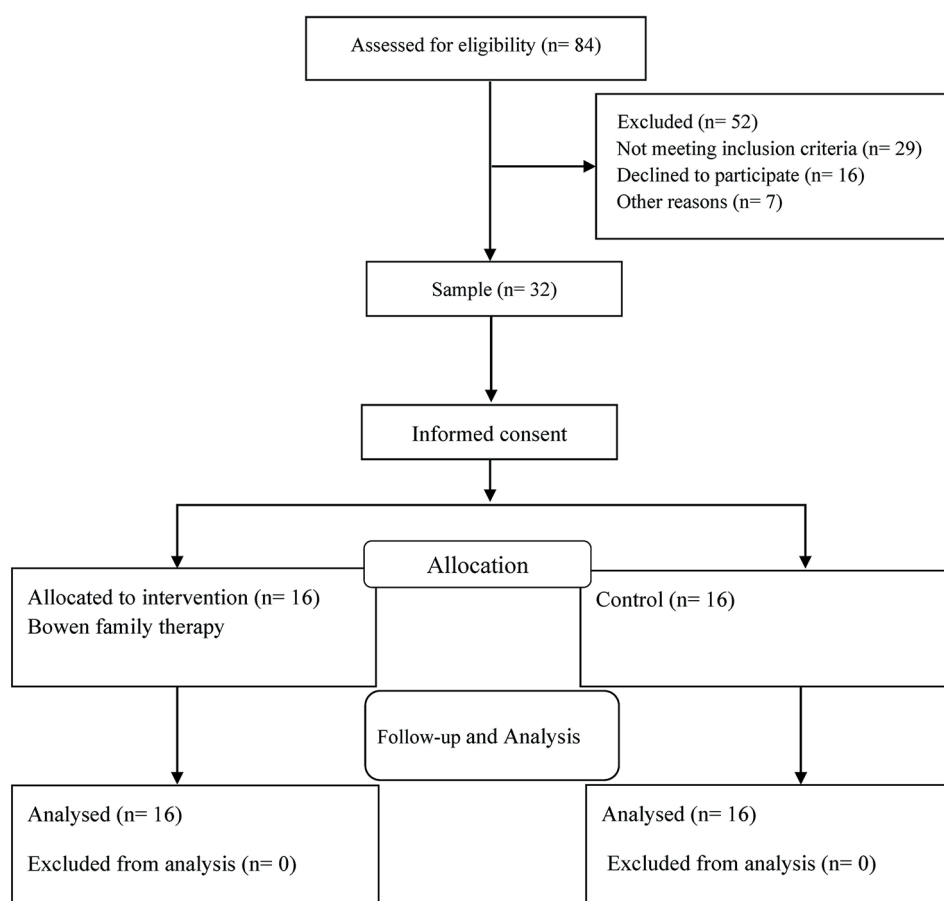
Infertility is an unexpected and distressing event that can impose significant psychological stress on individuals involved (21). With global infertility rates on the rise and a considerable portion of infertile couples experiencing psychological distress, the need for expanded research in this area is undeniable. Despite the prevalence of infertility-related distress, there remains a significant gap in our understanding of the most effective interventions to support infertile couples. Many traditional approaches to infertility treatment primarily focus on the physical aspects, neglecting the emotional toll it can take. This lack of research on psychosocial interventions, particularly those focused on building resilience, highlights the necessity for further exploration. Given the limited research on the effectiveness of Bowen family therapy for infertile couples, the present study aimed to investigate its effect on resilience. The study recruited couples undergoing infertility treatment at centers in Isfahan, Iran. The present study aimed to provide key insights into supporting infertile couples dealing with emotional struggles by analyzing Bowen family therapy. This study adds to the expanding pool of knowledge on how to effectively help couples facing infertility.

## 2. Methods

This quasi-experimental study used a pre-test, post-test design with a control group and two intervention groups, followed by a two-month follow-up period. Participants were infertile women recruited from infertility centers in Isfahan, Iran, between April and June 2023. A convenience sample of 32 women was randomly assigned to either the Bowen family therapy group or a waitlist control group (Figure 1). The sample size was determined through a priori power analysis using G\*Power software. The analysis indicated a requirement of 16 participants per group with a power of 0.90 and an alpha level of 0.05. The Bowen family therapy and control groups exhibited mean resilience scores of  $94.82 \pm 13.84$  and  $79.50 \pm 11.89$ , respectively (22). To ensure unbiased group allocation, participants were randomly assigned to either the control or intervention group. A random number table was used to generate unique identification numbers for each participant. Subsequently, even-numbered participants were assigned to one group (denoted as Group 1), and odd-numbered participants were assigned to the other group (denoted as Group 2). To avoid selection bias, a second randomization process was implemented. Using the same random number table, one of the groups (Group 1 or Group 2) was then designated as the control group, while the remaining group became the intervention group. The inclusion criteria were: a diagnosis of infertility based on medical records, age range of 25 to 45 years, education level of secondary school, infertility duration of one year or more, and informed consent to participate in the research. The exclusion criteria were: lack of cooperation and/or missing more than two intervention sessions.

### 2.1. Procedure

Ethical approval for the study was obtained (IR.IAU.KHUISF.REC.1402.056). Then, we visited infertility centers in Isfahan, Iran. After explaining the aim, and necessity of the study as well as the inclusion criteria, we received a list of potential participants from center officials. Subsequently, infertile women were contacted and provided with detailed information about the study. Those interested in participating attended an in-person information meeting. During this meeting, a written informed consent to participate in the study was obtained. Participants completed the Resilience Scale at three time points: pre-test, post-



**Figure 1:** The figures shows the CONSORT flow diagram.

test, and follow-up. Following the pre-test, women in the intervention group received Bowen family therapy delivered in eight, weekly, 90-minute sessions (23). The intervention sessions were facilitated by the first author, specialized in Bowen family therapy. These sessions were conducted in a group format at the Isfahan Counseling Center. Table 1 provides a summary of the intervention

program.

## 2.2. Research Instrument

### 2.2.1. Connor-Davidson Resilience Scale (CD-RISC)

CD-RISC is a 25-item self-report measure used to assess resilience. Respondents rate each

**Table 1:** Summary of Bowen family therapy sessions

Sessions	Content
1	Establishing an objective rapport; communicating treatment parameters; establishing a therapeutic contract; conducting an assessment interview; involving family members in assessment
2	Discussing the concept of self; explaining and understanding self-differentiation; linking current life issues to self-differentiation
3	Introduce the triangulation dynamic in families; examine the effects of triangulation on marital relationships; understand the use of triangulation during anxiety and stress; teach coping strategies for triangulation
4	Assess the family's emotional system; explore the link between family emotional system and marital conflict; examine the impact of family emotional system on differentiation and fusion; develop strategies for improving the family emotional system
5	Introduce the logic of family projection process or transmission of parental undifferentiation to child and its goals; discuss the process of parental undifferentiation transmission and current issues; linking sibling position, birth order, personality and its effect on current issues
6	Introduce the concept of emotional cutoff; examine the impact of emotional cutoff on marital relationships; identify a comprehensive list of specific behaviors by couples as emotional cutoff behaviors; present strategies for coping with emotional cutoff; explore the link between emotional cutoff, anxiety, and attachment to family of origin
7	Discuss the process of multigenerational transmission; examine the link between multigenerational transmission and the client's current issue; introduce genogram technique to clarify and objectify the client's issue; discuss the transmission of self-differentiation across generations; provide practical strategies for preventing multigenerational transmission-related issues
8	Summarizing the content

item on a 5-point Likert scale ranging from 0 (Not true at all) to 4 (True nearly all the time), resulting in a possible total score of 0 to 100. Higher scores indicate greater overall resilience. The CD-RISC has identified five key components of resilience (24). The first factor, labeled “personal competence,” encompasses items related to high standards, tenacity, and a sense of competence (8 items). The second factor, “acceptance of stress,” reflects an individual’s ability to manage negative emotions, trust their instincts, and perceive stress as potentially beneficial (7 items). The third factor, “positive outlook,” captures a positive attitude towards change and the importance of secure relationships (5 items). The fourth factor, “perceived control,” reflects an individual’s belief in their ability to influence events (3 items), while the fifth factor, “spirituality,” assesses the role of spiritual beliefs in fostering resilience (2 items). The internal

consistency of CD-RISC has been established in a previous study, with a reported Cronbach’s alpha coefficient of 0.76 (25). CD-RISC demonstrated robust content validity (CVI=0.97, CVR=0.95) as reported by Mousavi and colleagues (12). In the present study, the scale exhibited adequate internal consistency (Cronbach’s alpha=0.86).

### 2.3. Data Analysis

The normality of data distribution was assessed using the Kolmogorov-Smirnov test. The assumption of sphericity for repeated-measures ANOVA was examined through Mauchly’s test of sphericity. Levene’s test was used to verify the homogeneity of variances. Data analysis involved repeated-measures ANOVA, independent t-tests, and ANCOVA, using SPSS version 26. To further explore differences between pre-test, post-test, and

**Table 2:** Demographic characteristics of the participants

Groups	Age (years)	Duration of marriage (years)	Education	
			High school n (%)	College education n (%)
Bowen family therapy group	32.81±6.29	7.18±2.81	4 (65%)	12 (35%)
Control group	33.50±5.65	6.81±3.75	3 (55%)	13 (45%)
P	0.746	0.754	0.674	

**Table 3:** Descriptive statistics of resilience and its components for infertile women

Groups	Stage	Bowen family therapy group	Control group	P (between group)
		Mean±SD	Mean±SD	
Hardiness and competence	Pre-test	25.93±6.92	25.06±6.85	0.646
	Post-test	31.50±7.80	25.68±5.98	0.024
	Follow-up	31.37±3.00	26.50±4.69	0.001
P (within group)		0.010	0.496	-
Trusting one’s instincts	Pre-test	22.18±6.46	21.62±7.11	0.817
	Post-test	27.43±4.66	22.56±7.32	0.032
	Follow-up	26.25±3.66	20.43±4.42	0.001
P (within group)		0.013	0.574	-
Positive attitude toward change	Pre-test	14.62±2.68	13.62±3.34	0.358
	Post-test	18.37±3.79	14.68±4.06	0.012
	Follow-up	17.12±3.63	13.68±3.78	0.013
P (within group)		0.031	0.426	-
Perceived control	Pre-test	9.40±2.75	9.31±3.19	0.933
	Post-test	10.81±2.53	10.37±2.57	0.629
	Follow-up	11.50±2.68	11.00±1.96	0.552
P (within group)		0.140	0.081	-
Spirituality	Pre-test	4.43±2.54	5.31±2.08	0.184
	Post-test	6.50±2.58	6.18±1.90	0.702
	Follow-up	6.12±2.15	6.31±1.70	0.784
P (within group)		0.051	0.147	-
Resilience (total)	Pre-test	77.68±15.23	74.93±16.99	0.633
	Post-test	94.62±13.84	79.50±11.89	0.002
	Follow-up	90.18±9.77	77.93±5.22	0.011
P (within group)		0.009	0.0505	-



follow-up stages for the variables, post hoc LSD tests were conducted. Statistical significance was set at  $\alpha=0.05$ .

### 3. Results

The mean age of participants in the control and Bowen family therapy groups was  $33.50\pm 5.65$  and  $32.81\pm 6.29$  years, respectively. The baseline demographic characteristics of the participants are presented in Table 2. The groups did not differ significantly on any demographic variables.

Participants in the Bowen family therapy group demonstrated significant improvements in resilience compared with the control group, as shown in Table 3. Examining the post-test data in Table 3, the Bowen family therapy group showed significantly higher mean scores on measures of hardiness and competence ( $P=0.024$ ), trusting one's instincts ( $P=0.032$ ), positive attitude toward change subscales ( $P=0.012$ ), and overall resilience ( $P=0.002$ ) compared with the control group. Interestingly, scores for perceived control and spirituality did not show statistically significant differences between the groups.

Normality testing confirmed a normal distribution of all research variables at each time point (pre-test, post-test, follow-up). Mauchly's test of sphericity revealed no violation of this assumption for the repeated-measures ANOVA conducted on the effects of Bowen therapy on resilience and its components in women across pre-test, post-test, and follow-up stages. On the other hand, Levene's test was used to examine the equality of variances, and this assumption was also met. According to the results of repeated-measures

ANOVA for resilience and its components, a significant main effect of time was observed for resilience scores ( $P=0.001$ ), indicating a difference between pre-test, post-test, and follow-up measurements. Furthermore, the main effect of the group was significant for resilience ( $P=0.009$ ), suggesting a difference between the Bowen family therapy and control groups. ANCOVA was used to compare groups at post-test and follow-up, controlling for pre-test scores. Results indicated that after controlling for baseline differences, the intervention group exhibited significantly higher scores on resilience compared with the control group at both post-test and follow-up ( $P=0.001$ ).

To explore within-group changes over time for the study variables, a post-hoc analysis was conducted. We employed the Least Significant Difference (LSD) test to assess significant differences between pre-test, post-test, and follow-up scores. The intervention demonstrated significant positive effects on resilience scores. Compared to pre-test scores, the Bowen family therapy group showed significant improvements in hardiness and competence at both post-test ( $P=0.048$ ) and follow-up ( $P=0.026$ ), suggesting sustained treatment benefits. Similarly, significant increases were observed in trusting one's instincts ( $P=0.002$ ), positive attitude toward change ( $P=0.001$ ), and overall resilience ( $P=0.001$ ) scores following the intervention and at follow-up (Table 4). These findings provided strong evidence for the effectiveness of Bowen family therapy in enhancing resilience and its long-lasting positive effects.

### 4. Discussion

The present study aimed to investigate

**Table 4:** Results of LSD post hoc test for within-group effects in the Bowen family therapy group

Scales	Phase A	Phase B	Mean difference (A-B)	SE	P
Hardiness and competence	Pre-test	Post-test	-2.63	1.43	0.048
		Follow-up	-2.44	1.06	0.026
Trusting one's instincts	Post-test	Follow-up	0.19	1.05	0.589
	Pre-test	Post-test	-3.94	1.07	0.002
Positive attitude toward change		Follow-up	-1.21	0.900	0.186
	Post-test	Follow-up	2.73	1.09	0.016
Resilience (total)	Pre-test	Post-test	-2.63	0.61	0.001
		Follow-up	-1.69	0.64	0.012
	Post-test	Follow-up	0.94	0.59	0.117
	Pre-test	Post-test	-11.67	2.84	0.001
		Follow-up	-7.85	2.16	0.001
	Post-test	Follow-up	3.81	1.94	0.055

LSD: Least Significant Difference, SE: Standard Error

the effectiveness of Bowen family therapy on resilience in infertile women. The findings of this study demonstrated that Bowen family therapy effectively increased the total resilience score of infertile women, and this effect remained stable and consistent over time. Additionally, the results of the components of resilience showed that Bowen family therapy could effectively increase hardiness and competence, trust in personal instincts, and a positive attitude towards change in infertile women. The findings of this study were consistent with previous studies (26-28).

In explaining the study results regarding the effectiveness of Bowen therapy on resilience and its components, it can be stated that Bowen therapy is a form of couples counseling that focuses on improving communication, reducing conflict, and strengthening emotional bonds between partners. This therapy is based on the principles of family systems theory, which posits that individuals are deeply affected by their relationships with others, particularly within the family unit (26). By addressing relational dynamics and interactional patterns, the goal of Bowen therapy is to enhance emotional connections in couples facing various challenges, including infertility. According to Amiri and colleagues (29), infertility can negatively impact marital satisfaction and lead to increased psychological distress and decreased quality of life in women with infertility disorders. On this basis, Bowen therapy assists couples in developing healthier ways to communicate with each other and cope with stress. Several studies have shown that Bowen family therapy has been effective in enhancing couples' levels of happiness and empathy within the relationship (26, 27, 30).

The techniques employed in Bowen therapy appear to have been effective in enhancing resilience and a positive attitude towards change in the couples participating in the Bowen experimental group (17). These techniques include genograms, which aid in identifying intergenerational patterns, and guided imagery, which allows couples to explore their emotions and experiences on a deeper level. Through differentiation, couples become capable of approaching their differences and conflicts in a positive and constructive manner and finding ways to resolve their issues (30). Additionally, differentiation emphasizes the importance of respecting individual differences and each partner's desires. This respect for differences fosters healthy

and harmonious communication between couples. Indeed, by encouraging open communication and mutual support, couples can cultivate a stronger sense of unity and teamwork in the face of infertility challenges. This can help both partners feel more competent and supported, which can be crucial for maintaining flexibility during difficult times. Undoubtedly, couples therapy sessions can provide infertile women with emotional support and empower them to confront their challenges and strengthen their self-efficacy.

#### 4.1. Limitations

The present study had some limitations that should be considered. First, the study sample was restricted to infertile couples in Isfahan, Iran. Therefore, generalizing the findings to other cultural contexts should be done with caution. Second, the study employed self-report measures to assess the predictor variables. The overall validity of self-report measures depends on the honesty of respondents and accuracy of answers. Third, the lack of adequate control over economic, educational, and family variables, as well as job-related stressors that could influence marital resilience and dissatisfaction, represents another limitation of the study. By addressing these limitations and pursuing these directions, future research can further strengthen the evidence base for Bowen therapy as an effective intervention for improving resilience and marital satisfaction among infertile couples and contribute to the development of more effective treatment approaches for infertility-related distress.

#### 5. Conclusions

This study demonstrated the effectiveness of Bowen family therapy in improving specific components of resilience in infertile women. Bowen family therapy leads to significant enhancements in hardiness and competence, trust in personal instincts, and a positive attitude toward change. These improvements persisted over time, suggesting a lasting positive effect on infertile women's ability to cope with challenges associated with infertility. However, the study did not find statistically significant effects of Bowen family therapy on perceived control and spirituality. Further research is needed to explore the potential influence of Bowen family therapy on these aspects of resilience in infertile

women, or to investigate if the intervention design or delivery could be modified to target these areas more effectively. This research highlighted the significant benefits of Bowen family therapy in increasing resilience in infertile women, demonstrating its potential as a valuable therapeutic approach. Future research may examine the specific ways in which Bowen family therapy produces its beneficial effects and assess its applicability to a variety of populations and cultural settings.

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### Authors' Contribution

Zohreh Mazaheri: Substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data for the work, drafting the work. Mohammad Zare Neyestanak: Substantial contributions to the conception and design of the work; the acquisition, analysis, and interpretation of data for the work, drafting the work and reviewing it critically for important intellectual content. Elham Foroozandeh: Substantial contributions to the design of the work, drafting the work and reviewing it critically for important intellectual content. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work, such that the questions related to the accuracy or integrity of any part of the work.

### Ethical Approval

This study was approved by the Ethics Committee of Islamic Azad University-Isfahan (Khorasgan) Branch with the code of IR.IAU.KHUISF.REC.1402.056). Also, written informed consent was obtained from the participants.

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**Conflict of interests:** None declared.

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