

*Original Article***The effect of relaxation techniques to ease the stress in infertile women**

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**Abstract**

**BACKGROUND:** Infertility causes psychological and emotional tension in the couples and makes severe stress on infertile men and women. Relaxation technique is one of the methods that reduces the stress and can balance the human's emotions. This study aimed to determine the effect of relaxation on the infertile women's stress score.

**METHODS:** This was a semi-experimental and clinical trial study. Participants randomly divided into two groups. At the beginning, the stress scores were assessed in both groups using Newton's infertility stress questionnaire. The participants' stress scores were evaluated and then, the relaxation technique was implemented on the intervention group. This technique was performed in twelve sessions. All the questionnaires were completed under supervision of the researcher after embryo was transferred to the uterus (after 2 weeks) and before conducting the pregnancy test.

**RESULTS:** Independent t-test showed that the total stress score did not have a significant difference in groups before the intervention ( $p > 0.05$ ) whereas independent t-test indicated a significant difference in stress scores between the two groups after the intervention ( $p < 0.05$ ). Stress score was higher in the control group in comparison with the intervention group.

**CONCLUSIONS:** Relaxation technique can reduce the stress score in infertile women as a complementary and alternative medicine method.

**KEY WORDS:** Relaxation, stress, infertile women.

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In most cultures, fertility and desire to have children are highly important and considered as the most basic human motivation. Giving birth to a child and being parents are the essential foundations of the family.<sup>1</sup> Generally, infertility describes couples who have never been able to become pregnant after at least 1 year of unprotected sex.<sup>2</sup>

Approximately 85 to 90 percent of healthy young couples get pregnant during a year. Therefore, infertility is occurred on 10 to 15 percent of the couples and this has allocated an important part of the clinical practice of many

physicians to itself. Around 50 to 80 million people all around the world have infertility problems and annually 2 million new infertile couples are added to this number which is increasing. In the past decade, infertility rates had about 5% increase.<sup>2</sup> Nearly one in every 10 couples experiences the primary or secondary infertility. The prevalence of the primary infertility is 1 to 8 percent and the secondary infertility is about 35 percent. Global infertility rate is very different; around 5% in the developed countries to more than 30% in sub-Saharan Africa.<sup>3</sup> Also, in a study in Iran in 2004-2005, it

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was indicated that approximately one fourth of Iranian couples experience the primary infertility during their common life and 3.4 percent of the couples have primary infertility problem at any time.<sup>4</sup>

As deduced from these figures, infertility is gradually rising and without leaving any apparent signs, it would place us in the midst of an epidemic problem.<sup>5</sup>

Infertility has many psychological effects on the couples which are associated with severe stress on them and can cause emotions and feelings like anger, sadness, frustration, despair and distress.<sup>6</sup> Furthermore, infertility may cause an injury in the life of the infertile people and this injury or disorder can cause stress.<sup>7</sup>

Women explained infertility as the most stressful event of their life.<sup>8</sup> Sobhaninejad (2004) believed that nearly all the infertile couples would experience some degree of stress and depression.<sup>9</sup>

The patients who go under assisted reproductive techniques (ART) treatments also are at the pressure of psychological stress. The stress can reduce the control of the couples on their life. Psychological problems and stress would cause couples to encounter with their infertility problems and issues less powerful.<sup>10</sup> In some cases, their mental disorders is raised to such extent that they would commit suicide following their unsuccessful treatments.<sup>11</sup>

Mental stress of the patients who undergo assisted reproductive technique treatments is more than physical stress; most of these patients have reported symptoms of depression, anxiety, anger and seclusion after the unsuccessful treatment which would last for a long time.<sup>12</sup>

Study results of Peterson et al. in 2006 showed that there was no way of adaptation for men and women with infertility stress and this would itself increase the couples' stress.<sup>8</sup>

Stress reduction is possible through two methods; using pharmacological methods and complementary medicine like hypnosis, reflexology, relaxation and etc.<sup>13</sup>

There are many different methods offered and used to control and/or reduce the stress. Relaxation techniques are one of the effective

methods to do so and are applied widely.<sup>14</sup> This technique can balance the body's stress.<sup>15</sup>

Therefore, infertile people need psychological care and also accurate treatment.<sup>16</sup> The emphasis of this subject is highly important so that it is accepted that infertility problem is not merely a physical problem that only requires medical intervention and surgery, but also requires treatment interventions to perform psychological rehabilitation of the couples,<sup>17</sup> and the physician should avoid merely medical monitoring and should also support the couples emotionally.<sup>18</sup> Therefore, the present study was conducted aiming to evaluate the effect of relaxation techniques to ease the stress in the infertile women.

## Methods

This was a semi-experimental and clinical trial study conducted on 76 infertile women aged between 18-35 years old under the treatment of IVF and/or ICSI in 2009-2010. The women, who were referred to Isfahan Infertility Clinic for treatment, were randomly divided into two intervention and control groups using simple random sampling (thirty-six subjects in the intervention group and thirty-six subjects in the control group).

The inclusion criteria included the women diagnosed with primary infertility, age range of 18 to 35 years old, undergoing IVF and/or ICSI treatment, and tendency to participate in the study and being an Iranian national.

The exclusion criteria also included psychological illness, physical illness and injury, using drugs or mental medicine, previous treatment more than two times using IVF and/or ICSI methods, death of one of the first degree relatives during the past two month and having an adopted child.

Data collection tool in this study was a questionnaire which was consisted of three parts:

1. Individual-fertility information including age, education, occupation of the woman and her husband, living place, menarche age, menstrual regularity, used contraception method (if used previously), duration of mar-

riage, duration of infertility and duration of the therapy.

2. Stress; which was assess using Newton's infertility stress questionnaire. This questionnaire was a multi-dimensional instrument with 46 questions, which assessed concerns of the infertile women in five dimensions; social, sexual, communication, lifestyle without child and the need of being parents.

3. File information; this part which was completed from the patient's file records included the cause of infertility, the type of current treatment, the previous IVF or Microinjection (which if it was more than two times, she could not enter the study) and pregnancy test at the current treatment.

Positive questions score in the Newton's infertility stress questionnaire was as the following:

Strongly agree (6 scores), agree (5 scores), somewhat agree (4 scores), somewhat disagree (3 scores), disagree (2 scores) and strongly disagree (1 score).

Negative questions score in the Newton's infertility stress questionnaire was also as the following:

Strongly agree (1 score), agree (2 scores), somewhat agree (3 scores), somewhat disagree (4 scores), disagree (5 scores) and strongly disagree (6 score).

Reliability of Newton's infertility stress questionnaire was done by Alizadeh et al. (2005); therefore, the questionnaire used had already been investigated in terms of reliability.

In the present study, the questionnaire was completed in two stages; first, at the beginning of the study and then at the end of the study and before completing the pregnancy test.

After completing the questionnaire, in the intervention group, in addition to IVF and/or ICSI methods, relaxation technique also was introduced in 12 sessions (6 sessions before transferring the embryo to the uterus and 6 sessions after that), and in the control group, only IVF and/or ICSI treatment methods was applied.

In the intervention group, in order to perform the relaxation technique, the study partic-

ipants, in Isfahan Infertility Clinic, were lying on the side with their legs fairly bent (no to put pressure at any of the muscles) and in a relax position with closed eyes and a combination of Jacobson relaxation technique and Benson's technique (deep breaths with mental imagery) was performed for 30 minutes in a 3 × 4 square meters room, with temperatures 20-24 degrees Celsius, no noise and a proper lighting.

In Jacobson technique, the body muscles were divided into eight parts and during performing the technique, an active muscle contraction for 5 seconds and then hen release of the same muscles for 30 seconds (tension/rest) was implemented. The order of muscle contraction and release were as following: right foot, left food, right hand, left hand, stomach and back, chest and the shoulders, face, head and scalp.

This technique was performed in the presence of the researcher through playing a CD which had already been recorded and prepared for all the subjects of the intervention group equally.

The first relaxation technique in the intervention group was performed around the seventh day of menstrual cycle and then every other day until the embryos was transferred into the uterus (totally 6 sessions) in the presence of the researcher in Isfahan Infertility Clinic. After transferring the embryos into the uterus (IVF and ICSI), due to the patients lack of possible attendance of the to the clinic and relative rest, a CD, which had already been prepared, was given to the participants and they were advised to perform the technique every other day for 6 sessions at the similar physical conditions of the previous sessions. After 15 days, when the study subjects referred back to the laboratory for pregnancy test, the researcher also attended to the place to complete the last stage of the stress questionnaire. Moreover, the researcher could know about the pregnancy test at the laboratory and record the results.

For the samples who could not attend in the laboratory due to the far distance (lived in provinces of Isfahan City), the questionnaire was completed carefully through the phone with

adequate time and results of the pregnancy test also were confirmed through the phone.

Analyzing the data was done using SPSS software, version 16, and paired t, independent t, chi-square and Mann-Whitney tests.

## Results

In this study, a total of 76 women aged between 18-35 years old referred to Isfahan Infertility Clinic who had inclusion criteria were studied from 2010.2.20 to 2010.5.27.

Considering that the number of the samples was reduced in intervention group by 6 and in control group by 4, the statistical analysis was done on the total number of samples left.

The mean age of the women was 29.4 (4.1) years old and the mean age of the men (husbands of the study samples) was 34.8 (5.6) years old. The educational level of most women was high school graduates and less (65%) and most of the men were also high school graduates and less (68.2%). Most of the women were housewives (78.8%) and most of the men also were self-employed (39.4%). 36.4% of the study samples were from Isfahan and 36.4% of them lived in other cities. Most of the study samples were home owners (55.9%).

The mean menarche age of the women was 13.6 (1.5) years and the majority of the women had menstrual regularity (75.8%). Half of the women (50%) previously used contraception

methods and the other half (50%) did not use any contraception method. Most of the study participants, who used contraception method (48.5%), had used natural contraception methods.

The mean marriage duration was 7.5 (4.1) years, the mean infertility duration 5.6 (3.9) years and the mean infertility treatment duration also was 5 (3.7) years.

The most frequent cause of infertility in the study subjects (48.5%) was male factor and most of them underwent ICSI treatment method (75.8%). The mean usage of IVF and/or ICSI was 0.51 (0.7) times and most of the subjects did not previously did not use assisted reproductive technique treatments (59.1%).

Independent t-test, Mann-Whitney and chi-square indicated that there was no significant difference between the individual-fertility information between the intervention and control group and in other words, the two groups were identical.

According to findings of Table 1 and independent t-test for total stress score and stress scores in 5 dimensions, it indicated that the mean total stress score and the stress scores in 5 dimensions had no significant difference before the study in the intervention and control groups ( $p > 0.05$ ).

According to the findings of Table 2 and the independent t-test for the total stress score and

**Table 1.** Mean stress score in 5 dimensions (social, sexual, communication, lifestyle without child and need of being parents) and total stress score before the study in intervention and control groups

| Stress score                      | Intervention group |       |     |     | Control group |       |     |     | t    | P     |
|-----------------------------------|--------------------|-------|-----|-----|---------------|-------|-----|-----|------|-------|
|                                   | Mean               | SD    | Min | Max | Mean          | SD    | Min | Max |      |       |
| Social (from 60)                  | 44.37              | 10.58 | 23  | 59  | 40.73         | 9.12  | 12  | 55  | 1.5  | 0.139 |
| Sexual (from 42)                  | 27.62              | 9     | 13  | 42  | 27.8          | 8.12  | 10  | 42  | 0.08 | 0.936 |
| Communication (from 62)           | 26.69              | 12.1  | 11  | 62  | 29.85         | 11.24 | 11  | 59  | 1.1  | 0.275 |
| Lifestyle with no child (from 66) | 47.56              | 11.77 | 17  | 65  | 50.23         | 8.94  | 30  | 61  | 1.04 | 0.301 |
| Need of being parent (from 42)    | 36.75              | 5.33  | 27  | 42  | 37.64         | 3.84  | 27  | 42  | 0.79 | 0.434 |
| Total stress (from 276)           | 183                | 39.14 | 111 | 249 | 186.26        | 29.84 | 98  | 240 | 0.38 | 0.703 |

**Table 2.** Mean stress score in 5 dimensions (social, sexual, communication, lifestyle without child and need of being parents) and total stress score and numerical statistical indicators in intervention and control groups after the study

| Stress score                      | Intervention group |       |     |     | Control group |       |     |     | t     | P     |
|-----------------------------------|--------------------|-------|-----|-----|---------------|-------|-----|-----|-------|-------|
|                                   | Mean               | SD    | Min | Max | Mean          | SD    | Min | Max |       |       |
| Social (from 60)                  | 32.34              | 8.66  | 19  | 49  | 49.15         | 6.82  | 29  | 59  | 8.79  | 0.000 |
| Sexual (from 42)                  | 23.12              | 7.77  | 10  | 38  | 33.23         | 6.66  | 12  | 42  | 5.68  | 0.000 |
| Communication (from 66)           | 21.81              | 9.55  | 11  | 53  | 34            | 11.66 | 16  | 61  | 4.6   | 0.000 |
| Lifestyle with no child (from 66) | 37.25              | 7.43  | 19  | 52  | 53.82         | 3.7   | 45  | 60  | 11.57 | 0.000 |
| Need of being parent (from 42)    | 33.47              | 4.5   | 23  | 40  | 38.88         | 3     | 32  | 42  | 5.79  | 0.000 |
| Total stress (from 276)           | 148                | 28.54 | 95  | 199 | 209           | 23.14 | 147 | 257 | 9.56  | 0.000 |

the stress scores in 5 dimensions, it is indicated that the mean stress score in all the dimensions and the total stress, after the intervention had a significant difference in both groups in which the mean score was higher in the control group ( $p < 0.05$ ).

The mean stress score had a significant difference before and after the study in the intervention group and it reduced after the study ( $p = 0.000$ ).

The mean stress score had a significant difference before and after the study in the control group and it increased after the study ( $p = 0.000$ ).

## Discussion

According to Table 1, the mean total stress score before the study was 183 in the intervention group and 186.26 in the control group.

Independent t-test for the mean stress score in 5 dimensions (social, sexual, communication, lifestyle without child and need of being parents) and the total stress indicated that the mean stress score in all the dimensions and the total stress had no significant difference before the study in intervention and control groups ( $p > 0.05$ ). According to Table 2, the mean total stress score after the study was 148 in the intervention group and 209 in the control group.

Independent t-test indicated that the mean stress score in 5 dimensions (social, sexual,

communication, lifestyle without child and need of being parents) and the total stress had a significant difference in intervention and control group in which the mean score was higher in the control group ( $p = 0.000$ ).

Sedighi et al., also conducted a study to determine the effect of preparation on anxiety and treatment success in infertile women in Hamedan. The level of anxiety was measured in women before and after the intervention (group preparation); it was indicated that in the intervention group, the subjects level of anxiety had a significant reduction compared to before the intervention ( $p < 0.0001$ ).<sup>19</sup>

In addition, Sharma et al. in India conducted a study titled as "relaxation technique to combat stress" and the subjects' stress was significantly reduced after the study ( $p < 0.001$ ).<sup>20</sup> As it was indicated, the results of the mentioned studies were in accordance with the results of the present study.

Moreover, Peterson et al. conducted a study titled as "how men and women who are referred for IVF cope with infertility stress" in the United States. Finally, the results of the study showed that there was no strategy for adaptation of men and women with infertility stress which increased the couples' stress.<sup>8</sup>

Sobhaninejad et al, in Iran (Isfahan) compared the stress level and depression in infertile couples with the healthy couples. The results of their

study illustrated that there was a significant difference between the infertile and healthy couples of Isfahan in both stress and depression; infertile couples experienced a higher stress and depression level than the healthy couples ( $p < 0.05$ ).<sup>9</sup>

Considering the women, who underwent assisted reproductive techniques, (like IVF and ICSI) experienced very high mental stress and increasing this stress over time<sup>10</sup> thus, stress reduction in women of the intervention group in this study can show the efficacy of relaxation technique.

Using this technique improves the women's mental health reduce using medications to con-

trol stress and anxiety, which are associated with many side-effects. Besides, it would be effective to improve motivation to continue the treatment in all the infertility years.

According to the obtained results, it can be concluded that relaxation techniques can lead to stress reduction in infertile women in the treatment process. Confirming the effect of relaxation technique on reducing the stress in infertile women- has been given little attention whereas it can be applied in the medical centers simply, easy and cost-effectively.

The authors declare no conflict of interest in this study.

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