Effect of Self-Care Guidelines on Knowledge and Quality of Life among Women Undergo In Vitro Fertilization

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Abstract

Background: In Vitro Fertilizationis a widely used Assisted Reproductive Technology (ART) that helps individuals and couples overcome infertility by fertilizing an egg with sperm outside the body in a laboratory setting. The process involves stimulating the ovaries to produce multiple eggs, retrieving the eggs, and combining them with sperm in a controlled environment to create embryos. **Aim of the study:** This study aimed toevaluate the effect of self-care guidelines on knowledge and quality of life among women undergo In Vitro Fertilization. **Research Design:** A quasi-experimental research design (pre & posttest one group) was used. **Setting:** Obstetrics and gynecology department of the Maternal & Child Minia University Hospital's, high dependent unit (HDU1). **Sample:**A purposive sample of 65 women.**Tools:**Data was gathered using Four tools**:** A structured interview questionnaire, knowledge assessment tool, self-care guideline assessment tool, and Fertility Quality of Life (Ferti QoL) tool. **Results:** The study showed that, 26.9% of the women had average knowledge, 79.6% of them had a satisfactory practice, and 78.5% a high quality of life after intervention regarding In Vitro Fertilization. **Conclusion:** This study concludes that implementing self-care guidelines lead to improve knowledge, practices and quality of life for women undergo in vitro fertilization. **Recommendations:** Apply educational program to womenundergo In Vitro Fertilization to increases knowledge, practices and quality of life in another health care settings.

Keywords: In Vitro Fertilization, Knowledge, Quality of Life, Self-Care Guidelines.

Introduction:

Infertility, defined as the inability to conceive after a year of regular unprotected intercourse, affects millions of individuals and couples worldwide, with significant physical, emotional, and social implications. It is estimated that approximately 10-15% of couples globally experience infertility, with causes ranging from medical conditions such as Polycystic Ovary Syndrome (PCOS), endometriosis, low sperm count, or blocked fallopian tubes, to lifestyle factors like age, stress, smoking, and obesity. In many cultures, infertility carries a stigma, particularly for women, who may face societal pressure and psychological distress. Advances in medical science, including treatments like In Vitro Fertilization (IVF), Intrauterine Insemination (IUI), and fertility medications, have provided hope for many, though access to these treatments remains uneven due to high costs and limited healthcare infrastructure, especially in low- and middle-income

In vitro fertilization is a widely used Assisted Reproductive Technology (ART) that helps individuals and couples overcome infertility by fertilizing an egg with sperm outside the body in a laboratory setting. The process involves stimulating the ovaries to produce multiple eggs, retrieving the eggs, and combining them with sperm in a controlled environment to create embryos. Once developed, one or more embryos are transferred to the uterus, with the goal of achieving a successful pregnancy. Since its first successful use in 1978, IVF has become a cornerstone of fertility treatment, offering hope to those facing issues such as blocked fallopian tubes, low sperm count, ovulation disorders, or unexplained infertility ***(Yahyavi et al., 2025).***

While IVF is a highly effective fertility treatment, it carries certain risks. For women, these

include Ovarian Hyperstimulation Syndrome (OHSS), which occurs when the ovaries overreact to fertility drugs, as well as multiple pregnancies, which increase the risk of complications like preterm birth and low birth weight. The egg retrieval process carries a small risk of infection or bleeding. Additionally, IVF can be emotionally taxing, with the stress of treatment and the possibility of unsuccessful cycles taking a toll on mental health. Long-term risks, such as potential links to certain cancers or birth defects, remain under study, though evidence is inconclusive ***(Baghbani et al., 2024).***

Before beginning IVF, couples undergo a thorough evaluation to assess their fertility status and identify any underlying issues. This includes blood tests, ultrasounds, semen analysis, and sometimes genetic testing. Counseling is often recommended to discuss the emotional, financial, and physical demands of the process. Patients are advised to adopt a healthy lifestyle, including quitting smoking, reducing alcohol intake, and maintaining a balanced diet. It's also important to understand the costs, success rates, and potential risks associated with IVF, as well as to prepare for the possibility of multiple cycles or alternative options if IVF is unsuccessful ***(Hamidzadeh et al., 2023).***

The success rates of IVF depend on several factors, including the woman's age, the cause of infertility, and the quality of the eggs and sperm. Younger women, particularly those under 35, generally have higher success rates due to better egg quality. The clinic's expertise and laboratory conditions also play a role. Other factors, such as the number of embryos transferred, the use of donor eggs or sperm, and the patient's overall health, can influence outcomes. While success rates have improved over the years, they remain variable, with some couples achieving pregnancy in the first cycle and others requiring multiple attempts ***(Boutib et al., 2023).***

The quality of life for women undergoing IVF can be significantly impacted by the physical, emotional, and financial demands of the process. Hormonal treatments can cause side effects like mood swings, bloating, and fatigue, while the uncertainty of success can lead to anxiety and stress. The time commitment for appointments and procedures can disrupt daily life and work. However, support from partners, family, and healthcare providers can help mitigate these challenges. Many women find strength in support groups or counseling, which provide a space to share experiences and cope with the emotional rollercoaster of IVF ***(Ibrahim & Ahmed, 2024).***

Fertility nurses play a critical role in the IVF process, providing both medical and emotional support to patients. Nurses administer fertility medications, monitor hormone levels, and assist during procedures like egg retrieval and embryo transfer. Fertility nurses also educate patients about the treatment process, side effects, and self-care practices. Beyond clinical duties, they offer emotional support, helping patients navigate the stress and uncertainty of IVF. Their compassionate care and expertise make them an integral part of the fertility team, ensuring patients feel informed and supported throughout their journey ***(Rezapour-Mirsaleh et al., 2024).***

Significance of the study:

Globally, millions of couples' face infertility issues, with estimates suggesting that 1 in 6 people experience infertility at some point in their lives. IVF has become a widely sought-after solution, particularly in regions with delayed childbearing trends, as Europe, North America, and parts of Asia.Infertility in Egypt affects 12% of Egyptian couples. 4.3% of women suffer from primary infertility and 7.7% suffer from secondary infertility***(Ghanem et al., 2024).***

Self-care is essential for women undergoing IVF to manage stress and maintain physical and emotional well-being. Practices include eating a nutrient-rich diet, staying hydrated, and engaging in moderate exercise like yoga or walking. Prioritizing sleep and relaxation techniques, such as meditation or deep breathing, can help reduce anxiety. Avoiding alcohol, smoking, and caffeine is also recommended. Emotional self-care, such as journaling, joining support groups, or seeking counseling, can provide an outlet for feelings and foster resilience throughout the IVF journey ***(Shafaghi et al., 2024).***

The implementation of self-care guidelines has been shown to positively impact the quality of life for women undergoing IVF. The process often leads to psychological stress, anxiety, and depression, which can affect treatment adherence and overall success rates. When women follow self-care protocols, including relaxation techniques, balanced nutrition, and physical activity, they experience reduced stress levels and improved emotional well-being. Additionally, self-care strategies enhance physical health by minimizing

side effects related to hormonal treatments and medical procedures. As a result, women feel more in control of their bodies and emotions, leading to a better overall experience during the IVF journey ***(Nadjarzadeh et al., 2023).***This study seeks to assess how these guidelines impact their quality of life by addressing aspects such as emotional resilience, physical comfort, and social interactions. The findings aim to contribute to better care practices and support systems for women undergoing IVF, ultimately improving their overall experience and outcomes.

Aim of the study:

The study aims to evaluate the effect of self-care guidelines on knowledge and quality of life among women undergo IVF.

Research Hypotheses:

Women undergo In vitro fertilization will improve their knowledge and quality of life after applying self-care guidelines.

Subject and Methods:

Research Design:

A quasi-experimental research design (pre & post test one group) was used to achieve the aim of current study.

Setting:

This study was conducted at the obstetrics and gynecology department at the Maternal & Child Minia University Hospital, at the high dependent unit (HDU1). This hospital offers affordable and complimentary services to all expectant mothers, even those with high-risk pregnancies, and provides care for those women who suffer from complications after IVF procedures and obtain complete observation of her condition.

Sample type:

In the current study, a purposive sample type from the previously mentioned setting was used.

Sample size:

According to the flow rate of pregnant women with IVF cases who attended the obstetrics and gynecology department of the Maternal & Child Minia University Hospital's, high dependent unit (HDU1) for follow up in the last year (2022) was about 120 cases, therefore, the estimated sample size was 65 women based on the sample size Rasosoft calculation with a margin of error of five percent and a level of confidence on 95 percent. The sample size as well as error margin E is estimated by this equation:

$X = Z(c/100)2\ r\ (100-r)$

$n = N\ x\ /(N-1)\ E2 + x)$

$E = Sqrt\ [(N - n)\ x/n(N-1)]$

N is the population size (120), r is the fraction of reactions you are concerned in, besides Z(c/100) is the serious rate for the confidence level

Inclusion Criteria:

- Women have a history of infertility.
- Pregnant women undergo IVF (during first and second trimester).

Exclusion Criteria:

- Women who refused to participate in the study.
- Women with psychological conditions

***Tools*:** Four tools were used in this study:

Tool (I):"Structured Interview Questionnaire":it consists of two parts:

Part I: Socio-demographic data of pregnant women which include: woman's age, residence, duration of marriage, level of education, Body mass index, and occupation……etc.

Part II: Obstetric history for womenwhich include: Weeks of gestation, Infertility Type: (Primary, Secondary), Infertility Duration, causes of infertility (Blocked fallopian tubes, Delayed childbearing, Disturbances in reproductive hormones, Polycystic ovary syndrome (PCOS), others), previous history of IVF, ……etc.

Tool (II): "Knowledge Assessment Tool":

Adopted from **Ahmed et al. (2022)** and modified by the researcher to evaluate the information about the In Vitro Fertilization of the studied subjects, such as the meaning of IVF, steps of IVF, instructions to follow after the operation, factors affecting the success rate, and complications.

Scoring system for women's' knowledge:

Knowledge consists of 9 questions, each correct answer and complete scored (2), the correct answer and incomplete scored (1), and wrong or no answer scored (0). The total scores ranged from 0 to 18. These scores were transformed into percentage scores. Whereas poor knowledge scored <50% (0-<9 grade), and average knowledge scored 50-<75%

(10-<13 grade), good knowledge was considered if the percent score was ≥ 75% (≥13 grade).

Tool (III): Self-care guideline Assessment tool:

Adopted from **(Jung et al., 2021)** and modified by the researcher to assess the women's self-care guideline practices that contains 31 items with 5 categories, which including: relaxation exercise, low-intensity workouts, stress reduction technique, diets intake, life style change ……etc.

Scoring system

Self-care guideline, The assessment tool consisted of three items on a Likert scale (always, sometimes, and never). Each self-care guideline was given a score of 2 if it was always practiced, a score of 1 if it was sometimes practiced, and a score of 0 if it was never practiced. The total self-care guideline score was calculated by adding the item-by-item scores. Women's total self-care guideline scores were assessed on a scale of 0 to 62, with a score of 0 to 37 (< 60%) representing unsatisfactory practice and a score of 38-54 (≥ 60%) representing satisfactory practice.

Tool (IV): "Fertility Quality of Life (Ferti QoL) tool:

Adopted from **(Neamtiu et al., 2022)** and modified by the researcher to evaluate Ferti QoL for women related to Invitro Fertilization consisted of 24 questions which contains 4 domains, including: the Emotional, Physical (Mind/Body), Relational, and social domain. The Emotional subscale showed the impact negative emotions (e.g., jealousy & resentment, sadness, depression) have on quality of life. The Mind-Body subscale showed the impact infertility has had on physical health (e.g., headache, stomach upset). The Relational subscale showed the impact fertility problems have had on the components (e.g., sexuality, communication, commitment) of marital relationship. The Social subscale showed the extent to which social interactions have been affected by fertility problems (e.g., social inclusion, expectations, stigma, and support).

Scoring system for women's Ferti QoL:

The Core FertiQoL module is divided into four domain: emotional (6 items), mind–body (6 items), relationship (6 items) and social (6 items). It was consisted of five items likert scale(strong disagree ,disagree ,neutral ,agree ,and strong agree).

The score of each item is 0–4 points, and the total scale and subscale scores can be converted to 0 – 96-point scales. Where higher scores indicated high QoL (> 58), and lower scores indicated low QoL quality of life (<58).

Validity and Reliability: -

Validity:

The study tools were developed after reviewing the related literature. To determine content and face validity, these tools were tested by a jury committee consisting of five obstetrics and women's health nursing experts who are academic experts in obstetrics and women's health nursing education.

Reliability:

A Cronbach's Alpha reliability analysis was conducted on the study instrument. The test indicated that the instrument's internal consistency was sufficient for measuring knowledge reliability was 0.917, Self-Care Guidelines reliability was 0.869, and Quality of Life Assessment tool reliability was 0.774.

Pilot study:

After having the ethical approval and permission from the faculty of nursing, a pilot study was conducted on a sample of 10% of the subjects (6) who participated in the study to test the study process and to evaluate the efficiency of tools that were used in the study, and there are no necessary modificationsto be done. Therefore, those women were included in the study sample.

***Supportive material (Booklet):**

It was developed by the researcher, which includes all necessary information about self-care guidelines among women undergoing In Vitro Fertilization as relaxation exercise, low-intensity workouts, stress reduction techniques, diet intake, and lifestyle change. It was used to discuss all information with the studied women at the high-dependence unit who undergo IVF procedures.

Study Procedure

The current study was achieved through three phases: assessment phase (pre-test), implementation (implementing program), and evaluation phase (post-test).

Assessment phase:

After An official permission was obtained from the research ethical committee of the faculty of nursing. An objective of the study was explained to the manager to gain cooperation and to allow meeting with the mothers.

Participants were women recruited from the Maternal and Child Minia University Hospital (HDU1). The researcher greeted each woman at the start of the interview, gave her an explanation of the study's goals, duration, and activities, and obtained her oral agreement. The researcher interviewed each woman individually. The questionnaire took between ٣٠ and ٤٠ minutes to complete for each woman. Tool (I) was used to gather sociodemographic information and obstetric history; Tool (II) was used to evaluate women's knowledge (pre-test); Tool (III) was used to evaluate women's self-care guidelines (pre-test); and Tool (IV) was used to evaluate women's fertility quality of life (pre-test).

The researcher met pregnant women for data collection two days per/week from 9:00 am to 12:00 pm. Every session taken from two to three women (This was available number for session). The data collection period is 9 months, from the beginning of March 2024 to the end of October 2024.

Implementation phase:

The researcher used a developed booklet about all necessary information regarding in vitro fertilization, including the definition, steps, instructions to follow after the operation, factors affecting the success rate, and complications.

Conversely, illustrations and all necessary information about self-care guidelines among women undergoing In Vitro Fertilization are provided to the women by the researcher as relaxation exercises, low-intensity workouts, stress reduction techniques, diet intake, and lifestyle change. Moreover, the researcher communicated with women via telephone call for more explanation and reinforcement.

Evaluation phase:

The researcher conducted 2 times of evaluation: The first time of evaluation (pre-test) was done before the implementation of the program at (HDU1) .using tool (II) to assess knowledge, Tool (III) to assess women's self-care guidelines regarding IVF and tool (IV) for quality-of-life assessment. A second time of evaluation (post-test) was done after 6 weeks of implementation of the program at (HDU1) and other was done via telephone call .using tool (II) to assess knowledge, Tool (III) to assess women's self-care guidelines regarding IVF and tool (IV) for quality-of-life assessment.

Ethical Consideration

Before the conduction of the pilot study as well as the actual study, official permission and written consent was obtained from the dean of the faculty of nursing, as well as the director of maternal and child Minia university Hospital. Research proposal was approved by the ethical committee in faculty of nursing.

Oral Consent was obtained from women that are willing to participate in the study, after explaining the nature and purpose of the study. Participants were assured that all their data are highly confidential, anonymity was also assured through assigning a number for each woman instead of names to protect their privacy.

Statistical Design:

The collected data was tabulated, analyzed and summarized by using statistics tests to test research questions by using Statistical Package for Social science (SPSS) version (23). The level of significance was accepted at P< 0.05 and was considered highly significant when P-value less than or equal 0.01.

Results

Table (1): Distribution of socio-demographic data regarding studied women undergo in vitro fertilization (n=65):

Socio-demographic characteristics	No.	%
Age/ years.		
>25-30	٥	7.7
>30-35	5	7.7
> 35 -40	**40**	**61.5**
>40	١5	23.1
Mean ±SD38.9 ±1.1		

Socio-demographic characteristics	No.	%
Educational level		
Reads and write	5	7.7
Preparatory education	10	15.4
Secondary or technical education	17	26.2
University education and more	**33**	**50.7**
Duration of Marriage/years.		
1:5	٧	10.8
6:10	10	15.4
11:15	١2	18.5
16:20	**33**	**50.7**
> 20	٣	4.6
Occupation		
Housewife	**٥٠**	**76.9**
Working	١٥	23.1
Residence		
Rural	**٤٩**	**75.4**
Urban	١٦	24.6
High/cm		
150:160cm	**٣٨**	**58.4**
161:170cm	١٠	15.4
>170cm	١٧	26.2
Min = 155 cm/ Max = 172cm		
Weight/kg		
50:60kg	5	7.7
61:70kg	17	26.2
71:80kg	**38**	**58.4**
>81kg	5	7.7
Min = 57 kg/ Max = 90 kg		
Body mass index		
Underweight <18.5	**8**	**12.3**
Normal weight 18.5-24.9	**١٩**	**29.2**
Overweight 25-29.9	**34**	**52.3**
Obesity ≥ 30	**٤**	**6.2**

Table (1) indicate that the socio-demographic characteristics of the sample reveal a population primarily in their late 30s, with the majority (61.5%) aged 35-40 years and a mean age of 38.9 years. Educationally, over half (50.7%) hold a university degree or higher, while a significant portion (26.2%) has secondary or technical education. Most participants have been married for 16-20 years (50.7%), and large majorities are housewives (76.9%), reflecting traditional gender roles. reside in rural areas (75.4%). Physically, over half of the participants are with mean 155 cm height range (58.4%) and the 71-80 kg weight range (58.4%), with 52.3% classified as overweight according to their body mass indexing (BMI).

Table (2): Distribution of obstetric history for studied women undergoing in vitro fertilization (n=65)

Obstetric history	No.	%
Weeks of gestation		
First trimesters	**45**	**69.2**
Second trimesters	20	30.8
Infertility Type		
Primary	**56**	**86.2**
Secondary	9	13.8
If secondary infertility, mention number of children(n=9)		
1:2	**7**	**77.8**

Obstetric history	No.	%
3:4	2	22.2
>4	0	0.0
Infertility Duration/ year		
1:2	0	0.0
3-5	15	23.1
6-10	**34**	**52.3**
Over 10 years	16	24.6
Causes of infertility		
Unknown	**٣5**	**53.8**
Hormonal imbalance	١١	16.9
Polycystic ovary syndrome (PCOS)	٧	10.8
Male factors of infertility	١2	18.5
Previous history of IVF		
Yes	٦٢	**95.4**
No	٣	4.6
If yes, mention number of trails (n=٦٢)		
1:2	٢٦	41.9
3-4	**٣٠**	**48.4**
>4	٦	9.7

Table (2) show that the obstetric history of the sample population reveals a predominance of first trimester of pregnancy were (69.2%), primary infertility (86.2%), with a smaller proportion experiencing secondary infertility (13.8%). Among those with secondary infertility, most have 1-2 children. Infertility duration is notably prolonged, with 52.3% of participants experiencing it for 6-10 years and 24.6% for over 10 years. The causes of infertility are varied, with the most common being unknown (53.8%), followed by male factors (18.5%), hormonal imbalances (16.9%), and polycystic ovary syndrome (PCOS) (10.8%). A significant majority (95.4%) have a history of in vitro fertilization (IVF) treatment.

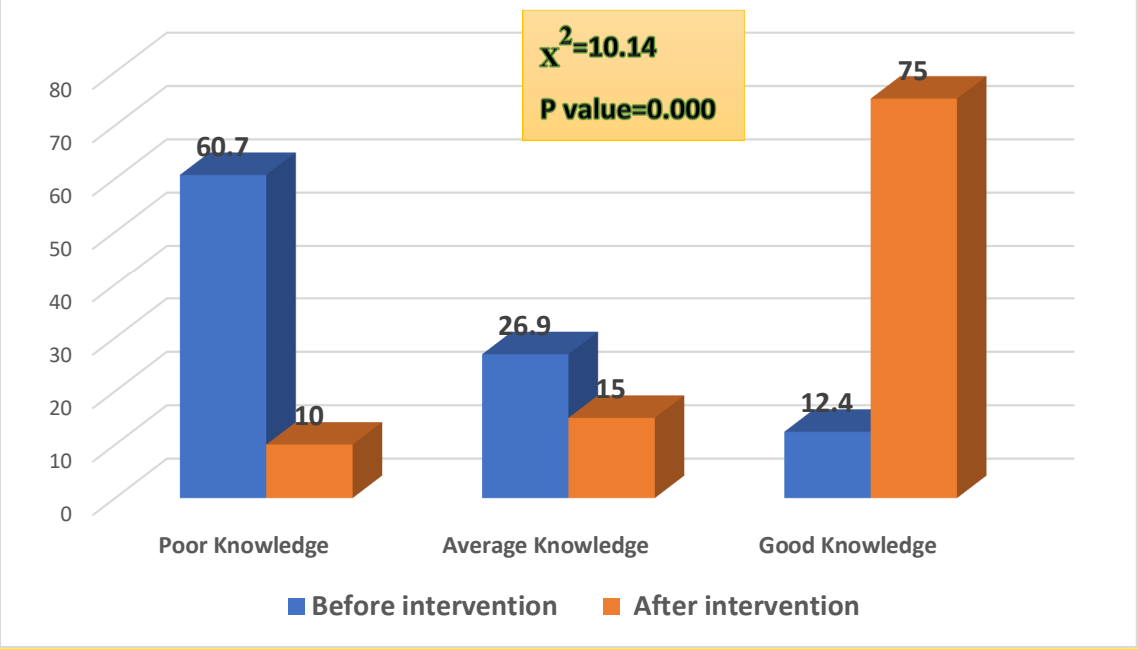

Fig (١): Total level of women's knowledge scores regarding IVF (before and after intervention)

Fig (١):Show that, before the guidelines was tested, a significant majority (60.7%) had a poor level of knowledge, with only 12.4% demonstrating a good level. However, after the test of the guidelines, there was a marked improvement: the percentage of women with a good level of knowledge rose dramatically to 75%, while those with a poor level of knowledge dropped to just 10%. Additionally, the proportion of women with an average level of knowledge decreased from 26.9% to 15%.

Table (3): Mean scores of women's self-care guidelines domains regarding IVF (before and after intervention) (n=65)

Self-Care Guidelines Domains	Before intervention Mean ±SD	After Intervention Mean± SD	X^2	P-value
Relaxation exercises	7.24±1.21	15.14±2.14	5.321	**0.000****
Low-intensity workouts	7.11±0.64	14.15±1.27	7.146	**0.000****
Diets intake	8.33±2.54	17.31±3.16	7.327	**0.000****
Life style change	6.34±1.25	15.31±1.61	5.431	**0.000****
Emotional support	7.37±1.35	17.21±2.53	6.341	**0.000****
Total	36.39±6.99	79.12±10.71	7.312	**0.000****

** Statistically significant at P – value ≤ .01Chi-Square test for p value.

Table (3): presents that before the guidelines, the mean scores for relaxation exercises, low-intensity workouts, diets intake, lifestyle changes, and emotional support ranged between 6.34 and 8.33. After the intervention of the guidelines, these scores nearly doubled, with post-application means ranging from 14.15 to 17.31. The overall total score improved from 36.39 to 79.12.

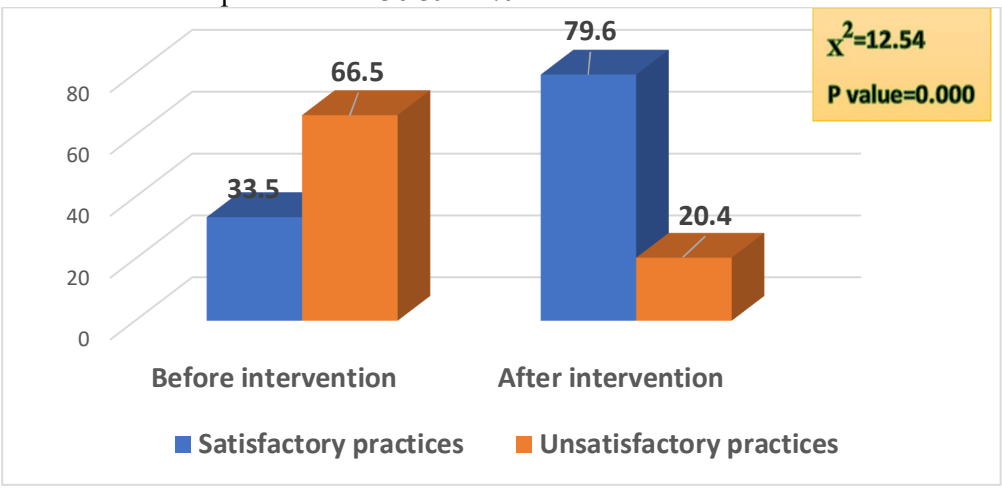

Fig 2: Total women's self-care guideline practices score regarding IVF (before and after intervention) (n=65).

Figure (2) illustrates that before the application, only 33.5% of the participants reached a satisfactory level, while 66.5% were at an unsatisfactory practice. After the guidelines were applied, there was a significant shift, with 79.6% of participants achieving a satisfactory level and only 20.4% remaining at an unsatisfactory practice.

Table (4): Mean scores of women's fertility quality of life regarding In Vitro Fertilization (before and after intervention) (n=65).

Domains	Before intervention Mean ± SD	After intervention Mean ± SD	X^2	P-value
Lifestyle changes	7.34±1.25	16.31±1.14	2.314	**0.000****
Emotional support	7.37±1.35	15.21±2.31	2.541	**0.000****
Mind/ Body balance	3.12±2.11	11.41±3.11	3.127	**0.000****
Relations with others	8.34±1.25	15.11±1.12	4.214	**0.000****
Total	26.17±5.96	58.04±7.78	11.321	**0.000****

** Statistically significant at P – value ≤ .01, Chi-Square test for p value

Table (4) shows that significant improvements in all areas, with p-values of 0.000 for each domain, indicating strong statistical significance. Specifically, "Lifestyle changes" increased from a mean of 7.34 to 16.31, "Emotional support" rose from 7.37 to 15.21, "Mind/Body balance" improved from 3.12 to 11.41, and "Relations with others" increased from 8.34 to 15.11. The total score also showed a substantial rise from 26.17 to 58.04.

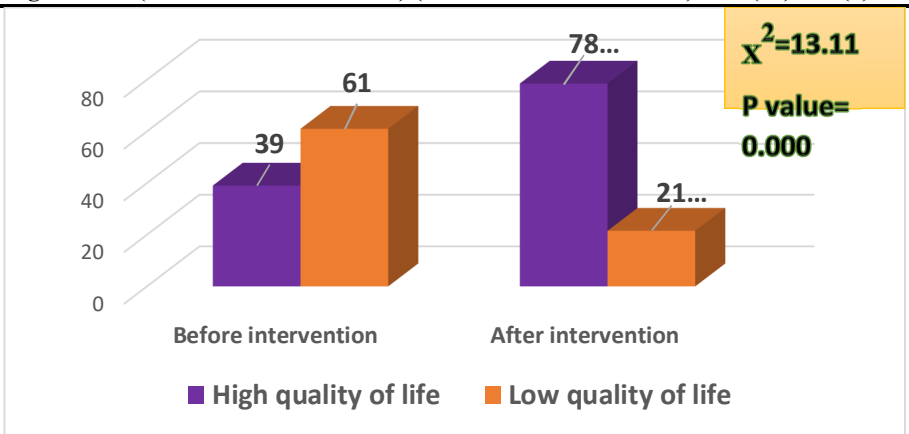

Fig (3): Total women's fertility quality of life score regarding IVF (before and after intervention)(n=65).

Figure (3): illustrates that before the guidelines were applied, 61% were at a low quality of life, while 39% were at a high quality of level. Post-application, there was a substantial shift, with 78.5% achieving a high level and only 21.5% remaining at a low level. The marked increase in high-level outcomes and decrease in low-level outcomes suggest that the guidelines were highly effective.

Table (5): Correlation between studied women's total knowledge, self-care guideline practices and quality of life scores before intervention regarding in vitro fertilization (n = 65).

Items	Knowledge	self-care guideline Practices	Fertility Quality of life
Knowledge r. value (P. value)	1	-0.311 (.05) *	-0.215 (0.000) **
self-care guideline practices r. value (P. value)	-0.311 (.05) *	1	-0.474 (0.000)
Fertility Quality of life r. value (P. value)	-0.215 (0.000) **	-0.474 (0.000) **	1

**** Correlation is significant at the 0.01 level (2- tailed). * Correlation is significant at the 0.05 level (2-tailed).**

Table (5): reveals significant negative correlations between knowledge, self-care guideline practices, and fertility quality of life. Higher knowledge is associated with lower scores in self-care practices and fertility quality of life. Similarly, better adherence to self-care guidelines is linked to a lower fertility quality of life, with this relationship being particularly strong.

Table (6): Correlation between studied women's total knowledge, self-care guideline practices and quality of life scores after intervention regarding in vitro fertilization (n = 65):

Items	Knowledge	self-care guideline Practices	Fertility Quality of life
Knowledge r. value (P. value)	1	0.415 (.000) **	0.329 (0.001) *
self-care guideline practices r. value (P. value)	0.415 (.000) **	1	0.247(0.000) **
Fertility Quality of life r. value (P. value)	0.329 (.001) *	0.247(0.000) **	1

** Correlation is significant at the 0.01 level (2- tailed). * Correlation is significant at the 0.05 level (2- tailed).

Table (6): shows positive correlations between knowledge, self-care guideline practices, and fertility quality of life. Knowledge is positively associated with self-care practices ($r = 0.415$, $p = 0.000$) and fertility quality of life ($r = 0.329$, $p = 0.001$), indicating that higher knowledge levels correspond to better self-care practices and improved fertility quality of life. Additionally, self-care guideline practices are positively correlated with fertility quality of life ($r = 0.247$, $p = 0.000$), suggesting that better adherence to self-care guidelines is linked to an enhanced quality of life related to fertility. All relationships are statistically significant.

Discussion:

In Vitro Fertilization (IVF) is a widely used assisted reproductive technology that offers hope to women facing challenges in conceiving naturally. Women who undergo IVF often do so to address fertility issues caused by factors as age, hormonal imbalances, endometriosis, blocked fallopian tubes, or unexplained infertility ***(AlSaad et al., 2024).*** The study aims to evaluate the effect of self-care guidelines on knowledge and quality of life among women undergo IVF.

Self-care guidelines play a crucial role in enhancing the knowledge and overall well-being of women undergoing IVF. Many women experience emotional distress, physical discomfort, and uncertainty during the IVF process, making self-care education essential. By providing structured guidelines on nutrition, stress management, medication adherence, and lifestyle modifications, women become more informed about their treatment and its potential challenges. This increased knowledge empowers them to actively participate in their fertility journey, make informed decisions, and adopt behaviors that can improve their treatment outcomes ***(Sharifi et al., 2024).***

The present study finding revealed that, **mean age** ± SD of studied women were 38.9 ±1.1 years and this finding was similar to **Ha et al., (2023)** who conducted study in Turkey under title " Efficacy of psychosocial interventions for pregnancy rates of infertile women undergoing in vitro fertilization: a systematic review and meta-analysis" and mentioned that, mean age ± SD of studied samples were 37.7 ±2.1. From researcher points of view,women at this age the number and quality of eggs decline significantly as women age advanced, leading to challenges in achieving successful fertilization and implantation.

Concerning studied women's educational levels, nearly half of studied women were university education and more, and this finding was in disagreed with **Mohamed et al., (2024)** who conducted study in Egypt entitled " Effect of health education program on knowledge, stress, and satisfaction among infertile women undergoing in vitro fertilization injection" and mentioned that, less than half of studied samples had secondary education. This may be due to; economic pressures and the need for dual-income households also encouraged women to seek higher education.

Regarding studied women's job, more than three quarter of studied women were housewives, and this finding was in disagreed with **Roshdi et al., (2023)** who conducted study in Egypt entitled " Effect of Prenatal Education on Knowledge, Practices, and Quality of Life among Pregnant Women with Hyperemesis Gravidarum" and mentioned that, less than half of studied samples had housewife. This may be explained by, university education for women was sometimes valued more for the prestige it brought to a family than for career preparation.Insufficient job creation in fields aligned with women's education exacerbated the issue.

The present study finds illustrated that, more than three quarters of studied womenwere live in **rural area** and this finding disagreed with **El-Feshawy et al., (2023)** who conducted a study in Egypt entitled " Effect of Collaborative Infertility Counseling on Coping Strategies and Marital Satisfaction among Women Undergoing In Vitro Fertilization a Randomized Control Trial " and mentioned that, less than three quartersof studied control samples live in rural area. This may be rendered to,many families have lived in rural areas for generations, maintaining cultural traditions tied to the land.People may choose to stay in or return to rural areas to be close to family or care for elderly relatives.

The present study clarified that, nearly half of studied women were married from 16 to 20 years and this finding agreed with **Omar et al., (2023)** who conducted study in Egypt entitled " Effect of Maternity-Led Pro-Fertility Lifestyle Intervention on Health-Promoting Behaviors of Women undergoing Infertility Treatment " and mentioned that, half of studied samples married from 30-<40 years. This may be explained by, a woman's ovarian reserve (the number and quality of eggs) begins to decline significantly, making natural conception more challenging.Success rates are promising but depend on individual health factors, the quality of medical care, and whether advanced techniques like genetic testing or egg donation are used.

Concerning **studied women's weight/kg**, more than half of studied women were from 71 to 80 kg and more than half of them body mass indexwasoverweight from 25 to 29.9, and this finding was in agreed with **Masoud et al., (2023)** a study in Egypt entitled " Effect of maternity-led pro-fertility lifestyle intervention health promoting behaviors of women undergoing infertility treatment" and mentioned that, more than half of studied samples had from 70 to 80 kgand more than half of them body mass index was overweight < 25

kg/m^2. This may be due to; physical activity a sedentary lifestyle with little to no physical activity can lead to weight gain and an increase in BMI.

The present study finding showed that, more than two thirds of studied womenwere in the **first trimester** and this finding contradicted with **Ashraf et al., (2020)** who conducted study in India entitled " A study to assess knowledge, attitude and practice of infertility among adults in Indian Population" and stated that, less than half of studied samples in their first trimesters. Early monitoring of IVF pregnancies involves frequent clinic visits during the first trimester for check-ups, hormone tests, and ultrasounds. This close observation allows researchers to study early pregnancy stages, focusing on outcomes like implantation success, fetal development, and potential complications. Such research aims to improve understanding and care for IVF pregnancies from the very beginning.

Concerning studied women's **infertility type**, majority of studied women in the present study were primary infertility type, and this finding was in agreed with **El- Sherif et al., (2021)** who conducted study in Egypt entitled " Coping Strategies and Quality of Life among Infertile Women" and stated that, majority of studied samples had primary infertility type. This may be rendered to; the inability to conceive or carry a pregnancy to term after many years of trying for the first time are often candidates for in vitro fertilization because it directly addresses many causes of infertility.

The present study finding illustrated that, more than half of studied women were **infertile duration** from 6 to 10 years and this finding agreed with **Sanad et al., (2019)** who conducted a study in Egypt entitled " Infertility and related risk factors among women attending rural family health facilities in Menoufia Governorate" and stated that, more than half of studied samples were infertile from 5 to 10 years. This may be due to; decreased natural conception chances as the longer a couple experiences infertility, the lower the likelihood of conceiving naturally due to aging, declining egg quality, and potential worsening of underlying conditions.Women resort to IVF.

Regarding studied women's **causes of infertility**, more than half women in the present study were unknown cause, and this finding was in agreed with **Ramadan and Said, (2018)** who conducted study in Egypt entitled "Effect of an Educational Intervention for Infertile Women Regarding Natural Fertility Methods and Sexual Skills for Improving Sexual Function" and stated that, more than half of studied samples had unknown cause. This may be explained by,recommended to pursue in IVF because it offers a systematic and effective approach to overcoming barriers to conception that cannot be diagnosed through standard fertility evaluations.

Concerning studied women's **previous history** of IVF, most of studied women in the present study were previous history of IVF and nearly half make 3 to 4 trails, and this finding was in agreed with **Youness, (2018)** who conducted study in Egypt entitled " Lifestyle factors between fertile and infertile women at Assiut Women's Health Hospital " and stated that, most of studied samples had previous history of IVFand nearly half make 3 to 5 trails. This may be rendered to; some women feel that stopping treatment would mean giving up on their dream of parenthood, which keeps them motivated to continue.

Regarding **total knowledge** score regarding IVF less than three quarters of studied women were poor level of knowledge, and more than one quarter were averagelevel of knowledge,pre implementation of an educational program and this finding agreed with **El-sharkawy et al., (2021)** who conducted study in Egypt entitled "Impact of educational program on the success rate of intracytoplasmic sperm injection" and stated that, less two thirds of studied subjects have poor level of knowledge, nearly more than one quartersof themhad average level of knowledge pre applying of an educational program. This may be due to; many women may not have had adequate exposure to reliable, comprehensive information about IVF, either through formal education, healthcare providers, or media. This lack of exposure could explain why the majority had poor knowledge, with only a small portion having a basic (average) understanding.

Concerning **total self-care guideline practices** score regarding IVF more than three quarter of studied women had satisfactory practice post implementation of an educational program, and this finding agreed with **El-Sharkawy et al., (2024)** who conducted study in Egypt entitled "Effectiveness of self-instructional module on knowledge and remedial practices regarding selected minor ailments among primigravida" and stated that, more than two thirds of studied subjects had satisfactory practice post implementation of an educational program. This may be explained by,encouraging proactive behavior like emotional

support, life style change and proper diets intake.Assessing sustained practices and health outcomes over time can further validate the program's effectiveness.

Concerning **total quality of life** score regarding IVF more than three quarter of studied women were high quality of life post implementation of an educational program, and this finding agreed with **Abd Elhamed et al., (2024)** who conducted study in Egypt entitled "Effect of educational program based on Levine's conservation model on the quality of life of infertile women " and stated that, more than three quarters of studied subjects had high quality of level post implementation of an educational program. This may be due to,the program likely helped women better understand their health, treatment, and emotional challenges, reducing uncertainty and anxiety.With better knowledge, women could make empowered decisions about their care and life, improving their sense of control and satisfaction.

Regarding association between post - interventional program total score of knowledge with studied woman's demographic characteristics,it shows that there was a statistically significant relation between total score of knowledge and woman age, educational qualification, and previous history of IVF and this finding agreed with **Asazawa et al., (2023)** who conducted study in Japan entitled "Effectiveness of a web-based partnership support program for preventing decline in the quality of life of male patients undergoing infertility treatment " and stated that, it shows that there was a statistically significant relation between total score of knowledge and age, and educational qualification, post implementation of an educational program. This may be due to; women of specific age groups (e.g., those nearing the end of reproductive age) may be more motivated to learn and engage with the program because it feels highly relevant to their immediate concerns.

Regarding association between post-interventional program total score of practices with studied woman's demographic characteristics,it shows that there was statistically significant relation between total score of practices and age, educational qualification, and previous history of IVF, this finding agreed with **Chausheva, &Ozdal, (2024)** who conducted study in European University of Lefke entitled " Effect of educational program based on The impact of IVF patients' characteristics on their satisfaction and quality-of-life with overseas treatment" and stated that, it shows that there was statistically significant relation between total score of practices and age, monthly income and educational qualification, post - interventional program. This may be rendered to; higher educational qualifications often correlate with the ability to comprehend complex instructions and implement them accurately.

Concerning association between post-interventional program's total score of quality of life with studied woman's demographic characteristics,it shows that there were statistically significant relations between total score of quality of life and this finding agreed with **El-sharkawy et al., (2021)** who conducted study in Egyptentitled "Health Education for Measuring the severity of nausea and vomiting of pregnancy; a 20-year perspective on the use of the pregnancy-unique quantification of emesis (PUQE)" and stated that, it shows that there were statistically significant relations between total score of quality of life and age, sex, and educational qualification. This may be explained by, higher educational levels correlate with better understanding of the program, leading to improved adoption of strategies that enhance Quality of Life (QoL).

Regarding correlation between studied women's total knowledge, self-care guideline practices and quality of life scores before intervention regarding in vitro fertilization, there was highly significance improvement in studied women before interventional program and this finding agreed with **Ramadan & Said, (2018)** who conducted study in Türkiye entitled "Effect of an Educational Intervention for Infertile Women Regarding Natural Fertility Methods and Sexual Skills for Improving Sexual Function" and stated that, there was highly significance improvement in studied women correlation between studied women's total knowledge, self-care guideline practices and quality of life scores before intervention regarding in vitro fertilization and disagree with**Banaha et al., (2023)** who conducted study in Babol, Iranentitled "Effectiveness of Group Psychosexual Training for Marital Adjustment and Sexual Self-Efficacy of Infertile Women: A Randomized Controlled Trial"and stated that, there wasn't significance improvement in studied women before interventional program. This may be rendered to, women may have already accessed information about IVF through other channels, such as online resources, healthcare providers, or peer networks.

Concerning correlation between studied women's total knowledge, self-care guideline practices and quality of life scores before intervention regarding in vitro fertilization, there was highly significance improvement in studied women after interventional program and this finding agreed with **Hojeij et al., (2023)** who conducted study in Türkiye entitled "The Effect of an eHealth Coaching Program (Smarter Pregnancy) on Attitudes and Practices Toward Periconception Lifestyle Behaviors in Women Attempting Pregnancy" and stated that, there was highly significance improvement in studied women correlation between studied women's total knowledge, self-care guideline practices and quality of life scores after implementation of educational programand disagree with**Nejad et al., (2023)**who conducted study in Yazd, Iran entitled"Effectiveness of sexual health counseling based on mindfulness approach on sexual satisfaction in women suffering from infertility: An RCT" and stated that, there was significance improvement in studied women after interventional program for intervention group. This may be rendered to, increased knowledge enables women to understand their condition, treatment, and associated self-care practices. This reduces uncertainty and fosters a sense of control.

Conclusion:

Self-care guidelines effectively enhance knowledge and significantly improve the quality of life for women undergoing IVF. Implementing self-care guidelines significantly enhances the knowledge of women undergoing in vitro fertilization (IVF), as the proportion of women who had a good level of knowledge was only 10.0% prior to intervention and increased significantly to 75% following it.

The study demonstrates that self-care practices positively impact various dimensions of quality of life, including emotional well-being, physical health, and social relationships, as before intervention only 39.0 % of studied women had a high levelof quality of life which improved and become78.5% after intervention. The marked increase in high-level outcomes and decrease in low-level outcomes suggest that the guidelines were highly effective.

Recommendations:

Based on the findings of current study, it was recommended that:

- Integrating self-care education into fertility treatment programs to support women in managing the challenges associated with IVF.
- Developing discharge instructions provided for all women undergo in vitro fertilization contains tips regarding danger signs of bleeding, healthy habits, and follow-up.
- Implement educational workshops or programs to raise awareness among women about self-care practices and their importance in improving knowledge and quality of life during IVF treatments.
- Engage healthcare providers, such as fertility specialists, psychologists, nurses and dietitians, to deliver holistic support and address multiple dimensions of care.
- Conduct further studies to explore the long-term impacts of self-care guidelines and their applicability across diverse populations undergoing fertility treatments.

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