CHAPTER VI
Summary and Conclusion

189
Introduction

The purpose of the present study was to investigate the effect of Rational Emotive Behavior Therapy (REBT) on Depression and Irrational beliefs among Infertile Women.

Need for the Present Study:

Childlessness has varied consequences on the lifestyle of individuals. Though in some cases the childless life style enhances life satisfaction for some individuals, it is diminishing for those, for whom parenthood is a personal goal. Parenthood is one of the major transitions in adult life for both men and women. The stress of the non-fulfillment of a wish for a child has been associated with emotion related problems such as anger, depression, marital problems, sexual dysfunction, and social isolation. Couples experience stigma, sense of loss, and diminished self-esteem, inferiority feeling and reduced well-being.

Infertility has emotional and affective disturbance for the individuals like the stressful condition of the infertile period, the type of treatments, defense mechanisms used by individuals for coping with the problem, available emotional, psychological and social supports.

The stressful condition created by the high cost of modern treatment procedures like Assisted Reproductive Technology (ART), regular and continuous visits to physicians, laboratory investigations which are sometimes situated in other places requiring long journeys, doing costly tests, wasting time, embarrassment of explaining personal life details to the physician and others, planning a definite sexual intercourse timetable as advised by physician, regular follow up of the treatments, frustration caused by the treatment procedures and thinking of not having a child, the pressures of family and society to have a baby as soon as they could, continual comparison with fertile couples, maladjustments and possibility of separation or divorce, not having a complete knowledge about the causes of infertility, having the feeling of being a victim, not having sufficient knowledge of the new treatment methods and not accepting the new methods such as having a child from other person’s uterus or sperm or using a rented uterus are considered as cases which cause
stresses and conflicting emotions and in many cases they lead to anxiety, depression and disturbed marriage relations among couples (Hassani, 2010).

Most of the times, when the infertile couples are referred to clinical centers for obtaining required modern services, they see that the therapy service only aims at the treatment of their physical problem and the psychological problems faced by infertile couple are not addressed property and adequately (Hassani, 2010).

Therefore neglecting of the psychological factors related to infertility and just considering these problems as medical ones will create huge obstacles in understanding human beings as an integrative whole. Infertility like other physiological phenomenon has social and psychological aspects and it is classified in the realm of behavioral sciences. Studies show that psychological factors may influence in infertility (KaramiNoori, Akhondi, & Behjati Ardekani, 2001).

According to Ramezanzadeh et al., (2004) until 30 years ago, most researches on infertility were concentrated on studying psychological differences between fertile and infertile women. Staber (1982), Splack and Cura (1968) reported that infertile women attained higher neurotic scores in the Madzeli Questionnaire as compared to fertile women (Ramezanzadeh et al., 2004). Fredman et al., (1985) study show that around 50% of women and 15% of men consider infertility as the most stressful experience in their lives. Dumber et al., (1993) stated that around 63% of the subjects, who had experienced divorce, believed that infertility was a more stressful experience. Anxiety and depression are regarded as general consequences of infertility and they have a significant relationship with infertility. Another research shows that around 40.8% and 86.8% of infertile women have depression and anxiety respectively (Ramezanzadeh et al., 2004).

Diagnostic procedures and the treatment of infertility may influence both the physical/psychological and sexual health of the infertile women. The infertility itself or the treatments for it may cause depression. The effectiveness of infertility treatment depends on both the success rate of the treatment facility and the emotional well-being of the women seeking treatment. Although role of depression relative to the outcome of infertility treatment is controversial (Templeton, Morris & Parslow, 1996).
Summary and Conclusion

The present study was aimed at evaluating the effect of Rational Emotive Behavior Therapy on depression and irrational beliefs among infertile women with the following objective and hypothesis.

Objectives:

1. To compare the level of depression and irrational beliefs among fertile and infertile women.

2. To study the effect of REBT on depression and irrational beliefs among infertile women.

Hypotheses:

1. Fertile and infertile women differ in the level of depression.
2. Fertile and infertile women differ in the level of irrational beliefs.
3. REBT reduce depression in the infertile women.
4. REBT reduce irrational beliefs in the infertile women.

The present study adapted a two group comparison design with pre and post assessment.

Assessment was done using the following research tools:

1. Semi Structured Interview Schedule

2. Beck Depression Inventory II (BDI-II) consists of two subscales namely the affective component (e.g. mood) and the physical or "somatic" component (e.g. loss of appetite).

3. The Shortened General Attitude and Belief Scale (SGABS) consist of two subscales, rationality and irrationality, irrationality looking at six factors: need for achievement, need for approval, need for comfort, demands for fairness, self-downing and other downing.
Variables

Rational Emotive Behavior Therapy (REBT) was independent variable whereas depression and irrational beliefs were dependent variables.

Selection of subjects for the study

Subjects fulfilling the following inclusion and exclusion criteria were selected.

Inclusion Criteria:

1. Only married women, with the history of infertility and undergoing treatment for at least more than one year.
2. Primary infertile women in the age group of 20-40.
3. Couple should be living together.
4. Infertility diagnosed by specialists.

Exclusion criteria:

1. Unmarried, widowed, divorced infertile women.
2. Previous exposure to the similar treatment.
3. Women with secondary infertility.
4. Presence history of physical / mental illness.

Design of the study:

The present study is an experimental study involving two group comparison designs with pre and post assessment. Experimental group was subjected to REBT intervention, and control group was without intervention. An Experimental Research involving two types of design namely Within-Subject Design and Between-Subject Design using Matched Groups was employed for the purpose of the study.

Procedure

The first objective of the study was to compare the level of depression and irrational beliefs among fertile and infertile women. To assess the level of depression and irrational beliefs, 50 fertile and 50 infertile women were selected from Mysore city. They were assessed using BDI-II and SGABS.
The second objective was to study the effect of REBT on depression and irrational beliefs among infertile women. For the second objective infertile women were selected randomly from Mediwave IVF and fertility research hospital in Mysore City and were administered BDI-II and SGABS. 50 infertile women were selected for the second objective (Main study) based on the cut off score criteria on research tools i.e. on BDI-II Score of 20 and above and 60th percent and above on the total scores of SGAB.

Out of 50 infertile women 40 infertile women were randomly assigned to experimental (N=20) and control group (N=20). Experimental group was subjected to the following REBT intervention, whereas control group was without any intervention. REBT intervention consists of Ice Breaking and Warm up, Creating the Problem List, Goal setting, Slow-Breathing Technique, Relaxation, Activity Scheduling/Planning, Social Skills training, The cognitive conceptualization of the problem, based on the ABC model, D’s – Dispute Negative Beliefs, Use of Humors and Terminating Therapy.

Experimental group received 24 sessions of manual based intervention. Pre assessment was carried for both the group at the beginning of the intervention. Post assessment was done for both the groups after completing REBT. Third assessment was follow up assessment which was done carried at 4th week after post assessment.

Data obtained from the participants were analyzed using SPSS-16 for windows. Statistical analysis include descriptive statistics, percentage and Coefficient of Correlations for analysis of demographic data, Independent samples t-test, repeated measure ANOVA and effect size calculates (Cohen’s $d$).

To match the group at pre intervention on dependent variable (outcome variable) independent sample ‘t’-test was applied. Analysis of pre intervention data reveals that both experimental and control groups were comparable and homogenous. Non significant differences were observed on all the demographic variables.

**Findings of the present study**

The first objective of the study was to compare the level of depression and irrational beliefs among fertile and infertile women. To assess the level of depression and
irrational beliefs, 50 fertile and 50 infertile women were selected. It was essential to establish the homogeneity of the sample on various variables at the base line so that valid comparison can be made for objective-1. Result of the demographic variables and outcome variables are discussed below.

Analysis of Socio-demographic data and outcome variables (for objective-1)

There was non-significant difference between fertile and infertile women at base line level on mean Age (Table 4-1-1; \( t=1.39; \text{df}=1.98; \ p<0.17 \)), Educational background (Table 4-1-2; \( C.C=0.30; p<0.06 \)), Annual income(Table 4-1-3; \( C.C=0.22; p<0.09 \)), Type of marriage(Table 4-1-4; \( C.C=0.42; p<0.54 \)), Duration of marriage (Table 4-1-5; \( t'=0.34; \text{df} = 1.98 ; p<0.74 \)), Family history of infertility (Table 4-1-6; \( C.C=0.14; p<0.40 \)) and Sexual satisfaction(Table 4-1-7; \( C.C=0.02; p<0.84 \)).

Comparison of mean scores of the fertile and infertile women on the level of depression revealed a significant difference in the scores on BDI-II .Table 4-2-1 shows Mean score for fertile women was 27.28 with SD of 14.91, whereas mean score for infertile women was 32.7 with SD of 7.51 indicating that infertile women were more depression than fertile women. Further, Analysis of the data using independent sample ‘t’-test shows that there was a significant difference between fertile and infertile women on the level of depression (\( t= 2.3; \text{df}=98; p<0.05 \)). Mean score comparison (Table 4-2-1) show infertile women have high depression symptoms than fertile women on BDI-II.

The other objective was to compare the level of irrational beliefs among fertile and infertile women. Mean irrational beliefs score for fertile women was 66.70 with SD 11.03, whereas for infertile women it was 75.88 with SD of 10.29 (Table 4-2-2). Mean score comparison between fertile and infertile women indicate that infertile women show more irrational beliefs. Obtained data on SGABS between fertile and infertile women was analyzed using independent sample t- test (Table 4-2-2). Obtained t value indicates that there was significant difference between fertile and infertile women on the level of irrational beliefs (\( t= 4.31; \text{df}=98; p<0.01 \)).

The significant difference observed on the level of depression and irrational beliefs between infertile women indicates that fertile and infertile women differ in the level
of depression and irrational beliefs and infertile women have high depression symptoms and irrational beliefs that fertile woman (objective-1).

Analysis of Socio-demographic data and outcome variables (for objective-2)

As mentioned earlier procedure for objective-2 (Main study), out of 50 infertile women 40 infertile women were selected randomly and assigned them into experimental (N=20) and control (N=20) groups. The experimental group was subjected to received REBT. As a first step homogeneity of two group were verified. Result of the demographic variables and outcome variables are discussed below.

It was essential to establish the homogeneity of the sample on various outcome variables at the base line so that valid comparison can be made at post treatment. Analysis showed that the both experimental and control groups were comparable on most of the demographic data at pre assessment.

There was no significant difference between experimental and control groups at base line on mean Age (Table 4-3-1; t'=0.64; df =38; p<0.52), Educational background (Table 4-3-2; (CC=0.18; p<0.72), Annual income (Table 4-3-3; CC=0.21; p<0.15), Type of marriage (Table 4-3-4; CC=0.05; p<0.74), Food habit (Table 4-3-5; CC=0.00; p<1.00), Cigarette smoking (Table 4-3-6; CC=0.14; p<0.38), Sexual satisfaction (Table 4-3-7; CC=0.15; p<0.33), Years of marriage (Table 4-3-8; t'=0.659; df =1,38; p<0.51), Years of attempt to conceive (Table 4-3-9; t’=-0.17; df =1,38; p<0.87), Years of infertility treatment (Table 4-3-10; t’=-0.56; df =38; p<0.58) and Cause of infertility (Table 4-3-11; CC=0.2; p<0.42) indicating homogeneity of groups at pretreatment level.

Comparison of the pre-assessment (baseline) scores for the experimental and control groups on outcome variables (depression and irrational beliefs) revealed no significant difference in pre-assessment scores on depression. Mean score for experimental group was 32.85 with SD of 7.06, whereas mean score on BDI-II for control group was 34.85 with SD of 7.26 (Table 4-4-1). Analysis of the data using independent sample ‘t’-test shows that there was no significant difference between experimental and control groups on level of depression (t=0.88; df=38; p<0.38).
Further Mean irrational beliefs score for experimental group was 79.85 with SD 7.07, whereas for control group it was 79.30 with SD of 6.57 (Table 4-4-2). Obtained data on SGABS between experimental and control groups was analyzed using independent sample t-test (Table 4-4-2). Obtained t value (t= 0.25; df=38, p<0.80) indicates that there was no significant difference between experimental and control groups on the level of irrational beliefs. Both groups were comparable and matched for homogeneity. The non significant difference observed on the outcome variables at the pre-assessment indicate that experimental and control groups were matched in the level of depression and irrational beliefs.

In the present study as mentioned earlier there were two objectives. Objective-1 had two hypotheses and objective-2 had two hypotheses.

1- First hypothesis of the study-Fertile and infertile women differ in the level of depression.

Analysis of the data using independent sample ‘t’-test (Table 4-2-1) shows that there was a significant difference between fertile and infertile women on level of depression (t= 2.3; df=98; p<0.05).

Table 4-2-1 showed mean score for fertile women on BDI-II was 27.28 with SD of 14.91, whereas mean score for infertile women was 32.7 with SD of 7.51. Comparison mean difference between fertile and infertile women on level of depression revealed significant difference on level of depression. Analysis of the data using independent sample ‘t’-test shows that there was a significant difference between fertile and infertile women on level of depression (t= 2.3; df=98; p<0.05). The significant differences in the mean values on the level of depression indicate that infertile women showed more depression symptoms than fertile women.

2- Second hypothesis of the study-Fertile and infertile women differ in the level of irrational beliefs.

The second hypothesis of the study was, fertile and infertile women differ in level of irrational beliefs. Obtained data on SGABS between fertile and infertile women was analyzed using independent sample t-test (Table 4-2-2). Mean irrational beliefs score for fertile women was 66.70 with SD 11.03, whereas for infertile women it was 75.88
with SD of 10.29. A mean difference of 9.18 score between fertile and infertile women indicate that infertile women show more irrational beliefs than fertile women. Comparison of the mean scores for the fertile and infertile women on level of irrational beliefs (Table 4-2-2) revealed significant difference in irrational beliefs ($t=4.31; df=98; p<0.001$). The significant difference observed on this outcome variable indicates that fertile and infertile women differ in the level of irrational beliefs.

3- Third hypothesis of the study, REBT reduce depression in the infertile women.

The third hypothesis of the study was, REBT reduce depression in the infertile women.

Table 4-5-1 shows mean score on pre treatment, post treatment and follow up sessions for experimental (Pre=33.40; Post=27.05; Follow=26.45) and control (Pre=33.63; Post=33.36; Follow=33.47) groups on depression among infertile women. Repeated measure ANOVA (Table 4-5-2) was applied to find out the effectiveness of intervention (REBT) on depression. Results of within group comparison between pre and post mean scores showed significant decrease in depression ($p<0.001$; Table 4-5-2). Further, within group (time × group) interaction on depression shows that there was a significant change across the time (pre-to post assessment) in depression ($p<0.001$). The observed F-value and substantial decrease in the post mean in depression support the proposed hypothesis that REBT is effective in decreasing depression. The interaction of time × group indicate a significant difference in reduction in depression ($p<0.001$).

Between the subject effects comparison showed a significant reduction in total depression ($p<0.001$). BDI-II has two subscales: the Affective component and the Somatic component.

Repeated measure ANOVA showed that there was a significant decrease in subscales of depression namely Affective factor $F (2, 76) = 21.45, p<0.001$ (Table 4-5-4) and Somatic factor $F (2, 76) = 12.01, p<0.001$ (4-5-6) indicating the effectiveness of REBT in decreasing the symptoms of depression. The between subject effects also showed significant differences between the groups in Affective factor $F (1, 38) = 4.71, p<0.05$ and Somatic factor $F (1, 38) = 4.18, p<0.05$. 

197
Further, the combination of time*group showed a significant effect in decreasing depression on Affective factor F (2, 76) = 20.93, p< 0.001(Table 4-5-4) and Somatic factor F (2, 76) = 29.98, p< 0.001(Table 4-5-6) indicating that the amount of change (decrease) observed from pre to post assessment and follow up was similar.

Table 4-5-7 shows effect size calculation for depression and its subscale. Results show medium effect size for experimental group for Affective factor 0.50 and for Somatic factor 0.47 and medium effect size for between groups was obtained for Affective, Somatic subscale of depression was medium.

4- Fourth hypothesis of the study, REBT reduce irrational beliefs in the infertile women.

The fourth hypothesis of the study was, REBT is effective in decreasing irrational beliefs in infertile women. Table 4-6-1 shows mean score on pre treatment, post treatment and follow up sessions for experimental (Pre=79.85; Post=71; Follow=69.20) and control(Pre=79.30; Post=77.15; Follow=79.25) groups on depression among infertile women. Repeated measure ANOVA (Table 4-6-2) was applied to find out the effects of intervention (REBT) on irrational beliefs. Results of within group comparison between pre and post mean scores showed significant decrease in irrational beliefs (Table 4-6-2; p<0.001). Further, within group time × group interaction on irrational beliefs shows that there was a significant change observed across the time (pre-to post assessment) in irrational beliefs (p<0.001). The observed F-value and substantial decrease in the post mean in this outcome variable (irrational beliefs) support the proposed hypothesis that is REBT is effective in decreasing irrational beliefs. The interaction of time × group indicate a significant reduction in irrational beliefs (p<0.001). Between the subject effects comparison showed a significant reduction in total irrational beliefs (Table 4-6-2; p<0.001), and also in subscales of irrational beliefs.

Short General Attitude and Belief scale (SGABS) consists of the following subscales measuring rationality, self-downing, need for approval, need for achievement, need for comfort, Demand for fairness and other downing. Subscale analysis of irrational beliefs, are present below:
Repeated measure ANOVA on rationality factor showed a significant increase in rationality factor (Table 4-6-4; p<0.001), this clearly indicates that the REBT intervention was effective in increasing the rational thinking among infertile women.

Also, analysis of results for other irrational beliefs subscales showed a significant reduced in self-downing (Table 4-6-6; p<0.001); reduced need for approval (Table 4-6-8; p<0.001); reduced need for achievement (Table 4-6-10; p<0.001); reduced need for comfort (Table 4-6-12; p<0.001); reduced need for fairness (Table 4-6-14; p<0.001) and reduced other downing (Table 4-6-16; p<0.001). This clearly indicating REBT is effective in reducing irrational beliefs levels in infertile women. Further, the observed improvement i.e., reduced irrational beliefs from pre to post intervention were reconfirmed by the medium effect size 0.57 for REBT group (table 4-6-17). The effect size for between groups was medium (0.61), indicating REBT was effective in reducing the irrational beliefs level in infertile women.