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IMPROVING QUALITY OF LIFE FOR WOMEN WITH GENETIC-RELATED INFERTILITY

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Abstract: Background: Infertility treatments significantly impact the quality of life for women, with poor psychological well-being often leading to higher rates of treatment discontinuation. **Specific Background:** In vitro fertilization (IVF) is a common intervention for genetically infertile women, yet its effects on quality of life remain underexplored, particularly using comprehensive tools like the Fertility Quality of Life Questionnaire (FERTIQOL). **Knowledge Gap:** Previous studies have not thoroughly assessed the impact of IVF on quality of life using FERTIQOL among genetically infertile women in specific geographic locations, such as Iraq. **Aims:** This study aims to evaluate the FERTIQOL among genetically infertile women undergoing IVF to determine its impact on their quality of life. **Results:** A total of 75 genetically infertile women, aged 20-45 years, were recruited from Baghdad hospitals between April 6, 2023, and October 10, 2024. The study found a 64% prevalence of primary infertility and a 36% prevalence of secondary infertility. Post-IVF complications occurred in 25.33% of cases, and pregnancy loss was reported in 32% of patients. Hormonal levels were recorded as follows: FSH 6.58 ± 0.05 IU/L, LH 6.52 ± 0.61 IU/L, estradiol 161.92 ± 6.18 pmol/L, and progesterone 0.89 ± 0.48 nmol/L. The FERTIQOL scores revealed a mean tolerability score of 76.55 ± 13.20, a treatment FertiQoL score of 67.91 ± 10.83, a relational score of 60.02 ± 8.74, and a Mind/Body score of 68.78 ± 16.59. **Novelty:** This study is among the first to assess the impact of IVF on quality of life in genetically infertile women using FERTIQOL in an Iraqi setting. **Implications:** The findings highlight the significant role of IVF in managing genetic infertility and its profound impact on patients' quality of life, underscoring the need for comprehensive support systems during treatment.

Keywords: Infertile women; Symptoms; General health - QOL; Genetic factor; Vitro fertilization.

Introduction

The problem of infertility has become a serious reproductive health challenge which can influence the living standard in case it is found among couples who are not capable to bear children,

especially women without kids [1]. It occurs with a global frequency rate of about 9 to 18%, and presently, there are almost 48 million people globally undergoing this condition. Between them, only 56 percent choose to go for the right medication. In Iran, infertile couples amount to between 10.3 percent and 24.9 percent, respectively. [2 – 4]

Females have regularly been defined as motherhood and childbirth as the two most vital roles played by them, which have given rise to the notion that it is women who suffer from infertility [5]. Compared to what men go through, actual infertility, as well as its associated pains, comes with far greater suffering attached to it than do any other causes, constituting a major part of these difficulties faced by women who live with such situations and ultimately posing risks to their joy and welfare [6,7]. Further variations in respective concerns encountered by infertile females emanate from the social organization behind infertility's agony and its impact on the standard of living amongst the female gender. [8]

The multifaceted challenge of accepting any problem in life encompasses diverse aspects like character inclinations, individual wishes (general requirements, emotional requirements for coping with difficult situations, beliefs regarding future experiences, etc.), accessibility, and cost of services available [9,10]. On the other hand, a particular aspect related to women is economic condition [11]. This is attributed to the prevailing situation where women are not financially independent from their spouses. Hence, they cannot pay for infertility treatments by themselves, which has resulted into different psycho-socio-physical changes and severe loss of quality he/she would have enjoyed over time. [12]

Infertile women suffer from depression, anxiety, and self-esteem problems [13]. In spite of the fact that infertility is widespread, it is rare for most infertile natural women to unload their minds to any member of the family or close friends, thereby evoking anxiety among these people [14,15]. Some studies have claimed that there is no correlation between anxiety and how long someone has been without pregnancy, but in the long run, this disease can put great stress on a woman's body, causing a sense of shame and remorse for no reason. Adverse repercussions also hinder psychological as well as social growth among females. [16 – 19]

Several techniques are adopted by infertile couples so as to better the quality of their marriage life and handle the inability to conceive children [20]. Some people look for religious and social help, strive to change the current situations, come up with problem-solving strategies, and ignore the issue while others usually opt for the blame game. However, managing infertility is a very crucial matter which can result into a successful settlement in due time. On the other hand, if individuals do not manage to embrace it, their personal lives will undergo a great dilemma, leading into health risk factors. [21,22]

The evidence has been demonstrated that emotional, psychological, and social strains are fundamental considerations in dealing with barrenness and its management methods [23]. However, most communities see it solely as a medical problem, neglecting the subsequent social issues [24 - 27]. Also, below-average fertility status in women inhibits their capacity for addressing conception-related issues that can assist them overcome infertility problems. Women might be facing internal (physiological and psychological) and external (environmental and social) stressors which hinder adaptation. Therefore, all these issues bring out contradictory situations among women. [28 – 30]

Methods

2. Patients and methods

2.1. Data Collection

We conducted a cross-sectional study in Baghdad hospitals - Iraq on all patients with genetic infertility, which included 75 women where infertile women participated in IVF treatment during the period between April 6, 2023, and October 10, 2024. All patients underwent a set of FertiQoL questionnaires for all infertile women treated with reproductive technologies, where all women completed a questionnaire in this study. As for the inclusion and exclusion criteria, women aged between 20-45 years, women who smoked and non-smokers, and women who had other physical diseases and some who did not (hypertension, diabetes, anemia, asthma, and others) were included. Demographic data of patients were recorded, which included age, body mass index, duration of infertility, cause of infertility, symptoms, psychological status, monthly family income, and other factors.

2.2. Questionnaires of Fertility Quality of Life (FertiQoL)

There are two basic sections in the FertiQoL instrument: the login of the FertiQoL core module and the treatment module. The FertiQoL core module contains 24 items, whereas the treatment module has ten items. The components of FertiQoL are broken down into four areas, namely: emotional, physical (mind/body), relationships and social. The affective domain evaluates how infertility influences emotional responses, including but not limited to feelings of sadness, anger, or grief. The mind/body domain refers to the effects of infertility on physical health, cognition, and behavior. The relationship domain values assess how infertility affects partnerships, while social domains look at its effects on social dimensions, including social inclusion, expectations, and support, for example. The tolerability of fertility treatments is assessed using two domains in the treatment module. Randomly selected items from these domains are displayed on the questionnaire, which are then rated from 0 – 4; a higher score denotes enhanced quality of life. Scores from the FertiQoL subscale, as well as overall score are generated before being transformed into a 0-to-100-point scale in which the higher values signify improved life quality. Data methodology was designed and established by the program (SPSS program, version 22.0).

Results and Discussion

Results

Table 1: Demographic Characteristics Of Participants.

Characteristics	**Cases (n = 75)**	**Percentage (%)**
Age, years		
20 – 35	30	40%
36 - 45	45	60%
BMI, $\mathbf{kg/m^2}$		
Underweight	0	0%
Normal weight	18	24%
Overweight	42	56%

Obesity	15	20%
Infertility type		
Primary infertility	48	64%
Secondary infertility	27	36%
Infertility duration, years		
> 2	6	8%
3– 6	33	44%
6– 9	24	32%
> 9	12	16%
Illnesses related to patients		
Yes	33	44%
No	42	56%
Hypertension	14	18.67%
Diabetes	6	8.0%
Anemia	5	6.67%
Asthma	5	6.67%
Others	3	4.0%
Previous surgery		
Yes	19	25.33%
No	56	74.67%
Education status		
Secondary	4	5.33%
University	14	18.67%
Postgraduate	57	76.0%

Income status, $		
< 600	36	48.0%
600 – 820	22	29.33%
> 820	17	22.67%

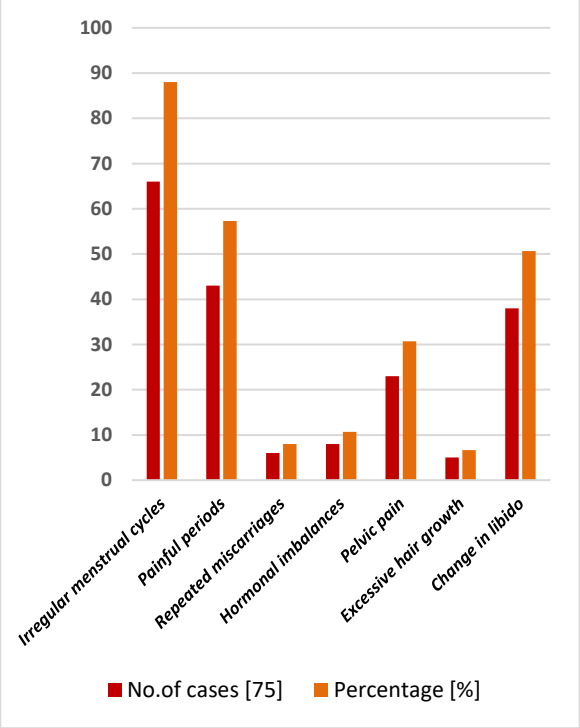

Figure 1: Identify Symptoms Of Infertility Related To Women Patients.

Table 2: Surgical Data Of Vitro Fertilization (Ivf) Procedure.

Variables	**No. of cases [75]**	**%**
Ultrasonographic findings		
Antral follicle count in each ovary—no. (%)		
12 – 20	54	72.0%
>20	21	28.0%
Endometrial thickness—mm	5 – 6	
Number of ovulation induction cycles before randomization		
A—no. (%)	21	28.0%
C—no. (%)	12	16.0%

D—no. (%)	42	56.0%
Total transfer cycles		
Cleavage embryos cycle	63	84.0%
Blastocyst cycle	12	16.0%
Primary outcomes		
Live birth	45	60.0%
Secondary pregnancy outcomes		
Conception—no. (%)	63	84.0%
Clinical pregnancy—no. (%)		
Singleton	54	72.0%
Twins	3	4.0%
Non	18	24.0%
Implantation (per embryo)—no./total no. (%)		
D3 cleavage embryo	18	24.0%
D5 blastocyst embryo	28	37.33%
Ongoing pregnancy—no. (%)	42	56.0%
Pregnancy complication		
Pregnancy loss—no. (%)	24	32.0%
First trimester	20	26.67%
Second trimester	4	5.33%

Table 3: Determine Hormonal Data Of Women Patients In Terms Of Before And After Ivf Treatment.

Items	**Before IVF treatment**	**After IVF treatment**	**P – value**
FSH—IU/L	5.40 ± 0.38	6.58 ± 0.05	0.830
LH—IU/L	5.24 ± 0.47	6.52 ± 0.61	0.633
Estradiol—pmol/L	151.60 ± 7.41	161.92 ± 6.18	0.628

Progesterone—nmol/L	0.83 ± 0.27	0.89 ± 0.48	0.316

Table 4: Measurement Of Pain Prevalent Into Patients After The Vitro Fertilization (Ivf) Procedure.

Scores	**No, of cases [75]**	**%**
< 3, (lower or no pain)	56	74.67%
3 – 7, (/Average or a little high pain)	13	17.33%
> 7, severe pain	6	8.0%

Table 5: Determining Adverse Outcomes Related To Women Undergoing In Vitro Fertilization (Ivf) Procedure.

Adverse variables	**No. of cases [75]**	**%**
Ovarian hyperstimulation syndrome (OHSS)	4	5.33%
Ectopic pregnancy	6	8.0%
Multiple pregnancies (twins or triplets)	3	4.0%
Miscarriage	2	2.67%
Emotional stress or depression.	4	5.33%
Total	19	25.33%

Table 6: Assessment Of Fertiqol Of Women Patients After Ivf Treatment.

Items	**Mean**	**SD**
Emotional	54.30	22.53
Mind/body	68.78	16.59
Relational	60.02	8.74
Social	65.83	12.80
Environment	66.96	16.83
Tolerability	76.55	13.20
Treatment FertiQoL	67.91	10.83

Table 7: Identication Of Satisfication Level Of Patients On Ivf Treatment.

Classifications	**No. of patients [n = 75]**	**%**
Very satisfied	54	72.0%

Satisfied	7	9.33%
Good	6	8.0%
Average	3	4.0%
Poor	5	6.67%

Discussion

In this cross-sectional study, the invitation was extended to 75 patients who were undergoing IVF treatment. All of them agreed to participate in this research. The age of the respondents ranged from 20 - 35 years, had 30 cases, and participants ranged from 36 - 45 had 45 cases. The majority of the respondents had completed postgraduate education, which accounted for 76.0% of patients, and 44% had been infertile for 3-6 years. Our study examined the overall and subscale quality of life (QOL) for women who underwent IVF. We attempted to review the factors that could have an effect on the quality of life among Iraqi women receiving infertility treatment. The individuals diagnosed with primary infertility were 48, and those with secondary infertility were 27.

In this study of typically and abnormal last studies [25,26,31,32], behavior on social scales among women with primary and secondary infertility (57.50±15.78 and 65.42±14.39 respectively), it was observed that women undergo social pressures. Conversely, there is no significant difference in the German population in the social subscale, as per Sexty et al.'s report (p=0.032). [33]

Moreover, an Iranian study by Hekmatzadeh et al. [34], 2018 revealed a higher quality of life for mothers. In research done by Biovin et al. [35], childless participants recorded significantly lower Core FertiQoL scores (p<0.001) (53.3±16.3) than their counterparts who had children (59.5±17.7). Our research showed that Treatment FertiQoL were 67.91±10.83 and 66.18±11.13, correspondingly. In our study, lower scores in relational (60.02 ± 8.74) and emotional (54.30 ± 22.53) domains and higher scores in treatment FertiQoL (67.91 ± 10.83) and Tolerability (76.55 ± 13.20) corresponded to a shorter duration of infertility.

Supporting our findings, the study conducted by Karabulut et al., 2016 indicated that short periods of infertility are associated with poorer mind/body and social indicators ($p < 0.05$). A prior investigation showed that [36] Huppelschoten et al.'s respondents who had experienced short periods of infertility were more prone to report a higher quality of life.

Conclusion

Vitro fertilisation (IVF) is a key aspect of improving the quality of life for women with genetic infertility. It offers them the opportunity to become mothers, addresses genetic fertility issues, provides emotional support, and empowers them throughout their reproductive journey. For women struggling with genetic infertility, IVF can be a transformative resource, enabling profound changes in their lives.

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