

Studying the effect of cognitive-behavioral counseling based on interacting cognitive subsystems on depression of infertile couples

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ABSTRACT

Objectives: The main purpose of this research is studying the effect of cognitive - behavioral counseling, based on interacting cognitive subsystems (ICS) approach, on depression of infertile couples.

Design: The research is quasi experimental.

Materials and methods: The sample consists of 30 infertile couples who are placed randomly in the experimental and the control group. Both groups were assessed in two stages, pre- test and post-test, by Beck Depression Inventory. The time laps between pre-test and post-test was 6 weeks. The experimental group was exposed to counseling based on ICS approach in six sessions.

Results: The study indicates that counseling based on interacting cognitive subsystems is effective in decreasing the depression of infertile couples in the experimental group than the control group ($p < 0.0001$) and its effect is considerably higher on women than men ($p = 0.009$).

Conclusion: Cognitive-behavioral counseling based on interacting cognitive subsystems approach is effective in decreasing infertile couples' depression and it would be better to consider it as a part of therapy along with biological therapies related to infertility.

Key words: Cognitive-behavioral counseling, Interacting cognitive subsystems, infertile couples, depression.

Infertility can be defined as the failure to conceive after one year of regular sexual intercourse, without using any contraception (1). In general, infertility is one of the most significant lifetime crisis leading to psychological complications and emotionally stressful experiences (2). Some scholars suggested that stress may cause infertility, but it has remained a controversial issue (3). Some of the psychological responses which couples reflect include depression, anger, grief, guilt, frustration, envy or jealousy of other success (4). It has been shown that there is a relationship between depression and infertility (5).

Numerous governmental, medical and community associations recommended counseling for infertile couples. Psychoanalytic, cognitive-behavioral therapy, stress management and problem solving are some of psychological intervention, which have been applied in this respect (6). Among these, cognitive - behavioral therapy (CBT) has been proved to be useful in the treatment of emotional aspect of infertility, which increase both quality of life and conception rates (7). Domar et.al showed that cognitive-behavioral therapy reduces depression and anxiety in infertile woman (5). Cognitive behavioral approaches are based on this assumption that cognitions are antecedents to emotional reactions. While cognition often appears to be consequence of emotional state and there would be reciprocal

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relationship between cognition and emotion (8). Teasdale and Barnard in 1993 suggest solutions, which are discussed in the framework of Interacting Cognitive Subsystem (ICS). The ICS analysis suggests that although depressogenic implicational models are immediate antecedent to depression, the maintenance of depression depends on integrity of the total processing configuration of depression interlock and regeneration of depressogenic implicational schematic models.

Consequently the goal of therapy should be to replace the synthesis of models maintaining depression with more adaptive schematic models related to the same topics. This might be achieved, for example, as a result of extended processing on topics completely unrelated to depression. In addition to therapeutic change occurring from techniques specially directed at schematic level, benefits may also result from techniques directed at changing specific meaning, negative thoughts, or sensory inputs (9).

Clarke defines the procedure of therapy in this approach as follow (10): 1) Formulation and explanation of self threatening- arousal feedback loop and attention to important relationships; 2) Working on body dimensions through read body, focusing on the breath, relaxation and mindfulness; 3) Using multimodal approach such as guided discovery, imaginary of trauma, reconstruct schemata, working with the feelings; 4) working on experience in the moment including stay in the present, which leads to the appraisal of threatening memories at the propositional level, mindfulness techniques; 5) a new experience of the self including reframing emotions without retreating into familiar escape routes.

The effect of ICS approach has not been investigated, with regard to the infertility-related depression. Therefore this research studies the effect of cognitive-behavioral counseling based on ICS approach on infertile couples' depression and if it is effective then whether its effect differs according to gender.

MATERIALS AND METHODS

The research is quasi-experimental including pretest-post test design with experimental and control group. 30 infertile couples were selected

from infertile couples who referred to the Fertility and Infertility center in Isfahan province, Iran.

The criterion for selection were as follow: 1) the medical certificate for infertility, without considering what was the cause of infertility or which partner was infertile; 2) No child from previous pregnancy; 3) no adopted child. Subjects were grouped randomly into experimental (15 couples) and control group (15 couples). The translated manuscript into Persian Beck Depression Inventory-II (BDI-II) assessed subjects, in two stages before and after counseling meeting.

Instrument

For measuring the depression, the translated manuscript into Persian BDI-II were used. The severity of self reported depression in adolescences and adults measured by BDI-II. By summing the highest rating for each of the 21 symptoms, rated on a 4-point scale from 0-3, it scored and took 10 min. BDI-II's psychometric characteristics have been investigated. It is found that total scores on the BDI-II have high internal consistency and moderate to strong convergent validity.

The coefficient alpha for the BDI-II total scores was 0.93. The consistency of items in the BDI-II was from 0.81 to 0.85 and split half reliability ranged from 0.74 to 0.79(11).

In a study, this inventory was normalized on 375 ordinary people of the population in Iran and the reliability of this test is reported is 0.49 using test-retest method by a four months interval (12). The study was conducted on 56 infertile people of Isfahan, Iran. The construct validity of the test with Beck Anxiety Inventory was reported as 0.68 (13). To determine the reliability of this instrument in Isfahan province, Iran, the primary studies were conducted on 15 infertile couples (30 persons). The reliability of a month test-retest was 0.81 ($P<0.0001$).

Participants

The age mean of women was 27($SD=4.38$) and; the mean of age of men Was 32.26 ($SD=4.46$). The mean age of women in experimental group was 28.6($SD=5.16$)

Table 1. The summary of ANCOVA results corresponding to group membership and depression

Source	Sum of Square	degree of freedom	Mean of Square	F	Significance level	eta	power
Group	712.13	1	712.13	19.42	0.0001	0.26	0.99
Group gender	254.30	1	254.30	6.93	0.01	0.11	0.73

and in control group was 25.5(SD=4.08). The mean age of men in experimental group was 32.9(SD=4.36) and in control group was 31.6(SD=4.61).

The mean of time span after marriage in experimental group was 8 years (SD=2.70) and in the control group was 6(SD=3.36).

Procedure

In intervention stage of this study, infertile couples in experimental group participated in cognitive-behavioral counseling meeting based on Interacting Cognitive Subsystems (ICS) approach in six sessions (once a week). At the first session the subjects got familiar with goals, definition of infertility, depression generation and its symptoms and the relationship between depression and infertility. In addition relaxation practicing along with mental imagery was done.

The second session was allocated to the identification of thoughts and feelings.

The focus was on direct working on feelings, their acceptance without judgment and concentration on breathing, read body and mental imagery. The third session focused on thoughts. Participants expressed samples of their thoughts and learned how to deal with them especially with regard to this fact that these thoughts are not real but they are mental events. Mindfulness and meditation were also practiced. The fourth session started with mindfulness, followed by identification of schematic models and developing new schematic models replacing the former ones. Concentration on breathing was practiced. The fifth session was allocated to developing the control schema. The main focus was on how they can take care of themselves. At the sixth session, they were instructed to cope with their mood status in future using their instructions. During this period, the control group received no treatment.

The study had no dropouts. The groups received no other psychological intervention.

RESULTS

Descriptive statistics showed that in pretest the mean of depression in experimental group was 18.00 (SD=9.16) and in control group was 15.30 (SD=11.14). In post-test the mean of depression in experimental group was 9.23 (SD=6.66) and in control group was 14.43 (SD=11.94). To determine the significant differences between two groups, experimental and control, with respect to presumptions, ANCOVA was used, in which the effect of pretest was controlled. The results of the study were summarized in Table 1.

Table 1 shows that the differences between two groups, experimental and control, in post-test is significant ($p < 0.0001$). So the counseling based on ICS approach has an effect on reducing the depression in infertile couples. This effect was 26%. The observed power was 99% and it shows that the perception of the test, to find the differences is very high.

Investigating the different effects of intervention on the men and women showed that, in post-test, the mean of depression in women and men in experimental group was 10.66 (SD= 7.33) and 7.80 (SD=5.80), respectively. The mean of depression in women and men in control group was 20.80 (SD=11.91) and 8.06 (SD= 8.00), respectively. These results are shown in Figure 1.

The results derived from ANCOVA (Table 1) shows that the interaction between group and sexuality is significant ($p = 0.01$). It means in reducing the depression, there is relation between gender and using the counseling based on ICS approach. 11% of variance or personal differences in depression is related to interaction between group and sexuality.

Table 2. The summary of t test for studying simple effects

Gender	Group	mean	Standard deviation	t	degree of freedom	Significance level
Women	Experimental	10.66	7.33	-2.80	28	0.009
	Control	20.80	11.91			
Men	Experimental	7.80	5.80	-0.1	28	0.91
	control	8.06	8.16			

As the interaction between group and sexuality is significant, to determine the differences, they should be compared the difference between men in both groups and women. To do so, the simple effects are investigated. In other words, there is difference between men of experimental and control groups and the women, in these two groups. To determine the simple effects, independent t test was used; the results are summarized in Table 2.

As this table shows the difference between mean of depression in women in experimental and control group, is significant, ($P=0.009$), while the difference between mean of depression in men in experimental and control group, is not significant. In other words, counseling based on ICS approach was more effective for women.

DISCUSSION

The results of this study shows the effectiveness of cognitive-behavioral counseling based on ICS approach in reducing the depression of infertile couples.

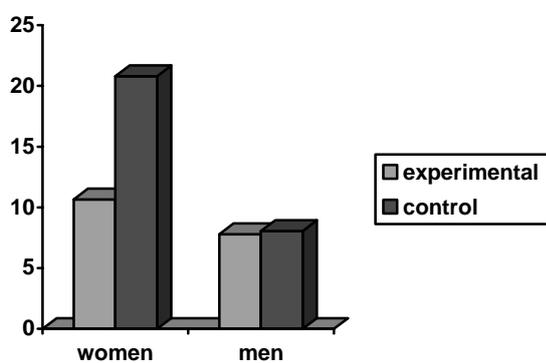


Figure 1. The comparison of the mean of depression in posttest in experimental and control group by sex.

The result is in agreement with Domar and his coworkers' research. They showed that in reducing the depression the mind-body program plays an effective role (3). This program is similar to techniques used in this study such as relaxation-response exercise, focusing on breath, and mindfulness.

About the possible reasons of counseling based on Interacting Cognitive Subsystems (ICS) approach effect on reducing the depression in infertile couples, can be noted that:

- * According to Teasdale (14), the aim is to train the metacognition.

Metacognition is the one's ability to think about his thoughts and feelings. So persons can see their feelings and thoughts as mental events.

- * A dimension of self-perpetuating mind, contributes to maintain the depression, is negative automatic thoughts

- * Recognizing the depression signs and learning how to respect affectively, or changing the problematic condition, prevents the self-persistence circles of depression.

- * Being in the present time causes infertile persons to be with their threatening experiences, feeling and thoughts. So the depression signs in prepositional level were evaluated and ignored as a personal deficiency.

- * Reducing the depression can be related to changing the schema, which are related to personal values and social acceptance.

Reviewing the findings, shows that the mean of depression in infertile couples, used counseling based on ICS approach in woman and men, has an significant differences, i.e. depression in women is reduced more than in men. There are some reasons about this fact.

This finding is about the sexuality differences. Women may be more expressive than men. Men don't want to express their fears and worries, but they respond inside themselves (1).

It seems that the men's resistance to answer the questionnaire is one of the reason of these findings, i.e. men in control group in post-test and pre-test, and men in experimental group in pre-test show the strong resistance in expressing of emotion states. This causes the effect of intervention is not to be determined. This finding is in agreement with previous findings that showed that men use the monitoring and blunting to cope with the infertility (15). Although one of the men's methods to cope with infertility was blunting, and ignoring the matter, men's emotional state in interview was obvious. Men show the lesser distress in different questionnaire than women. In this case, it is noted than women can express their feeling easily, moreover, the bias of questionnaire in investigating the problem's signs in women are also noted (1).

These results are in agreement with Hirsh and Hirsh's study, which showed that infertile women have greater emotional investment than men (16); and other studies, which showed that infertile woman, more than their husband, have responsibility for infertility and have an major role in initiating and following the treatment (1,17). In fact, woman in using the psychological programs, are more active and more sensitive. Women did practice more than their husband, which has an effect on using this program. More than this matter that women spend more time to do the practice. It should be mentioned that couples participated in the program with each other and support each other. This reduces the depression in the women.

Based on the relation between depression and infertility and the effect of counseling based on ICS approach on reducing the depression, we recommend its use in counseling infertile couples. Further investigations on the effect of ICS approach on infertile couples with different infertility problems and stages and different modalities are awaited.

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