

Effect of social support on Infertile Women Repeating in Vitro Fertilization on Uncertainty and Anxiety

Omnya Mustafa Ali¹, Dr. Neama Abd El-Fattah Abd El-Gawad², Dr. Hanan Fawzy Elsayed³

¹Clinical Instructor - Faculty of Nursing – Al-Azhar University

²Professor of Maternal and New Born Health Nursing - Faculty of Nursing - Helwan University

³Assist Professor of Maternal and New Born Health Nursing - Faculty of Nursing - Helwan University

Abstract

Background

The aim of this study was to evaluate the effect of social support on infertile women repeating in vitro fertilization on Uncertainty and Anxiety. **Design:** A Quasi-experimental. **Setting:** The study was conducted at Assistant Fertility Unit - Al-Azhar University, Cairo, Egypt. **Sample:** (100) infertile women repeating in vitro fertilization. **Data collection tools:** Structured interviewing questionnaire sheet, Uncertainty scale for infertile women, The State-Trait Anxiety Inventory, Personal Resources Questionnaire II, and the Relationship Change Scale. **Result:** More than half of the studied sample (56%) aged less than 36 years, (62%) of them had husbands with age equal to or more than 36 years old, most of them (90%) had high importance of having children, Post-intervention revealed a high significant improvement in decreasing anxiety and uncertainty. **Conclusion:** significant decrease in anxiety and uncertainty after positive social support. **Recommendation:** Developing a coping skills training intervention to encourage seeking positive support from family and partners is becoming mandatory in order to decrease anxiety and uncertainty of infertile women.

Keywords: In Vitro Fertilization (IVF), Infertility, Uncertainty, Anxiety, social support.

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I. Introduction:

Infertility is defined as inability to get pregnant despite having frequent, unprotected sex for at least a year for most couples. Infertility may result from an issue with either woman or her partner, or a combination of factors that interfere with pregnancy (**American Society for Reproductive Medicine, 2016**).

The percentage of infertile couples is constantly increasing. Worldwide, it is reported that 60–80 million couples are affected by fertility issues, with every fifth couple in Europe having problems with conceiving offspring. There are many reasons for infertility. One contemporary issue identified is the delay in the onset of parenting roles past the optimal age of fertility, this being 20–24 years old. Current statistics show the average age of giving birth in Europe and the USA at over 30 years old. In addition, modern stressors are possibly adding to the increase of infertility on the global level (**Alicja Malina and Julie Ann Pooley, 2017**).

In vitro fertilization (IVF) is one of several techniques available to help people with fertility problems have a baby. IVF involves 6 main stages: suppressing the natural cycle by special medications, boosting the egg supply by medications, monitoring the progress and eggs maturing using ultrasound scan, collecting the eggs – a needle is inserted into the ovaries, via the vagina, to remove the eggs, fertilizing the eggs – the eggs are mixed with the sperm for a few days to allow them to be fertilized, and finally transferring the embryo(s) – 1-3 fertilized eggs (embryos) are placed into the womb (**NHS, 2018**).

"Failed IVF" is a vague term that can refer to several different situations: Cycle cancellation, prior to egg retrieval, because not enough follicles are produced; No eggs or only inadequate-quality eggs are retrieved; Retrieved eggs don't fertilize or fertilize inadequately; No embryo is available for transfer into the uterus; Transferred embryos may not implant for a variety of reasons; And that, of course, will mean no pregnancy after embryo transfer (**Norbert Gleicher, 2020**).

An unsuccessful in vitro fertilization (IVF) cycle can be emotionally and financially devastating. In general, IVF treatment failure seems to be associated with a deterioration of women's emotional well-being. Rates of depression, uncertainty and anxiety increased after IVF treatment failure and negatively affect hormonal, neuroendocrine, or immunological functioning leading to poor IVF outcomes (**Gulzhanat Aimagambetova, 2020**).

Mind-body practices are techniques designed to enhance the mind's positive impact on the body. These techniques practices include behavioral, psychological, social, expressive, and spiritual approaches. It includes: Meditation, Prayer, Cognitive behavioral therapy, Guided imagery, Biofeedback, and Yoga. Mind-body therapies and practices can help prevent stress, foster a sense of control, enhance optimism, or provide social support that improve the quality of life or just allow coping better with negative symptoms (**Jung YH, Ha TM, Oh CY, and et al., 2016**).

As technology for curing infertility has developed, patients' referring to fertility nurse who plays an important role in helping to encounter many tensions in diagnostic and therapeutic procedures and also for help to make decisions about treatment protocols has increased. An important way to make patients ready to experience the treatment intensity and introducing them to some hard decision-making that may come up in the treatment procedure, is psychological support and ideal counseling such as relaxation, stress management, cognitive-behavioral intervention, grief management, curing marital and sexual disorders, crisis management, self-help groups (**Fereshteh Yazdani, 2017**).

Aim of the study

The main aim of the current study is to evaluate effect of social support on infertile women repeating in vitro fertilization on Uncertainty and Anxiety

Subjects and methods

Research design: A Quasi-experimental design. **Setting:** Assistant Fertility Unit - Al-Azhar University, Cairo, Egypt. **Sampling:** purposive sample (**100 women**) was selected according to inclusion and exclusion criteria.

Tools of data collection

Five tools were used for data collection:

1- Structured interviewing questionnaire sheet.

This sheet was developed by the investigator to collect data about the subjects in the following areas: age, duration of marriage, educational level, employment status, past pregnancy/abortion history, duration of infertility treatment, financial burden of infertility treatment, and importance of having children in the marriage.

2- Uncertainty scale for infertile women :

It was developed by (**Kim & Kim, 2010**). It consisted of 10 items in 5-point Likert scale with higher scores indicating greater infertility stress.

3- The State-Trait Anxiety Inventory

It was developed by (**Kim & Shin, 1978**). This is consisted of 20 questions each for trait anxiety with higher scores indicating greater anxiety.

4- Personal resources questionnaire II:

It developed by (**Weinert, 1987**), translated and modified by **Kim (1998)**.

This questionnaire consisted of 25 items with higher scores indicating greater social support.

5- The relationship change scale:

It developed by (**RCS; Guerney, 1977**), translated and modified by **Kim (1998)**. This questionnaire consisted of 27 items with higher scores indicating positive relationship change.

Preparatory phase:

It includes reviewing of literature, different studies and theoretical knowledge of various aspects of the research topic using books, articles, internet, periodicals and magazines. This also helped in designing the study tools.

Administrative design:

After explanation of the study aim and objectives, an official permission was obtained from the Dean of faculty nursing and the general manager of the study setting asking for cooperation and permission to conduct the study before starting the study.

Ethical consideration:

Prior study conduction, approval was obtained from scientific research and ethics committee of the Faculty of Nursing, Helwan University. The researcher clarified the aim of the study to the women who included on the study. They were assured that anonymity and confidentiality would be guaranteed, and informed about their right to refuse or withdraw from the study at any time. The study procedures do not entail any harmful effects on participants. An oral consent was obtained from each woman prior to participate in the study.

Pilot study:

It was carried out on 10 % of the studied patients (10 patients) to evaluate the applicability of the study tools and estimate the proper time required for answering the required data. All participants in the pilot study were excluded from the main study.

Field work:

1-Assessment phase:-

Assessment of women's psychological state was done .This assessment shed light on current psychological level to detect the defect and help in developing the educational program according to results.

2- Planning phase:

The researcher made exploratory visit to study setting to put plan for carrying out the study. Educational program developed by the researcher according to women's needs, moreover teaching materials such as (discussion, demonstration and booklet) prepared to help in covering theoretical and practical information.

3- Implementation phase:

- The study sample was 100 women divided into 7 groups as a follow:-
- The 1st group consisted of (20 women)
- The 2nd group consisted of (15 women)
- The 3rd group consisted of (15 women)
- The 4th group consisted of (17 women)
- The 5th group consisted of (9 women)
- The 6th group consisted of (14women)
- The 7th group consisted of (10 women)

The study was done during morning & Afternoon shifts three times weekly during the time of the study (7 months) started from 1/10/2019 till 28/4/2020. Month for each group for pre-program and program implementation & data collection immediately post implementing the program. Interview with available women to explain the aim of the study, the effect of this study on relieving anxiety and uncertainty and took their approval to participate in the study prior to data collection. The researcher collected data using questionnaires before developing the educational program. The researcher developed an educational program and booklet regarding mind – body therapeutic program for infertile women repeating in vitro fertilization according to their needs in simple Arabic language. The educational program & booklet were reviewed by 2 expertise in Maternity and Newborn Health Nursing department at Helwan University (one professor and one assistant professor). The educational program& booklet were given by the researcher to women and were asked to read its contents. Post-test was done immediately after the educational program ended.

Statistical design:

The collected data in pretest and posttest were organized, categorized, tabulated according to the type of each data.

Statistical analysis:

Data was entered and analyzed by using SPSS (Statistical Package for Social Science) statistical package version 22. Graphics were done using Excel program. Quantitative data were presented by mean (X) and standard deviation (SD). It was analyzed using student t- test for comparison between two means, and ANOVA (F) test for comparison between more than two means. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square (χ^2) test. However, if an expected value of any cell in the table was less than 5, Fisher Exact test was used(if the table was 4 cells) , or Likelihood Ratio (LR) test (if the table was more than 4 cells). Level of significance was set as P value <0.05 for all significant tests.

II. Result:

Table (1): showed that, more than half of the studied sample (56%) aged less than 36 years with a mean age of 32.5 ± 1.4 . Less than two thirds of them (62%) had husbands with age equal to or more than 36 years old. Nearly one third of them (38%) were Secondary school or technical diploma education. As regards work status, two thirds of them (66%) were not working. Most of them had less than moderate family income (90%).

Table (2): showed that, less than two thirds of the studied sample (64%) married since more than 5 years with mean marriage duration of 8.3 ± 1.7 . more than half of them (54%) seeking to have a baby since less than 5yrs. Less than two thirds of them (62%) had no pregnancy experience, nearly two thirds of them (68%) had no abortion experience, and most of them (84 %) had no children. Most of them (90%) had high importance of

having children. As regards financial burden of infertility treatment, most of them (80%) mentioned it was moderate burden.

Figure (1): showed that, there was high significant improvement ($p \leq 0.01$). The post program 'high social support' increased from 52% pre-intervention to 78% post-intervention

Figure (2): showed that, there was high significant improvement ($p \leq 0.001$). The post program 'High relationship change' increased from 52% pre-intervention to 78% post-intervention

Table (3): revealed that, there were high statistical significant differences between the total uncertainty level and both of level of total personal resources and relationship change scale post intervention ($p < 0.01$).

Table (4): revealed that, there was high statistical significant differences between the total score anxiety level and both of level of the total relationship changes scale and total of personal resources scale post intervention ($p < 0.01$).

III. Discussion:

In relation to age categories of the studied sample and their husband, the present study finding revealed that more than half of the studied sample aged less than 36 years with a mean age of 32.5 ± 1.4 and Less than two thirds of their husbands with age ≥ 36 years old; this may be due to age is a fundamental factor affecting woman's fertility and the chance of success with IVF. A woman in early to mid-20s has a 25 to 30% chance of getting pregnant every month. Fertility generally starts to reduce when a woman is in her early 30s, and more so after the age of 35. By age 40, the chance of getting pregnant in any monthly cycle is around 5%.

This finding matches with **Enikő Lakatos, (2017)** who studied Anxiety and depression among infertile women from Hungary and reported that most of them were younger with a mean age of 33.30 ± 4.85 . Also, these results were supported by **Miok Kim, (2014)** who studied The Effect of a Mind-Body Therapeutic Program for Infertile Women on Uncertainty, Anxiety, and Implantation rate in Korea and mentioned that (80.8%) of the sample were at age group (≤ 35 years) with a mean age of 33.85 ± 3.17 and (62.3%) of their husbands with age > 36 years old.

Concerning level of education of the studied sample, the present study revealed that Nearly one third of them were Secondary school or technical diploma education; this may be attributed to cognitive abilities and increased health illiteracy related to coping with psychological negative feeling related to infertility and IVF process success.

This finding was on the same line with **Hanan Elzeblawy, (2016)** who studied Infertility profile, psychological ramifications and reproductive tract infection among infertile women, in northern Upper Egypt and reported that (40.4%) of the sample was Secondary school or technical diploma education.

Regarding occupation of the studied sample, the present study revealed that two thirds of them were house wives; this finding may be due to regardless of the occupation among women, having a child comes in higher priorities in Egypt. This is contradicted with **Hanan Elzeblawy, (2016)** who reported that (61.4%) of the sample was employee. And also with a study conducted by **Nurcan Kirca, (2019)** who stated that (70.3%) of the sample was employee.

Family income and insurance coverage are significantly affecting the probability of seeking infertility treatment; the choice to pursue assisted reproductive technologies (ARTs) is highly influenced by income. The result of the present study revealed that the majority of the sample had less than moderate family income. This finding was in agreement with previous research conducted by **Hanan Elzeblawy, (2016)** who stated that (50.6%) of the sample had bad family income.

In relation to duration of marriage of the studied sample, the present study revealed that less than two thirds of the studied sample married since more than 5 years with mean marriage duration of 8.3 ± 1.7 ; this finding may be because of couples not seeking assisted reproductive technologies (ART) before inability to conceive after a year or more of regular, unprotected sexual intercourse and failure of routine fertility treatment like induction of ovulation by clomid. This result was not agree with **Hanan Elzeblawy, 2016** who reported that 73.4 of the sample had duration of marriage less than 5 years with mean age at marriage 19.74 ± 1.61 . Also, a study conducted by **Miok Kim, (2014)** and revealed that the average duration of marriage was 55.6 months.

Reproductive characteristics and taking infertility history is both simple and important to identify the cause(s) and properly manage treatment plan and IVF protocol suitable for the case. The result of the present study revealed that nearly half of them seeking to have a baby since less than 5 years. Less than two thirds of them had no pregnancy experience, nearly two thirds of them had no abortion experience, most of them had no children, most of them had high importance of having children, and most of them mentioned financial burden of infertility treatment was moderate burden.

This finding was in agreement with previous research conducted by **Gulzhanat Aimagambetova, (2020)** who reported that (63.6%) had no previous deliveries, (85.1%) had no previous miscarriages, and (92.4%) had no previous intentional pregnancy interruptions, but not agreed with it in average infertility duration which was 5.9 years.

Social support is defined as the perception that one has an available confidant, or experiences caring attitudes displayed by a specific source, and is commonly sought for and provided by partners, family and friends. Support from social networks can benefit a woman's adjustment when dealing with the stress of infertility and ART program by lowering levels of depression and anxiety and reduction in infertility stress.

The present study revealed that there was a highly significant improvement in social support after application of MBTP ($p \leq 0.001$). The post program 'High social support' increased from 52% pre-intervention to 78% post-intervention. This result on the same line with **Alicia Malina, Malgorzata Glogiewicz, and Jakub Piotrowski, (2019)** who studied the Supportive Social Interactions in Infertility Treatment Decrease Cortisol Levels in Poland and reported that there was a significant decrease in the level of stress experienced after the supportive social interaction.

Infertility has been associated with marital problems and conflicts, and has serious implications for the mental and social well-being of those involved. This can be problematic as the marital relationship is seen as the most important source of support in the context of infertility treatment.

The present study revealed that there was a highly significant improvement in the relationship change after application of MBTP ($p \leq 0.001$). The post program "High relationship change" increased from 52% pre-intervention to 78% post-intervention. This result is in agreement with **Miok Kim, (2014)** who reported that the experimental group in the study showed greater decrease in uncertainty and anxiety in pre-measurements and post-measurements than the control group did after improving relational subdomain by MBTP.

Regarding the relation between the studied sample's total of anxiety level and both of their level of the total personal resources and relationship change scale post intervention, the present study revealed that there were high statistical significant differences between the total of anxiety level and both of their level of the total personal resources and relationship change scale post intervention; this finding showed that social and partner support effect on anxiety related infertility as positive social support reduce anxiety resulting from the length of marriage without children, IVF 1st trial failure, and the long period of infertility treatment.

This result was on the same line with **Kubra Erdem and Serap Ejder Apay, (2014)** who conduct a research about the relationship between perceived social support and depression in Turkish infertile women and mentioned that the difference between women's anxiety and their total mean scores of social support was found to be statistically significant.

In connection with the relation between the studied sample's total of uncertainty level and both of their level of the total personal resources and relationship change scale post intervention, the present study revealed that there were high statistical significant differences between the total of uncertainty level and both of their level of the total personal resources and relationship change scale post intervention; this finding showed that social and partner support effect on infertility stress as positive social support reduce stress resulting from the length of marriage without children, IVF 1st trial failure, and the long period of infertility treatment.

This result is agreed with **Casu Giulia, Zaia Victor, And Fernandes Martins, (2019)** who studied a dyadic mediation study on social support, coping, and stress among couples starting fertility treatment in USA and revealed that stress are relieved by individual or partner coping and for both genders, greater social support was associated with lower infertility stress.

IV. Conclusion

The present study concluded that the majority of infertile women repeating IVF had significant decrease in anxiety and uncertainty after Mind-Body Therapeutic Program intervention and positive social support.

V. Recommendation

Based on the results of this study, the following recommendations were suggested:

- Clinical application of a mind-body therapeutic program in ART units
- Developing a coping skills training intervention to encourage seeking positive support from family and partners is becoming mandatory in ART units.
- Establish a private counseling, group therapy, and yoga area supported with nursing protocol in ART units for infertile women.
- Further researches regarding effect of MBTP on relieving infertile women's anxiety and uncertainty related IVF treatment process on large sample in order to generalize the results.

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Table 1: Distribution of Socio -demographic characteristics of the studied sample (N = 100)

Socio demographic characteristics	No.	%
Age		
Less than 36	56	56
≥ 36	44	44
Mean ± SD		
32.5± 1.4		
Educational level		
Read & write	30	30
Secondary school or technical diploma	38	38
university	32	32
Spouse age		
Less than 36	38	38
≥ 36	62	62
Work status		
Work	34	34
Not work	66	66
Family income		
Less than moderate	90	90
≥ moderate	10	10
Total		
100		
100		

Table 2: Distribution of marriage and infertility features of the studied sample (N=100).

Marriage & infertility features	NO.	%
Duration of marriage		
Less than 5 yrs.	36	36
≥ 5 yrs.	64	64
Mean ± SD		
8.3 ± 1.7		
Duration of seeking a baby		
Less than 5 yrs.	54	54
≥ 5 yrs.	46	46
Duration of infertility treatment		
Less than 5 yrs.	54	54
≥ 5 yrs.	46	46
Pregnancy experience		
Yes	38	38
No	62	62
Abortion experience		
Yes	32	32
No	68	68
Having children		
Yes	16	16
No	84	84
Importance of having children		
High	90	90
Moderate	10	10
Financial burden of infertility treatment		
High	6	6
Moderate	80	80
Low	14	14
Total		
100		
100		

Table 3: Relation between the studied sample's total uncertainty level and both their level of the total relationship changes scale and total of personal resources scale post intervention (N= 100).

Items	Post-intervention total uncertainty level		Chi-square		
	Low stress	High stress	χ^2	p-value	Sig.
	N=%	N=%			
Total relationship changes scale					
Moderate	16	6	18.2	0.000	HS
High	61	17			
Total personal resources scale					
Moderate social support	14	5	22.6	0.000	HS
High social support	74	7			

Table 4: Relation between the studied sample's total anxiety level and both their level of the total relationship changes scale and total of personal resources scale post intervention (N= 100).

Items	Post-intervention total anxiety level		Chi-square		
	Low anxiety	High anxiety	χ^2	p-value	Sig.
	N=%	N=%			
Total relationship changes scale					
Moderate	22	0	24.1	0.000	HS
High	46	32			
Total personal resources scale					
Moderate social support	18	4	20.6	0.000	HS
High social support	42	36			

Figure 1: distribution of the total personal resources scale of the studied sample pre and post intervention (N=100)

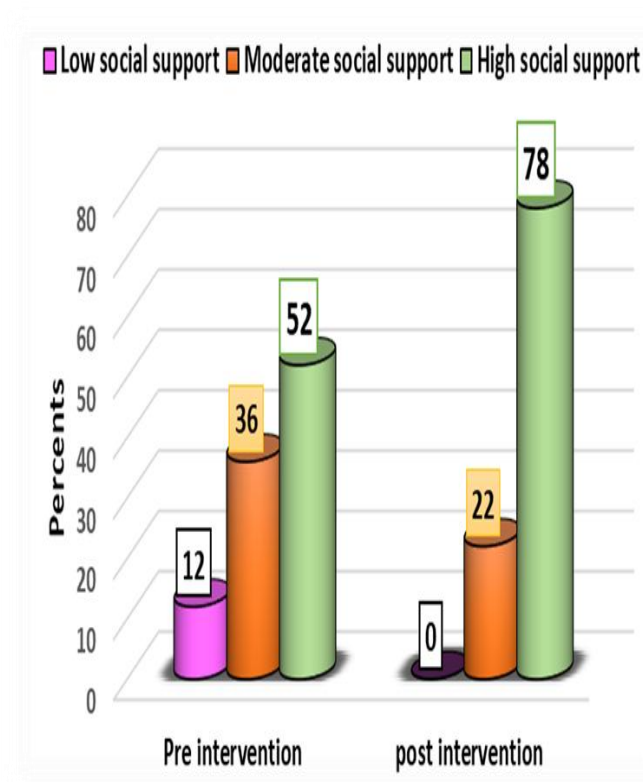
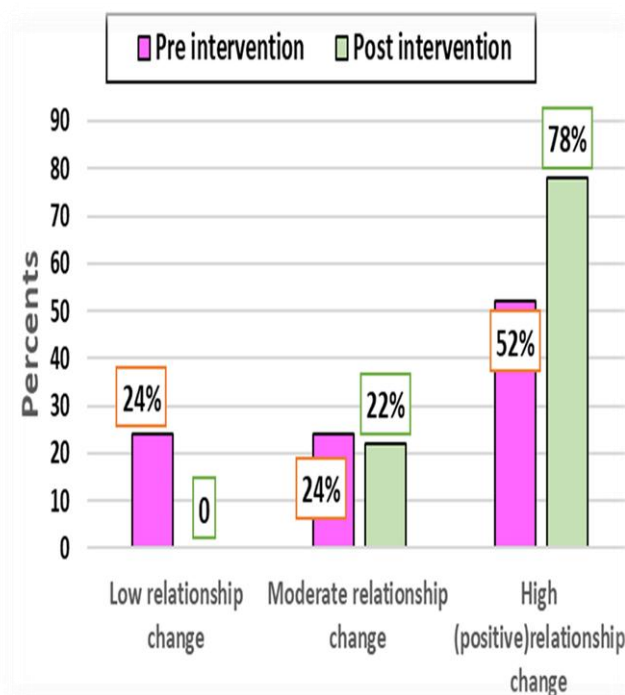


Figure 2: distribution of the total relationship change scale of the studied sample pre and post- intervention (N=100)



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