Counseling Based on Interacting Cognitive Subsystems and its Effect on Anxiety of Infertile Couples[#]

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The purpose of this research was to investigate the effect of cognitive-behavioral counseling, based on interacting cognitive subsystems approach, on anxiety of infertile couples. The research was quasi-experimental. The sample consisted of 30 infertile couples who were placed randomly into experimental and the control groups. They were assessed by the Persian version of Beck Anxiety Inventory (Kavyani, 2005) in three stages namely before counseling sessions, at the end of sessions and two months after that in the follow-up session. Findings indicate that counseling based on interacting cognitive subsystems was effective in decreasing the anxiety of infertile couples in the experimental group at the end of counseling sessions ($p < .008$) and its effect was considerably higher on women than men ($p < .001$). The results showed no difference between the two groups in the follow-up stage.

Keywords: Cognitive-behavioral counseling, interacting cognitive subsystems, infertility, anxiety

Infertility is defined as failure to conceive after one year of regular sexual intercourse, without using any contraception (Abbey, Andrews, & Halman, 1991). Often infertility is a crisis, encompassing nearly all aspects of one's personality and life (Shanner, 1997). Researches have shown the negative psychological, behavioral, and social consequences of infertility on infertile couples. These couples experience many negative emotions such as anxiety, depression, feelings of isolation, fear, guilt, hopelessness, frustration, distress (Abbey et al., 1991), anger, grief, envy or jealously of other's success (Abbey et al., 1991; Dhillon, Cumming, & Cumming, 2000).

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The improved medical treatment possibilities sometimes cause the hope of ultimately having a biological child. In addition, medical treatment is frequently very time-consuming, and may be the source of stress, anxiety, and tension for couples under treatment (Stammer, Wischman, & Verres, 2002). According to studies, anxiety and depression may have an important role on infertility, and if individual has low anxiety and depression, the chance of fertility will be increased (Domar et al., 2000). Thus counseling interventions programs may be necessary to improve the psychological state of such couples (Smeenk, Verhaak, Eugster, & Van Minnen, 2001). The most important contribution of psychological therapies is to recognize stress and the application of psychological interventions for the alleviation of the identified stress (Stammer et al., 2002).

Among interventions that have been applied to cope with infertility, cognitive-behavioral therapy (CBT) is in agreement with infertile couples' need and it should be the first step in treatment of these couples (Meyers & Wark, 1996). By investigating the effect of cognitive-behavioral intervention on 45 infertile couples, Facchinetti, Tarabusi, and Volpe (2004) found that the intervention significantly reduces the Heart Rate (HR), systolic Blood Pressure (BP) and plasma cortisol reaction in experimental group. Thus, this intervention could reduce the psychological symptoms of anxiety. Domar et al., (2000) suggested that cognitive-behavioral therapies reduce the stress of infertile women under treatment and the chance of fertility has increased. In Iran some studies have shown that cognitive-behavioral intervention has an effect on improving the general health, coping styles, stress (trait and state) in primary infertile women (Heidari, Latifnejad, Sahebi, Jahanian, & Mazloom, 2001; Rodjoie, Zamani, Sharifi, & Ghazi, 1998) and significantly increase the chance of successful treatment (Gharaee, Mazaheri, Sahebi, Peivand, & Aghahoseini, 2004).

There are evidences that cognitive-behavioral approaches to treatment of anxiety are more effective than other treatment methods such as pharmacotherapy or alternative psychological treatments (Teasdale, 1997b). CBT approaches assume that cognitions are antecedents to emotional reactions, while cognitions also sometimes come to be viewed as a consequence of emotional states. Thus there is a reciprocal relationship between cognition and emotion (Teasdale, 1997a). Teasdale and Barnard (1993) suggest solutions to treat anxiety and depression of such couples in a framework of Interacting Cognitive Subsystems (ICS). ICS contrast between the two levels of meanings, implicational, and propositional. Implicational meanings

encode schematic models of experience and they include elements directly derived from sensory sources. ICS proposes that the implicational meaning plays a crucial role in the production of emotion. ICS approach emphasizes on the close relationship between the implicational level and states of bodily arousal. The role of threatening information about the self was found to be crucial in development of chronic aversive arousal states. This arousal status could either be high arousal as in anxiety, or low arousal, as in depression (Clarke, 1999).

The central aspect of anxiety is the misinterpretation of bodily symptoms. The goal of treatment is not to eliminate anxiety change the patterns of cognitive processing elicited in the context of anxiety symptoms. In discussing possible links between analyses of anxiety and depression, the concept of "depression about depression" might provide the closest parallel to the cognitive model of anxiety. The essence of this notion is that anxious patients may view usual anxiety-related bodily sensations as signs of imminent catastrophe and consequently become even more anxious (Teasdale, 1997b).

Treatment often leads to change in perspective and it is attributed to decentring or entification (Teasdale, 1997a). Individuals need to process new information at propositional level (Clarke, 1999). Instead of "being in emotional state" or recognizing negative thoughts and feelings, they need to recognize that their negative experiences are in fact mental events (Teasdale, 1997a).

According to Clarke (1999), the procedure of therapy in ICS approach has following stages:1) Formulation and explanation of self threatening-arousal feedback loop and attention to important relationships; 2) Working on body dimensions by focusing on breathing, relaxation, and mindfulness; 3) Using multimodal approach such as guided discovery, imaginary of trauma, reconstructing schemata, and working with the feelings; 4) working on experiencing in the moment including staying in the present, (which leads to the appraisal of threatening memories at the propositional level) and application of mindfulness techniques; and 5) a renewed experience of the self including reframing emotions without retreating into familiar escape routes.

In this research two areas were investigated. First, it was assumed that cognitive-behavioral counseling based on ICS approach, would reduce the anxiety of infertile couples. Secondly, it was assumed that, its effectiveness to reduce anxiety will differ with respect to gender.

METHOD

Sample

The present research was a quasi-experimental research, including experimental and control groups. To do this research 30 infertile couples were selected from couples who were referred to the Fertility and Infertility Center in Isfahan province, Iran. The criterion for selection was as follows:

1) Medical certificate verifying infertility,

2) No child from previous pregnancy, and

3) No adopted child.

Subjects were grouped randomly into experimental (15 couples) and control (15 couples) groups. On the whole the mean age 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) 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 time span for marriage in experimental group was 8 years (SD = 2.70) and in the control group was 6 (SD = 3.36).

Instrument

Beck Anxiety Inventory

For measuring anxiety in infertile couples, the Persian translation of the Beck Anxiety Inventory (BAI; Kavyani, 2005) was used. The BAI is a 21-item self report instrument that assesses the overall severity of anxiety. The BAI has displayed concurrent validity with other self-report measures of anxiety. For example, the correlation of the Hamilton Anxiety Rating Scale (HARS; Steer, Rismiller, Ranieri, & Beck, 1993) with the BAI was reported to be .56, ($p<.001$). With respect to the BAI's reliability, Steer et al., (1993) reported a study conducted in the year 1988, that calculated 1-week test-retest reliability of .75 ($p<.001$) for out patients and a coefficient alpha of .92 for 160 outpatients with mixed psychiatric diagnosis.

For Iranian population, Kavyani (2005) reported that the validity of the BAI was .82 and its reliability was .73. To determine the reliability of this instrument in population of this research, a primary study was conductive on 30 infertile persons (15 couples) and reliability of one-month test-retest was calculated to be .89 ($p<.001$).

Procedure

The subjects' anxiety was assessed in three stages, before and after intervention and on a two month follow-up. In intervention stage of this research, infertile couples of experimental group attended cognitive-behavioral counseling based on ICS approach for six meetings (once a week). Issues about infertility, anxiety and their marital relation, how anxiety appeared, feelings and thoughts, schemas and how are they designated and recognizing them, creating substituted schemas with control schemas, were discussed. Relaxation, concentration on breathing and mindfulness techniques were practiced. During this period, the control group received no treatment. The groups received no other psychological intervention.

RESULTS

Descriptive statistic that aimed at assessing the effect of counseling based on Interactive cognitive systems on anxiety of experimental and control groups CS approach are shown in Table 1.

Table 1

The Mean and Standard Deviation of Anxiety in Pre-test, Post-test and follow-up Stages In Experimental and Control Groups (N=30)

Groups	Experimental (n=15)			Control (n=15)		
	Pre-test	Post-test	Follow-up	Pre-test	Post-test	Follow-up
M	18.10	11.00	11.52	13.53	13.93	13.06
SD	11.49	7.04	10.22	11.82	11.35	10.49

To determine the significant differences between two groups, by considering the presumptions, MANOVA was used. The effect of pre-test is controlled by analysis of covariance. The results are shown in Table 2.

Table 2

The Summary of MANOVA Results Corresponding to Group Membership and Anxiety (N = 30)

Source	Stage	Ss	df	MS	F
Pre-test	Post-test	430.77	1	430.77	12.38**
	Follow-up	285.59	1	285.59	3.54***
Group	Post-test	290.25	1	290.25	8.34**
	Follow-up	142.87	1	142.87	1.77
Group X gender	Post-test	530.87	1	530.87	15.26**
	Follow-up	208.43	1	208.43	2.58

*** $p<.1$; ** $p<.01$

According to the results, in the post-test the difference between experimental and control groups was significant ($p<.008$), while in follow-up it was not. Therefore, it was found that counseling based upon ICS approaches reduces anxiety in infertile couples but it does not have long term effect.

The results show that the interaction between group and gender in post-test is significant ($p<.001$). It means there is a relation between gender and counseling based on ICS approach in reducing the anxiety. Therefore *t*-test was used to investigate gender differences.

In other words, it was assumed that there are differences between men of experimental and control groups and the women in these two groups. The results are summarized in Table 3.

Table 3

The Summary of t-test for Studying Differences in Composition of Experimental and Control Groups (N = 30)

Gender	Groups	M	SD	t
Women	Experimental	13.00	8.84	2.79**
	Control	23.38	10.47	
Men	Experimental	8.57	4.34	.89
	Control	7.00	5.01	

$df = 28$; ** $p<.01$

As Table 3 shows the difference between the mean of anxiety in women in experimental and control groups is significant ($p< .01$),

while the difference between the mean of anxiety in men in experimental and control group is not significant. In other words, counseling based on ICS approach has an effect on anxiety in women more than in men.

DISCUSSION

The result of this research showed the short-term effect of cognitive-behavioral counseling based on ICS approach on reducing the anxiety of infertile couples. It is in agreement with Facchinetti et al., (2004), Domar et al., (2000) and other researches in which cognitive-behavioral counseling is used for reducing the anxiety of infertile couples.

Although it seems that infertile couples are concerned with infertility, factors such as familiarity with anxiety symptoms, body scan, and awareness of feelings may reduce their anxiety. They help them to control arousal and to adjust it by practicing relaxation, concentration on breathing and mindfulness. Moreover, they help them to encounter experiences which are threatening for themselves. Behavioral tasks helped them to find solutions to infertility problem and to encounter it without inhibition which reduces their anxiety. The other factor which contributed to reducing anxiety was group participation. It made infertile couples feel that others understood their concerns.

Review of results shows that there is a significant difference between the men's and women's anxiety who participated in counseling sessions based on ICS approach so that anxiety reduced more in women than men. One of the reasons for this difference may be gender differences. It is expectable since, generally, women showed more tendency to counseling and reported more concern than men. In addition, most of medical treatments are carried out on women and women experience more anxiety during medical treatments than men. Therefore, women had higher motivation for reducing anxiety. The other reason for their high motivation is "stress hypothesis". Based on stress hypothesis, emotional states may have a causal relationship with infertility (Greil, 1997). It has been shown in some researches that anxiety is an effective factor on infertility and its reduction is in relationship with chance of pregnancy by reducing anxiety. There were non significant differences between the experimental and the control group in follow-up. Since infertility was important to the infertile couples and the infertility treatments are

time consuming and their chance of success is low, this outcome was predictable.

It seems that short-time counseling sessions are not sufficient and should be continued along with infertility treatment. Controlling variables such as the kind of infertility, the kind of treatment and the stage of infertility is suggested for future researches. Moreover, it is suggested that future research should investigate the effects of ICS approach on the probability of successful treatment.

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