

Assessment of Fertility-Related Quality of Life and its Associated Factors among Females of Reproductive Age at a Secondary Care Public Hospital, Hub Chowki, District Lasbela, Balochistan

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ABSTRACT

Background: The quality of life of couples, especially women, is significantly influenced by their ability to conceive. The prevailing beliefs associated with infertility have diverse impacts on the quality of life of couples. According to the literature, various factors may influence the quality of life in infertile women, but available local evidence is limited.

Objective: To assess the fertility-related quality of life and its associated factors among females of reproductive age.

Methods: A cross-sectional study was conducted from November 2022 to April 2024 at a Secondary Care Public Hospital, Hub Chowki, Balochistan, Pakistan. The data was collected from infertile women of reproductive age through a two-part questionnaire. The 1st section contained demographic information whereas the 2nd section consisted of the FertiQoL questionnaire to measure fertility-related quality of life. Data were entered and analyzed on SPSS version 20.

Results: A total of 170 patients were included in the study with a response rate of 100%. The mean age of the study participants was 28.02±5.8 years whereas the mean duration of their marriages was 6.11±4.3 years. The median total FertoQoL score for all participants was 28.00 (IQR=36.25-21.00), the median emotional subscale score was 9.00 (IQR=12.00-6.00), the median mind and body subscale score was 7.00 (IQR=9.00-4.00), the median relational subscale score was 17.00 (IQR=17.00-13.75). In contrast, the median social subscale score was 11.00 (IQR=14.00-7.75). Bivariate analysis revealed that females under the age of 30 years had a significantly higher median total FertiQoL score as compared to those aged 30 years or above (p=0.031). Moreover, females with shorter durations of marriage showed relatively higher median scores on all subscales of FertoQoL than those with longer durations of marriage, though this difference was statistically insignificant. Furthermore, multiple linear regression analysis showed that both age (p=0.030) and family background (p=0.041) of the participants were significant predictors of their total FertiQoL scores.

Conclusion: Age and family background of patients were found to be significantly associated with their fertility-related quality of life. Other factors, such as duration of marriage, may also have an impact on their quality of life however significant associations were not observed in this study.

Keywords: Marriage, females, fertility, quality of life, risk factors.

INTRODUCTION

According to the European Society of Human Reproduction and Embryology, infertility is a disease characterized by “the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse or due to an impairment of a person’s capacity to reproduce, either as an individual or with their partner” [1]. Infertility has a significant influence on women’s health and quality of life, irrespective of age, level of education, length of marital life, socioeconomic background and types of infertility [2]. According to a systematic evaluation of 277 demographic and reproductive health survey data, infertility rates were highest in South Asia, Sub-Saharan Africa, North Africa/Middle East, Central/Eastern Europe, and Central Asia [3]. A systematic review found that infertility may result in impoverishing health expenses as well as economic

uncertainty and deprivation secondary to social consequences in developing countries [4].

Quality of life (QoL) is defined by the World Health Organization (WHO) as “individuals’ perception of their place in life in the context of the culture and value systems in which they live, in relation to their goals, expectations, standards, and concern” [5]. A couple’s quality of life is influenced and determined by infertility-related stress, anxiety, sadness, psychological, and emotional disorders [6-8]. A systematic review found that infertility negatively affects couples’ psychological well-being and sexual relationships [9]. Likewise, another systematic review reported that infertility was a certain cause of psychological and mental problems in infertile couples [10]. There is evidence that infertility and its treatment have a considerable effect on an individual’s quality of life [11]. According to another study, the duration of infertility had a significant negative impact on the emotional, relational and social domains of Core FertiQoL [12]. Locally in Pakistan, a recent study showed that infertile women who were younger and had higher

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education level and better socioeconomic condition depicted a better quality of life [13].

Several quality-of-life assessment measures have been created and validated in several languages over the last few decades, but there is still a need for a tool that addresses QoL in infertile couples thoroughly [10]. The European Society of Human Reproduction and Embryology (ESHRE) and the American Society of Reproductive Medicine (ASRM) collaborated to develop the FertiQoL instrument, which measures the quality of life in couples with reproductive issues. FertiQoL was developed using the same process as the WHO Quality of Life assessment [5]. FertiQoL is a questionnaire that has been created internationally to assess fertility-related quality of life [14].

Generally, infertile women experience negative social consequences including marital instability, stigmatization and abuse. Infertility can have a serious effect on both the psychological well-being and social status of women. In Pakistan, having a different culture compared to the Western world, the perception prevails that conception and childbirth are a part of women's responsibilities. However, not much attention has been given to identifying and addressing the social, psychological and cultural factors which are associated with psychological distress among women suffering from primary infertility. This research was therefore conducted to determine the fertility-related quality of life and its associated factors among females of reproductive age at a Secondary Care Public Hospital, Hub Chowki, District Lasbela, Balochistan.

METHODS

A cross-sectional study was conducted at a secondary care public hospital, Hub Chowki, District Lasbela, Balochistan, Pakistan from November 2022 to April 2024. Female patients coming to clinics aged 18 to 45 years who were unable to conceive after a marriage duration of at least three years, who had not adopted any child and who demonstrated willingness to voluntarily complete an interview were included whereas such women with any chronic illness, known history of psychological illness and those who were not willing to participate were excluded from the study.

The required sample size was calculated to be 139 using the Epitools online calculator [15] to estimate sample size for a single mean assuming the population standard deviation to be 12 [16] with 95% confidence level and 2% precision. Against the calculated sample size, a total of 170 infertile female patients were included in the study using a non-probability purposive sampling technique.

The data were collected through a two-part questionnaire. The first section contained demographic information whereas the second section consisted of the FertiQoL questionnaire to measure fertility-related quality of life.

It is a self-reported questionnaire developed by the researchers and clinicians of the European Society of Human Reproduction and the American Society of Reproductive Medicine [17]. The Fertile tool consisted of two modules; the Core Fertile Module and an Optional Treatment Module. After obtaining due permission, only the core fertile module was used in this study which consists of 24 items. These 24 items are characterized in four domains *i.e.* emotional (evaluates the impact of infertility on emotions, such as sadness, resentment, or grief), cognitive and physical (influence of infertility on physical health, cognition, and behavior), relational (impact of infertility on partnership) and social (impact of infertility on social inclusion, expectation and support) domains. All items in the FertiQoL tool are rated from 0 to 4. The scores of all these items are computed and transformed in the range of 0-100. The higher score on the FertiQoL demonstrates a better quality of life while lower scores are indicators of poor quality of life among the infertile population. The FertiQoL tool has been translated into more than 20 languages, including Urdu. In this study, the Urdu translated version of FertiQoL was used [18].

Data collection was started after obtaining written informed consent from participants. The study questionnaire was filled out for each participant of the study by the principal investigator. All collected data was kept anonymous and its confidentiality was also ensured.

Data were entered and analyzed by statistical package for social science (SPSS version 20). Descriptive analysis such as frequencies and percentages was calculated for categorical variables while medians and interquartile ranges were generated for continuous variables. After checking normality using the Shapiro-Wilk test, Core FertiQoL, and subscale scores were compared across demographic characteristics of participants by applying the Mann-Whitney U test and Kruskal-Wallis H test. Moreover, multiple linear regression analysis was performed to check the association between demographic characteristics and the total FertiQoL score. The significance level was kept at 0.05.

RESULTS

A total of 170 patients were included in the study with a response rate of 100%. The mean age of the participants was 28.02 ± 5.8 years, 73 (42.9%) were illiterate whereas 43 (25.3%) were educated up to matric, the mean duration of marriages was 6.11 ± 4.3 years, 112 (65.9%) had private jobs, 74 (43.5%) had a monthly household income of less than 20,000 rupees whereas 66 (38.8%) earned 20,000 to 50,000 rupees, 105 (61.8%) lived in urban areas whereas 150 (88.2%) lived in a joint family system (**Table 1**).

The median total FertoQoL score for all participants was 28.00 (IQR=36.25-21.00). Breaking down the subscales scores, the median emotional subscale score was 9.00 (IQR=12.00-6.00), the median mind and body subscale

Table 1: Participants profile.

Participant Characteristics	Count (%) / Mean±S.D.
Age (Years)	28.02±5.8
Education Level	
Illiterate	73 (42.9)
Up to Matriculation	43 (25.3)
Intermediate	20 (11.8)
Graduation or Above	34 (20.0)
Duration of Marital Life (Years)	6.11±4.3
Occupation	
Private	112 (65.9)
Semi Government	6 (3.5)
Government	24 (14.1)
House Wife	28 (16.5)
Monthly Household Income (Rs.)	
Less than 20000	74 (43.5)
20000 to 50000	66 (38.8)
More than 50000	2 (1.2)
Family Background	
Urban	105 (61.8)
Rural	65 (38.2)
Type of Family	
Nuclear	20 (11.8)
Joint	150 (88.2)

Table 2: Comparison of total FertiQoL score across demographic characteristics.

Participant Characteristics	Median (IQR)	p-value
Age		
Less than 30 years	31.00 (37.00-23.00)	0.031
30 years or above	25.00 (34.50-21.00)	
Education Level		
Illiterate	27.00 (36.00-23.00)	0.283
Up to Matriculation	26.00 (37.00-20.00)	
Intermediate	33.50 (41.75-24.50)	
Graduation or Above	27.50 (37.25-21.75)	
Occupation		
Private	30.00 (37.00-22.25)	0.256
Semi Government	27.50 (38.50-14.25)	
Government	26.00 (41.50-21.00)	
House Wife	24.50 (32.00-20.25)	
Duration of Marital Life		
Up to 5 years	30.50 (37.00-22.00)	0.138
6 years or more	25.50 (34.00-21.00)	
Monthly Household Income (Rs.)		
Less Than 20000	27.00 (36.25-22.75)	0.353
Between 20000-50000	30.00 (38.25-21.00)	
More Than 50000	26.50 (32.00-21.00)	
Family Background		
Urban	29.00 (38.00-21.50)	0.115
Rural	26.00 (33.00-21.00)	
Type of Family		
Nuclear	31.00 (41.00-24.25)	0.147
Joint	27.00 (36.00-21.00)	

score was 7.00 (IQR=9.00-4.00), the median relational subscale score was 17.00 (IQR=17.00-13.75). In contrast, the median social subscale score was 11.00 (IQR=14.00-7.75).

Table 3: Multiple linear regression analysis of association between demographic characteristics and total FertiQoL scores.

Participant Characteristics (n=170)	Unstandardized Coefficients B	95% CI		p-value
		Lower	Upper	
Age (Years)	-0.336	-0.639	-0.033	0.030
Education Level	0.046	-1.353	1.444	0.949
Occupation	-0.663	-3.246	1.921	0.613
Duration of Marital Life (Years)	0.005	-0.392	0.402	0.979
Monthly Household Income (Rs.)	-0.529	-3.376	2.313	0.714
Family Background	-3.22	-6.308	-0.132	0.041
Type of Family	-3.283	-7.954	1.388	0.167

A comparison of the median total FertiQoL scores revealed a significant difference across age categories (p=0.031) where females under the age of 30 years had a higher median score [31.00 (IQR=37.00-23.00)], as compared to those aged 30 years or above [25.00 (IQR=34.50-21.00)] (Table 2).

Moreover, a comparison of median scores for emotional, relational, mind and body, and social subscales across various demographic characteristics was also done. However, the analysis did not reveal any significant differences in these scores across the categories of demographic characteristics studied.

Furthermore, multiple linear regression analysis of the association between demographic characteristics and total FertiQoL scores was performed and the F-ratio indicated that the overall regression model was a good fit for the data (F=2.240, p=0.034). The regression model further showed that both age (p=0.030) and family background (p=0.041) of the participants were significant predictors of their total FertiQoL scores (Table 3).

DISCUSSION

The study results showed a significant difference in mean total FertiQoL score across categories of age where respondents who were aged less than 30 years had higher scores than those who were aged 30 years or above. Multiple linear regression analysis also showed age of the patients to be a significant predictor of their fertility-related quality of life. The age of a woman is an important factor in determining her fertility-related quality of life as it is directly linked with reproductive function and may also have an impact on her psychological well-being. This may be due to the reason that younger women had a hope of fertility and were more ambitious. Literature though reports equivocal evidence in this regard. An earlier study conducted in Pakistan showed no association of age with FertiQoL scores [16]. A study from Poland though found a positive correlation between age and total FertiQoL score [19]. Another study reported that older age was significantly related to better QoL scores for the total FertiQoL score [20]. The difference in the results may be due to the regional differences; as the latter two studies were conducted in European countries.

Still, further exploration of this important relationship is recommended.

Moreover, no significant difference in FertiQoL subscale scores across categories of age was observed in this study. Contrary to these results though, an earlier study by Sixty RE *et al.* reported a positive relationship between the age of the examined women and their emotional and biological quality of life [21]. Likewise, another study by Maroufizadeh *et al.* also observed that older women had higher FertiQoL subscales scores [11]. Another study reported a positive trend, though statistically insignificant, between increasing age and FertiQoL subscale scores, apart from relational subscale [22]. Similarly, Wadadekar GS *et al.* reported that women showed positive and uniform trends in mean scores of all core FertiQoL subscales with age [23]. Further exploration of this relationship in future studies is therefore suggested by the authors.

The study results also showed that the median total FertiQoL score and subscale scores were not significantly different across categories of education of respondents. An earlier study though reported that the quality of life was significantly lower among better-educated women [19]. Moreover, another study by Wadadekar GS *et al.* reported that women showed a positive and uniform trend in mean scores of all core FertiQoL subscales with education [23]. Though not observed in this study, higher educated women can be reasonably expected to better adjust themselves to this bitter reality of life in emotional, social and physical contexts.

As expected, the study results revealed that women with government jobs and a monthly income between 20,000 to 50,000 rupees exhibited higher subscale scores, probably because of satisfaction attributed to job security and a favorable salary package, although these differences were not statistically significant. These relationships were also observed in a previous study and its results were consistent with those of our study [24].

The present study also examined the association between length of marital life and fertility-related quality of life in study participants on subscale scores and it was seen that women with shorter duration of marriage showed relatively higher subscale scores than those with longer duration of marriage, though the difference was statistically insignificant. Similar findings have been reported by recently published literature as well [25, 26]. This is an interesting finding which needs elaboration. Women who have married recently may still have hope, family support and societal acceptance to be able to conceive in the future. This in turn will reflect in them having better fertility-related quality of life than those women who have longer duration of marriage.

Respondents with a nuclear family setup also showed relatively higher subscale scores than those living in a joint family system. However, these differences were not

statistically significant. A previous study also showed that women living in a joint-family system or sharing a living place with extended family members were more likely to encounter social restriction and pressure and therefore presented lower emotional, social and relational subscale scores [2].

As outpatients are not a good surrogate of the general population, the generalizability of the study findings is limited. It is further acknowledged that the causes of infertility were not considered in this study, and these could have affected the FertiQoL score of the respondents.

CONCLUSION

Age and family background of patients were found to be significantly associated with their fertility-related quality of life. Other factors, such as duration of marriage, may also have an impact on their quality of life however significant associations were not observed in this study.

In the light of study findings, psychological counseling is recommended for infertile females of reproductive age in our local population, particularly those in the higher age bracket, at every available opportunity. Moreover, health education sessions on improving the quality of life of infertile couples should be arranged in healthcare setups, either as part of a continuous medical education program or as a separate activity. Furthermore, electronic, print and social media can also be used to reach out to family members of such couples to increase their awareness and bring a positive change in their attitude.

ETHICS APPROVAL

To the best of authors' knowledge, the study procedures were in line with the institutional ethical standards for human experiments and the Helsinki Declaration. The ethical approval from Baqai Institute of Health Sciences was also duly taken (Reference # FHM 73-2022).

CONSENT FOR PUBLICATION

Written informed consent was taken from each participant for their data to be included in the study.

AVAILABILITY OF DATA

Data cannot be shared publicly because it is the intellectual property of Baqai Institute of Health Sciences. Data are available from the Baqai Institute of Health Sciences (contact *via* manager.mph@baqai.edu.pk).

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None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORS' CONTRIBUTION

- YG: Study concept, designing, and manuscript drafting.
- NJ: Study design, critical review and revision of initial draft.
- SMZHN: Study designing, result analysis and interpretation, critical review and revision of the initial draft.
- AAM: Critical review and revision of the initial draft.
- All authors have read and approved the manuscript.

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