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Depression and well-being in women undergoing fertility treatment

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From a Test-tube Baby Centre, Coimbatore, Tamil Nadu, India, 40 women undergoing infertility treatment were screened for depression and well-being using Case Study Schedule (2011), Beck Depression Inventory (Beck, 1971) and Well-Being Index (WHO, 1998). Out of that, 35 women with moderate to severe depression and worst well-being were chosen to serve as the sample, by Purposive Sampling Method. Psychological intervention involving Relaxation Training coupled with Autosuggestions and Cognitive Restructuring (Natesan, 2004) and Visualization (White, 2004) were administered on the all subjects for six sessions. After psychological intervention, they were re-assessed for depression and well-being using Case Study Reassessment Schedule (2011), Beck Depression Inventory and Well-Being Index. Results revealed that the mean differences in depression and well-being before and after psychological intervention were statistically significant.

Keywords: infertility, depression, well-being, psychological intervention

The value of motherhood is upheld in all cultures regardless of time and place. Since women are by nature mothers, there is a primacy in motherhood for defining the true identity of woman. When women are denied of motherhood, they endanger their own physical, emotional and spiritual well-being. Many women experience a profound sense of loss when they discover they are unable to have children. For most of their lives they had marriage and motherhood modelled to them, and now they seem unable to fulfill that role. Femininity comes into question as well. The plaguing feeling of being cursed for some real or imagined wrong can tie a woman's emotions into knots.

Earlier, childlessness in a couple used to be talked about in hushed tones, with the problem, without doubt, being attributed to the women. As a result of taking responsibility for the emotional impact of the infertility, the woman experiences intense feelings, such as pain, anger, fear, etc., which can cause depression in her. Infertility is one of the most stressful experiences anyone can go through in life. In many cases pressure from family and friends can drive women to the point of suicide. Other major psychological issues include unresolved grief, as there is a `death' every month when the hopes of being pregnant are dashed. These realities often leave the woman feeling helpless and isolated, sometimes without support from family or friends or understanding from them about how difficult the process is.

Nearly 30 million couples in the country suffer from infertility, making the incidence rate 10 percent (Dey, 2010). During the last two decades great advances have been made in the field of assisted reproductive technology (ART). Treatments such as in-vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI) have given new hope to many infertile patients. There is a danger that the emotional impact of infertility is neglected and that the problem is reduced to a biological or medical one. However, in addition to the necessary medical procedures, healthcare professionals should also focus on the patients' psychosocial and emotional needs by understanding childlessness and giving education implicating counselling, support counselling and/or therapeutic counselling.

Counseling plays a major role in resolving stress-related issues due to infertility as it involves money, time and energy of couples who seek medical care for the problem. It is usually women who bear the brunt of the social and emotional stigma arising from the inability to produce a child, resulting in anxiety, depression, suicidal ideation and low well-being. The present study has attempted to help the selected women undergoing infertility treatment manage their depression and enhance their well-being employing a psychological intervention module.

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Objectives of the study

- To assess the level of depression in the selected women undergoing fertility treatment
- To ascertain the effect of psychological intervention on the level of depression of the sample
- To assess the level of well-being of the sample
- To ascertain the effect of psychological intervention on the level of well-being of the sample
- To identify the symptoms of the sample
- To identify the negative emotions of the sample
- To ascertain the effect of psychological intervention on the negative emotions of the sample
- To identify the poor health habits of the sample

Method

Participants

Initially, 40 women undergoing fertility treatment for a minimum of 2 years were screened for depression and well-being. Out of that, 35 women who had moderate to severe levels of depression and moderate to low well-being were chosen as the sample by Purposive Sampling Method.

Instruments

Case Study Schedule (2011) was tailor-made for the present study on women undergoing fertility treatment. The schedule has 2 parts. Part I was designed to collect the personal details of the subjects such as name, age, family back ground, educational qualification, occupation, income etc. Part II consisted of checklists for symptoms of depression, negative emotions and health habits. The subjects were also asked to mention about their recurrent negative thoughts and the type of treatment they were undergoing. The Case Study

Schedule supplements Beck Depression Inventory in assessing the data needed from the selected women undergoing fertility treatment.

Beck Depression Inventory (BDI) (Beck, 1971) is a 21 item self-report rating inventory measuring characteristic attitudes and symptoms of depression. Scoring is done by adding up the score for each of the 21 questions. The highest score on each of the question is 3, the highest possible total for the whole test is 63 and the lowest possible score is zero. The scores of the subjects in BDI can be interpreted by referring to the norms given by the author. Internal consistency for BDI ranges from 0.73 to 0.92 with a mean of 0.86. BDI demonstrates high internal consistency, with alpha coefficients of 0.86 and 0.81for psychiatric and non psychiatric populations, respectively.

Well-being Index (WBI) (WHO, 1998) was derived from a larger rating scale developed for a WHO project on quality of life in patients suffering from diabetes. During the first psychometric evaluation, 10 of the original 28 items were selected due to the homogeneity they had shown across the various European countries participating in the study. Because positive psychological well-being has to include positively worded items only, these 10 items were then reduced to five items. Each of the five items is rated on a 6- point Likert scale from 0 (not present) to 5 (constantly present). The theoretical raw score ranges from 0 to 25 and is transformed in to a scale from 0 (worst thinkable well-being) to 100 (best thinkable well-being). Thus, higher scores mean better well-being. The raw score is obtained by adding the figures in the boxes in the questionnaire. The scores range is from 0 to 25.

Case Study Re-assessment Schedule is similar to the case study schedule except for the deletion of Part I. Case Study Re-assessment Schedule has Part II with checklists for symptoms of depression, negative cognitions and thoughts and the type of treatment subjects were undergoing.

Procedure

Initially, 40 women from Sudha Test-Tube Baby Centre, Coimbatore, Tamil Nadu, India, undergoing fertility treatment for a minimum of 2 years were screened for depression and well-being. Out of that, 35 women who had moderate to severe level of depression and moderate to low well-being were chosen as the sample.

After the initial assessment, all the 35 subjects were given psychological intervention. After six sessions of psychological intervention, they were re-assessed using Case Study Re-assessment Schedule, BDI and WBI.

Psychological intervention

Intervention Module: The Intervention Module consists of Relaxation Training coupled with Autosuggestions and Visualization Techniques (White, 2004), and Cognitive Restructuring. Relaxation Training, Autosuggestions and Cognitive Restructuring were adopted from Positive Therapy (Natesan, 2004).

Experimental Design

The Experiment design used in this research was 'Before and After Intervention without Control Design': A single test group without control group was used in this study. The dependent variables 'Depression' and 'Well-being' were measured both before and after psychological intervention, the independent variable.

Results and discussion

Table I: Level of Depression of the Sample (N=35)

S.N. Depression Scores	Before Psychological Intervention		After Psychological Intervention	
	Number	Percentage	Number	Percentage
1. 05 - 09 (Normal)	-	-	-	-
2. 10 - 18 (Mild to Moderate)	-	-	20	57
3. 19-29 (Moderate to severe)	31	89	15	43
4. 30 - 63 (Severe)	4	11	-	-

(Percentages are rounded off)

Depression is the state of low mood and aversion to activity that can affect a person's thoughts, behavior, feelings and physical well-being. Depressed people may feel sad, anxious, empty, hopeless, helpless, worthless, guilty, irritable, or restless (World Health Organization, 2009).

Ozkan and Baysal (2006) revealed the prevalence, severity and predictability of psychiatric symptoms of infertile women. Depression, anxiety and strength of psychological symptoms were significantly higher in the infertile group. Infertility, infertility treatment, and marriage duration were positively correlated with depression and the strength of psychological symptoms. Sexual relationships were negatively affected the longer the duration of infertility treatment lasted. The study had concluded that special attention must be given to identifying psychiatric problems in infertile women. Relationship and sexual difficulties also appear central to infertility-related stress targeting problems in these domains will have maximal therapeutic benefit.

Table 1 shows the level of depression in women undergoing fertility treatment. Initially, 89% of the sample had moderate to severe depression and 11% had severe level of depression.

High levels of depression in these women can be due to their physical condition of infertility and undergoing fertility treatment and also due to heredity and unexplained causes.

After psychological intervention, 57% of sample had mild to moderate depression and 43% of sample had moderate to severe level of depression. Psychological intervention seems to have helped the sample in reducing depression.

Mori (2010) did a study on the effects of a support program for the stress management of women undergoing fertility treatment to reduce stress related to infertility and treatment. Results indicated the positive effects in the women after the support program. The study concluded that positive effects of the support program were observed on two subscales of the SF-36 in the subgroup that did not use ovulation-enhancing agents.

Table 2: The Significance of Difference in Mean Depression

Conditions	Mean	SD	't' value
Before Psychological Intervention	26.1143	3.22464	19.694**
After Psychological Intervention	17.3143	3.99096	

** Significant at 0.01 level

Depression is the leading cause of disease related disability in women. Epidemiological studies have shown that the lifetime prevalence of a major disorder in women (21.3%) is almost twice that in men (12.7%). This ratio has been documented in different countries and ethnic groups. Several studies indicated that, biological processes are thought to be involved in the predisposition of women to depression (Noble, 2005).

As it is evident from Table 2, the mean depression of the subjects decreased to 'Mild to Moderate' (17.3143), after psychological intervention, which is significant at 0.01 level.

The improvement in the subjects could be attributed to the psychological intervention. The sample also became highly cooperative and was comfortable medical treatment.

In a study of women with infertility, the pregnancy rate of a support group that met once a week for 10 weeks and included relaxation and imagery was 55%, vs. a regular support group with 52%, and a control group with only 20%. Interestingly, 42% of the pregnancies achieved in the relaxation or imagery group were spontaneous, versus only 12% in the support group, the rest of whom required reproductive (Domar et al., 2000).

Table 3: Level of Well-being of the Sample (N=35)

S.N.	Well-being	Before Psychological Intervention		After Psychological Intervention	
		Number	Percentage	Number	Percentage
1.	13 and above (Best)	1	3	25	71
2.	Below 13 (Worst)	2	97	10	29

(Percentages are rounded off)

Well-being describes one's happiness, confidence, physical condition and general outlook on life. It is about feeling good and taking care of oneself; responsibilities that can often be neglected when juggling the rigorous demands of everyday living (World Health Organization, 2007).

As it is evident from Table 3, 97% of the sample had worst level of well-being before psychological intervention. The low well-being may be due to not following proper diet, sound sleep, preoccupied with negative beliefs, no feeling of calmness, cheerfulness and relaxation.

Quillan, Greil, White and Jacob (2004) revealed that women who have experienced infertility reported higher psychological distress. Infertility combined with involuntary childlessness (including biological and social) was associated with significantly greater distress. For women in this category, the risk of distress was substantial.

Table 3 indicates that, 71% of the sample had best level of well-being and 29% of the sample had worst level of well-being after psychological intervention. Psychological intervention might have facilitated rapid change in the subject's perception, which helped them reduce the impact of well-being in their daily lives. Relaxation Training seems to have ensured complete relaxation of the whole body from head to foot, facilitating sound sleep. This might have helped them enhance their physical health and thereby well-being.

Cousineau and Domar (2007) conducted the study on consequences of infertility and personal suffering. Advances in reproductive technologies, such as IVF, can offer hope to many couples where treatment is available, in terms of medical coverage. The medication of infertility has disregard for the emotional responses that couples experience, which include distress, loss of control, stigmatization, and a disruption in the developmental trajectory of adulthood. Fortunately, psychological interventions, especially those emphasizing stress management and coping-skills training, have been shown to have beneficial effects for infertility patients.

Table 4: Significance of Difference in Mean Well-being

Conditions	Mean	SD	't' value
Before Psychological Intervention	9.7143	1.80801	-13.161**
After Psychological Intervention	13.3714	1.62853	

** Significant at 0.01 level

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Well-being and healthy living go hand-in-hand. Healthy living goes beyond eating a balanced diet, taking regular exercise and avoiding illness. It also reflects the mental, emotional and social aspects of an individual's life (World Health Organization, 2007).

Souter, Hopton, Penney and Templeton (2002) conducted a study to assess mental well-being in women undergoing investigation and initial management of infertility. It was found that approximately 32% of women in the early stages of infertility management may be at risk of developing clinically relevant mental health problems.

Table 4 indicates that the mean difference in well-being before (9.7143) and after (17.3143) psychological intervention is significant at 0.01 level.

The cognitive distortions (i.e., faulty thinking can impact one's thought, behavior and experience of stress in well-being). One's self talk, the internal dialogue that runs in the head, interpreting, explaining and judging the situations one encounters, can actually make things seem better, worse or threatening or non threatening, stressful or well, one can get the picture. Some people tend to see things in a more positive light, and others tend to view things more negatively, put themselves at a disadvantage in life. The Cognitive distortions (i.e., faulty thinking can impact one's thought, behavior and experience of stress in well-being). One's self talk, the internal dialogue that runs in the head, interpreting, explaining and judging the situations one encounters, can actually make things seem better, worse or threatening or non threatening, stressful or well, one can get the picture. Some

People tend to see things in a more positive light, and others tend to view things more negatively, put themselves at a disadvantage in life.

Cognitive Restructuring is a process of recognizing, challenging and changing cognitive distortions and negative thought patterns can be accomplished with the help of Cognitive Behavioural Therapy (Scott, 2007).

Joshi, Singh and Binder (2009) observed that infertility among women is associated with a large number of psychological problems. They studied the psychological distress, coping resources and subjective well-being among infertile women in comparison to normal women. The tools used were Subjective Well-being Inventory, Coping Resources Index and General Health Questionnaire. The results clearly indicated that poor subjective well-being, high level of psychological distress and inappropriate coping among infertile women as compared to this normal counterpart.

Table 5: Negative Emotions of the Sample (N=35)

S.N.	Negative Emotions	Before Psychological Intervention		After Psychological Intervention	
		Number	Percentage	Number	Percentage
1.	Depression	34	97	29	83
2.	Anxiety	32	91	29	83
3.	Fear	25	70	20	57
4.	Worry	23	66	19	54
5.	Anger	17	49	15	49
6.	Hostility	5	14	3	9

(Percentages are rounded off)

A person with negative perception will also have negative thoughts. Negative thoughts lead to negative beliefs, which pave way for negative emotions and long in the run, affect person's the mental health, as well as physical health. Emotion is an intense feeling that will shapes up ones physical as well as mental health (Zuraida, 2010).

A study done by McCook, Ream and Thatcher (2006) on health related quality of life issues in women with polycystic ovary syndrome, the tools used was the Health-Related Quality of Life Questionnaire. The most common health-related quality of life concern reported by women with PCOS was weight, followed in descending order by menstrual problems, infertility, emotions and body hair.

Table 5 indicates that, before psychological intervention, the sample reported of various negative emotions like depression (97%), anxiety (91%), fear (70%), worry (66%) etc. The negative emotions could be due to fear about the future, lack of hope in the treatment, worry due to inability to conceive, anger and hostility due to their own physical condition. However, after psychological intervention, there was a substantial decrease in the number of subjects reporting depression (83%), anxiety (83%), fear (57%) and worry (54%) experienced by the sample.

In a systematic review done by Verhaak, Smeenk, Evers, Kremer, Kraaimaat and Braat (2006), they found that when IVF resulted in pregnancy, the negative emotions disappeared, indicating that treatment-induced stress is considerably related to threats of failure. Women's long-term emotional adjustment to unsuccessful IVF could be the indicator of risk factors for problematic emotional adjustment after unsuccessful treatment.

Table 6: Symptoms of the Sample

S. N.	Symptoms	Before Psychological Intervention		After Psychological Intervention	
		Number	Percentage	Number	Percentage
1.	Persistent sadness	23	66	20	57
2.	Loss of appetite	21	60	16	46
3.	Breathlessness	19	54	15	43
4.	General weakness	18	51	13	51
5.	Short temper	17	49	12	34
6.	Loss of interest	17	49	13	37
7.	Sweating	16	46	7	20
8.	Vomiting	15	43	11	31
9.	Helplessness	15	43	14	40
10.	Giddiness	13	37	10	29
11.	Sleep disturbances	12	34	8	23
12.	Irritability	11	31	9	26
13.	Restlessness	11	31	9	26
14.	Hopelessness	11	31	9	26

(Percentages are rounded off)

A person with physical symptoms will find difficult to cope with task performance and attention span and shows significant decrease in cognitive abilities, there might have chance to produce psychological distress as well as adverse health implications (Taylor, 2004).

In a review done by Zuraida (2010), on psychological distress among infertile women exploring bio-psychosocial response to infertility studies have shown that the experience of infertility is linked with psychological responses such as depression, anxiety guilt, social isolation and decreases self-esteem in both men and women. The prevalence of depression among infertile women ranges from 8% to 54%. Treating gynecologists and healthcare professionals seldom recognized the psychosocial distress in women undergoing fertility treatment.

Table 6 indicates that before intervention the subjects had reported the various symptoms like persistent sadness (66%), loss of appetite (60%), breathlessness (54%), general weakness (51%), short temper (49%), loss of interest (49%), sweating (46%), vomiting (43%) etc. more than 60% of the subjects had persistent sadness which is a clear indication to the presence of depression.

After psychological intervention, there was a significant decrease in the number of subjects reporting various symptoms. Cognitive restructuring and autosuggestions might have helped the subjects manage symptoms and balance their emotions and also create hope and confidence in themselves.

In a review done by Selhub (2008) on stress and distress in clinical practice: A Mind Body Approach. It was found that stress may exacerbate or cause illness by which behavioral medicine interventions can improve clinical outcomes.

Table 7: Poor Health Habits of the Sample (N=35)

S. N.	Poor Habits	Before Psychological Intervention		After Psychological Intervention	
		Number	Percentage	Number	Percentage
1.	Lack of physical activity	27	77	20	57
2.	Skipping breakfast / lunch/supper	17	49	15	43
3.	Less than 7 hours of sleep	13	37	11	31
4.	Over eating	13	37	9	26
5.	Eating junk food	9	26	5	14
6.	Excessive coffee consumption (More than 6 cups)	4	11	2	6

(Percentages are rounded off)

Poor health habits are otherwise called as health compromising behaviours. Obesity is a health risk factor that has been linked with fertility problems, diabetes, CHD and kidney disease. Lack of exercise appears to have low mood and self-esteem and also increased stress. Weight-loss programs, healthy diet, Dietary interventions are the health enhancing behaviours (Taylor, 2004).

Table 7 indicates that before psychological intervention, poor health habits like Lack of physical activity (77%), skipping meals (49%), less than 7 hours of sleep (37%) and over eating (37%) were reported by the subjects.

Lack of exercise might be due to lack of interest and time, skipping meals could be due to worry of their physical condition and not following the healthy diet and anxiety might be the cause for less hours of sleep. Over eating could lead to lack of self control in taking food and not following proper diet.

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After psychological intervention, interestingly there was a significant decrease in the number of subjects following poor health habits. Lack of physical activity came down to 57%, skipping meals to 43%, less than 7 hours of sleep to 31% and over eating to 26% etc. these changes could be attributed to the increased awareness of ill-effects of poor health habits and realizing the negative impact it can have on the treatment.

In a review done by Parihar (2003), on obesity and infertility he found that adipose tissue is essential for the normal development of female reproductive function, however, obesity causes menstrual disturbances and subfertility. The severity of obesity and the distribution of fat tissue are important factors that influence the female reproductive system. Obesity results from combined genetic and environmental factors and is one of the most frequent diseases and is encountered all over the world. A body mass index (BMI) that is either high or low is associated with reduced probability of achieving pregnancy in women. Body mass affects reproduction by causing menstrual disturbance and anovulation. During the last decades the pathophysiological and molecular mechanisms of this relationship were gradually elucidated. The obesity influences the reproductive cycle by impaired estrogen metabolism, changes in the concentration of sex hormone binding (SHBG) globulin, hyperinsulinaemia, and probably also leptin levels, increased BMI is also associated with the risk of several diseases, such as diabetes mellitus, osteoarthritis, cardiovascular diseases, sleep apnoea syndrome, breast cancer, cancer of the uterus and besides impairment of reproductive functions.

Empirical findings

- Initially, 89% of the selected women undergoing fertility treatment had moderate to severe depression and 11% had severe depression.
- The significance of difference in mean depression before (26.1143) and after (17.3143) psychological intervention is significant at 0.01 level.
- Before psychological intervention, 97% of the sample had worst well-being.
- The significance of difference in mean well-being before (9.7143) and after (13.3714) psychological intervention is significant at 0.01 level.
- The subjects of the study experienced various symptoms like persistent sadness, loss of appetite, breathlessness, general weakness etc. before psychological intervention.
- Before psychological intervention, the sample reported of negative emotions like depression, anxiety, fear, worry etc.
- After psychological intervention, the percentages of subjects reporting negative emotions like depression (83%), anxiety (83%), fear (57%), worry (54%) etc. reduced considerably.
- The sample reported of following various poor health habits like lack of physical activity, skipping meals, less than 7 hours of sleep, over eating etc.

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