

Effectiveness of Healing Codes Training on Sexual Self-Esteem of Infertile Women

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Abstract

Background: In addition to physical problems, infertile couples face psychological issues during treatment. This study aimed to investigate the effect of healing codes training on the sexual self-esteem of infertile women.

Methods: The present study employed a quasi-experimental pre-test, post-test, follow-up design with a control group and an experimental group. Convenience sampling method was used to recruit forty infertile women satisfying the inclusion criteria from fertility treatment centers in Isfahan, Iran in 2023. Participants were randomly assigned into either the experimental group (n=20) or the control group (n=20). The experimental group received a standardized 14-week intervention consisting of weekly 90-minute training sessions focused on a specific therapeutic technique (healing codes). Data analysis was conducted using repeated-measures ANOVA.

Results: The results demonstrated a statistically significant increase in sexual self-esteem scores in the experimental group compared with the control group ($P=0.001$) at both the post-test and follow-up phases. No significant difference was observed between the groups at pre-test. Throughout the study, the mean scores for the experimental group (post-test: 110.13 ± 6.71 , follow-up: 110.32 ± 6.93) were significantly higher than the control group (post-test: 91.93 ± 11.40 , follow-up: 94.74 ± 17.12). These findings suggested that healing codes training led to a significant difference in sexual self-esteem between the experimental and control groups ($P=0.001$).

Conclusions: This study provided evidence that healing codes training leads to a significant improvement in sexual self-esteem among infertile women. These findings suggested that healing codes training may be a promising new approach to improve the psychological well-being of infertile women.

Keywords: Self-concept, Infertility, Women, Self-healing

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1. Introduction

Infertility can be a significant stressor within a marriage, potentially jeopardizing marital stability (1). Defined as the inability to conceive after one year of regular unprotected intercourse (2), infertility presents challenges beyond the physical realm, as evidenced by the psychological distress documented among couples undergoing treatment (3). Medical treatment for infertility is a stressful experience and a cycle of hope and despair, and its various stages can disrupt a person's regular life and even their occupation and career (4). Not having a child is a factor causing stress in couples. It can be accompanied by a broad spectrum of psychological injuries including decreased quality of life, sexual dysfunction, lower sexual self-esteem, and marital problems (5, 6).

Sexual self-esteem encompasses one's sexual

behaviors, thoughts, and feelings, which play a crucial role in shaping one's overall self-esteem. It serves as a benchmark for self-evaluation (7-9). Sexual self-esteem is a multifaceted construct encompassing five key components: skill and experience (perceived ability to satisfy oneself and one's partner), attractiveness (belief in one's physical appeal), control (capacity to manage sexual thoughts, emotions, and behaviors), moral judgment (ability to assess sexual experiences against personal moral standards), and adaptiveness (flexibility in adjusting sexual behavior to a partner's needs) (10). As a result, sexual behavior is a part of a person's personality, as well as a set of beliefs, attitudes, and actions, that they have regarding the opposite sex and related issues (11). Safshekan and Khalesi (12) demonstrated that individuals who possessed high sexual self-esteem were more able to guide their sexual desires and experiences. In their research, Kong and colleagues

noted that individuals who experienced sexual dissatisfaction had poor relationships and low self-esteem. They also experienced severe depression (13). Thus, a desirable sexual relationship in a healthy marriage that satisfies both the husband and the wife is crucial for maintaining a stable family (14, 15). Sexual dysfunction can play a causal role in infertility or may be an outcome of another stress-related psychiatric disorder in one or both marriage partners (16, 17). This causes emotional distance, even in young infertile couples despite their affection for each other, and puts their marital compatibility at risk (18, 19). Hence, psychological problems in infertile women, such as low sexual self-esteem, are among the major issues that impact the infertility treatment cycle (20). Given the high stress and psychological pressure experienced by women struggling with infertility (21), it is crucial to incorporate psychological interventions alongside medical treatments in treating infertility and addressing the psychological damage caused by it.

One of the recently proposed approaches that appear to be effective is the healing codes (self-healing) approach. It takes into account five dimensions of human well-being, including the body, mind, social relations, spirituality, and ethics, making it a comprehensive intervention (22). The healing codes approach incorporates various techniques such as reminiscence skills, self-soothing skills, prayer, and the healing codes exercises (23, 24). These techniques aim to restore balance to the cellular energy level, alleviate physiological stress, boost the body's immune system, and promote peace and wise behaviors. It helps both the body and the mind so that the human body in its entirety can be restored and rejuvenated (25). This therapeutic approach emphasizes the individual's efforts to address harmful cellular memories and images, as well as false beliefs and hidden fears (26). It also aims to identify the root causes of physiological stress, eliminate unhealthy personality traits, and make lifestyle changes. The individual is encouraged to seek help from God through prayer. This treatment plays a crucial role in accelerating one's recovery and rehabilitation processes (27).

Given the sociocultural significance of fertility and the fact that sexual self-esteem is one of the most influential factors in both infertility and relationships between couples, it appears that the application of the healing codes approach, which is up-to-date and relevant to all, can be effective

in empowering the various psychological and physical dimensions in the body and mind of infertile women. In light of the aforementioned psychological challenges associated with infertility, the present study was designed to evaluate the potential benefits of training in a specific therapeutic technique (healing codes) on the sexual self-esteem of infertile women.

2. Methods

This study used a quasi-experimental design with a control group, an experimental group, and pre-test, post-test, and follow-up assessments. The statistical population included all infertile women visiting Mehremadar Fertility Center, Hazrat e Maryam Fertility Clinic, and Isfahan Fertility and Infertility Center of Isfahan in 2023. A convenience sampling approach was used to recruit forty infertile women satisfying the predetermined inclusion criteria from fertility treatment centers in Isfahan, Iran. Following recruitment, participants were randomly assigned into the experimental or control group (n=20 per group) using a random numbers table to ensure balanced group allocation. The sample size calculation considered a desired statistical power of 0.80, a significance level of 0.05 (alpha), and an anticipated attrition rate of 10%. A power analysis was conducted to determine the appropriate sample size. This analysis considered the mean and standard deviation (SD) of overall sexual self-esteem scores in the post-test phase. The healing codes group exhibited a mean score of 110.13 (SD=6.71), while the control group had a mean score of 91.93 (SD=11.40) (28). The inclusion criteria were as follows: age range of 25-45 years, literacy, medical diagnosis of infertility confirmed by a specialist, physical stability, informed consent to participate in the study, and absence of serious mental disorders that require the use of psychiatric medications. The exclusion criteria included women still undergoing evaluation and infertility tests, becoming pregnant during the study, and missing more than two sessions. Before beginning the study, each participant was informed about the research procedure, ethical considerations, and confidentiality. Once informed consent was obtained, both the intervention and control groups completed the Sexual Self-Esteem Inventory as the pre-test. The intervention group subsequently received fourteen weekly 90-minute training sessions. A summary of the healing code sessions is presented in Table 1.

Table 1: Description of the healing codes intervention

Session	Summary of the session
1	The intervention commenced with group introductions and rapport building, followed by the establishment of clear goals and ground rules for the sessions. Participants then explored the concept of situational stressors and were equipped with strategies for managing them effectively. Subsequently, the intervention delved into the physiological underpinnings of stress, focusing on its impact on the immune system
2	Deepening the understanding of stress
3	Incorporating training in differentiating between true and illusory problems, fostering realistic and solution-oriented thinking, and utilizing reminiscence techniques that consider past failures, conflicts, frustrations, and moments of confusion within an individual's life history; additionally, incorporating rose meditation
4	Exploring the roots of psychological distress; introducing concepts of resentment, misconceptions, triangular negative emotions, and their detrimental effects; examining the first three categories of therapeutic interventions within the context of participants' personal life experiences
5	Exploring past experiences: Investigating memories related to traumatic events, significant life transitions, and highly influential moments across an individual's lifespan, considering the impact of individual attitudes; introducing and practicing the empty chair technique; implementing the glass lift technique as part of the group intervention
6	Understanding the paradox of positive and negative emotions; introducing and practicing forgiveness techniques; facilitating a shift in focus from past experiences to the present and future; enhancing skills in effective emotional expression; identifying and addressing maladaptive coping mechanisms employed by group members
7	Cultivating self-regulation and building resilience: Enhancing willpower through specific techniques; introducing and practicing a four-factor program for change; developing skills in problem-solving and environmental modification techniques; implementing the reverse reminiscence technique
8	Reinforcing core therapeutic principles: Consolidating concepts of love, happiness, peace, and patience; fostering prosocial behaviors through techniques that address selfishness, unrealistic expectations, and importance of fairness; cultivating empathy and respect for individual differences; enhancing communication skills and promoting engagement in enjoyable activities
9	Enhancing personal well-being: Reinforcing concepts of kindness, compassion, confidence, humility, and self-control; promoting positive relationships with self, others (including a higher power for those who identify with one), and the natural world; building self-esteem; cultivating resilience through reduced stubbornness; developing effective communication and positive thinking skills
10	Integrating spirituality and goal setting: Exploring the concept of intrinsic motivation; investigating the potential psychological effects of prayer practices; examining the role of continuous goal-setting in alignment with life objectives; reviewing existing scientific research on the psychological benefits of prayer
11	Promoting healthy habits: Developing a balanced lifestyle through identification and modification of unhealthy behaviors and dietary patterns; optimizing sleep hygiene
12	Enhancing overall well-being: Developing skills to improve physical and mental health; promoting personal hygiene practices; strengthening communication and intimacy within relationships; encouraging engagement in meaningful social activities
13	Cultivating self-compassion and emotional regulation: Examining patterns of self-talk; reviewing the physiology of stress and practicing deep breathing techniques; identifying individual stressors; promoting strategies for self-care to mitigate physical and emotional distress; enhancing skills for managing emotions
14	Cultivating personal growth and purpose: Exploring techniques for enhancing spiritual well-being, confidence, and acceptance; discussing the importance of finding meaning and purpose in life; encouraging practices of self-reflection and spending time in solitude

Once the sessions were completed, the intervention and control groups took the post-test. A 45-day follow-up was conducted for the intervention and control group after the sessions were completed to assess the longer-term effectiveness of this approach.

2.1. Instruments

2.1.1. Sexual Self-Esteem Inventory in Women:

This 32-item instrument was developed by Doyle Zeanah and Schwarz (29). Participants responded using a five-point Likert scale anchored by "strongly disagree" (1) and "strongly agree" (5). The

questionnaire includes five subscales: experience and skills (6 items, score range 6-30), adaptiveness (6 items, score range 6-30), moral judgment (7 items, score range 7-35), control (6 items, score range 6-30), and attractiveness (7 items, score range 7-35), which reflect different dimensions of sexual self-esteem. The sum of the scores for each of the five dimensions yields the scale's overall score; higher scores indicate greater sexual self-esteem. According to a study conducted in Iran by Farokhi and Shareh (30), Cronbach's alpha values for skill and experience, attractiveness, control, moral judgment, adaptiveness, and for the entire questionnaire were 0.73, 0.78, 0.69, 0.68, 0.70,

and 0.82, respectively. In addition, researchers introduced the Content Validity Ratio (CVR) and Content Validity Index (CVI) to assess the Persian version of the questionnaire. The entire questionnaire achieved a mean CVR of 0.98 and a mean CVI of 0.92, indicating strong content validity (30).

2.2. Statistical Analysis

Data analysis included conducting Levene's test and the Shapiro-Wilk test to assess the assumption of homogeneity of variance and normal distribution, respectively. Paired t-tests were used to compare means within groups, and the Bonferroni post-hoc test was applied to assess pairwise differences. The statistical analysis also involved conducting repeated measures ANOVA to compare the means across multiple time points. All statistical analyses were performed using SPSS version 24.

3. Results

A total of 40 infertile women were recruited for this study. Baseline demographic characteristics,

including age (intervention group: mean [SD]=33.70±6.39 years; control group: mean [SD]=35.42±5.58 years), were collected. Table 2 presents a further breakdown of the descriptive findings for the intervention and control groups, including means and standard deviations (SD) for sexual self-esteem.

Before conducting inferential statistical tests, assumptions of normality and homogeneity of variance were assessed. Levene's test confirmed the homogeneity of variance for all research variables across the study groups. The Shapiro-Wilk test results indicated the normality of data distribution. However, Mauchly's test of sphericity revealed significant departures from sphericity for all studied components. Therefore, the Greenhouse-Geisser correction was applied to adjust for potential violations of sphericity in the subsequent analyses.

Given the importance of the within-group factors, a significant difference in the level of self-esteem between the three measurements (pre-test, post-test, and follow-up) was confirmed (P=0.001). Furthermore, given the importance

Table 2: Mean and SD of sexual self-esteem components in the experimental and control groups

Variables	Phase	Healing codes group	Control group	P (between-group)
		Mean±SD	Mean±SD	
Sexual self-esteem (total)	Pretest	92.27±9.01	92.27±13.22	0.999
	Posttest	110.13±6.71	91.93±11.40	0.001
	Follow-up	110.32±6.93	94.74±17.12	0.001
	P (within-group)	0.001	0.613	-
Skill and experience	Pretest	19.73±2.12	21.07±2.40	0.069
	Posttest	22.73±1.71	21.63±2.28	0.093
	Follow-up	23.07±1.87	21.91±2.17	0.097
	P (within-group)	0.001	0.253	-
Adaptiveness	Pretest	20.07±2.89	18.53±2.67	0.088
	Posttest	23.53±2.59	18.60±2.87	0.001
	Follow-up	23.68±2.69	18.51±2.65	0.001
	P (within-group)	0.001	0.981	-
Moral judgment	Pretest	17.47±1.88	17.27±4.43	0.853
	Posttest	20.73±1.67	18.98±3.51	0.051
	Follow-up	20.12±1.79	19.40±2.71	0.321
	P (within-group)	0.001	0.075	-
Control	Pretest	17.87±2.85	18.07±3.15	0.734
	Posttest	22.00±2.33	18.40±2.75	0.001
	Follow-up	21.93±2.19	18.65±2.80	0.001
	P (within-group)	0.001	0.542	-
Attractiveness	Pretest	17.13±2.17	17.36±2.61	0.764
	Posttest	21.13±2.36	17.20±2.01	0.001
	Follow-up	21.52±2.56	17.25±2.02	0.001
	P (within-group)	0.001	0.829	-

SD: Standard Deviation

of the group source between the groups, there was a significant difference in sexual self-esteem between the experimental and control groups ($P=0.001$). Moreover, given the significance of the within-group factors, there were significant differences in the dimensions of experience and skill, adaptiveness, control, and attractiveness between the three measurements ($P=0.001$). Because the group source differed significantly between the groups, there was a significant difference between the experimental and control groups for the dimensions of adaptiveness, control, and attractiveness ($P=0.001$). Therefore, the effectiveness of the intervention was confirmed. The effectiveness of the healing codes on the dimensions of experience or moral judgment was not confirmed.

The results of the intervention on sexual self-esteem are presented in Table 3. Participants in the healing codes group reported significantly higher total sexual self-esteem scores (mean difference=18.50, $P=0.001$) compared with the control group. Similarly, the healing codes group showed significantly greater improvement in adaptiveness (mean difference=4.93, $P=0.001$), control (mean difference=3.60, $P=0.001$), and attractiveness (mean difference=3.93, $P=0.001$) compared with the control group.

4. Discussion

This study aimed to investigate the effectiveness of healing codes training on the sexual self-esteem of infertile women. The results revealed that the healing codes training increased sexual self-esteem among infertile women. The healing code approach has positive effects on the physical and psychological variables, as evidenced by previous studies (25, 33). Vahhab and co-workers (25) reported that healing codes improved perfectionism and failure tolerance in mothers of single-parent students. Also, previous research supported the effectiveness of self-directed interventions for improving mental health outcomes. Tol and colleagues (31)

demonstrated that a self-help program for refugee women led to reductions in psychological distress and enhancements in well-being. Similarly, Heydari and co-workers (32) found that self-healing training yielded reductions in anxiety and improvements in self-esteem and forgiveness among women who had experienced betrayal. In a recent study by Nasresfahani and colleagues (33) it was observed that healing codes positively influenced the mental well-being of women experiencing psychological distress. Additionally, the use of these codes enhanced their capacity for forgiveness.

The results can be explained by stating that sexual self-esteem is a component of a person's personality and a set of attitudes, behaviors, and beliefs in relation to the opposite sex and the issues related to it. An individual's control over sexual self-esteem plays a crucial role in maintaining their sexual health, behaviors, and performance. Research indicated that when sexual behavior is monitored and controlled by mental processes and sufficiently comprehended, the individual will enjoy better sexual health and performance (34). Fear and anxiety are important factors that can impact sexual self-esteem and overall sexual performance. These aspects are given significant attention in the healing codes treatment. Based on the findings of this study, it is possible to achieve sexual self-esteem by healing codes training, promoting self-awareness and self-management, and improving the management of physiological stress.

It can be argued that while humans possess the ability to think, thought and cognition alone do not guarantee success and peace for the individual. Thus, awareness of another dimension called destructive cellular memories and their correction can enhance one's mental and cognitive flow (26). Indeed, the healing codes assist infertile women in attaining a sense of control and understanding when it comes to acknowledging and communicating their emotions in relation to sexual matters with

Table 3: Bonferroni post-hoc test for comparing sexual self-esteem components in the experimental and control groups

Variables	Groups	Mean difference	SE	P
Sexual self-esteem (total)	Healing codes - Control	18.50	2.68	0.001
Adaptiveness	Healing codes - Control	4.93	0.86	0.001
Control	Healing codes - Control	3.60	0.81	0.001
Attractiveness	Healing codes - Control	3.93	0.69	0.001

SE: Standard Error

themselves and their husbands. This skill enables individuals to delve deeper into their own being, introspect and discover their inner dimensions, and experience true love (27). Through healing codes training, infertile women use an effective communication pattern. Consequently, they experience deeper intimacy, friendship, kindness, love, and warmth with and for their husbands and enjoy satisfaction in their sexual relationships. Overall, the healing codes training proved to be effective in boosting sexual self-esteem in the infertile women in this study.

The infertile women who acquired knowledge of the healing codes in the dimension of skills were able to improve the quality of their relationships with their husbands and acquire the necessary skills by shifting their focus away from self-blame and rumination to their real needs and concerns and by practicing meditation and concentrating on the present time. The healing codes in the control dimension were effective in improving this factor in infertile women because they learned to manage their thoughts and emotions by recognizing the inner puzzle of positive and negative emotions, achieving self-knowledge, and understanding the reality of life (23). In the dimension of attractiveness, these women achieved deeply-held belief about their beauty and attractiveness and in their self-acceptance by determining their role in accepting the status quo, correcting internal dialogues, employing the glass lift technique for their fears and unhealthy beliefs, and learning to decrease their self-criticism. In the dimension of adaptiveness, they could adapt their sexual experiences to their husbands' personal goals and achieve flexibility through using approaches such as the empty chair technique.

4.1. Limitations

The target population in this study lived in Isfahan, with its special cultural characteristics. Thus, it is important to exercise caution when generalizing the results of this study to other communities. Another limitation of the present study was the lack of control over intervening variables, such as the socioeconomic status of the participants.

5. Conclusions

Healing codes training increased sexual self-

esteem in infertile women. Knowledge of the healing codes caused infertile women to become aware of their mental processes and inner gifts in relation to their sexual relationships with their husbands. This awareness enabled them to address their sexual obstacles and allowed them to fully explore and embrace their sexual potential and abilities, which ultimately led to more satisfying sexual experiences. Experiencing satisfactory sexual relationships in infertile women led to the building of their self-belief and self-confidence. It also caused positive sexual feedback from their husbands, thereby boosting their sexual self-esteem.

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Ethical Approval

This study was approved by the Institutional Review Board (IRB) of University of Mohaghegh Ardabili, Ardabil, Iran with the code of IR.UMA.REC.1402.065, ensuring adherence to ethical guidelines for research involving human participants. Also, written informed consent was obtained from the participants.

Authors' Contribution

Fahimeh Zarean: Substantial contributions to the conception and design of the work; acquisition, analysis, and interpretation of data for the work, drafting the work and reviewing it critically for important intellectual content. Ali Sheykholeslami: Substantial contributions to the conception and design of the work; acquisition, analysis, and interpretation of data for the work, drafting the work and reviewing it critically for important intellectual content. Esmail Sadri Damirchi: Substantial contributions to the conception and design of the work; acquisition, analysis, and interpretation of data for the work, drafting the work and reviewing it critically for important intellectual content. Ali Rezaei Sharif: Substantial contributions to the conception and design of the work; acquisition,

analysis, and interpretation of data for 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 as the questions related to the accuracy or integrity of any part of the work.

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