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# THE EFFECT OF COUNSELING ON WOMEN'S INFERTILITY -RELATED STRESS

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## ABSTRACT

*Objective* was to evaluate the effect of counseling on women's infertility-related stress. The study *hypothesis* was there is a statistically significant difference in the level of stress of infertile women between pre and post counseling. Intervention *design* was utilized to fulfill the aim of this study settings were in the gynecological clinics at Benha University Hospital, and Benha Teaching Hospital. *A purposive sample* of (67) infertile women who attended to the previous settings and fulfilling the study inclusion criteria were recruited to participate in the study. Data were collected through three main *tools*: Infertility structured interviewing questionnaire, Fertility Problem Inventory (FPI), the instructional guideline related infertility. The GATHER approach for counseling was followed for each woman. *Results* revealed that there was highly statistically significant difference pre and post counseling regarding all dimensions of stress and global score (p≤0.001). The mean scores showed a drastic improvement with all dimensions of stress and global score as the higher score revealed to higher stress. *Conclusion:* counseling can decrease the infertile women's perceived infertility-related stress. Thus, it could be suggested as one of the stress management strategies in infertile women.The study *recommended* establishment of counseling sessions and developing a support groups for the infertile couples and group therapy to minimize suffering and promote health condition.

**Key words:** Counseling, infertility-related stress, women

**Introduction**

Infertility is the inability to conceive after twelve months of regular unprotected intercourse or the inability to carry pregnancy to birth. Infertility is defined as the inability to conceive after a year of unprotected intercourse in women under 35, or after 6 months in women 35 years or older. Infertility affects the physical, social, psychological, sexual, and economical dimensions of the women's lives [1,2]. Infertility can be classified as either "primary" or "secondary". Primary infertility is a term used to refer to couples that have never conceived pregnancy in at least one year of regular intercourse without contraception. Secondary infertility refers to couples who have previously conceived successfully but who have difficulty achieving a subsequent conception [3].

Infertility could be due to a number of different factors, which may originate either in the male or female partner. Female factors for infertility include advanced maternal age, tubal factors (post-infection tubal damage, tubal obstruction, pelvic adhesions), ovulatory dysfunctions (including polycystic ovary syndrome), and endometriosis [4]. Male factors infertility includes varicocele, immunological problems, ejaculatory dysfunction, or defective sperm parameters (low concentration, poor motility) [5]. Although estimates vary widely, in about 10-17% of couples no cause is identified. There are also a large number of possible contributing factors that enhance or help to cause infertility. Others factors include untreated sexually transmitted disease such Chlamydia, hormonal imbalances, smoking, radiation exposure, exposure to certain chemicals including pesticides, exposure to lead or other heavy metals, caffeine consumption, and obesity[6].

The experience of infertility is highly stressful for women. Those who seek treatment participate in physically demanding and emotionally taxing medical procedures in an effort to achieve pregnancy even if the cause is attributed to husbands [7]. Moreover, infertility is accompanied by physical, economical, psychological and social stress which could affect all aspects of woman's life. The relationship between stress and infertility forms a vicious circle in which they intensify each other [8].

In a study [9] reported that, infertility conflicts are common and women exhibit negative emotions such as anger, hostility, isolation, feeling blamed, feeling unsupported, feeling misunderstood, feeling that one's spouse is not equally committed to having children, worrying about a possible breakup of the relationship, and actions such as blaming of husband and wife. Additionally, the complicated process of infertility has emotional and affective dimensions for women. The stressful condition of the infertile period, the type of treatments, defence mechanisms of individuals for coping with the problem, emotional, psychological and social supports, the stressful condition created by the high cost of modern treatment procedures, continual visits to physicians, continual references to infertility clinics which are sometimes situated in distant cities requiring long journeys, doing costly tests, wasting time, explaining personal life details to the physician, planning a definite sexual intercourse timetable by the physician, job absence for following up the treatments, frustration caused by the inefficiency of treatment procedures and thinking of never having a child, the pressures of family and society to have a baby as soon as women could and not be able to explain the problem to everybody, continual comparison with fertile women, maladjustments and possibility of separation and divorce, not having a complete knowledge about the causes of infertility and having the feeling of being a victim[10].

Infertility counseling is a process through which women are given an opportunity to explore their thoughts, feelings, and beliefs, in order to come to a greater understanding of their present situation, and to discover ways of living more satisfactory and effectively. The basic aim of counseling is to ensure that the women understand the nature of diagnosis and implications of treatment choice. Women were received adequate information and emotional support; women can cope in a healthy way with the consequences of treatment and get successful result [11]. Thus, fertility clinic nurse often need to advice, counsel and support women in their coping with infertility and treatment related stress. counseling is important to gain insight into the mechanisms which influence the women's coping response [12]. Counseling offers an opportunity for nurses to understand bio-psychosocial aspects of infertile women and treatment seeking

behaviours to design effective and successful interventions to reduce stress, promote healthy adaptation and prevent them moving towards avoidance and denial. There are various methods of counseling that can be adopted like implication counseling, which is used to enable the couples to understand the implications of the proposed treatment [13].

**Significance of the study**

Infertility is a growing problem and across virtually all cultures and societies almost all over the world and affects an estimated 10%-15% of couples of reproductive age[14]. In Egypt the incidence of infertility was under estimated but, according to researches it was estimated that, the rates of primary and secondary infertility were 70.7% and 29.3% respectively among infertile couples[15].Infertility is a devastating disease that cause a myriad of emotions and hardships leading to anger, feeling of guilt, depression, lowered self-esteem, marital distress, financial stress and social isolation[16]. Counseling is particular importance at times of particular stress to explore, understand and resolve issues arising from infertility and infertility treatment to clarify ways of dealing with the problem more effectively, considering the needs of the woman and any other person who might be affected by treatment process and the decision that have to be made. So the proposed study was done to evaluate the effect of counseling on women's infertility-related stress.

**Aim of the study:** The present study was aiming to evaluate the effect of counseling on women's infertility-related stress.

## Subjects and Methods

**Research design:**

An intervention design was utilized.

**Settings:**

This study was conducted at two settings; gynecological clinic at Benha University Hospital, and Benha Teaching Hospital.

**Sample type and size:**

A purposive sampling was used. A total of (67) infertile women who attended to the previous settings and fulfilling the following inclusion criteria were recruited according to the study sampling; diagnosed with primary infertility, age ≤ 35 years old, educated, and were willing to participate in the study, free from any medical and sexual disorders, and can be reached by telephone for follow-up. Exclusion criteria were infertile women with history of psychiatric illness and has undergone treatment. Who were already exposure to counseling or had undergone counseling previously.

**Tools of data collection:** three tools were used for data collection:

**I. Infertility structured interviewing questionnaire** developed by the researchers after reviewing related literature. It was written in an Arabic language and consisted of three parts as following:

**The first part** covered general characteristics of the studied sample such as: age, residence, educational level, occupation, and family income.

**The second part** included marital history and infertility history such as age during a marriage, infertility duration, causes, and previous treatment.

**The third part** designed to assess women's knowledge regarding infertility. It consisted of six open-ended questions, such as definition, types, predisposing factors to infertility, methods of infertility diagnosis, management of infertility, and its treatment modalities.

**Scoring:**

For women knowledge, each item was assigned a score of (2) given when the answer was completely correct, a score (1) was given when the answer was incompletely correct and a score (0) was given when the answer don't know. The total score for the knowledge of a participant was (12). Women's total knowledge score was considered unsatisfactory when the total score was less than 60% and satisfactory when the total score was at 60% or more.

**II- Fertility Problem Inventory (FPI).**

The FPI was adopted from ***Newton et al., (1999)***[17] to assess infertility-related stress. FPI is 46-item questionnaire and divided into five dimensions:

social concern (10 items), sexual concern (8 items), relationship concern (10 items), rejection of childfree lifestyle (8 items), and need for parenthood (10 items).

**Scoring**:

The tool has both negative and positive items. Positively phrased items were scored as (3) for agree, (2) for uncertain, and (1) for disagree. Each woman was instructed to choose one of the five possible responses that are closest to how she felt with statement. Reverse scoring was given to negative items, where 18 items are reversed scored. Sum of scores were always used. The inventory produces a global stress score as well as sub-scale scores for the five dimensions of FPI tool. Global stress that measuring overall infertility-related stress was calculated by summing all items (or all 5 subscale scores). The possible score is 138. The level of stress as reaction to infertility was divided into 3 quartiles of the obtained scores as low (46 to <77), moderate stress (77 to <108) and high stress (108-138).Higher scores indicate higher infertility stress.

**III-Instructional guideline on infertility**

It was developed by the researchers after reviewing related literature. It was written in an Arabic language and consisted of two sections as following: The first section included general knowledge on infertility, types, predisposing factors to infertility, methods of infertility diagnosis, management of infertility, and its treatment modalities. The second section included the emotional effects of infertility, usual coping ability adopted by infertile women.

**Validity and reliability:**

Tools were reviewed by a panel of three experts in the field of maternal and newborn health nursing and psychiatric mental health nursing to test its content validity. Modifications were done accordingly based on their judgment. Reliability was done by Cronbach's Alpha coefficient test which revealed that each of the five scales consisted of relatively homogenous items as indicated by the moderate to high reliability (internal consistency) of each scale (social concern = 0.87, sexual concern = 0.77, relationship concern =0.82, rejection of childfree lifestyle = 0.80, need for parenthood =0.84, and global stress =0.93).

**Ethical Consideration:**

A written informed consent was obtained from the women after explaining the research objectives. Women were assured that the research do not entail any harmful effects on their health. The women were informed that they have the right to withdraw at any time from the research without giving a reason. Strict confidentiality was ensured throughout the research process, where personal data were not disclosed, and all data was used only for the research purpose.

**Pilot study:**

A pilot study was carried out on 7 women (about 10%) of the total sample to test applicability and clarity of questions as well as estimation of the time needed to fill the questionnaire. According to the results of the pilot study, necessary modifications were done by exclusion of some items. Women who shared in the pilot study were excluded from main research sample.

**Procedure:**

The study was carried out over a period of one year, started from the beginning of June, 2011 and completed at the end of May, 2012. An official written approval letter clarifying the purpose of the study was obtained from the Dean of Faculty of Nursing to both the Director of Benha University Hospital and Benha Teaching Hospital as an approval for data collection. The researcher was visited the previously mentioned settings three days/week for each setting alternatively, (Saturday, Monday and Wednesday) from 9.00 am. to 1.00 pm. This period was selected as per the availability and convenience of the women, as the infertile women attending gynaecologic clinic seeking medical treatment with the consideration of inclusion and exclusion criteria, were approached, and clearly explained about the purpose and nature of the study and written consent was obtained from them.  After obtaining the written consent the researcher collected socio-demographic, marital and infertility data and conducted pre-test assessment of stress by using Fertility Problem Inventory, the scale is a self-rated scale. A total of 10 to 15 minutes was taken to administer the tool. Ethical concerns were strictly adhered. An individual approach was used to identify the subjects; each woman was interviewed separately according to her convenient timings in the waiting area at the clinic to ensure her privacy. The **(GATHER)** approach

for counseling was utilized. **GATHER** can be adapted to meet each individual woman's needs. The following are elements of a successful counseling session:

**G = Greet** woman in a friendly, helpful, and respectful manner. Assure the woman that all information discussed will be confidential and talk in a private place.

**A = Ask** woman about her demographic data, marital and infertility history, knowledge about infertility, specific concerns about living with childlessness and stress that woman faced from it.

**T = Tell** woman about infertility assessment and treatment. Emotional fall out of infertility.

**H = Help** woman to explore her thoughts and feelings about infertility and stressors that she suffering from it. Make decision about procedures, doctors, and methods of treatment.

**E = Explain** to woman issues of coping with stressors, grief and loss related infertility.

**R = Return:** Schedule and carry out return visit and follow-up of woman.

The structured counseling was implemented.The structured counseling contained session on concepts of infertility definition of infertility, types, causes, investigation procedures and treatment modalities, and infertility management by use instructional guideline. The initial session took about 20 to 25 minutes. Women were encouraged to clarify their doubts. The second session was on effects of stress in general and infertility related stress in particular and the ways of managing stress and healthy coping. The session took about 30 to 45 minutes and women were encouraged to clarify their doubts. Infertility guidelines were given to women for strengthen their acquired knowledge. Women were asked to come on after 4 weeks for follow up as per the doctor's advice. The researcher obtained the women's contact numbers to make sure of regular follow-ups.

**Limitation of the current study**

The sensitivity of the studied subjects towards their condition and busyness and short time they had in the waiting time for the doctor visit.

**Statistical design:**

Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS ver. 16.0) was used for that purpose, followed by data analysis and tabulation. Descriptive statistics were applied (e.g., mean, standard deviation, frequency and percentages). Test of significance (paired t-test and chi square test) was applied to test the study hypothesis. Correlation coefficient was utilized. A significant level value was considered when $p \leq 0.05$, and a highly significant level value was considered when $p \leq 0.001$.

**Results:**

Table (1) shows the general characteristics of the study sample. (82.1%) of women included in the study were aged ranged between 25-30 years old, the mean age of the studied women was (27.57 ± 2.65years).Less than half of them (46.3%) had secondary education. More than two thirds of the studied sample (68.7%) lived in rural areas. Regarding women's occupation, more than three quarters of them (76.1%) were housewives. As far as family income, as reported by the women it was not enough and not covered their needsfor 86.6% of the women.

Table (2) presents marital and infertility history, it was revealed that 80.6% of women were married at age <25 years, with a mean 23.16 ± 2.27years, as regard infertility duration and years of infertility treatment were70.1% and 68.7% were <5 years with a mean 3.63 ± 1.96 and 3.59 ± 1.94 years respectively. Regarding to problem of infertility, 79.1% were wife related cause. (82.1%) of women had pharmacological treatment.

Table (3) illustrates that, there was highly statistically significant difference between pre and post counseling, in relation to all items of the women's knowledge regarding infertility $p<0.001$.The total knowledge score was shown that, the majority of women (91.0%) had unsatisfactory level pre counseling. However, post counseling (85.1%) had satisfactory knowledge level.

Table (4) indicates that, there was highly statistically significant difference between pre and post counseling regarding all dimensions of stress and global scores ($p$-value≤0.001).The mean scores showed a drastic improvement with all dimensions of stress and global score as the higher score revealed to higher stress.

Table (5) denotes distribution of the studied women according to their total stress score, the results revealed that, there was highly statistically significant difference between pre and post counseling regarding level of global stress score. Whereas 97.0% of women were suffered from high infertility stress pre counseling, meanwhile 61.2% of them suffered from high infertility stress post counseling.

Table (6) denotes that, there was statistical significant relation between level of total stress score pre and post counselling and women's age, educational level, residence, and occupation. Meanwhile, there was no significant relation with family income.

Table (7) illustrates that, there was a positive statistically significant correlation between total stress score pre and post counseling, and also between age at marriage and infertility duration. On the other hand, there was statistical insignificant correlation between total stress score pre and post counselling and years of infertility treatment.

**Table (1): Distribution of the infertile women according to their general characteristics (n=67)**

| Items | infertile women | |
|---|---|---|
| | No. | % |
| **Age (in years)** | | |
| <25 | 4 | 6.0 |
| 25-29 | 55 | 82.1 |
| 30-35 | 8 | 11.9 |
| **Mean ±SD** | 27.57± 2.65 | |
| **Education level** | | |
| Read and write | 4 | 6.0 |
| Basic education | 7 | 10.4 |
| Secondary education | 31 | 46.3 |
| University education | 25 | 37.3 |
| **Residence** | | |
| Urban | 21 | 31.3 |
| Rural | 46 | 68.7 |
| **Occupation** | | |
| House wife | 51 | 76.1 |
| Working | 16 | 23.9 |
| **Family income** | | |
| Enough (cover needs) | 9 | 13.4 |
| Not enough (not cover needs) | 58 | 86.6 |

**Table (2) Distribution of the infertile women according to their age at marriage and their marital history (n=67)**

| Items | infertile women | |
|---|---|---|
| | **No.** | **%** |
| **Age at marriage (in Years)** | | |
| <25 | 54 | 80.6 |
| 25-29 | 12 | 17.9 |
| 30-35 | 1 | 1.5 |
| **Mean ±SD** | 23.16 ± 2.27 | |
| **Infertility duration (in years)** | | |
| < 5 | 47 | 70.1 |
| ≥ 5 | 20 | 29.9 |
| **Mean ±SD** | 3.63 ± 1.96 | |
| **Problem of infertility** | | |
| Wife related cause | 53 | 79.1 |
| Husband related cause | 8 | 11.9 |
| Both | 6 | 9.0 |
| **Years of infertility treatment** | | |
| < 5 | 46 | 68.7 |
| ≥ 5 | 21 | 31.3 |
| **Mean ±SD** | 3.59 ± 1.94 | |
| **Previous infertility treatment** | | |
| Pharmacological treatment | 55 | 82.1 |
| Surgical treatment | 12 | 17.9 |
| Assisted reproductive treatment | 0 | 0.0 |

## Table (3): Distribution of women's Knowledge about infertility pre and post counseling (n=67)

| Items | Counseling | | | | $x^2$ | $p$-value |
|---|---|---|---|---|---|---|
| | Pre | | Post | | | |
| | No. | % | No. | % | | |
| **Definition of infertility** | | | | | | |
| Correctly complete | 2 | 3.0 | 64 | 95.5 | | |
| Correctly incomplete | 30 | 44.8 | 3 | 4.5 | 115.333 | < 0.001** |
| Don't know | 33 | 52.2 | 0 | 0.0 | | |
| **Types of infertility** | | | | | | < 0.001** |
| Correctly complete | 8 | 11.9 | 66 | 98.5 | | |
| Correctly incomplete | 6 | 9.0 | 1 | 1.5 | 102.031 | |
| Don't know | 53 | 79.1 | 0 | 0.0 | | |
| **Predisposing factors to infertility** | | | | | | |
| Correctly complete | 2 | 3.0 | 8 | 11.9 | | |
| Correctly incomplete | 12 | 17.9 | 58 | 86.6 | 83.903 | < 0.001** |
| Don't know | 53 | 79.1 | 1 | 1.5 | | |
| **Methods of infertility diagnosis** | | | | | | |
| Correctly complete | 0 | 0.0 | 7 | 10.4 | | |
| Correctly incomplete | 13 | 19.4 | 59 | 88.1 | 87.462 | < 0.001** |
| Don't know | 54 | 80.6 | 1 | 1.5 | | |
| **Management of infertility** | | | | | | |
| Correctly complete | 2 | 3.0 | 17 | 25.4 | | |
| Correctly incomplete | 10 | 14.9 | 50 | 74.6 | 93.509 | < 0.001** |
| Don't know | 55 | 82.1 | 0 | 0.0 | | |
| **Treatment modalities** | | | | | | |
| Correctly complete | 0 | 0.0 | 8 | 11.9 | | |
| Correctly incomplete | 7 | 10.4 | 55 | 82.1 | 94.161 | < 0.001** |
| Don't know | 60 | 89.6 | 4 | 6.0 | | |
| **Total score level** | | | | | | |
| Satisfactory | 6 | 9.0 | 57 | 85.1 | 77.920 | < 0.001** |
| Unsatisfactory | 61 | 91.0 | 10 | 14.9 | | |

(**) Highly Statistical significant $p \leq 0.001$

**Table (4): Mean scores of dimensions of stress scores pre and post counseling (n=67)**

| Dimensions of stress | Maximum score | Counseling | | Paired t test | $p$-value |
|---|---|---|---|---|---|
| | | Pre | Post | | |
| | | Mean ± SD | Mean ± SD | | |
| Social concern | 30 | 22.58± 1.43 | 20.15± 1.03 | 13.368 | < 0.001** |
| Sexual concern | 24 | 21.70± 0.76 | 19.94± 0.69 | 20.033 | < 0.001** |
| Relationship concern | 30 | 24.22± 1.13 | 21.88± 1.20 | 15.653 | < 0.001** |
| Rejection of child free life style | 24 | 22.03 ± 0.72 | 20.89± 1.09 | 7.707 | < 0.001** |
| Need for parenthood | 30 | 27.09 ± 1.43 | 25.00± 1.42 | 15.395 | < 0.001** |
| Global stress | 138 | 117.63 ± 2.69 | 107.87± 2.98 | 29.023 | < 0.001** |

(**) Highly Statistical significant $p \leq 0.001$

**Table (5): Distribution of the studied women according to their total stress score pre and post counseling (n=67)**

| Level of stress | Counseling | | | | $x^2$ | $p$-value |
|---|---|---|---|---|---|---|
| | Pre | | Post | | | |
| | No. | % | No. | % | | |
| Low stress | 0 | 0.0 | 0 | 0.0 | 26.005 | < 0.001** |
| Moderate stress | 2 | 3.0 | 26 | 38.8 | | |
| High stress | 65 | 97.0 | 41 | 61.2 | | |

(**) Highly Statistical significant $p \leq 0.001$

**Table (6): Relation between women's level of total stress score and their general characteristics pre and post counseling (n=67)**

| Items | Counseling | | | | | | | | $x^2$ | *p*-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | Pre | | | | Post | | | | | |
| | High stress | | Moderate stress | | High stress | | Moderate stress | | | |
| | No. | % | No. | % | No. | % | No. | % | | |
| **Age (in years)** | | | | | | | | | | |
| < 25 | 2 | 3.0 | 2 | 3.0 | 1 | 1.5 | 3 | 4.5 | 10.50 | <0.001** |
| 25 < 30 | 55 | 82.1 | 0 | 0.0 | 33 | 49.4 | 22 | 32.8 | | |
| 30 - 35 | 8 | 11.9 | 0 | 0.0 | 7 | 10.4 | 1 | 1.5 | | |
| **Education level** | | | | | | | | | | |
| Read and write | 3 | 4.5 | 1 | 1.5 | 1 | 1.5 | 3 | 4.5 | 7.722 | <0.001** |
| Basic education | 7 | 10.4 | 0 | 0.0 | 2 | 3.0 | 5 | 7.5 | | |
| secondary education | 30 | 44.8 | 1 | 1.5 | 19 | 28.4 | 12 | 17.9 | | |
| University education. | 25 | 37.3 | 0 | 0.0 | 18 | 26.9 | 7 | 10.4 | | |
| **Residence** | | | | | | | | | | |
| Urban | 19 | 28.3 | 2 | 3.0 | 10 | 14.9 | 11 | 16.4 | 3.743 | <0.05* |
| Rural | 46 | 68.7 | 0 | 0.0 | 31 | 46.3 | 15 | 22.4 | | |
| **Occupation** | | | | | | | | | | <0.001** |
| House wife | 50 | 74.6 | 1 | 1.5 | 36 | 53.7 | 15 | 22.4 | 7.012 | |
| Working | 15 | 22.4 | 1 | 1.5 | 5 | 7.5 | 11 | 16.4 | | |
| **Family income** | | | | | | | | | | |
| Enough | 8 | 11.9 | 1 | 1.5 | 6 | 9.0 | 3 | 4.5 | 0.022 | > 0.05 |
| Not Enough | 57 | 85.1 | 1 | 1.5 | 35 | 52.2 | 23 | 34.3 | | |

(*) Statistical significant $p \leq 0.05$　　　　　(**) Highly Statistical significant $p \leq 0.001$

**Table (7): Correlation between women's total stress score and their martial and infertility history pre and post counseling (n=67)**

| History items | Counseling | | | |
|---|---|---|---|---|
| | Pre | | Post | |
| | r | *p* | r | *p* |
| **Age at marriage** | 0.286 | <0.05* | 0.313 | <0.05* |
| **Years of Infertility duration** | 0.292 | <0.05* | 0.282 | <0.05* |
| **Years of infertility treatment** | 0.181 | > 0.05 | 0.218 | > 0.05 |

(*) Statistical significant $p \leq 0.05$

## Discussion:

Nowadays, infertility has turned to a social distress and it is accompanied by numerous psychological and social problems. This phenomenon is known as an agonizing and disappointing stressor for couples, especially for women. Infertility stress can affect personal, social and marital relationships, may cause mental instability and lead to divorce [18]. Infertility is a widespread problem that has an emotional, psychological, social and economic impact on couples and society [19]. Counseling of infertile women focuses on context for support, advice and guidance where individuals can be given an "opportunity to explore, discover and clarify ways of living more satisfyingly [20].

This study aimed to evaluate the effect of counseling on women's infertility-related stress. The findings of the current study showed that more than three quarters of women their age ranged between 25-30 years, with a mean age of $27.57 \pm 2.65$ years. This finding is in agreement with [21] who reported that the prevalence of primary infertility is higher among women less than 30 years than older ages, and secondary infertility increases with advance in age. Also, less than half of studied women had secondary education; moreover, there wasstatistical significant relation between levels of total stress scores pre and post counselling and educational level. This result was in respect with [22], who stated that high educated women perceived less stress than non-educated women, and women' stressors decrease as the level of education increases. This gives high coping mechanism for highly educated levels.  More than two thirds of the studied sample lived in rural areas and all of them had high stress score comparing to the urban resident infertile women who were some of them had moderate stress score. This due to the nature of the customs and traditional culture of Egyptian rural population, which the community always blaming the wife and they had false fixed believe that the cause of infertility lays upon her not the husband. This situation makes rural wives complaining of high stress. Regarding women's occupation, more than three quarters of them were housewives. This is supported by [23] who found that Ninety-one percent of the sample was housewives. As far as family income, as reported by the women it was not enough and not covered their needs for 86.6% of the women. This might be stressful for women due to treatment cost.  This

finding is contradicting with [24] who identified women disclosing about the infertility problem to their employer, the demographic characteristics associated with women who are more likely to disclose and an association between disclosure and lowering one's stress showed that most women who disclosed did so because they needed a reason to leave work for frequent doctor visits. These results contradicted with [25], who found that socio-demographic characteristics of infertile women are not related to the infertility stress.

As regards marital and infertility history, the results of the present study indicated that 80.6% of women were married at age <25 years, with a mean 23.16 ± 2.27 years, infertility duration and years of infertility treatment were 70.1% and 68.7% were <5 years with a mean 3.63 ± 1.96 and 3.59 ± 1.94 years respectively. The duration of infertility is related to the magnitude of stress that women suffered. This finding is in congruent with [26] who stated that during the first three years of married life, infertility is accompanied with symptoms such as depression, anxiety, lack of self-esteem, sexual impotency and marriage maladjustment. Regarding to problem of infertility, more than three quarters of them were wife related cause. (82.1%) of women had pharmacological treatment. These findings were reflected that most of women remained years under pharmacological treatment of infertility hoping to achieve their goal.

The results of the present study indicated that there was a positive statistically significant correction between total stress score pre and post counseling, age at marriage and infertility duration. On the other hand, there was statistical in-significant correction between total stress score pre and post counseling, marriage duration and years of infertility treatment. These findings are supported by [27] who revealed that infertile women express higher levels of distress than fertile women, with distress peaking between the 2nd and 3rd year. On the other hand, this findings are in disagreed with [21] who found that stress was directly correlated with relate number of years of marriage, or number of years of infertility.

On investigating knowledge of the studied women regarding infertility, the findings of the current study showed that there was a significant improvement of women's knowledge post counseling compared to pre

counseling in all items of knowledge. This may be due to the impact of infertility instructional guidelines that given to the participant women at the end of counseling sessions those encouraged women to gain much more knowledge about related issues and to share the ideas to their support system which positively improved the cope regarding infertility and its treatment. This finding is in accordance with[28] who emphasized that infertile women may not be adequately informed about various aspects of infertility and are willing to be offered counselling. Counseling links the various components of the infertility treatment cycle and helps obviate the possible causes of infertility, which may not even be the culprit in a given. Moreover, counseling fills the possible gaps in the treatment process, ultimately contributing to its improvement.

Concerning infertility stress, the findings of the current study showed that there was a significant reduction of women's stress post counseling compared to pre counseling in all dimensions of stress infertility as indicated by the mean scores. This may be attributed to a definite effect of counseling on reduction of the stress level about infertility and treatment by providing women chances to express and to explore their expectations, provide them emotional support for adapting with infertility stress and clarify ways of living more satisfyingly. So that, the formulated hypothesis which stated that there is a statistically significant difference in the level of stress of infertile women between pre and post counseling. These findings are in agreement with [29] who emphasized that intervention including education and skill training were significantly more effective in producing positive changes whereas counseling intervention emphasized emotional expressions and support and/or discussion about thought and feelings related to infertility. Also [30] added that counseling relieves stress and anxiety and facilitates adaptation with infertility and treatment.

The results of the current study indicated that majority of women had high stress level pre counseling; meanwhile after counseling implementation there was reduction of stress level. This may be due the fact that infertility is more stressful for women because of a number of reasons. The relationship between husband, family members and relatives get disturbed. The women develop guilty which lead to failure in maintaining deep relationship. Women feel hopeless and worthless when her objective of being pregnant is not met.

This finding is supported by [17] who reported that women reporting higher overall infertility-related stress more than men, women also had higher specific stress in the domains of social concern, sexual concern, and need for parenthood.

In a study [31] asserted that infertile women are in search of emotional adhesiveness because they have undergone numerous psychological pressures such as the internal instinct to have babies, having disputation with their partner and the fear of losing him, the decrease in having relation with their husbands, relatives and friends and the inability to express themselves.

Moreover, [32] added that infertility may influence all dimensions of stress. Woman feel that she had lost her feminine character; emotionally develops guilt that she had the inability to produce a child; loses sexually interest; socially she is under pressure by relatives, friends who ever asks about children and social stigma; and culturally women are only blamed and named as barren women. Often she faces threats of divorce, pressurizing her husband for remarriage by their family members. Woman may develop an idea that she is only responsible for getting a child; she has the control over her infertility and gets engaged in various treatment modalities. The basic aim of counseling is to ensure that the woman understands the implications of her treatment choice, the woman receives adequate information and emotional support, and that she can cope in a healthy way as a consequence of treatment. While there was a reduction of women stress level post counseling. This may be due to during counseling help in detecting any tensions showed by the women's poor understanding, and helping women to adjust with infertility, its investigations and treatment. This finding is congruent with [33] emphasized that it seems necessary to provide educational courses for couples on different techniques of reducing stress, counseling and information and emotional support by health personnel as well as general education of families on how to provide support for couples. Infertility may influence all dimensions of stress. The mean scores of all dimensions of stress were higher pre counseling compared to post counseling. This may be due to infertile women who were attended gynaecological clinic perceived stigma which was associated with reduced disclosure to others, leading to lower social support and higher distress. This is in accordance with

[34,35] who pointed out that the negative impact of infertility in the social context of infertile women has also been documented. Infertile women may feel isolated and neglected in an environment that highly values parenthood and may thus withdraw from their family and friends their social relations may also be affected because of social pressure to achieve parenthood and distress raised by other women's pregnancies and children.

**Conclusion**

In the light of the present study findings it concluded that, there was highly statistically significant difference between pre and post counseling regarding level of global stress score. Moreover, there was statistical significant relation between level of total stress score pre and post counselling and women's age, educational level, residence, and occupation. In addition, there was a positive statistically significant correlation between total stress score pre and post counseling, and also between age at marriage and infertility duration. Collectively, this proved that counseling had a definite effect on reduction in the stress level about infertility and treatment.

**Recommendations:** Based on the results of the present study, the following recommendations are suggested to be implemented:

- Counseling could be suggested as one of the stress management strategies in infertile women.
- Establishment of counseling sessions to inform infertile women about infertility and its treatment options and answer their questions to cope with it.
- Developing a support groups for the infertile couples and group therapy to minimize suffering and promote health condition.
- **Future researches in the field of the present study could include:**
  a. Developing the strategy to be followed by a nurse as part of an infertility team, for individual counseling as well as behavioural advice on relaxation training, stress management, nutritional and exercise counseling.
  b. Studying the effects of counseling on the couple experiencing infertility may be another beneficial area for future research.
  c. Study the relationship between coping and infertility stress, marital adjustment and depression across the various phases of the infertility experience.

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