

How acupressure could influence self-efficacy of Infertile Women Undergoing Assisted Reproductive Technologies: A Qualitative Study

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ARTICLE INFO	ABSTRACT
<p><i>Article type:</i> Original article</p> <hr/> <p><i>Article History:</i> Received: 16-Aug-2019 Accepted: 05-Nov-2019</p> <hr/> <p><i>Key words:</i> Acupressure Infertile Women IVF/ICSI Qualitative Study Self-Efficacy</p>	<p>Background & aim: Infertility-related stress and anxiety can negatively affect the therapeutic outcome through directly influencing the physiological functions of the body. Also, improved self-efficacy of infertile women results in greater emotional stability and more persistence in treatment. The present study aimed to explore the perceptions and experiences of self-efficacy in infertile women who received acupressure during in vitro fertilization/intracytoplasmic sperm injection (IVF/ICSI).</p> <p>Methods: This qualitative study was conducted in Milad Infertility Center, Mashhad, Iran, from September 2015 to August 2016, using conventional content analysis. The study population consisted of 30 female candidates for IVF/ICSI treatment, who had completed acupressure therapy, the data of whom were extracted from a clinical trial. Out of 30 females, 26 cases were willing to participate in the study. The data were collected through in-depth and semi-structured interviews and analyzed in MAXQDA (version 10) software based on Elo and Kyngas approach (2008) through three phases of preparation, organization, and reporting.</p> <p>Results: Based on the results, two themes were obtained from the experiences of infertile women regarding the impact of acupressure on their infertility self-efficacy. These two themes included the improvement of the negative attitudes towards infertility and ability to deal with infertility treatment process.</p> <p>Conclusion: We argue that acupressure can improve the sense of self-efficacy in infertile women regarding their attitude toward infertility and treatment issues. Further studies are suggested on the influence of acupressure on various aspects of infertility.</p>

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Introduction

Based on the statistics, 10-15% of couples experience infertility (1). The highest prevalence of infertility is observed in South Asia, sub-Saharan Africa, North Africa, Middle East, Central and Eastern Europe, and Central Asia, respectively. Accordingly, Iran, located in South Asia, has a high infertility rate as well (2). Based on the evidence, the overall prevalence of

infertility in Iran is 10.9-13.2% (4, 3); females account for a greater proportion of this rate (4). Couples usually try to adapt themselves to fertility treatments; nevertheless, those without such capability suffer even more (5). Researchers believe that infertility as a source of psychological stress can endanger the health of the infertile people; however, its effectiveness

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depends on one's cognitive assessment and coping skills (6).

Improvement of self-efficacy could result in the improvement of individuals' cognitive, emotional, and behavioral skills and enhancement of one's perception of his/her potentials. Infertile people with high self-efficacy have greater emotional stability and show more persistence in their treatment process (7, 8), which could even increase their chance of pregnancy (7).

The use of complementary medicine in the treatment of infertility and its complications has attracted the attention of researchers in recent years. An exploratory research performed by Kovarova et al. (2010) examined the effects of acupressure on the sense of self-efficacy in women seeking fertility treatment. The results of the above-mentioned study showed that after four sessions of acupuncture therapy, there was a significant increase in infertile women's self-efficacy (9).

Women's perception of self-esteem can influence the outcome of their fertility treatment. Supportive interventions that increase the self-efficacy of women undergoing fertility treatment can improve their coping skills and health (7, 10). Principles of acupressure are similar to those of acupuncture, except that in the former therapy, no needle is used and acupuncture points are pressed by fingers or special tools (11). Acupressure is compatible with other therapies; therefore, patients are able to use it alongside other types of treatment (12).

There are a number of theories about the effect of acupressure therapy. According to the first theory, acupressure facilitates the release of nerve mediators and nerve hormones by stimulating the acupressure points, thereby improving the blood circulation (13). Another theory is focused on pressing acupressure points for more than 1 min, which leads to the release of neurochemical mediators (i.e., endorphins), demonstrating the same mechanism as that of morphine in relieving pain and increasing serenity (14).

The results of a qualitative study performed by Hassanzadeh-Bashtian et al. (2018) indicated that acupressure reduced anxiety and increased calmness in infertile women undergoing in vitro

fertilization/intracytoplasmic sperm injection (IVF/ICSI) treatment (15). The findings of another study conducted by the same authors (2018) showed that acupressure had no effect on the level of self-efficacy, while there was a significant relationship between the pre-intervention and post-intervention scores (16).

The review of related literature revealed the lack of any qualitative studies addressing infertile women's experience of acupressure as a complementary medicine. Moreover, the results of the previous quantitative studies are indicative of the effectiveness of acupressure in reducing anxiety among infertile women. Furthermore, acupressure is an easy and inexpensive method that can be performed by individuals themselves. Therefore, the present qualitative study was conducted to deeply explore the experiences of infertile female candidates for IVF/ICSI treatment regarding the effect of acupressure on their self-efficacy.

Materials and Methods

This study is part of a mixed methods investigation, involving two stages, namely a clinical trial and a conventional content analysis (17, 18). The participants were infertile women undergoing IVF/ICSI treatment in Milad Infertility Center located in Mashhad University of Medical Sciences, Mashhad, Iran, in 2015-16. In the present study, qualitative content analysis was performed to find about the expectations and experiences of infertile women regarding acupressure. Qualitative content analysis is generally used to reveal the behaviors, attitudes, feelings, and lived experiences of people with the aim of providing knowledge and understanding of the phenomenon under study (19).

The study population consisted of 30 eligible women who had completed a clinical trial. The inclusion criteria were: 1) 20-45 years old, 2) receipt of IVF/ICSI treatment, 3) Iranian nationality, 4) female infertility, 5) first infertility experience, and 6) no history of acupressure therapy. Eventually, 26 women agreed to participate in the interview. The participants were subjected to acupressure performed on Pericardium 6 (P6) and Heart seven (HT7) points on both hands. For the purposes of the study, the participants were interviewed 1-3 days after their last

acupressure sessions. At this meeting, besides elaborating the objectives and the method of the study for a second time, the subjects were assured of the confidentiality of their recorded interviews and information.

After building a positive relationship with the participants, gaining their trust, and being assured of their willingness to participate in this study, the place of the interview was chosen which was a quiet room in Milad Infertility Center, Tehran, Iran. The data were mostly collected through in-depth, semi-structured, and face-to-face interviews. This means that the researcher facilitated the interview and helped the participants to share their experiences with the aid of interview prompts regarding self-efficacy, without suggesting anything or directing the conversation.

The interviews lasted 30-60 min, as previously arranged with the interviewees. Immediately after the termination of the interviews, they were transcribed verbatim, and even the participants' emotions, such as laughter, silence, and tone, were transcribed and coded. The process of data analysis began simultaneously. All participants were interviewed once, except for two cases who were interviewed for a second time. Some of the questions were "How do you define your experience of and feelings about the influence of acupressure on your sense of self-efficacy" or "Explain how you react to others' pregnancy after undergoing acupressure".

During the interview, probing questions (e.g., "would you explain more?", "What do you mean by that?", "How do you describe your interpretation of this experience?", and "In your opinion, what does this experience mean?") were asked in order to clarify the interviewee's statements. At the same time, follow-up questions (e.g., "Please, elaborate." and "Give an example.") were asked in order to reach data saturation. It was attempted to make use of the participants' statements based on their experiences. All interviews were conducted, recorded, and immediately transcribed in Persian. The data were analyzed using conventional content analysis based on the three main phases of preparation, organizing, and reporting (18, 19).

At the preparation stage, all interviews were

transcribed as soon as possible and considered as the unit of analysis. Subsequently, at the organizing stage and through inductive process, after repetitive reading, semantic units regarding the research question were selected, and initial open coding started. In the next stage, semantically similar codes were categorized under similar sub-themes, leading to the emergence of main themes.

The trustworthiness of the results was confirmed through repetitively reading and listening to the interviews, long time interview screening, and using peer review. In addition, member check was used in the form of additional comments provided by the individuals and the participants' review of the transcripts. Moreover, part of the data was given to an external observer to determine if she had a similar understanding of the data.

Results

According to the results, the mean age of the participants was 28.62 ± 5.14 years, and the mean duration of their infertility was 6.24 ± 4.10 years. Most of the subjects had academic education (56.3%) and were housewives (75%). Finally, two themes, namely the 'improvement of the negative attitude toward infertility and 'ability to deal with fertility treatments' were extracted from the interviews (Table 1).

Moreover, the results showed that self-efficacy not only improves the emotional condition of infertile women but also enhances their treatment adherence. The emerged themes are discussed in the following sections:

1. Improvement of the negative attitude toward infertility

This theme is divided into three subthemes, namely mature defense mechanisms, reduced emotional arousal toward infertility, and acceptance of others' pregnancy following acupressure.

1.1. Mature defense mechanisms against infertility following acupressure

Improved sense of humor and effective management of negative thoughts about infertility, as well as coping with problems and trying to solve them, were abstract codes obtained from the interviews. Some women stated that infertility had reduced their optimism and sense of humor. However, they

reported improved attitude toward infertility and higher adaptation to this condition after undergoing acupressure.

"I think acupressure reduced my stress and made me feel calm, which has improved my sense of humor." (Elham, 26 years old, academic education)

Many participants reported that acupressure reduced their negative thoughts. Previous to the therapy, some of the subjects assumed that they would never be cured and their marital life was at risk. Accordingly, the effective management of negative thoughts about infertility was another abstract code extracted from the interviews.

"I used to be afraid of IVF whenever I thought about it. I was scared of its consequences. But now, I don't think so anymore, which I think is because of acupressure." (Atefeh, 26 years old, academic education)

The ability to cope with problems and solve them was another issue derived from the interviews.

"Since I've been using acupressure, I have better control over myself so I think I can handle my problems better." (Samira, 27 years old, academic education)

Table 1. Themes and subthemes regarding the improvement of the negative attitude toward infertility and ability to deal with fertility treatments

Subthemes	Themes
-Mature defense mechanisms against infertility following acupressure -Reduced emotional arousal toward infertility following acupressure -Acceptance of others' pregnancy following acupressure	Improvement of the negative attitude toward infertility
-Improved self-control regarding fertility treatment following acupressure -Improved determination to continue fertility treatment following acupressure therapy	Ability to deal with fertility treatments

1.2. Reduced emotional arousal regarding infertility following acupressure

This subtheme consists of three abstract codes, namely reduced feeling of embarrassment about infertility, increased self-esteem, and controlled negative emotions about infertility. Sometimes, infertile women feel embarrassed and blame themselves for their condition. They feel like their lives are meaningless and futile since they cannot be fertile or have children like their friends and relatives.

"Before referring to the doctor, I was ashamed of not having a baby. But now that I'm using acupressure, I'm sure I am better and feel ashamed no longer." (Tayebeh, 30, with elementary school education)

Improved self-esteem following acupressure was another issue derived from the participants' interviews. Infertile women usually do not feel good about themselves and their bodies because they are unable to become pregnant.

"I didn't feel good about myself and my body before. I asked myself why is my body like this? Why can't I get pregnant? But now, I feel better. I

don't feel like that anymore. I have become hopeful about achieving a good outcome" (Mahtab, 29, academic education)

The interviews also revealed the achievement of control over negative feelings about infertility following acupressure. The participants reported to be worried about having negative emotions prior to undergoing acupressure. However, they stated that they began to accept infertility as a curable disease following this therapy.

"I think the calmness that I get after acupressure has reduced my bad feelings about infertility." (Mehrsa, 35, high school education)

1.3 Acceptance of others' pregnancy following acupressure

One of the outcomes of self-efficacy in infertile women was the ability to accept others' pregnancy following acupressure therapy. Regarding this aspect, the participants mentioned decreased sensitivity and jealousy toward others' pregnancy following acupressure, which was revealed through reduced physiological (i.e., hot flashes), psychological (i.e., crying, arguing, and

fantasizing), and sentimental-emotional manifestations (i.e., jealousy). This was evidently mentioned by one of the participants:

"Honestly, I am so jealous. Because some of our relatives got married at the same time I did and now they either have a baby or are pregnant. I got hot flashes when I heard about their pregnancy for the first time. I complained about my luck. But since I started acupressure, it seems like somehow, I could handle this issue." (Atefeh, 26, academic education)

The participants reported that decreased sensitivity to and jealousy of others' pregnancies following acupressure increased their acceptance of this matter. Regarding this issue, one of the participants declared:

"It got very upset when someone in our relatives had a baby. I used to cry, suffer, and argue with my husband. But I'm better now. Currently, my sister-in-law is pregnant, and it does not upset me. I even went to visit her two or three times." (Sarina, 27 years old, academic education)

Similarly, another participant stated:

"Since I started acupressure, I have become less nervous. Now, when I hear that someone in our village is pregnant, I don't feel jealous anymore." (Sima, 21 years old, middle school education)

Based on the findings related to this theme, it can be concluded that acupressure improves the attitude of infertile women toward infertility. This improvement is manifested in different aspects, such as increased sense of humor, improved ability to cope with problems, feeling good about one's body, decreased jealousy of others' pregnancy, and acceptance of others' pregnancy.

2. Ability to deal with the process of fertility treatment

The ability to deal with fertility treatment denotes the promotion of self-control in treatment-related issues and acceptance of fertility treatment process. This theme consists of two subthemes, namely "improved self-control regarding fertility treatment following acupressure" and "improved determination for fertility treatment adherence following acupressure therapy".

2.1. Improved self-control regarding fertility treatment following acupressure

Improved self-control regarding infertility following acupressure was one of the obtained results. Abstract codes that emerged in this subtheme included "increased ability to calm oneself in the face of disappointments", "ability to have normal sexual intercourse", "accepting the possibility of treatment failure", and "ability to control mood swings caused by hormone therapy". In the present study, a number of participants acknowledged that acupressure increased their ability to calm themselves in the face of disappointments. One of the women declared:

"I used to cry and talk a lot about it (infertility) before, but since I started this (acupressure), I think a little crying makes me feel better and it does not take such a long time to recover."

(Somayyeh, 27 years old, high school education) Some participants acknowledged that after discovering their infertility, their sexual intercourse was not the same as that they used to have. Their inability to conceive made some of them think that intercourse is futile and should be avoided, or they engaged in it with disappointment. However, some other participants stated that they achieved "the ability to have normal sexual intercourse.

"My biggest problem was sleeping with my husband. It was such a heavy burden. But it's not like that now. I think this is the first problem that was solved for me." (Zahra, 38 years old, elementary school education)

Another extracted subtheme was preparedness for accepting the possibility of treatment failure. In this regard, one of the participants stated:

"I want ... this sense of calmness that I got after acupressure to make me accept the possibility of the failure of treatment." (Elaheh, 22 years old, high school education)

The ability to control mood swings caused by hormone therapy was also extracted from some of the interviews. One of the participants asserted:

"When I first came to the infertility center, the doctor said that I have an anxiety-related problem. Since I have started acupressure, I feel better." (Tayyebeh, 30 years old, elementary school education)

2.2. Improved determination to continue fertility treatment following acupressure therapy

This subtheme was derived from codes related to hoping for successful treatment outcome and reduced anxiety about the outcome of egg collection. The code of hoping for successful therapeutic outcome was extracted from most of the interviews which was indicative of the achievement of self-efficacy following acupressure. This is clearly evident in what one of the participants stated:

"I thought that it wouldn't work. I assumed that IVF is very unlikely to be successful. But after a few sessions of undergoing acupressure, I thought it's not so unlikely after all. I'm sure it will happen. It will definitely be successful." (Fariba, 31 years old, academic education)

Many participants considered that uncertainty about the outcome and its consequences, as well as the lengthy process of this therapy, as the problems of fertility treatment. Reduced anxiety about the outcome of egg collection following acupressure was another abstract code obtained from interviews. In this regard, one of them declared:

"Since I started this pressure (acupressure), I've become calmer. Now, I'm not worried about the outcome." (Zahra, 38 years old, elementary school)

Findings of this theme indicate that improved empowerment in the face of fertility treatment in different aspects is due to increased self-efficacy which resulted from acupressure.

Discussion

To the best of our knowledge, the present study is the first qualitative study performed on the perception and experience of infertile female candidates for IVF/ICSI treatment regarding the effect of acupressure on self-efficacy. The findings indicated the improvement of women's attitude toward infertility and their ability to cope with fertility treatment.

Previous studies have shown that an infertile person with high self-efficacy has greater emotional stability and higher treatment adherence. Infertility, as an important cause of stress, could lead to undesirable consequences, such as helplessness, sadness, depression, anger, sexual dysfunction, reduced self-esteem, rejection of friends and community, and

decreased self-efficacy. Invasive techniques, such as daily injections, repetitive blood and sperm sampling, ultrasound, and imposed financial burden, will cause a great amount of stress.

Moreover, one of the worst aspects of infertility-related anxiety is uncertainty about the outcome and lengthy process of the treatment (20). Skills that can increase self-efficacy could enhance and improve coping skills and result in a sense of well-being that finally leads to fertility treatment adherence. The term "infertility self-efficacy" was first used by Cousineau et al. (2006) and refers to one's belief in their ability to undergo fertility treatment. In addition, it measures one's belief in his/her ability to adapt themselves to the treatment. Such coping mechanisms include one's ability to maintain a positive attitude, remain calm while waiting for test results, and the ability to control mood swings caused by hormone therapy (7).

An infertile person with high self-efficacy will show higher emotional stability and treatment adherence. Furthermore, people with high self-efficacy are more successful in keeping calm when waiting for a doctor's appointment or test results. Moreover, promoted self-efficacy increases health behaviors, improves health, and may even lead to a greater chance of pregnancy.

The present study is qualitative; however, the obtained results are consistent with those of quantitative studies performed by Kovarova et al. (2010) and Smith et al. (2011) (9, 21). The results of the study conducted by Kovarova showed that the total self-efficacy score increased after four sessions of acupuncture (9). In a study carried out by Smith, the infertility self-efficacy ($P=0.009$) of the acupuncture group underwent an increase while that of the control group showed no significant change (21).

The results of this study are also in line with those of another study conducted by Pasha et al. (2013) comparing the effects of pharmacological and non-pharmacological strategies of promoting infertility self-efficacy in infertile women. The results of the mentioned study showed that the two groups receiving cognitive behavior therapy (CBT) and fluoxetine obtained a higher mean value of infertility self-efficacy than the control group (22). It can be concluded

from the findings of the mentioned research that the non-pharmacological approaches, such as CBT, are as effective as fluoxetine in increasing infertility self-efficacy in infertile women.

However, the results of the present research are inconsistent with those of a study conducted by Hassanzadeh-Bashtian et al. (2018). According to their study, the three groups undergoing acupressure showed no statistically significant difference in terms of infertility self-efficacy (16), which could be due to the amount of details provided by the participants.

One of the strengths of the present study was that acupressure not only resulted in no side effects but also was easy to learn. One of the limitations of the study was the difference between the studies performed on acupuncture and acupressure due to the direct stimulation of the points in acupuncture.

Conclusion

According to the results, acupressure could be used as a complementary medicine in order to maintain and increase self-efficacy in infertile female candidates for IVF/ICSI. This therapy could also help these females to successfully gain control over infertility conditions, problems, and treatment. It is suggested that further studies be conducted on the impact of acupressure on the different aspects of infertility in both males and females.

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Conflicts of interest

Authors declared no conflicts of interest.

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