

## The Effectiveness of Counseling Program on the outcome of In-Vetro Fertilization Treatment

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### Abstract:

**Background:** In vitro fertilization (IVF) is a human assisted reproduction technique. Many factors affect its outcomes and success rate. **Aim of study** was to find out the impact of counseling program on the outcome of in vitro fertilization treatment. **Study design:** A quasi experimental design was used. **Study sample:** 60 women less than 40 years and undergoing IVF treatment for first trail at the International Adam Hospital- Cairo were divided equally to study and control group. **Data collection tools** included interviewing questionnaire schedule; self administrating questionnaire, observational checklist, and follow up sheet were used to assess women's knowledge and practice regarding IVF treatment (pre and post counseling) and to follow up the outcomes of IVF treatment. **Results:** Improved in knowledge and practices regarding almost all the parameters of the IVF treatment and alleviation of problems encountered were observed after the counseling program ( $p < 0.05$ ). On the other hand, in spite of no statistical significance difference showed between studied and control group regarding the success indicators of the IVF, counseling program could influence this outcome. In this context, the rate of positive pregnancy test was higher, while cycle cancelations were lower in study group compared to control group. **Conclusion and recommendations:** Counseling was helpful in improving IVF outcomes especially problems encountered during the treatment. Offering counseling services for all couples undergo IVF treatment by nurses' staff is recommended and must include instruction regarding each step of the IVF treatment.

**Key words:** infertility, in vitro fertilization, assisted reproduction, counseling

### Introduction:

Assisted reproductive technology (ART) is a term which includes all infertility treatments in which both eggs and sperms are manipulated. 70 million women in the world use ART annually. However, more than 2 million women use it in Egypt (Adams et al., 2009 and Aboulghar, Mansour & Sorror 2008). In general, ART procedures involve removing eggs from a woman's ovaries, combining them with her husband sperms in the laboratory, and returning them to the woman's body. ART include in vitro fertilization, intracytoplasmic sperm injection (ICSI)

and cryopreservation (Anderson et al., 2008; Hammoud et al., 2009).

In-Vitro Fertilization (IVF) is a major treatment in infertility when other methods of assisted reproductive technology have failed (Collin, 2008). In-Vitro Fertilization is simply the utilization of egg cells from the ovaries and sperm in vitro (in the lab), in culture medium and incubating them at 37°C until fertilization and early embryos are observed, and transferred into the woman's uterus through the cervix and pregnancy is allowed to begin. The process is done with ovulation induction

through drugs monitoring of in conjunction hormone levels and follicle scans with ultrasound (**Jonson, 2007**).

Though IVF is used to treat many causes of infertility, only 5% of couples actually use it. Woman less than 35 years of age may suffer from infertility factors such as blocked, damaged or lack of fallopian tubes, significant semen abnormalities, or moderate to severe endometriosis. Couples who simply can't conceive and have tried other infertility methods that have not worked for them try IVF (**Fauque, et al., 2009**).

Over the last three decades more than 3.5 million children have been born worldwide. Averaging data from 49 countries, the world collaborative report estimated that pregnancy rate was 27% and delivery rate was 19% (**Mohsen, 2009**).

In-Vitro fertilization involves four basic steps; ovarian stimulation, egg retrieval, insemination, and finally embryo replacement of the woman's uterus to establish a successful pregnancy (**Zafarani et al., 2007**).

In fact, **Boivin et al., (2009)** has stipulated that psychosocial counseling must be offered to any patient seeking in-vitro fertilization (IVF) during all stages to provide patients with emotional support in times of crisis, and to help them come to terms with their treatment choice and its effect on their lives. The following tasks of counseling can be distinguished in the context of infertility treatment such as analysis, implications information gathering, decision-making counseling, support counseling, and therapeutic counseling.

The nurse is the most visible health professional in the care of the couples attending an IVF clinic. All professionals have specific roles, but the nurse is the main point of contact for couples at the clinic, and coordinates the various aspects of the couple's treatment. Misleading or lack of information about

success rate, the risks, and benefits of treatment alternatives prevent couples from making informed decision. Nurses can provide information so that couples have an accurate understanding of their chances for successful pregnancy and live birth (**Hammarberg, Astbury & Baker, 2009**).

The nurses play an important role in the preparation of couples for IVF, which has the potential to face emotionally, physically and financially exhausting experience. Thus, couples need to consider thoughtful preparation before beginning the process and when decide to undergo the treatment program (**Allan, 2007**).

#### **Significance of the study:**

Infertility problems have become a public health concern throughout the world. In recent years, there has been an increase in publicity about infertility and reproductive medicine technologies especially In-Vitro Fertilization (IVF). The pregnancy rate of IVF was estimated by only 27% worldwide. Many problems encountered during IVF treatment can be considered as factors may affect this rate including problems related to the procedure itself and psychosocial problems. So, physical and psychological preparation of couples is one of essential factors can affect IVF outcomes and success rate. Through counseling program, before and during IVF procedure, couples can gain psychological support and information they need. Thus, it can be expected that counseling facilitates taking control over treatment and outcomes (**De Klerk, Hunfeld & Duivenvoorden, 2005**). Thus, this study will shed a light on the impacts of the counseling program on the outcome of IVF.

#### **Aim of the study:**

The aim of this study was to find out the impact of counseling program for women undergoing IVF treatment on

the outcome of in vitro fertilization treatment.

**Subjects and methods:**

**Research Design:**

A quasi experimental design was used in this study.

**Setting:**

The study was conducted at the International Adam Hospital. In El Mohandesen affiliated to Cairo governate, this is a private hospital provides assisted reproductive technologies services.

**Study sample:**

A purposive sample of 60 women undergoing IVF treatment was recruited in the study according to certain criteria:

1. Undergoing to IVF for first time.
2. Have the criteria of an IVF treatment.
3. Their age less than 40.
4. Accepted to participate in the study.

Such sample was divided into two groups:

- **The study group:** it consisted of 30 women who received the counseling program and followed up until the pregnancy test, then followed up two weeks more until the ultrasound finding proved a positive or negative pregnancy.
- **The control group:** it consisted of 30 women who received the routine hospital care and was contacted after the IVF treatment cycle.

**Tools of data collection:**

Four data collection tools were used in this study:

1. **A Structured interviewing schedule:** this was developed by the researcher for collection of the following data: personal data, marital history, and history of infertility.

2. **Self administrating questionnaire:**

to assess women knowledge about In-Vitro Fertilization; its criteria of selection, factors affect success rate, and factors affect stopping the IVF process. In addition to assessment of the women's knowledge about ovulation induction, egg retrieval, semen collection, fertilization process and embryos transfer. This questionnaire was filled by control group one time only and two times (pre and post intervention of counseling program) for studied group.

3. **Observational checklist:** Such assessments were used by the researcher pre and post the application of the program. It included items related to medications (injection, vaginal or oral) as the getting ready for the procedure, preparation of the required dose, medications administration, self protection procedures and post procedure task. Women practice was described as not done, done incorrectly, done correctly (incomplete) and correctly (Complete).

4. **Follow up sheet:** A follow up sheet was designed by the researcher to assess women condition after the IVF treatment cycle included physical, psychosocial and marital problems.

**Tool validity:**

Tools of data collection were designed by the researcher after reviewing a related literature. Content validated by a panel of experts in nursing field for clarity, relevance, and comprehensiveness. It was modified according to experts' opinions

**Scoring system:****Scoring of knowledge regarding IVF:**

Women responses were analyzed and a total score was given. Score 'two' was given for the correct answer, score 'one' was given for the correct incomplete answer and 'zero' for the incorrect answer before and after the implementation of the program. The total scores of knowledge expressed by a percentage as follows; satisfactory (> 60%) and unsatisfactory (< 60%).

**Scoring of observational checklist:**

Women responses items were analyzed and a total score was given to each item. Score 'two' was given for each correct practice and 'one' score given for incompletely correct practice and 'zero' if women don't perform the correct practice. The average of total score of three times of observations was calculated. Then the final scores of practices expressed by percentage as following; satisfactory (> 60%) and unsatisfactory (< 60%).

**Administrative and ethical considerations:**

Official permission was obtained by submission of an official letter from the faculty of nursing to the responsible authorities of the study setting to obtain the permission for data collection. The aim of the study was explained to every woman before participation, and an oral consent was obtained to participate in the study. Women were assured that the study maneuver will cause no actual or potential harm on them and professional help will be provided whenever needed.

**Pilot study:**

After the development of the tools, a pilot study was carried out before the implementation of the program on 10% of the sample. These were not included in the main study

sample.

**Field work:**

Collection of data covered a period of 9 months from October 2010 until July 2011. The field work was carried out in 5 phases:

1. **Assessment Phase:** Tools I & II were used for all subjects (60 women) prior to the program intervention as a pretest to assess women needs for counseling
2. **Program Development Phase:** The program aimed to elevate women's knowledge and skills regarding IVF, alleviate problems encountered for women undergoing IVF treatments, and therefore improve outcomes of IVF treatment. The contents were prepared according to women's needs that revealed by pre test scores. The researcher prepared place, materials and time table to implement the program. Learning Booklet included information about IVF treatment cycle, its steps, important instructions and coping issues. The booklet prepared in Arabic language and used as a handout for participated women.
3. **Implementation phase:** Implementation of the program was carried out at the previously mentioned settings. The program sessions consisted of nine sessions; one initial session during the booking visit, five subsequent visits during ovulation induction, one session prior egg retrieval, one before embryo transfer and one post embryo transfer. The number of women in each session was only 5-6 women, in order to facilitate the learning process and allow every woman to participate, as well as, to ensure adequate supervision.
4. **Follow-up Phase:** Using follow-up sheet every woman in this study

was followed up to the 4<sup>th</sup> weeks post embryo transfer to complete the required data. Those who did not attend the clinic were contacted by phone.

5. **Evaluation Phase:** The effectiveness of the counseling program was evaluated after the completion of the IVF treatment using the Self administrating questionnaire (post test), as well as the results of the IVF treatment.

**Limitations of the study:**

During the counseling program 10 women were withdrawal due to canselation of the treatment as a result of; ovarian hyperstimulation, ovarian nonresponse or women desir to withdraw from the treatment program. These women were replaced.

**Statistical design:**

Data entry and statistical analysis were done using SPSS 16.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead.

**Results:**

**Table (1):** shows the absence of any significant differences between the study and control groups regarding their general characteristics. Two fifth (40.0%) of the study group were above 30 years of age compared to 36.7% of the control group. More than one fourth of the study and control groups respectively were infertile for 10 years and more (26.6% and 33.3% respectively). Meanwhile, the majority had primary infertility; 93.3% in the study group and 96.7% in the control

group. Male causes of infertility in the study group represented 46.7% compared to 50.0% in the control group, while unexplained infertility represents one tenth of the study subjects.

Infertility history as shown in **table (1)**, More than one fourth of the study and control groups respectively were infertile for 10 years and more (26.6% and 33.3% respectively). Meanwhile, the majority had primary infertility; 93.3% in the study group and 96.7% in the control group. Male causes of infertility in the study group represented 46.7% compared to 50.0% in the control group, while unexplained infertility represents one tenth of the study subjects.

**Table (2):** demonstrates a statistically significant differences in the level of knowledge between the study and control groups about IVF treatment,  $P < 0.000$ . As the table indicates more than half (56.7%) of the study group had satisfactory knowledge about factors influencing the success rate and the time/ duration needed to commit for one cycle of an IVF compared to only 3.3% and 10.0% of the control group respectively. In addition women in the study group showed have satisfactory improvement in their level of knowledge about the criteria for the selection of an IVF candidate and factors affecting the stoppage of the program than the control group (46.7%, 46.7%, 3.3%, and 0.0% respectively). As regards labs, investigations during IVF cycle (83.3%) in study group compared to 43.3% in control group.

Concerning women's knowledge about ovulation induction, egg retrieval, and fertilization process, **table (3)** shows that a statistically significant difference between women in study and control groups ( $P < 0.000$ ). As the table indicates, the majority of

the study group had satisfactory knowledge about induction medication, semen collection process and ovarian induction protocols [93.3%, 90.0%, and 80.0% respectively] compared to 20.0 %, 16.6% and 3.3% of the control group. Additionally, an equal proportion (60.0%) of the study group had satisfactory knowledge about the egg retrieval and fertilization process compared to 33.3% and 6.7% respectively of the control group, with statistically significant difference.

**Table (4):** illustrates the comparison between the study and control groups in relation to their knowledge about embryos transfer, pregnancy confirmation and nursing instructions. As the table reveals, a significant difference was noticed within the studied groups after the implementation of the counseling program ( $P < 0.000$ ). It is evident that most of the study group obtained higher satisfactory score of knowledge pertaining to; methods of pregnancy confirmation, the risks of IVF procedure and coping measures as well as nursing instructions (93.3%, 83.3%, 80.0% & 20.0%, 43.3%, 10.0% respectively) than the control group.

As for distribution of the study group according to its total score of knowledge pertaining to IVF treatment **figure (1)** demonstrates, a statistically significant improvement in women's total knowledge score at the post-test,  $P < 0.05$ . As the figure indicates, the percent knowledge score at the pre-test was less than one fifth (13.3%) of the study group. At the post-test, this score has increased to reach 90.0%.

**Figure (2):** points to statistically significant improvements in women's practice about the administration of IVF medications at the post-test  $P < 0.001$ . As the table shows, the total score of practice about IVF

medications have increased from 14.4 % at the pre-test to reach 75.0 % at post-test.

**Table (5):** displays the psychosocial and marital problems experienced by women undergoing IVF treatment in both groups. A closely equal percent (33.3% and 30.0%) of the study group respectively had the feeling of sadness and anxiety compared to almost two thirds of the control group (66.7% and 66.7% respectively). Likewise, social and marital problems were present in only 20.0% and 13.3% of the study group compared to 53.3% and 36.7% of the control group, with no statistically significant difference.

As for distribution of the studied groups according to physical problems encountered during the IVF cycle **table (6)** illustrates a number of statistically significant differences that were observed regarding their sense of irritability, fatigue, GIT problems and headache ( $P = 0.004$ ). Meanwhile, legs cramps was reported by only 3 women of the study group compared to 12 (40.0%) of the control group. In addition, only a few equal proportions (3.3%) of the study group had back pain, pyrexia, or hyper-stimulation.

**Figure (3):** shows the comparison between the study and control groups in relation to the IVF outcome. The figure indicates that success rate of the study group was higher than that of the control group (30.0% Vs 26.7% respectively) but, with no statistical significant difference. However, cycle cancelation and ectopic pregnancy were slightly more in the control group than those in the studied group (10.0%, 6.7% respectively for control group but 0.0% and 3.3% respectively in studied group).

#### **Discussion:**

Infertility is a crisis of the deepest kind. Everyone has the goal of

becoming a parent, but for those who do; being unable to conceive a child is an exquisitely painful reality. Although estimates of its prevalence are not very accurate and vary from one region to another, about 8% of couples experience some form of infertility problem during their reproductive lives (**BBC News, 2008**). In Egypt, the prevalence of infertility, using WHO definition, has been estimated through anecdotal reports and clinic based studies to be 10% to 15% among married couples (**Boivin et al., 2007; Dyer, 2008**).

**Jonathan, (2007)** emphasized the importance of counseling the couples about the risks that may be encountered during the IVF process such as; hyperpyrexia, vaginal laceration or bleeding, adverse reaction to anesthesia, or medications, injury to pelvic structures, and oxygen insaturation. This fact is in line with the present study findings, which showed some of those mentioned risks and agreed that people acquire a sense of control over events when they are given information that makes it possible for them to form a mental image of these events as mentioned by (**Orvieto, et al., 2008**).

No differences of statistical significance were found between the study and control groups in relation to socio-demographic and biological characteristics. This was beneficial to the present study as it ensured generalization of the study results as well as avoids the effect of other confounding variables. The current study also shows that there was no-statistical significant difference between the study groups when considering the duration of infertility. More than one fourth of the study and control groups respectively were infertile for 10 years and more (26.6% and 33.3% respectively). This finding

is in agreement with **Olivennes, Mannaerts and Struijs (2010)** who showed that there was a relation between the duration of infertility and the success rate of IVF.

Apparently, the counseling program and the use of the information guide demonstrated a significant difference between women's satisfactory knowledge and practice related to the various elements of IVF treatment. Thus knowledge and practice to the; appropriate selection of the IVF candidate, nursing and medical preparation before and after the procedure, risks and problems that may be encountered and measures of coping with these problems, showed a higher percent of a satisfactory score among women in the study group compared to those of the control group.

This is supported by **Darwish et al., (2009)** in South Africa about guidelines for counseling in infertility who emphasized the importance of organization of the educational material, using short unambiguous sentences, simple graphs and videos, together with therapeutic communication, in planning and implementing the counseling program. This will create a positive and constructive effect on the knowledge and health practices of patients undergoing IVF treatment.

In addition, **Lossick (2008)** in Australia and **Savitz-Smith (2007)** in USA have reported that counseling as an integral part of infertility treatment services should encompass all sources of support; whether spiritual, personal or professional. This may be a source of strength to patients enabling them to accept the situation and improve the outcome of the treatment.

As regards the IVF outcome the success rate of the study group was slightly higher than that of the control group (30.0% Vs 26.7% respectively),

but with no statistical significant difference. Moreover, cycle cancellation (10.0%) and ectopic pregnancy (6.7%) were slightly more in the control group than those in the study group (0.0% and 3.3% respectively). These findings are not totally in congruence with **Hammarberg et al., (2009)** in Australia. On the other hand, **Thurin, et al., (2010)** in England in their study of the effectiveness of counseling on assisted reproduction, have found a positive relationship between good counseling program and positive IVF outcome.

A possible explanation of the discrepancies between the previous results may be due to the fact that the outcome of IVF treatment depends on many factors "duration and causes of infertility, patient's prognosis, and stressors encountered....etc" that make matching between the two studied groups is very difficult. In this regard **Hunault, et al., (2006)** mentioned that IVF nurses can provide informed, medical and timely support and they must learn not only just the science of reproduction but also the art of telling a patient empathically of her pregnancy is negative. Furthermore, **Klonoff-Cohen, et al., (2008)** in Netherlands have emphasized that the goal of their counseling intervention was to reduce unrealistic couples expectations concerning IVF treatment outcome.

Interestingly, women in the study group reported less physical and psychosocial problem compared to those of the control group ( $p < 0.002$ ). In addition, the vast majority agreed that ongoing counseling should be part of the IVF treatment and nearly 80% of the respondents found that psychosocial, physical, and medical counseling helped them to develop coping strategies and they were better

equipped to cope with bad results ( $p < 0.001$ ). This is in coherence with **Tsafir (2007)** in Turkey and **Jonathan (2007)** in Egypt who studied the effectiveness of counseling program "of nine classes" on IVF outcome. They reported lesser psychosocial and marital problems and fewer physical problems among the studied group. Also, **Savitz-Smith, (2007)** suggested that counseling intervention should focus on education and skills training as well as meet the needs of the IVF couples. Recently, **Van Loendersloot et al., (2010)** added that ongoing counseling should be part of having IVF and that the clinic should contact couples between treatments. Furthermore, reassessment of a couple's feelings and degree of psychological distress should be made after each IVF cycle.

#### **Conclusion:**

Knowledge and practices regarding almost all the parameters of the IVF treatment were significantly improved after the counseling program. Problems encountered during the treatment were alleviated significantly in studied group compared to control group. On the other hand, the indicators of IVF success (including pregnancy test, percentage of cycle cancellations, occurrence of ectopic pregnancy or multiple pregnancies) pointed to slight increase in IVF success rate among women in studied group compared to control group but with no statistical significant difference.

#### **Recommendation:**

- Counseling about IVF treatment should be offered by the nurse midwife and must include all the details of the IVF process, along with meticulous instructions for the



couples regarding each step of the IVF treatment.

- Further research is proposed to test other interventions may improve the IVF outcomes.

**Table (1): Distribution of the study subjects according to their general characteristics and present infertility history**

Items	Study group n=30		Control group n=30		X <sup>2</sup> Test	p-value
	No.	%	No.	%		
<b>Women age (years):</b>						
20-30	18	60.0	19	63.3	0.777	0.855
31-35	11	36.7	9	30.0		
36-40	1	3.3	2	6.7		
<b>Duration of infertility(years):</b>						
<5	6	20.0	4	13.3	0.65	0.88
5-	16	53.4	16	53.4		
10+	8	26.6	10	33.3		
<b>Types of infertility</b>						
Primary.	29	96.7	28	93.3	0.35	0.55
Secondary	1	3.3	2	6.7		
<b>Causes of infertility</b>						
Male causes	14	46.7	15	50.0	1.34	0.85
Female causes.	10	33.3	10	33.3		
Combined causes.	3	10.0	2	6.7		
Unexplained	3	10.0	3	10.0		

(\*) Statistically significant at  $p < 0.05$

**Table (2): Distribution of the study subjects according to their general knowledge about in Vitro Fertilization.**

Items	Groups				X <sup>2</sup> Test	p-value
	Study (n=30)		Control (n=30)			
	No.	%	No.	%		
<b>Criteria of selection for IVF.</b>						
Satisfactory	14	46.7	1	3.3	17.358	0.000*
Unsatisfactory	16	53.3	39	96.7		
<b>Factors affect success rate</b>						
Satisfactory	17	56.7	1	3.3	31.310	0.000*
Unsatisfactory	13	43.3	29	96.7		
<b>Factors affect stopping program</b>						
Satisfactory	14	46.7	0	0.0	30.133	0.000*
Unsatisfactory	16	53.3	30	100.0		
<b>The time/duration needed to commit for one cycle of IVF</b>						
Satisfactory	17	56.7	3	10.0	22.837	0.000*
Unsatisfactory	13	43.3	27	90.0		
<b>Being aware about labs&amp; investigations.</b>						
Satisfactory	25	83.3	13	43.3	10.7	0.000*
Unsatisfactory	5	16.7	17	56.7		

(\*) Statistically significant at  $p < 0.05$

**Table (3): Distribution of the study subjects according to their knowledge about ovulation induction, egg retrieval, semen collection and fertilization process.**

Items	Groups				X <sup>2</sup> Test	p-value
	Study (n=30)		Control (n=30)			
	No.	%	No.	%		
<b>Recognize the types of ovarian induction protocols.</b>						
Satisfactory	24	80.0	1	3.3	41.16	0.000*
Unsatisfactory	6	20.0	29	96.7		
<b>Being aware about induction medication</b>						
Satisfactory	28	93.3	6	20.0	33.6	0.000*
Unsatisfactory	2	6.7	24	80.0		
<b>Being aware about egg retrieval process.</b>						
Satisfactory	18	60.0	10	33.3	34.3	0.000*
Unsatisfactory	12	40.0	20	66.7		
<b>Being aware about semen collection process.</b>						
Satisfactory	27	90.0	5	16.7	32.7	0.000*
Unsatisfactory	3	10.0	25	83.3		
<b>Being aware about fertilization procedure.</b>						
Satisfactory	18	60.0	2	6.7	19.3	0.000*
Unsatisfactory	12	40.0	28	93.3		

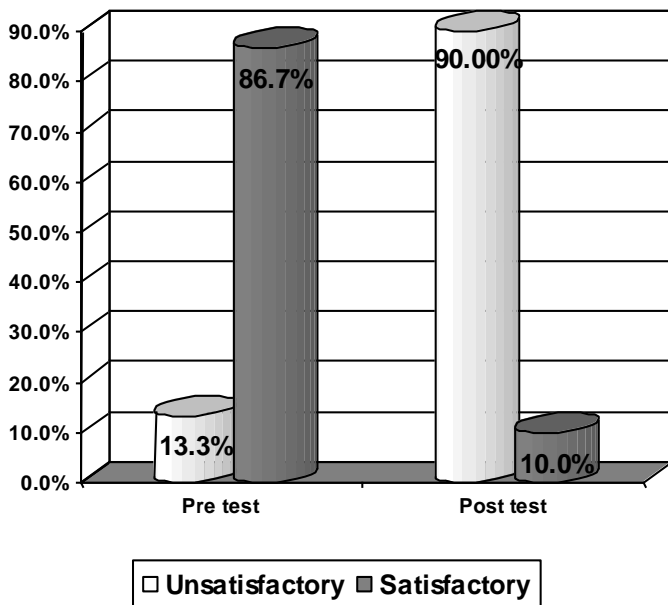
(\*) Statistically significant at  $p < 0.05$

**Table (4): Distribution of study subjects according to their knowledge about embryos transfer, pregnancy confirmation and nursing instructions.**

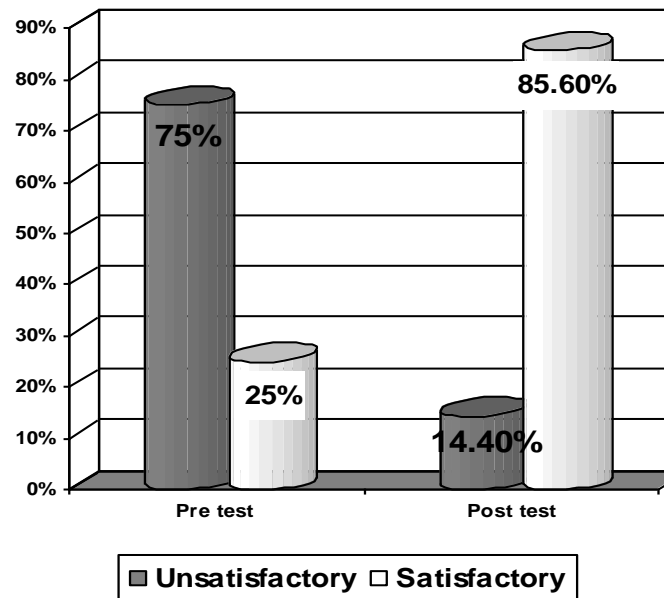
Item	Study group (n=30)		Control group (n=30)		X <sup>2</sup> Test	p-value
	No.	%	No.	%		
<b>Being aware about ET transfer procedure.</b>						
Satisfactory	18	60.0	1	3.3	28.9	0.000*
Unsatisfactory	12	40.0	29	96.7		
<b>Being aware about methods of pregnancy confirmations.</b>						
Satisfactory	28	93.3	6	20.0	33.690	0.000*
Unsatisfactory	2	6.7	24	80.0		
<b>Being aware about the risks of IVF procedures and coping measures</b>						
Satisfactory	25	83.3	13	43.3	10.7	0.005*
Un satisfactory	5	16.7	17	56.7		
<b>Being aware about nursing instruction.</b>						
Satisfactory	24	80.0	3	10.0	36.5	0.000*
Un satisfactory	6	20.0	27	90.0		

(\*) Statistically significant at  $p < 0.05$

**Figure (1): Pre-post total knowledge score of the study group about IVF process.**



**Figure (2): Pre-post total practice score of the study group about IVF medication**



**Table (5): Distribution of study subjects according to psychosocial and marital problems encountered during the IVF treatment**

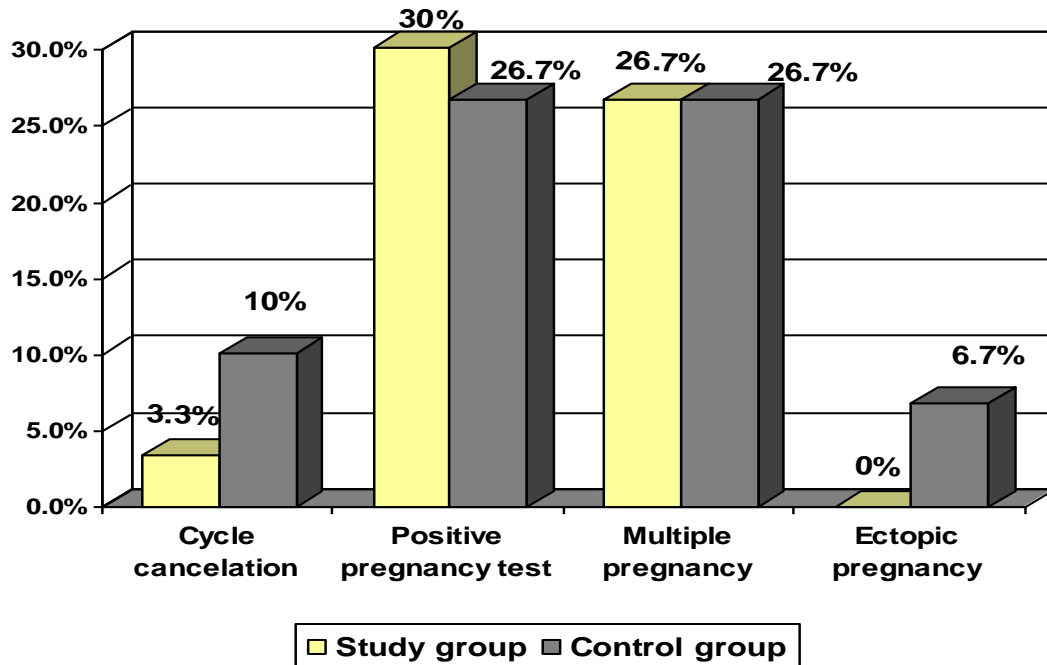
Problems	Study group n=30		Control group n=30		X <sup>2</sup> Test	p-value
	No.	%	No.	%		
• Anxiety	9	30.0	20	66.7	31.3	*0.000
• Depression	2	6.7	12	40.0	22.1	*0.000
• Loss of self- esteem	7	23.3	9	30.0	3.860	0.27
• Fear	6	13.3	27	90.0	36.5	*0.000
• Sadness	10	33.3	20	66.7	10.2	*0.017
• Social problems	6	20.0	16	53.3	3.74	0.29
• Marital problems	4	13.3	11	36.7	8.992	*0.029

(\*) Statistically significant at  $p < 0.05$

**Table (6): Distribution of the study subjects according to their physical problems encountered during the IVF treatment**

The problems	Study group (n=30)		Control group (n=30)		X <sup>2</sup> Test	p-value
	NO.	%	NO.	%		
• Irritability, fatigue.	12	40.0	27	63.3	17.8	*0.000
• GIT problems	8	26.6	19	90.0	9.4	*0.009
• Headache	10	33.3	19	63.3	11.1	*0.004
• Legs cramps.	3	10.0	12	40.0	24.7	*0.031
• Back pain.	1	3.3	16	53.3	13.4	0.31
• Pyrexia (<38.5).	1	3.3	7	23.3	3.2	0.07
• Hyper-stimulation.	1	3.3	3	10.0	2.19	0.33

(\*) Statistically significant at  $p < 0.05$

**Figure (3): Distribution of the study groups according to IVF outcome****References:**

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