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# Psychological empowerment strategies in infertile women: A systematic review

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## Abstract:

Infertility requires long-term care and treatments which would influence different aspects of health including the mental health of infertile women. The present study was conducted to determine strategies for psychological empowerment of infertile women. This systematic review was performed on previously conducted clinical trials. To achieve the intended studies, databases of Magiran, Scientific Information Database, Google Scholar, Scopus, PubMed, ProQuest, ScienceDirect, and Web of Science and also Iranian Registry of Clinical Trials website were searched using "infertility and infertile women" as the keywords. The inclusion criteria were being an interventional study and assessing the psychological status of infertile women. Performed studies in Iran with no time limitations were evaluated. Based on the Jadad criteria, studies with a score of 3 or more were enrolled in the systematic review. After assessing the quality of the studies, 21 studies were enrolled in the review for final evaluation. Reviewing the conducted studies showed that educational and counseling interventions could be effective in improving the aspects of psychological well-being of infertile women. Existing evidence revealed that applying coping strategies is effective in improving the quality of life in infertile women, which consequently lead to the improvement of psychological empowerment of infertile women.

## Keywords:

Empowerment, infertility, Iran, psychological status, systematic review

## Introduction

Infertility is associated with numerous personal and social problems and has been proposed as a damaging factor to reproductive health.<sup>[1-3]</sup> Infertility affects 8%–12% of the couples of reproductive ages,<sup>[4]</sup> and about 15% of the couples would experience subfertility during the 1<sup>st</sup> year after their marriage;<sup>[5]</sup> while the total prevalence of fertility in Iran has been reported as 8%<sup>[6]</sup> and 13.2%.<sup>[1]</sup> Experiencing infertility is associated with a wide range of psychological problems such as stress, anxiety,<sup>[7-11]</sup> depression,<sup>[12]</sup> feeling humiliated, low self-esteem, feeling of inefficiency,<sup>[13]</sup> and lower psychological adaptation.<sup>[8,9,14]</sup> Hence, the necessity of psychological treatments for infertile women should be attended more.<sup>[15]</sup> Infertility

would affect women's sense of well-being in both psychological and social domains. In some societies, infertility is considered as women's responsibility and infertile women would experience a feeling of guilt, negative imagination, and lowered self-esteem.<sup>[16,17]</sup> Infertility also affects sexual behaviors<sup>[18]</sup> and these women would experience a high rate of nonphysical domestic violence.<sup>[19]</sup> In fact, infertility and its treatment process is a mentally suffering source for infertile women that have destructive effects on their mental well-being;<sup>[20]</sup> infertile women have lower psychological well-being and higher psychological frustration compared to infertile men.<sup>[14]</sup> Hence, using strategies for psychological empowerment of infertile women to cope with these consequences is necessary.

Most of the empowerment models have been proposed for empowering women,

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especially the vulnerable groups.<sup>[21]</sup> Kabeer has mentioned psychological empowerment as one of the aspects of women's empowerment, which its application could be a factor for self-esteem, self-efficacy, and psychological health.<sup>[22]</sup> For moving toward development, especially in the field of empowered human resources, at first, individual's intellectual and attitudinal changes should be regarded.<sup>[23]</sup> In the field of increasing and improving the empowerment of infertile women, various studies have investigated the effects of educational and counseling method on the mental health,<sup>[24,25]</sup> psychological well-being,<sup>[26,27]</sup> mental adaptation,<sup>[28,29]</sup> and self-efficacy<sup>[13]</sup> in infertile women; so far, these studies in Iran have not been reviewed. Therefore, the present study was conducted to systematically review the performed studies on strategies for psychological empowerment of infertile women.

## Methods

This systematic review was conducted on all interventional study in relation to the psychological conditions of infertile women in Iran until July 2017. The methods of presenting including determination of the study problem, data collection, analysis, and interpretation of the findings were performed based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) reporting system. To achieve the intended studies, published articles in national databases (Magiran, Scientific Information Database, and Iranian Registry of Clinical Trials) and international databases (Google Scholar, Scopus, PubMed, ProQuest, and ScienceDirect) were searched. No time limitation was set for search of resources. To comprehensiveness of the search, the keywords "infertility" and "infertile women" were used in the abstract, title, and keyword. In international sources, "Iran" in the affiliation or organizational affiliation was used in Advance Search option. The inclusion criteria for articles were being an interventional study and assessing the psychological status of infertile women in Iran. To increase the validity and reliability of the study, the articles were searched and the quality of the articles was also evaluated based on the Jadad criteria, separately by two researchers. Jadad scale is one of the most valid international scales for the evaluation of article's quality. Articles with a score of 3 or higher were enrolled in the study. Jadad scale or the Oxford quality scoring system contains three main phrases for controlling bias in clinical trial studies that would evaluate randomization, blinding, dropouts, and withdrawals from the study.<sup>[30]</sup> The total score of the scale based on these phrases is 5. A Jadad score of <3 indicates poor quality of the articles and a score of 3 or more indicates desirable quality of the article.<sup>[31]</sup> Eventually, 21 articles were enrolled in the study based on this scale. The procedure of the article selection is shown in Figure 1.

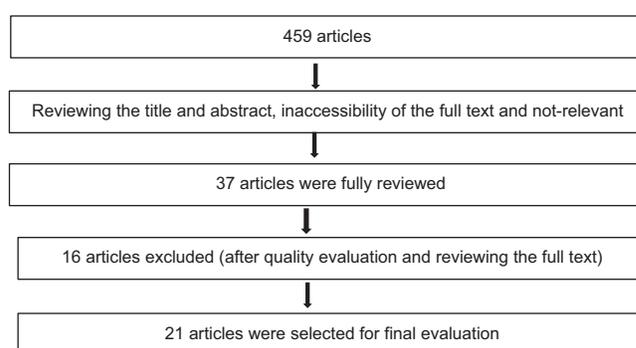


Figure 1: The flowchart for article selection

## Results

In the present systematic review, 21 articles with a sample size of 1127 participants in interventional studies were reviewed. Conducted studies in Iran in the field of mental-psychological empowerment or psychology of infertile women could be categorized into three main fields of psychological well-being and mental health, coping strategies, and quality of life [Tables 1-3].

### Psychological well-being and mental health

Psychological well-being is a multidimensional concept. Psychological well-being is consisted of self-acceptance, positive relationship, autonomy, purposeful life, personal growth, and ability to manage the environment. The level of individual's psychological well-being could be assessed by measuring these factors.<sup>[44]</sup> Educational programs for improving individual's empowerment in coping with stressful situations in life could improve their psychological well-being.<sup>[26,27]</sup> In this regard, psychotherapy interventions for decreasing psychological problems with different approaches in infertile women have been approved because it is believed that these approaches are appropriately decreasing stress, anxiety,<sup>[10,33,35]</sup> and depression<sup>[45,38]</sup> and increasing psychological well-being,<sup>[26,32]</sup> which could improve the mental health and psychological well-being of infertile women [Table 1].

### Coping strategies

Coping strategy is a rational way for confronting the anxieties of life, and the individual would manage requests beyond their ability. Coping strategies with stressful situations differ between people. Besides the stressful situations, the experienced level of tension by the individual depends on their coping strategies and understanding of these factors.<sup>[29,46,47]</sup> Hence, the topic of coping strategies in infertile women should be more attended. Although infertility as a source of psychological pressure could threaten the mental health of infertile women, the volume of its impact depends on women's coping skills. In this regard, counseling interventions and group therapies for psychological

**Table 1: Interventional studies on psychological status (psychological well-being and mental health) of infertile women**

Author (year) (reference)	Type of study	Sample	Intervention's topic	Intervention/control groups	Results
Behzadpoor et al., 2015 <sup>[26]</sup>	Semi-experimental	30 infertile women	Psychological well-being	Intervention group: 12 sessions once a week (90 min) for educating resilient using group counseling, educating relaxation, and focused breathing Control group: no intervention	Educating resilient was significantly effective on psychological well-being ( $P<0.001$ ) and its elements of self-acceptance, positive relationship, environmental management, purposeful life, and personal growth ( $P<0.001$ ) in infertile women
Dargahi et al., 2015 <sup>[27]</sup>	Semi-experimental	40 infertile women	Psychological well-being	Intervention group: 8 sessions once a week (90 min) for educating positive-thinking skill Control group: no intervention	Educating positive thinking was effective in psychological well-being and the elements of marital quality of life in infertile women ( $P<0.05$ )
Dargahi et al., 2015 <sup>[32]</sup>	Semi-experimental	40 infertile women	Emotional well-being and marital satisfaction	Intervention group: 8 sessions once a week (90 min) for educating emotional regulation Control group: no intervention	Educating emotional regulation significantly improved emotional well-being and marital satisfaction ( $P<0.01$ )
Oraki et al., 2015 <sup>[25]</sup>	Semi-experimental	32 infertile women	Mental health	Intervention group: 10 sessions once a week (90 min) for educating cognitive-behavioral therapy and educating relaxation and focused breathing Control group: no intervention	Educating anger management and control was effective in the improvement of mental health
Mosalanejad et al., 2012 <sup>[24]</sup>	Clinical trial	31 infertile women	Mental health	Intervention group: 15 sessions once a week (90 min) using the techniques for stopping negative thoughts, cognitive reconstruction, and using biofeedback techniques and relaxation Control group: no intervention	A significant difference was observed in the mean of stress, anxiety, mental distress, and depression of the intervention group before and after the intervention ( $P<0.05$ ). The endurance level was significantly higher in the intervention group ( $P=0.001$ )
Rabeipour et al., 2016 <sup>[10]</sup>	Clinical trial	50 infertile women	Infertility stress	Intervention group: 10 sessions once a week (90 min) including group counseling with collaborative approach using relaxation techniques and educational pamphlets and CDs Control group: no intervention	Infertility stress was significantly different between the intervention and the control group before and after the intervention in 5 domains of social concerns, sexual concerns, communicative concerns, not accepting life without a child, and the need for being a parent ( $P=0.01$ )
Hasan Zadeh et al., 2013 <sup>[33]</sup>	Semi-experimental	65 infertile women	Perceived stress	Intervention group: 8 individual and group sessions (90 min) for behavioral exercises and mental imaging, role-playing, cognitive relaxation strategies Control group: no intervention	A significant difference was observed between both groups before and after the intervention in the mean and standard deviation of perceived stress ( $P<0.01$ )
Faramarzi et al., 2013 <sup>[34]</sup>	Clinical trial	89 infertile women	Infertility stress	Intervention group 1: cognitive-behavioral therapy including 10 educational sessions (20 min) to eliminating negative thoughts and wrong attitudes toward infertility and relaxation techniques Intervention group 2: fluoxetine capsule 20 mg daily for 90 days Control group: no intervention	Infertility stress before and after the intervention had a significant difference between the three groups of fluoxetine, cognitive-behavioral therapy, and control ( $P<0.05$ ). Cognitive-behavioral therapy was more successful than medicinal therapy in decreasing infertility stress
Mosalanejad et al., 2012 <sup>[35]</sup>	Clinical trial	65 infertile women	Mental distress	Intervention group: 12 weekly sessions (120 min) for spiritual counseling therapy Control group: no intervention	Worrisome ( $P=0.04$ ) and perceived stress ( $P=0.01$ ) had a significant difference between both groups before and after counseling therapy
Valiani et al., 2010 <sup>[36]</sup>	Clinical trial	76 infertile women	Infertility stress	Intervention group: 12 sessions (30 min) for relaxation exercises, deep breathing and mental imaging Control group: no intervention	A significant difference was observed in the score of stress of the intervention group before and after using the techniques ( $P<0.05$ )

Contd...

Table 1: Contd...

Author (year) (reference)	Type of study	Sample	Intervention's topic	Intervention/control groups	Results
Talaei <i>et al.</i> , 2014 <sup>[37]</sup>	Interventional	30 infertile women	Depression	Intervention group: 10 sessions once a week (12 min) for educating cognitive-behavioral techniques for managing stress (communicative skills, problem-solving methods, self-expression, determining) and exercising relaxation techniques including body relaxation, breathing and meditation techniques Control group: no intervention	A significant difference was observed in the depression of the women in the intervention and the control groups after the intervention ( $P < 0.01$ )
Moeenizadeh <i>et al.</i> , 2017 <sup>[38]</sup>	Semi-experimental	22 infertile women	Depression	Intervention group: 8 weekly sessions (45-60 min) for well-being group therapy Control group: no intervention	The level of depression had a significant decrease in the intervention group ( $P < 0.05$ )
Faramarzi <i>et al.</i> , 2008 <sup>[12]</sup>	Clinical trial	89 infertile women	Depression and general health	Intervention group 1: cognitive-behavioral therapy in 10 sessions for reconstruction and eliminating automatic negative thoughts and wrong attitudes toward infertility, and relaxation techniques for 20 min Intervention group 2: fluoxetine capsule 20 mg daily for 90 days Control group: no intervention	Cognitive-behavioral therapy was more successful in control depression and anxiety compared to fluoxetine; in a way that the success rate of depression treatment in three groups of cognitive behavioral, fluoxetine, and control was, respectively, 79.3%, 50%, and 10%
Motiei <i>et al.</i> , 2014 <sup>[39]</sup>	Semi-experimental	40 infertile women	Feeling of loneliness	Intervention group: 8 sessions once a week (120 min) using coping therapy by describing tension, coping strategies, and application of these strategies Control group: no intervention	Scores of feeling of loneliness had a significant difference between the intervention and the control groups ( $P < 0.05$ ); this difference was in 4 subscales of feeling of loneliness including social isolation, not being social, not having an intimate person, and not feeling lonely

adaptation,<sup>[24,28]</sup> psychological endurance,<sup>[40]</sup> and efficacy<sup>[13]</sup> in these women have been investigated, which have been significantly effective as the factorial coping strategies for empowering infertile women [Table 2].

### Quality of life

Infertility requires long-term strict treatments which could affect different aspects of quality of life.<sup>[42]</sup> Quality of life, as a scientific concept, is a sense of welfare which is caused by satisfaction or dissatisfaction with life. Improvement of quality of life is one of the most important goals of medical interventions,<sup>[48]</sup> so applying educational interventions based on the empowerment models for improving self-esteem could enhance the quality of life in women.<sup>[48-50]</sup> Improvement of quality of life in infertile women has been investigated in various studies using different educational theories and model<sup>[41,42]</sup> [Table 3].

### Discussion

The present study is the first systematic review of interventional studies on psychological empowerment of infertile women in Iran. Results showed that educational and counseling interventions could be

effective on the improvement of aspects of psychological well-being (intellectual-mental) in infertile women; to apply the results of these studies, it is necessary to perform studies with stronger methodology and long-term follow-up to increase the durability of their impact.

One of the important aspects of women's empowerment is psychological empowerment, which its implication would be a factor for self-esteem, self-efficacy, and psychological health.<sup>[22]</sup> The most important stage of empowerment is its starting point, which would be with attitudinal and intellectual changes.<sup>[23,51]</sup> The first practical strategy for empowerment programs is education. In the current era, information is the source of power, even the power itself; hence, achieving information is a key step toward the process of empowerment.<sup>[48,52]</sup> Various educational and counseling methods have been investigated for improving the psychological aspects of infertile women. Educating endurance, emotional regulation, positive thinking, and cognitive-behavioral counseling therapy and using relaxation techniques have been effective in improving psychological well-being and mental health such as stress,<sup>[10,25,35,36]</sup> anxiety, mental distress, and depression<sup>[37,38]</sup> caused by infertility. Results

**Table 2: Interventional studies on psychological status (coping strategies) of infertile women**

Author (year) (reference)	Type of study	Sample	Intervention's topic	Intervention/control groups	Results
Mosalanejad et al., 2012 <sup>[40]</sup>	Clinical trial	31 infertile women	Adaptation techniques and psychological endurance	Intervention group: 15 sessions once a week (90 min) using cognitive-behavioral group therapy, using biofeedback and relaxation techniques Control group: no intervention	A significant difference was observed between both groups after the intervention regarding their psychological endurance ( $P < 0.05$ ). However, no significant difference was observed in their adaptation mechanisms ( $P > 0.05$ )
Kheirkhah et al., 2014 <sup>[28]</sup>	Clinical trial	92 infertile women		Intervention group: 4 group counseling sessions once a week (120 min) for mental adaptation with infertility consist of exercise expressing emotions and feelings and problem-solving during the day and walking with moderate intensity for at least 30 min 2-3 times a week Control group: routine care	Adaptation with infertility was significantly increased in the group counseling group compared to the control group ( $P < 0.001$ )
Aghayousefi et al., 2012 <sup>[29]</sup>	Semi-experimental	40 infertile women	Coping strategy	Intervention group: 8 sessions once a week (120 min). Group sessions using coping therapy to modify the applied coping strategies based on the tension and coping theories Control group: no intervention	A significant difference was observed between the intervention and the control group in preintervention, postintervention, and follow-up regarding the scores of self-control, searching social support, positive reevaluation, and escaping and avoiding coping strategies ( $P < 0.05$ ). The difference between the scores of face-to-face confrontation and staying away was not statistically significant ( $P > 0.05$ )
Jamshidi Manesh et al., 2015 <sup>[13]</sup>	Clinical trial	104 infertile women	Self-efficacy	Intervention group: 4 weekly group sessions (60-90 min) educating using speech, group discussion, and educational booklets Control group: no intervention	After the intervention, the mean score of self-efficacy had a significant difference between both groups ( $P = 0.001$ ). Generally, based on the results, the educational program was effective in self-efficacy of infertile women

of the study by Faramarzi *et al.*<sup>[34,45]</sup> showed that using cognitive-behavioral therapy techniques has been more effective in controlling depression and anxiety than medicinal therapy (fluoxetine), which confirms the efficacy of these methods in improving psychological well-being and mental health. Furthermore, in conducted follow-ups, 4 weeks, 1 month, and 3 months after the intervention, these methods had more permanent effects.<sup>[32,34,45]</sup> Hence, it is necessary to perform studies for evaluating the long-term effectiveness of these methods in the psychological empowerment of women.

Besides psychological well-being, coping strategies are the rationale for confronting tensions in life.<sup>[46,47]</sup> Although infertility as a source of mental pressure could affect the health of infertile people, the depth of its impact depends on individual's coping skills. By presenting coping strategies to these women, the mental health of infertile women could be improved.<sup>[29]</sup> Endurance could be improved in infertile women through education, and it could help them cope with the stress of infertility.<sup>[26]</sup> On the other hand, self-efficacy as one of the methods for empowering infertile women would make them better

understanding of their abilities in using psychological skills for controlling infertility-related emotions.<sup>[13,28,29]</sup>

Infertility is interacting with the social relationships and the needs of infertile women which could have destructive effects on the quality of their life.<sup>[42,53]</sup> Quality of life is a sense of welfare which is caused by satisfaction or dissatisfaction with life, and life crises could affect individual's welfare and pleasures in life.<sup>[41]</sup> Since one of the methods to modify the quality of life is using educational theories and models,<sup>[42]</sup> applying educational interventions based on empowerment models for improving self-esteem could improve the quality of life in infertile women; studies have indicated that education based on empowerment models could be effective in improving the quality of life in infertile women.<sup>[41,42]</sup>

## Conclusions

Efforts toward psychological empowerment of infertile women in three main domains of "psychological well-being and mental health," "coping strategies," and "quality of life" are all effective in psychological

**Table 3: Interventional studies on psychological status (quality of life) of infertile women**

Author (year) (reference)	Type of study	Sample	Intervention's topic	Intervention/control groups	Results
Seyedi Asl et al., 2016 <sup>[41]</sup>	Clinical trial	36 infertile women	Quality of life and life satisfaction	Intervention group: 6 counseling sessions weekly for group positive psychotherapy in three groups for 90 min Control group: no intervention	A significant difference was observed in the scores of life satisfaction between the intervention and the control groups ( $P=0.006$ , $F=8.92$ ). However, no changes were observed in the quality of life in intervention and control groups ( $P=0.136$ )
Fadaee et al., 2016 <sup>[42]</sup>	Semi-experimental	80 infertile women	Quality of life (dimensions of emotional health and social communication)	Intervention group: Follow-up care model using group counseling 60-120 min. Each session including 4 steps of introduction, sensitization, controlling, and evaluation and education booklets Control group: no intervention	A significant difference was observed between the intervention and the control group regarding their emotional health and social communication ( $P=0.002$ )
Zarbaksh et al., 2013 <sup>[43]</sup>	Semi-experimental	45 infertile women	Quality of life and life expectancy	Intervention group 1: 10 sessions (90 min) for educating stress management Intervention group 2: 10 sessions (90 min) for educating problem-solving Control group: no intervention	A significant difference was observed between the scores of quality of life and life expectancy of the intervention and the control groups ( $P<0.05$ ). However, no significant difference was observed between the scores of the two intervention groups ( $P>0.05$ )

empowerment of infertile women. Especially in societies where women are considered guilty of infertility and have to endure various psychological and social pressures, this matter is of significant importance.

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### Conflicts of interest

There are no conflicts of interest.

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