Effect of preparation program on reducing anxiety level among women undergoing Assisted Reproductive Treatment (ART) Process

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Abstract: Infertility treatment results in a significant psychological burden and negative impact on emotional well-being. Aim of the current study was to evaluate the effect of preparation program on reducing anxiety level among women undergoing assisted reproductive treatment process. Design: A non equivalent one group pretest-posttest quasi experimental research design was adopted for this study. Sample. A purposive sample of 50 infertile women undergoing assisted reproductive treatment procedures were recruited according to certain inclusion criteria: Setting: The study was conducted at Ganah Hospital at El Mohandeseen, Cairo, Egypt .Tools: Three tools were used to collect the data; 1) Structured interviewing questionnaire tool, 2) State trait anxiety inventory (STAI) scale and 3) preparation program process tool. Results: Findings of the current study revealed that the mean age of study sample was 30.1 ± 7.3 years, 72% of study sample had primary infertility, while 28% had secondary infertility and the mean duration of infertility was 3.99 ± 2.68 years. There was statistical significant differences between levels of anxiety mean score before and after preparation program (48.2 ± 10.7 Vs 43.7 ± 11.9, p= <0.05). Also, there was a statistical significant differences in the mean total knowledge score of ART process before and after the program (16.56 ± 6.33 Vs 27.76 ± 3.68, p <0.01). A significant correlation was found between the pretest state anxiety score and regularity of menstrual period (r= 0.312, p= 0.027) as well as, significant correlation between the pretest –posttest total knowledge score and women's level of education and income (r=-0.516, 0.342 at p= 0.000, 0.015 respectively). Conclusion and recommendation: implementation of the preparation program about ART process significantly improves the knowledge level and reduces the anxiety level of the infertile women Recommendation: Conducting a periodic educational training program for nurses who are working at ART units to raise their awareness about their roles when dealing with Infertile Women.

Keywords: Anxiety Level, Assisted reproductive treatment, Intervention, infertility.

1. INTRODUCTION

In the second decade of the new millennium, infertility remains a highly prevalent global condition. Infertility is estimated to affect between 8 and 12% of reproductive-aged couples worldwide (1). However, in some regions of the world, the rates of infertility are much higher, reaching 30% in some populations including South Asia, sub-Saharan Africa, the Middle East and North Africa, Central and Eastern Europe and Central Asia (2). Infertility is defined as a failure to conceive within one or more years of regular unprotected sexual intercourse. There are two types of infertility primary and secondary infertility, primary infertility denotes couples who have never been able to conceive; while secondary infertility indicates difficulty conceiving after already having conceived previously. (3).

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According to a systematic analysis of national health surveys, in 2010, approximately 10.5% of women around the world experienced secondary infertility, and roughly 2% experienced primary infertility (4). Infertility experience is accompanied with physical, social, and economic stresses that affect every aspect of the individual's life. Also, treatment difficulty, complicated treatment protocol, daily injection, semen analysis, numerous sonographic occasions, and financial costs have been repeatedly announced as factors of psychological stress by people seeking infertility treatment (5).

Assisted reproductive treatment (ART) is defined as all treatments or a procedure that includes in vitro handling of both human oocyte and sperm or of embryos for the purpose of establishing a pregnancy, it includes In Vitro Fertilization (IVF) and Embryo Transfer (ET), Gamete Intra Fallopian Transfer (GIFT), Zygote Intra Fallopian Transfer (ZIFT), Intracytoplasmic Sperm Injection (ICSI), tubal embryo transfer, gamete & embryo cryopreservation, oocyte & embryo donation (6). Egypt is considered one of the first three Middle East countries along with Saudi Arabia and Jordan to introduce ART since 1986, and later (7).

Anxiety is a transitory emotional state that can be characterized by subjective feelings of tension, apprehension, and is accompanied with the activation of the autonomic nervous system and the hypothalamus-pituitary-adrenal axis (7). The function of anxiety is to motivate the individual to avoid situations that could be potentially harmful .Because of the protective function of this emotion, being able to experience anxiety and to have an appropriate stress response to a stressor is an important adaptive function for the organism; however, excessive or irrational anxiety can have a number of detrimental effects on people's lives. The psychological stress of patients undergoing fertility treatment is more than that of physical stress and most of these patients reported symptoms of depression, anxiety, anger, and tingling after their unsuccessful treatment that persist for a long time and may cause depressive (8). ART is one of the most expensive and most invasive treatments, and researches showed that the more stressful women start with these treatments. From where, to increase the pregnancy it seems to be a good strategy to reduce stress during treatment (9).

A study was performed by (10) in Germany to determine levels of anxiety during the course of IVF treatment, the results found that women undergoing IVF have higher levels of mean anxiety than the average population for state and trait anxiety (47.4 ± 11.0 & 40.1 ± 9.85 respectively) .

In addition, a study done by (11) to assess the anxiety and depression in women undergoing infertility treatment, the study results show that assisted reproductive techniques treatment leads to an increased level of anxiety, especially in cases of treatment failure or longer durations of treatment. So, supporting women who experience a significant psychological burden from infertility treatment could potentially lead to better functioning in quality of life.

Providing preparation program to the infertile women throughout the diagnostic and therapeutic process of ART in the form of appropriate instructions and offering educational counseling services as part of infertility treatments appears to be valued (12). It has been shown that, psychotherapy and counseling interventions in the form of providing information support can lead to significant decreases in anxiety and depression and increases in the chance of pregnancy among infertile patients (13)

A descriptive comparative study done by (14) among 60 couples diagnosed with infertility and attending assisted reproductive technology (ART) to assess knowledge and attitude regarding infertility treatment the study finding concluded that, both male and female spouses need to be equipped with adequate knowledge and favorable attitude towards infertility and its management in order to help them cope with it satisfactorily.

In Egypt, a study conducted by (15) to evaluate the effect of counseling versus self instructional brochure on preparing infertile couple to cope with in-vitro fertilization procedures among 80 infertile couples (40 couples in experimental group & 40 couples in control group). The study found that counseling was more effective than self instructional brochure in preparing couples for in-vitro fertilization by empowered them with knowledge and provide psychological support during the procedure that provides a chance for interaction and discussion. Also, the study recommended that, counseling and education for in vitro fertilization procedures should be given for infertile couples undergoing IVF especially for first trial starting treatment. Nurses have important roles and responsibilities in every stage of ART therefore; they are in a very advantageous position by being with women during all the process of ART. Although , there is an international agreement that fertility centers need to have necessary counseling programs for alleviating psychological problems among infertile couples (16), and because the research investigator found scattered review study in preparation program for infertile

women's undergoing assisted reproductive treatment in Egypt to reduce their stress and or anxiety .So, this study was conducted to assess the effect of preparation program on reducing anxiety level among infertile women's undergoing assisted reproductive treatment process .

Significance of the Study

Infertility is a critical major life problem that has deleterious effects on the psychological well-being of infertile women (17). Infertile women experience greater stress in their life compared to fertile women and have a lower quality of life. A greater number of infertile women referred to infertility centers are not exactly informed about the treatment process and a significant number of couples complain that they are not told about the treatment path and a lot of their questions remain unanswered. Therefore, the provision of preparation program services during process of ART should not only provide for women, but also for the rest of the family (18).

Educational programs have widely been considered to be a useful and beneficial service offered to infertile women involved in assisted reproductive technology (ART). (12). Findings from this study will contribute to better understanding of the effect of preparation program on reducing anxiety level among women undergoing ART procedures. Also, findings from this study will helps nursing staff to enhance their knowledge and practice regarding the proper way for dealing with infertile women undergoing ART and to alleviate the associated anxiety related to infertility treatment procedures.

Aim of the Study

The aim of the current study was to assess the effect of preparation program on reducing anxiety level among women undergoing assisted reproductive treatment process.

Research hypotheses

To achieve the aim of this study, the following research hypotheses were formulated:-

H1. Women who receive preparation program will have higher mean post-test knowledge score compared to the mean of pre-test knowledge score.

H2. Women who receive preparation program will have lower mean post-test anxiety score compared to the mean of pre-test anxiety score.

Operational definition

Preparation program : In this study means providing information about selected assisted reproductive treatment procedures to infertile women in relation to preparation, techniques, and post procedure instructions as measured by mean knowledge score level and mean level of anxiety score (before and after).

Assisted reproductive treatment process: In this study means the cycling process that should be implemented for women who undergoing in Vitro Fertilization (IVF) and Intracytoplasmic sperm injection (ICSI) treatment
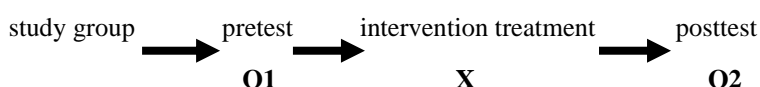
2. SUBJECTS AND METHODS

Aim of the Study

The aim of the current study was to evaluate the effect of preparation program on reducing anxiety level among women undergoing assisted reproductive treatment process.

Research Design

A non equivalent one group pretest-posttest quasi experimental research design

study group → pretest → intervention treatment → posttest

O1   X   O2

Sample:

A purposive sample of 50 infertile women undergoing assisted reproductive treatment process was recruited in this study by using a power analysis of .90 (β = 1-.90 = .10) at alpha .10 (one-sided) with large effect size (0.5). The study sample

was recruited based on the following **inclusion criteria:** Primary or secondary infertile women who went through assisted reproductive technology (ICSI or IVF), during their reproductive period, at least can read and write and at the first trial for assisted reproductive technology were included in this study. **Exclusion criteria:** women who had any medical disease such as hypertension, diabetes mellitus, cardiac disease or had previous failure of ART.

Setting:

The study was conducted at Ganah hospital at El Mohandeseen, Cairo, Egypt, it a private setting that provides obstetric, gynecological services and assisted reproductive services by skilled experts in infertility diagnosis, management and ART process.

Tools for data collection

Three tools were used to collect the needed data: Structured interviewing questionnaire tool; state trait anxiety inventory (STAI) scale; and preparation program process tool.

I. **Structured Interviewing questionnaire Tool:**This tool was designed by the research investigator after reviewing the related literature & it includes two sections.

a) Personal data such as, age, educational level, occupation, residence, monthly income, duration of marriage and degree of consanguinity.

b) Data about obstetric profile & infertility history such as regularity of menstruation , duration of menstrual flow & interval, cause of infertility (male, female, or idiopathic), duration of infertility,.

II. **State Trait Anxiety Inventory Scale (STAI)**

This scale was adopted from (20) translated to Arabic language by (21) and tested for validity (r=.79) and reliability (internal consistency were r= .90; test-retest were r=.75. This tool composed of 40-items and assess two distinct anxiety concepts; state anxiety (A- state) and trait anxiety (A-trait) .The state anxiety scale consist of 20 questions that evaluate how subjects feel at the moment of responding while trait anxiety scale consist of 20 questions that evaluate how subjects feel generally in dealing with their ordinary life situation. Responses are recorded on a four-point Likert scale ranging from "not at all" to "very much so".

Scoring

Each item is rated from 1 to 4 in "4" indicates higher anxiety. The scale contains reverse-score items that are rated reversely; these items are 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20 in state anxiety scale and 1, 6, 7, 10, 13, 14, 16, and 19 in trait anxiety scale. Total scores ranged from a minimum of 20 to a maximum of 80, with higher scores indicate greater anxiety. Scores from 20 to 49 are defined as low anxiety, and scores from 50 to 80 are defined as high anxiety level.

III. Preparation program process tool:

This tool is developed by the research investigator after reviewing the related literature for ART process involved in this study (ICSI and IVF), this tool used to assess the woman knowledge before and after the provision of preparation program. This tool includes 33 multiple-choice questions (MCQ) related to information about female reproductive system, ovulation, normal fertilization, meaning of ART, indications, medications used before the procedure (types, routes& precautions), preparation `for the procedure, technique, complications and post procedure follow-up.

Scoring

For correct answer, the study sample got one (1) score, and zero (0) score for incorrect answer (for pre and post test). The total scores ranged from 0-33 with higher score indicate having satisfactory knowledge. levels of knowledge categorized as the following; A score equal to or more than (≥75%) considered as satisfactory level of knowledge, and score ranged from 50-74% considered as partially satisfactory ,while score of less than <50% was considered as unsatisfactory .

Tool Validity and reliability:

Tools were submitted to a panel of 5 experts in the field of obstetrics, gynecology & maternity nursing to test the content validity, modification was carried out according to the experts' judgment on clarity of sentences and the appropriateness of contents and to test the reliability of the tool of ART preparation program knowledge tool (Cronbach alpha= 0.80) was used.

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Ethical consideration

Primary approval was obtained from the director of the setting to conduct the study after explaining the nature and purposes of the study .Women who matched with the inclusion criteria were informed about the purpose and nature of the study to gain their acceptance to be recruited in the study. The research investigator emphasized that the participation in the study is entirely voluntary. Anonymity and confidentiality and they can withdraw at any time during the study without giving reasons; this withdrawal will not affect the care they are receiving. Written consent was obtained from all study samples.

Pilot study

A pilot study was conducted on 10% of the study sample to ensure the clarity, feasibility and validity of the tools. Consequently the estimation of time needed for data collection. The pilot study lasted about 2 months.

Procedure

Data was collected through a period of 14 months started from the end October 2016 to the end of December 2017. The research investigator attend the study setting 4 days / week from 9.00 am to 2.00 pm at Ganah El Mohandeseen hospital .The study conducted on four phases: preparatory, interviewing, implementation and evaluation phase.

Preparatory phase: During this phase , the research investigator construct the data collection tools; obtaining an official permission to carry out the study. As well as, designing of preparation program and teaching materials used during the program.

2. Interviewing phase

After the participants were clinically diagnosed as an infertile cases and the obstetrician identified which protocol of ovarian stimulation should be used, the research investigator interviewed the study sample individualized in waiting room and introduced herself and explained the purpose of the study, its importance, and its benefits in order to obtain their written acceptance to be recruited in this study as well as, to gain their cooperation, then obtaining the informed consent. Also, data collection was obtained from each one by using structured interviewing questionnaire tool to collect data related to personal data, obstetric profile and infertility history. The research investigator asked the study sample questions in Arabic and recorded her answer in the questionnaire sheet. Also, during this phase, the research investigator obtained a baseline data for the woman's anxiety and knowledge levels using pre test state/trait anxiety inventory (STAI) scale; and pretest ART preparation program tool. This phase took about 30 -35 minutes.

3. The implementation phase:

The proposed preparation program was implemented in 4 sessions (a) At the beginning of the protocol of ovarian stimulation; b) During visits for follow up of ovarian stimulation; c) At oocyte retrieval date; and d) At embryo transfer date. The sessions were conducted as the following:-

a. First session: (At the beginning of the protocol of ovarian stimulation). During this phase, administration of 5000 or 10.000 IU of Human chorionic Gonadotropin (HCG) was administer to the woman by the doctor and after that the research investigator presented power point presentation about explanation of female reproductive system, ovulation, how normal fertilization occurs, meaning of ART especially (IVF or ICSI), indications, preparation of the procedure, and the medication that preceding assisted reproductive procedure. The research investigator use visual materials as photos and videos were used as teaching aides to facilitate the teaching process. At the end of this session, a designed booklet was given to the woman, and the woman was instructed about date for the next visit to continue the designed preparation program intervention based on the commitment provides by the doctor prescription.

b. Second session: during this visit , follow up of ovarian stimulation by the doctor by Sonar, after that, the research investigator provide session by using power point presentation about the technique of oocyte retrieval was explained in simple clear wards and includes information about the time the procedure would be taken, the instruments the physician was used, type of anesthesia, instructions before this step, and precaution taken to prevent any problems. This session took 30-45 minutes;

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c. Third session In the day of oocyte retrieval was timed from 34-36 hrs after administration of 5000 or 10.000 IU of Human chorionic Gonadotropin (HCG), this session was contained explanation of the fertilization stage in the lab and explains the process of embryo transfer technique, the consequences for her personal life during the treatment and the risks using power point presentation. It took 30-45 minutes

d. Fourth session: In the day of embryo transfer was timed from 3-5 days from the oocyte retrieval date, it took 45-60 minutes. The research investigator instruct the woman post procedure care and follow-up regimen (which include detailed instruction after embryo transfer about rest & , sexual relation, using of the prescribed medication as vaginal progesterone as well as , the consequences for her personal life .

4.Evaluation phase: immediately after implementing the preparation program, post test state/trait anxiety inventory (STAI) and post-test ART preparation program tool assessment were provided for the study sample to measure the changes occurs in knowledge score and anxiety level.

Statistical design

The collected data was tabulated, computed and analyzed using Statistical Package for the Social Science (SPSS) program version (18). Descriptive as well as, inferential statistics were utilized to analyze data pertinent to the study. Level of significance was p-value < 0.05.

3. RESULTS

Description of the study sample

The age range of the study sample was ≤ 20 - >40 years with a mean of (30.1±7.3) years, 82% residence in urban area, and 70% of them were housewives. The mean monthly income (3253±2521.5) pounds and 56% of them reported is adequate to cover the treatment expenses, 48% had received university education, Regarding the menstrual history, 76% of the study sample had regular menstruation, duration of the menstrual flow ranged between 3-9 days with a mean of 4.9±1.34 days. Also, 72% from the study sample had primary infertility, 40% from the study sample reported that the causes of infertility related to husbands, 28% related to wife compared to only 8% was related to both partner; 72% of the study sample reported the duration of infertility was ≤5 years, with a mean of 3.99±2.68 years.

Regarding to level of knowledge among the study sample, figure (1) and table (1) shows that the difference between level of knowledge domains before and after implementation of preparation program as 52 % of the study sample had unsatisfactory knowledge base about ART before the intervention compared to 84 % improvement after the program .Also, there was significant differences between total mean knowledge domains scores before and after the implementation of the program (p= <0.01) .

Figure (1) represents the levels of knowledge among the study sample (pre and post)
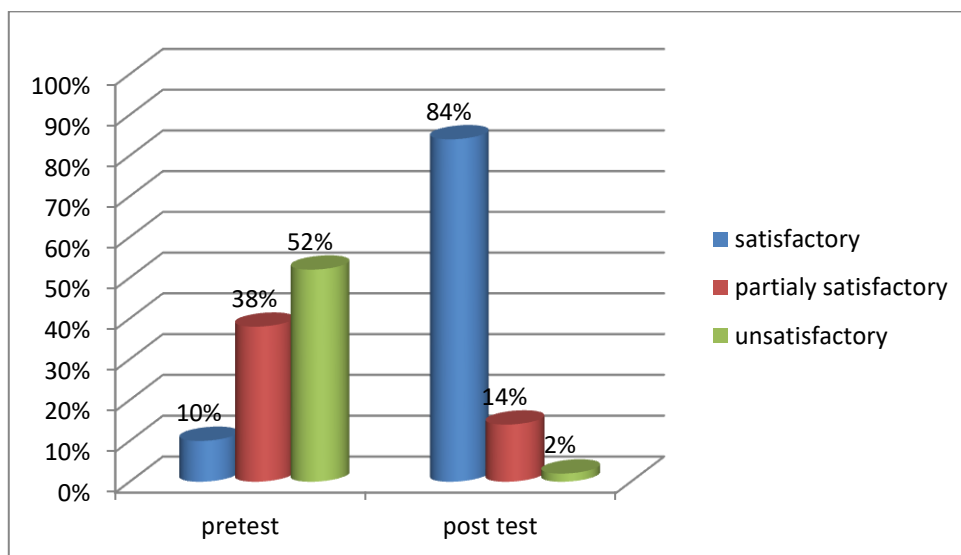
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Table (1) Comparison between women's knowledge domains scores pretest and post test (N=50).

Knowledge Domains	Pretest Mean±SD	Post test Mean±SD	t	P*
1. Reproductive system, ovulation and fertilization	5.86±2.31	8.14±1.30	-8.603	0.000**
2. ART (meaning, indication, stages)	3.76±1.70	5.46±1.34	-6.642	0.000**
3. Stage of ovarian stimulation and retrieval	3.82±2.32	8.12±1.17	-12.079	0.000**
4. Stage of embryo transfer	2.42±1.26	3.84±0.42	-7.661	0.000**
5. Side effect of ART	*0.70±093*	2.20±0.83	-9.245	0.000**
Total mean knowledge score	16.56±6.33	27.76±3.68	-10.807	0.000**

**Highly significant at p <0.01

Description of the study sample according to their anxiety level (pre and post)

Figure (2) describe the study sample according to their levels of anxiety pretest and posttest as 46 % from the study sample shows high level of anxiety pretest compared to 22 % posttest as well as majority (78%) had low anxiety level in the post test.

Figure (2) Distribution of the study sample according their anxiety level.
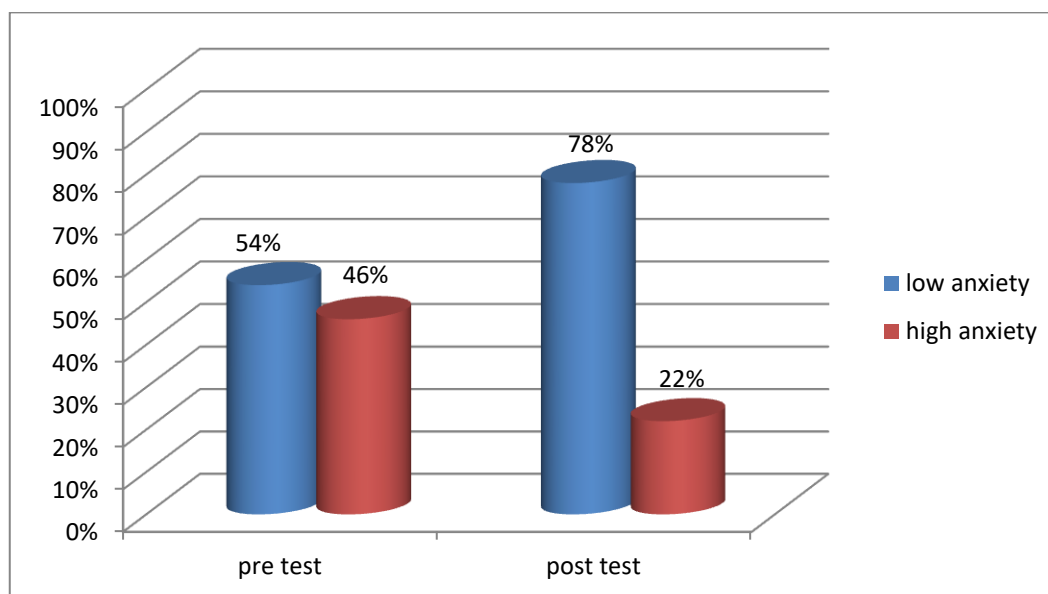
Also, table (2) shows that statistically significant difference between mean state anxiety score before the program (pretest) compared to the post test (48.2±10.7and 43.7±11.9 ,p= <0.05).

Table (2) mean difference between state anxiety score pretest and posttest

Variable	(Pretest) Mean±SD	(Posttest) Mean±SD	t	p
State anxiety score	48.26±10.72	43.70±11.92	2.609	0.012*

Significant at p <0.05

Relationship between state anxiety score , total knowledge scores and study variables

As shown in table (3), there was no statistical significant relation between the pretest post test state anxiety score and women's age, residence, level of education, occupation and income (r=-0.057, 0.046, 0.167, 0.186, -0.245 at p= 0.699, 0.752, 0.247, 0.195, 0.086 respectively).

Table (3) Relationship between the pretest and posttest state anxiety score and selected demographic variables.

Demographic variables	Pre test State Anxiety score		Post test State Anxiety score	
	r	**p**	**r**	**p**
Age	-0.057	0.699	-0.176	0.226
Residence	0.046	0.752	0.032	0.824
Level of education	0.167	0.247	0.271	0.057
Occupation	0.186	0.195	0.148	0.306
Income	-0.245	0.086	0.013	0.928

Also, Table (4) revealed that there was a statistical significant correlation between the pretest state anxiety score and regularity of menstrual period (r= 0.312, p= 0.027). on the other hand ,there was no statistical significant correlation between the post-test state anxiety score and duration of marriage, menstrual regularity ,duration of menstrual flow, duration of infertility, cause of infertility (p= >0.05) .

Table (4) Relationship between the pretest and posttest state anxiety score and selected obstetrical & gynecological variables.

Obstetrical & gynecological variables	Pre test State Anxiety score		Post test State Anxiety score	
	r	**p**	**r**	**p**
Duration of marriage	0.062	0.671	-0.180	0.212
Regularity of menstrual period	0.312	**0.027***	0.117	0.417
Duration of menstrual flow	-0.206	0.151	-0.086	0.553
Duration of infertility	0.036	0.802	-0.064	0.659
Cause of infertility	0.157	0.278	-0.129	0.372

*Significant at p <0.05

In addition, the study findings shows that there was a statistical significant correlation between the pretest –posttest total knowledge score and women's level of education and income (r=-0.516, 0.342 at p= 0.000, 0.015 respectively). On the other hand, there was no statistical significant correlation between the pretest total knowledge score and women's age, women's residence, and occupation (r=0.079, 0.017, 0.142 at p=0.591, 0.907, 0.327 respectively).Table (5).

Table (5) Relation between the pretest and posttest total knowledge score and demographic variables

Demographic variables	Pre test total knowledge score		Post test total knowledge score	
	r	**p**	**r**	**p**
Age	-0.079	0.591	0.056	0.703
Residence	0.017	0.907	0.098	0.500
Level of education	0.516	**<0.01****	0.428	**<0.01****
Occupation	0.142	0.327	0.229	0.109
Income	0.342	0.015*	0.238	0.096

*Significant at p <0.05   ****Highly significant at p <0.01**

Also, as shown in table (6), there was a statistical significant correlation between the baseline state anxiety and post test state anxiety scores as well as, the pre & post test trait anxiety score (r= 0.409, 0.355 at p= 0.003 and P= 0.011 respectively).

Table (6) Relation between the pretest and posttest state anxiety score and pre test trait anxiety score.

Variables	Pre test State Anxiety score		Post test trait Anxiety score	
	r	**p**	**r**	**p**
Post test State Anxiety score	0.409	**0.003****	1	
Pre test Trait Anxiety score	0.355	**0.011***	0.263	0.065

*Significant at p <0.05

**Highly significant at p <0.01

4. DISCUSSION

The aim of the current study was to assess the effect of preparation program on reducing anxiety level among women undergoing Assisted Reproductive treatment procedures. Findings of the current study are discussed to test the following research hypotheses "H_1". Women who receive preparation program will have higher mean post-test knowledge score than the mean of pre-test knowledge score, and "H_2". Women who receive preparation program will have lower mean post-test anxiety score than the mean of pre-test anxiety score.

Regarding to the first hypothesis, the study findings support the hypothesis that women who receive preparation program will have higher mean post-test knowledge score than the mean of pre-test knowledge score. This finding were supported by a randomized controlled study done by (22) to evaluate a model of routine pre-IVF counseling among 141 consecutive infertile couples preparing for their first IVF. The results showed that, counseling provided help for 86% of initially non-demanding subjects and 96% of those initially requesting a session. Also, the study concluded that routine counseling centered on the narrative provides an acceptable form of psychological assistance for pre-IVF couples. In addition, study done by (23), discuss the role of counseling in assisted reproductive technology programs in Australia. They reported that, counseling is provided for a wide range of issues that people experience during fertility treatment (ART).

Moreover, (10), in Egypt, evaluated the effect of counseling versus self instructional brochure on preparing infertile couple to cope with the in vitro fertilization procedure among 80 infertile couples; a group of 40 couples received counseling about IVF procedure and a group of 40 couples who received self instructional brochure. The results revealed that, counseling was more effective than self instructional brochure in preparing couples for in-vitro fertilization for providing them with knowledge and psychological support during the procedure.

Also, the current study findings are matched with the data of the study done by (25) to determine the knowledge about fertility and assisted human reproduction (AHR) treatments of a large sample of 3,345 infertile women between the ages of 20 and 45 years, the study found that the overall knowledge was low, with 50% or more of the sample answering only 6 of 16 questions correctly.

Furthermore, the current study findings are consistent with (26), who evaluate the effectiveness of online education on increasing knowledge of fertility and assisted reproductive technologies (ART). The results showed that, participants' fertility and ART knowledge scores increased significantly immediately after the intervention.

On the contrary, study done by (27) to evaluate the effect of psychosocial counseling intervention for the first time IVF couples, (n=84 couples) in experimental group & (84) couples in control group. The results didn't support that implementation of the counseling intervention for first time IVF couples improved their conditions. This controversy might be due to difference in sample size characteristic, presence of support system with couples, differences in perception and religious values among the study sample.

In addition, the results support the 2nd hypothesis that women who receive preparation program will have lower mean post-test anxiety score than the mean of pre-test anxiety score.

The current study findings were supported by the study done by (12), who found that preparatory psychosocial counseling provided with specific and practical focus appears to be a potentially important and helpful service prior medically assisted reproduction intervention. Also, findings conducted by (10) found that level of anxiety decreased during the course of infertility treatment for both women and men. Moreover, A randomized controlled trial conducted by (28), to evaluate the effect of E-Therapy (Internet based) to reduce emotional distress among women undergoing assisted

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reproductive technology (ART). The results showed that, the intervention was effective by a reduction in the women having clinically relevant symptoms of anxiety and/or depression in the intervention group compared with the control group 3 months after the first ART cycle; and the risk difference of 24% (95% CI: 2–46%; P = 0.03).

On the contrary, a prospective, randomized, controlled study conducted by (29) to evaluate the acceptability and effects of routine pre-IVF counseling. The results illustrated that, there was no significant effect of counseling on anxiety and depression scores. In addition, study carried out by (30), among Danish women, the results showed no relationship between the infertility treatment and increase risk of anxiety level. This controversy might be due to type of the sample, different demographic characteristics as (age, occupation, income & education of the study sample), different culture of the study sample and different methodological tool with different scoring system.

In conclusion, the current study revealed that preparation program for infertile women undergoing assisted reproductive treatment procedures can plays a fundamental role in improving women knowledge level and indirectly can impact the perceived anxiety level associated with ART after receiving the program intervention.

5. RECOMMENDATIONS

Based on the current study findings, the following recommendations are suggested:

1- Preparation program for infertile women before ART process can be   effective in reducing level of anxiety.

2. Conducting a periodic educational training program for nurses who are working at ART units to raise their awareness about ART and their roles during the process of ART.

3. Design and implement a research study to examine the impact of prepation program before or during ART procedures on incidence of pregnancy rate.

4. Conduct a qualitative research design that explore the lived experience of women undergoing ART procedure among Egyptian women.

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