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# Quality of Life Among Fertile and Infertile Women

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## Abstract

**Background:** Quality of life is an important indicator for the assessment of individual health, decision-making, and passing judgment on the overall health of the community.
**Objectives:** This study aimed at comparing the quality of life among fertile and infertile women and the factors affecting it.
**Materials and Methods:** In this cross-sectional study, the quality of life of 511 infertile women and 1017 fertile women was assessed using the Persian Version of SF36 quality of life questionnaire in 2013. To examine the relationship between demographic variables and quality of life, chi-square test and analysis of variance were used. The relationship between the factors affecting the quality of life was evaluated using multiple regressions.
**Results:** Almost 10.1% of the participants reported low and very low quality of life, 38.6% reported average, and 51.3% reported good or very good quality of life. No significant difference was observed in the level of quality of life in fertile and infertile women (P = 0.8). The subscale mean scores of physical functioning and physical role limitation were significantly lower, and the mean scores of mental health and general health were higher in the fertile women than in the infertile.
**Conclusions:** The results of the present study revealed that infertile women had significantly lower mean scores in the subscales of mental health and general health than the fertile women.

*Keywords:* Fertility, General Health, Infertility, Iran, Physical Functioning, Quality of Life

## 1. Background

In the recent years, the concept of quality of life has been an important indicator for the assessment of individual health, decision-making, and passing judgment about the overall health of the community and for finding problems in various aspects of life in medical research (1). Quality of life has many dimensions such as physical health, mental health, economic condition, personal beliefs, and interaction with the environment (2, 3). According to the definition introduced by the world health organization, quality of life is defined as "individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" (4). Infertility has been defined as the inability to conceive after one year of regular sexual intercourse without the use of contraceptive methods (5). Infertility is not only a gynecological problem but also a bio-psycho-social health problem including a lower quality of life (6). Infertility affects many couples so that some studies have reported its prevalence as one couple out of 10 (5). The results of a study carried out in 2007 on 17 2413 women in 25 countries reported infertility rates to be 3.5 to 16.7% in developed countries and 6.9 to 9.3% in developing countries (7). Infertility with its stressful and emotionally threatening nature and high costs is a crisis in life both for men and for women (6). Infertility is considered a crisis with economic, ethical, biological, and cultural psychological consequences (8, 9).

Female infertility has different psychological and social effects on their quality of life (10). Many studies that have assessed quality of life among infertile couples have found more defects in the quality of life in women than in men (11-16). Other studies indicated lower quality of life among infertile couples than the fertile (6, 10, 12, 17, 18). Most women with infertility problems experience stress and tension and are less satisfied with their lives than the fertile women (6). Quality of life evaluation can help understand the impact of health conditions such as infertility on women. Quality of life (QoL) has increasingly emerged as a relevant outcome in multidimensional health condi-

tions (12).

## 2. Objectives

Given the high rate of infertility in Iranian women and disagreement between studies about the relation between QoL and fertility problems, in this study we aimed at comparing the quality of life in fertile and infertile women and the factors affecting it.

## 3. Materials and Methods

This cross-sectional study was conducted in 2013 in which 1528 participants (511 infertile and 1017 fertile women) were selected from Shahroud (a city in Northeast of Iran). To identify eligible women from the rural population, family planning documents in rural health's houses were assessed, and a list of women with infertility problems were extracted. In the urban area, by referring to obstetrics and genecology clinics and reviewing the clinical and medical records, we extracted a list of women with infertility problems. Finally, we interviewed 511 known infertile women. Twice the number of infertile women (1017 fertile women) was randomly selected from the 15 - 49-year-old married women in the same population who had at least one pregnancy. In total, 883 women from the rural and 645 ones from the urban areas were enrolled.

Obtaining informed consent from the participants for their voluntary participation in the study was among the important ethical considerations of the study. Necessary permits for the study were also received with the code of 9103 from the ethics committee of the university.

The data collection tool was the Persian version of SF36 quality of life questionnaire which had been used previously by Montazeri et al. (19) and whose validity and reliability had been confirmed in Iran. There are two general scales in this questionnaire: (a) physical health, (b) mental health. Overall, the two scales include 8 domains of physical functioning, physical role limitation, bodily pain, general health, vitality, social functioning, emotional role limitation, and mental health. In the present study, the demographic characteristics of women including age, education level, job, family income, residency location, and education level and occupation of the husbands were assessed.

After explaining the purpose of the study, the participants were asked to fill out the self-administered questionnaires. Trained interviewers completed the questionnaires for those uneducated participants or those with low literacy.

### 3.1. Data Analysis

Chi-square test and analysis of variance were used to examine the relationship between demographic variables and quality of life. The response variable was SF36 QoL score as a continuous variable. We assessed the role of sociodemographic variables (residence, education, job, family income, and husband's job and education) on QoL between 2 groups using a multiple linear regression. The best-fitted and final model was selected according to likelihood ratio test. In the present study, confidence level was 95% and significance level was set at 0.05.

## 4. Results

The comparison of sociodemographic characteristics of the 511 women with infertility problems and 1017 control women revealed that 41.1% and 42.8% of the infertile and fertile women lived in urban areas. Moreover, the results showed that the 2 groups were different on education level, but and there were no differences between the 2 groups in occupation and family income.

In assessing the quality of life questions, in answering the item: "I seem to get sick a little easier than other people." 24.4% said it was definitely or mostly true about them, 30.8% were neutral, and 44.8% said it was definitely or mostly false about them. In answering the item: "I am as healthy as anybody I know.", 18.4% said it was definitely or mostly true about them, 27.9% were neutral, and 53.7% said it was definitely or mostly false about them. Regarding the item: "I expect my health to get worse", 15.7% said it was definitely or mostly true about them, 23.3% were neutral, and 61.1% said it was definitely or mostly false about them. As for the item: "My health is excellent.", 20.6% said it was definitely or mostly true about them, 19.3% were neutral, and 60.1% said it was definitely or mostly false about them. Almost 10.1% of the participants viewed their quality of life low and very low, 38.6% viewed it as average, and 51.3% said it was good or very good.

The results of the study revealed that the mean score of physical functioning subscale was higher in infertile women than in the fertile ones, and there was a statistically significant difference between the two groups (P = 0.001) (Table 1). Overall, the infertile women had a significantly higher physical functioning and physical role limitation scores than the fertile women. In contrast, they had lower general health and mental health subscale scores than the fertile women. As a summary measure, we calculated the physical and mental component summary. In the present study, women in the infertile group had a higher summary score than fertile women in the physical component summary. However, emotional role limitation, fatigue or vitality, social functioning, mean bodily

**Table 1.** The Comparison of the Mean Score of Quality of Life Subscales between the Fertile and Infertile Women[a]

| Variables | Infertile (n = 511) | Fertile (n = 1017) | T Statistics | P Value |
|---|---|---|---|---|
| **Physical functioning** | 69.46 ± 27.66 | 64.58 ± 25.96 | 3.316 | 0.001 |
| **Role-physical** | 59.98 ± 35.98 | 51.84 ± 37.20 | 4.078 | 0.001 |
| **Bodily pain** | 64.72 ± 25.05 | 63.63 ± 24.34 | 0.818 | 0.413 |
| **General health** | 58.85 ± 17.67 | 62.19 ± 17.83 | -3.467 | 0.001 |
| **Vitality** | 57.82 ± 18.29 | 57.64 ± 17.52 | 0.195 | 0.846 |
| **Social functioning** | 69.05 ± 21.68 | 69.27 ± 21.97 | -0.183 | 0.855 |
| **Role-emotional** | 56.96 ± 38.98 | 59.45 ± 39.41 | -1.178 | 0.239 |
| **Mental health** | 61.60 ± 17.71 | 64.04 ± 18.10 | -2.506 | 0.012 |
| **Physical component summary** | 63.25 ± 19.70 | 60.56 ± 19.13 | 2.567 | 0.010 |
| **Mental component summary** | 61.36 ± 18.41 | 62.60 ± 18.83 | -1.228 | 0.219 |
| **Total score of SF36** | 61.42 ± 16.09 | 60.63 ± 15.93 | 0.918 | 0.359 |
| **Quality of Life, %** | | | | |
| Low | 52 (10.2) | 102 (10.0) | 0.45 | 0.80 |
| Moderate | 190 (37.2) | 396 (39.0) | | |
| High | 269 (52.6) | 519 (51.0) | | |

[a]Values are expressed as mean ± SD.

pain, mental health, and the quality of life mean scores were not significantly different between the infertile and fertile women ($P > 0.05$).

In the multiple linear regression model, it was revealed that residence, education, and husband's occupation were significantly related to QoL in fertile women. In contrast, only family income was significant variable in infertile women.

## 5. Discussion

In the present study, fertile women's quality of life score was not significantly different from that of the infertile women. El Kissi et al. in a study entitled: "Quality of life of infertile tunisian couples and differences according to gender" stated that the quality of life of infertile women was lower than that of the fertile women (18), which is not consistent with our results. Onat et al. in a study entitled: "Effects of infertility on gender differences in marital relationship and quality of life: a case-control study of turkish couples" reported that quality of life in infertile women was higher in all dimensions compared to the fertile women, which is inconsistent with the recent results (6). Amanelahifard et al. reported that quality of life of infertile women was lower than that in fertile women (20). In some studies, lower quality of life in infertile women has been reported (5, 12, 16, 21-23), which does not conform to the current study. The difference between the quality of life of women in this study with other studies may be due to cultural, social, and economic differences in other societies, which can affect quality of life of people.

Comparison of QoL subscales in fertile and infertile women in our study revealed that the mean score of physical role limitation and the mean score of physical functioning were significantly higher in infertile women than in fertile women, which is consistent with Onat finding (6). In their study, El Kissi et al. reported no relationship between physical functioning and physical role limitation in fertile and infertile women (18), which does not conform to the results of the present study. Perhaps disability in fertility as a factor in infertile women has caused physical dysfunction so that they cannot play their role in the community well.

The mean score of physical health in infertile participants was significantly higher than that in fertile women. Amanelahifard et al. (20), Fekkes et al. (21), Drosdzol and Skrzypulec (22), Chachamovich et al. (12), Monga et al. (5), Schmidt (16), Verhaak et al. (23) in their studies reported lower physical health scores for infertile women, which is not consistent with the findings of the current study.

The mean scores for the mental health of the infertile women were lower than that in fertile women. Some other studies have reported lower mental health scores in infertile women, which is consistent with a recent study (5, 12, 16, 20-23). Given the cultural context, having no child can

bring about a negative attitude toward infertile women and this can lead to role limitation, which can cause mental problems in a long run.

The quality of life score in fertile women showed significant relationships with place of residence, education, husband's occupation; however, only family income was a significant predictor variable in infertile women.

El Kissi et al. did not report a significant difference between age, education, and place of residence in fertile and infertile women, which is consistent with the recent results, but the reported a significant relationship between occupation in fertile and infertile group, which does not comply with the current results (18). Karabulut et al. in their study reported a significant relationship between age and education level with infertility, but no relationship between job and infertility, which is consistent with part of the recent results (10). Ghasem-Zad et al. in their study entitled: "Quality of life and its correlatives among a group of infertile Iranian women" reported no relationship between age and length of marriage, and quality of life in infertile women, which is consistent with the current results (24). Onat and Kizilkaya Beji in their study did not report a significant relationship between age, education level, and occupation in fertile and infertile women, which is consistent with the recent results (6). Higher education can provide greater access to resources and publications and help women to expand and improve their knowledge. This can be useful in managing the problem and dealing with it rationally. The comparison between the 2 groups in terms of demographic variables revealed a significant difference on educational levels, whereas more infertile women were illiterate, and so were their spouses. The educational disparity can lead to inequality in follow-ups and receiving infertility care and cure services.

No relationship was found between emotional role limitation, social functioning, and mental health in fertile and infertile women, which is inconsistent with the results of El Kissi et al. (18).

In general, 52.1% of the infertile women had good quality of life, and 37.8 % had moderate quality of life. Amanati et al. in a study entitled: "Quality of life and its influencing factors in infertile women" found that 48.3% of the infertile women believed their quality of life was good, and 36.1% believed it was moderate, which is to a large extent similar to the current results (25). Although infertility is a hypothesis in decreased quality of life of infertile women, this study did not confirm this hypothesis.

### *5.1. Conclusions*

In conclusion, the results of the present study revealed a clear significant difference between the 2 groups in mental health and general health mean scores. The results indicated that infertile women had significant lower scores in subscales of mental health, and general health than the fertile women. Moreover, it was found that the general and mental components of quality of life were affected by fertility problems, and this is a consequence of psychological outcomes of infertility. Instead, the physical functioning and role-physical mean scores were significantly higher in infertile than the fertile women. One of the strengths of this study was that this comparison was done for the first time in city of Shahroud (Iran) and could be used to guide further studies in the future.

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## Footnotes

**Authors' Contribution:** Mohammad Amiri participated in designing the evaluation and interpretation of data, helped to draft and revise the manuscript. Reza Chaman conceived and designed the evaluation, interpreted the data, performed the statistical analysis, and drafted the manuscript. Zakieh Sadeghi, and Mohammad Reza Khatibi participated in designing the evaluation and interpretation of data, helped to draft and revise the manuscript. Mansour Ranjbar helped to draft and revise the manuscript. Ahmad Khosravi participated in designing the evaluation and interpretation of data, performed parts of the statistical analysis, helped to draft and revise the manuscript. All authors read and approved the final manuscript.

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