

# Irrational parenthood cognitions and health-related quality of life among infertile women

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**Background:** The aim of this study was to assess health-related quality of life, irrational parenthood cognitions, and their interrelationship among a group of Iranian women referred to an infertility center in Tehran, the capital of Iran.

**Materials and methods:** Women who visited the infertility center in Imam Khomeini University Hospital in Tehran participated in this cross-sectional study. Each participant filled out a two-part questionnaire. The first part included background questions, and the second part included inventories developed to assess quality of life and irrational parenthood cognition among infertile subjects.

**Results:** The mean age of the participants was 27.8 years (standard deviation, 5.1). Mean standardized quality of life score was 59.4 out of a maximum of 100 (95% confidence interval, 56–62.8). No statistically significant linear correlation was found between quality of life and age, length of marriage, or the time under treatment. There was a weak reverse correlation between length of the time attempting to become pregnant and quality of life ( $r = -0.25$ ;  $P < 0.01$ ). There was a strong reverse correlation between irrational parenthood cognitions and quality of life ( $r = -0.64$ ;  $P < 0.00$ ). Multivariate regression analysis found several variables to be independent predictors of quality of life score. These included having higher levels of irrational parenthood cognitions, being under high social pressure imposed by relatives, and having spent a long time attempting to become pregnant.

**Conclusion:** Knowing about the predictors of low quality of life (including high-level irrational parenthood cognitions, social pressure from relatives, and spending a long time attempting to become pregnant) is assumed to help physicians in identifying the infertile women who are at higher risk of developing a poor health over their infertility experience.

**Keywords:** infertility, assisted reproductive technology (ART), quality of life, irrational parenthood cognitions, Iran

## Introduction

Infertility affects more than 80 million people worldwide, occurring mostly in those living in low/middle income countries, but also experienced by five million couples in the United States of America.<sup>1,2</sup> Approximately 10%–15% of couples of reproductive age are involuntarily childless. In some studies, this figure is as high as 33%.<sup>3,4</sup> The problems arising from infertility are devastating for the affected couples.<sup>5</sup> Psychological effects and quality of life are important issues of infertility, and women are more susceptible to such effects than men.<sup>6</sup>

Cultural context, ethnicity, religion affect the prevalence and attitudes toward female infertility, which may in turn affect the quality of life among infertile and childless women.<sup>7</sup> Societal and family pressure to propagate the family name can place

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a psychological burden on infertile couples. Moreover, the physical, psychological, and financial challenges of assisted reproductive technology may have a further impact on these couples.<sup>1</sup> As in other fields of reproductive health, in the area of infertility, irrational cognitions may affect women's behaviors.<sup>8</sup>

Irrational parenthood cognitions is a phrase developed in the last decade<sup>9</sup> to indicate specific, irrational cognitions concerning the need to have children in order to have a happy life. These irrational ideas can lead to the development of emotional and psychological complaints. Health-related quality of life as perceived by the patients themselves is used to measure the impact of diseases and the effects of treatments. Health-related quality of life includes patients' own perceptions of their physical, emotional, social, and cognitive functioning.<sup>9</sup> Assessing quality of life along with irrational parenthood cognitions during infertility has occurred in only a few studies, and the available information regarding its pattern and predictors is limited in the literature. The aim of this study was to assess health-related quality of life, irrational parenthood cognitions, and their interrelationship among a group of Iranian women referred to an infertility center in the capital of Iran.

## Materials and methods

In this cross-sectional study, the first 147 women who visited the infertility center in Imam Khomeini University Hospital in Tehran were included. Patients were referred to this infertility center from different parts of Iran. Each participant filled out a two-part questionnaire. The first part included background questions regarding age, husband's age, employment, husband's employment, urbanity, educational level, husband's educational level, length of marriage, and self-assessed economic status. This part also included a few questions related to infertility, such as time waiting for a pregnancy to occur, time seeking infertility treatment, expectations of treatment success, infertility cause, previous pregnancies, previous live births, social pressure from others, and motivation.

The second part of the questionnaire included inventories developed to assess health-related quality of life and irrational parenthood cognitions among infertile subjects. In the second part, the participants were asked to use a five-point scale to score the extent to which they agreed with particular statements. The items were subsequently summated to a scale score of 0–132 when assessing quality of life, and to a scale score of 0–56 for irrational parenthood cognitions. The scores were then standardized to be comparable to an equal scale score of 0–100. Higher scores in the quality of life scales meant higher quality of life, and higher scores

in the irrational parenthood cognitions scale indicated higher levels of irrational parenthood cognitions. The reliability of the English and Farsi versions of these scales was assessed earlier for female respondents, and the Farsi questionnaire was used in this research.<sup>9,10</sup> Cronbach's  $\alpha$  was greater than 0.80 for the irrational parenthood cognitions scale and greater than 0.9 for the health-related quality of life scale.

Data were entered into a computer and analyzed using the Stata 11 statistical software package (Stata Corporation, College Station, TX). Primarily, descriptive statistics were produced, and bivariate analysis was done to explore possible correlates of the quality of life scores. To investigate the independent predictors of the quality of life scores, multivariate linear regression analysis was applied. Model diagnostics were checked. In the statistical analyses,  $P < 0.05$  was considered as significant.

The study protocol was approved by the Committee of Ethics at Tehran University of Medical Sciences, and the study methodology was approved by the Board of Postgraduate Education, Faculty of Nursing. Written informed consent was obtained from the participants.

## Results

The mean age of the participants was 27.8 years (standard deviation [SD], 5.1). The mean age of the participants' husbands was 33 years (SD, 5.5). 84.8% of the subjects were housekeepers and 6.2% were civil servants. 42% of the husbands were workers and 31.5% were civil servants. Subjects were married for a mean of 7.9 years (95% confidence interval [CI], 6.5–9.4). The subjects had been attempting to become pregnant for a mean of four years (95% CI, 3.6–4.4). They had been undergoing infertility treatment for a mean of 4.9 years (95% CI, 4.3–5.5). Mean crude quality of life score was 102.5 out of 132. Mean standardized quality of life score was 59.4 out of a maximum of 100 (95% CI, 56–62.8). The distribution of the different levels of health-related quality of life is given in Table 1.

No statistically significant linear correlation was found between quality of life and age, length of marriage, or the

**Table 1** Distribution of different levels of health-related quality of life among the infertile women

Quality of life scale	Frequency	Percent
Excellent health	12	8.1
Good health	59	40.1
Fair health	53	36.1
Poor health	22	15
Very poor health	1	0.7

length of time under treatment. There was a weak reverse correlation between length of time attempting to become pregnancy and quality of life ( $r = -0.25$ ;  $P < 0.01$ ). There was a strong reverse correlation between irrational parenthood cognitions and quality of life ( $r = -0.64$ ;  $P < 0.00$ ). The mean standardized quality of life score was 60.7 among urban residents and 50.8 among villagers. However, the observed difference was not found to be statistically significant ( $P = 0.08$ ). Nearly 66% of infertility cases were primary. Women with primary or secondary infertility had similar quality of life scores and the differences were not statistically significant. Infertility type was also not found to be associated with quality of life. Although those with female-only infertility and those with lower educational levels had lower quality of life scores, the observed differences were not statistically significant. Nevertheless, a lower educational level was associated with higher levels of irrational parenthood cognitions ( $P < 0.05$ ). Receiving high social pressure from relatives was one of the factors in lowering quality of life, as tested by one-way analysis of variance, and the mean standardized score for quality of life was 51 (95% CI, 45.4–56.7) in this group; those having moderate or low social pressure from relatives had mean scores of 60.4 (95% CI, 54.6–66.3) and 67.3 (95% CI, 61.7–73), respectively. This difference was statistically significant ( $P < 0.01$ ). There was a reverse correlation between cost of treatment and quality of life, and those who had paid more for their medical treatments had lower quality of life ( $P < 0.01$ ).

Multivariate regression analysis found several variables to be independent predictors of health-related quality of life scores.

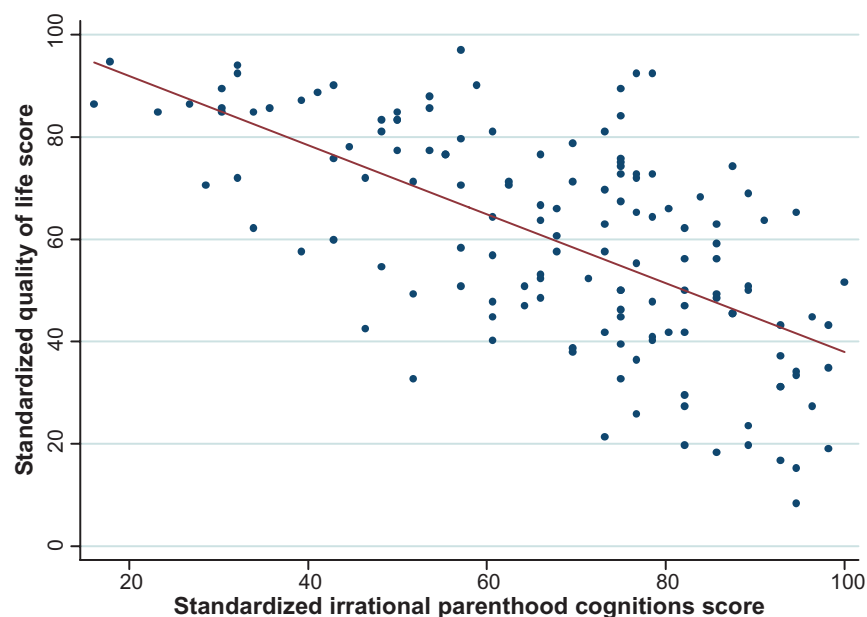
These included having higher levels of irrational parenthood cognitions, being under high social pressure from relatives, and having spent a long time attempting to become pregnant. High social pressure was compared with moderate or lower social pressure, as rated by the women themselves. The correlation between irrational parenthood cognitions and quality of life scores is presented in Figure 1.

Figures 2 and 3 show the mean standardized quality of life and irrational parenthood cognitions score variations according to the distribution of background variables, such as education and magnitude of fertility demand, among the infertile women.

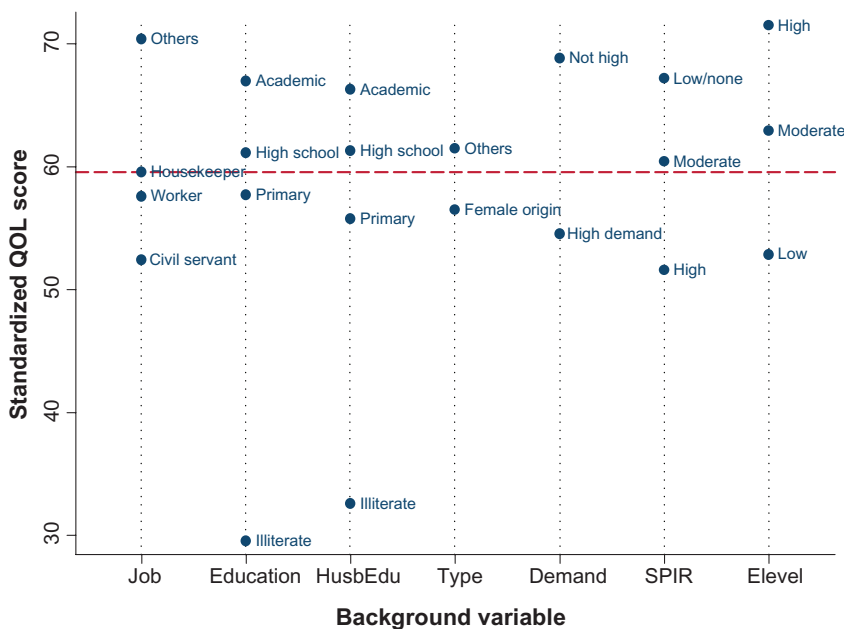
Female infertility comprised 39% of the cases, male infertility was the cause in 20% of the cases, and either common causes or unknown causes comprised the remainder of the cases. About 34% of the subjects reported a previous pregnancy, 41% of which led to a live birth, and the remainder ended in abortion or stillbirth. The mean irrational parenthood cognition score was 39.7 (range, 0–56). Distribution of different items of irrational parenthood cognitions are given in Table 2.

## Discussion

The present study found that about 16% of women seeking infertility treatment had poor health-related quality of life. Although there have been controversial discussions regarding the effect of infertility or treatment of infertility on health-related quality of life among infertile couples,<sup>6,11–17</sup> at least some subgroups of infertile women suffer from lower quality



**Figure 1** Scatter plot of the correlations between irrational parenthood cognitions and quality of life scores.



**Figure 2** Mean standardized quality of life scores as a function of background variables among women seeking infertility treatments.

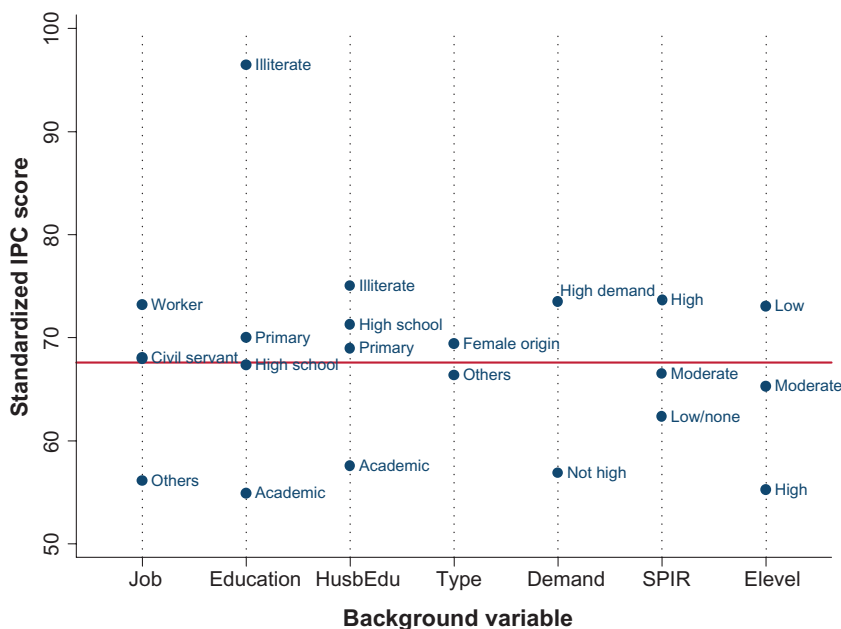
**Note:** Dashed red line, mean score; type, cause (origin of infertility).

**Abbreviations:** Elevel, self-rated economic level; HusbEdu, education level of the husband; QOL, quality of life; SPIR, social pressure imposed by relatives.

of life, and these women must be recognized so that they are able to receive suitable interventions.

A strong association between irrational parenthood cognitions and depression has been reported in the literature.<sup>18–20</sup> Moreover, irrational parenthood cognitions are found to be a major predictor of quality of life among infertile women.<sup>4,9,21,22</sup> We did not find a correlation between quality of life and infertility type. Our findings were similar to the

findings of Fekkes et al<sup>9</sup> and Aliyeh and Laya<sup>4</sup>. Khayata et al reported a lower quality of life among women with female infertility,<sup>21</sup> stating this is due to the cultural situation of Arab people. Having a combined etiology of infertility is assumed to lessen the blame on either the wife or husband, and may be associated with higher quality of life. In cases of unknown types of infertility, it may be that most of the blame is put on women in Eastern countries, leading to a



**Figure 3** Mean standardized IPC scores as a function of background variables among the women seeking infertility treatments.

**Note:** Red line, mean score; type, cause (origin of infertility).

**Abbreviations:** Elevel, self-rated economic level; HusbEdu, education level of the husband; IPC, irrational parenthood cognitions; SPIR, social pressure imposed by relatives.

**Table 2** Items of irrational parenthood cognition questionnaire and participants' answers (%)<sup>9,10</sup>

Item	Totally agree	Agree to some extent	No idea	Disagree to some extent	Totally disagree
Having a child is the most important thing in life	42.3	43.7	7.7	4.2	2.1
A life without children is useless and empty	31	26.1	12.7	16.2	14.1
It is absurd that some people can have children quite easily, while others never do	25.4	26.1	18.3	9.9	20.4
The whole world revolves around children	26.8	23.9	20.4	12.7	16.2
Friends have no idea what people who cannot have children go through	57	20.4	12	6.3	4.2
It is impossible to understand why some women decide to have an abortion	27.5	14.1	32.4	10.6	15.5
You start feeling inferior when you cannot have children	24.6	26.8	16.9	9.9	21.8
You start hating your body when you cannot have children	21.8	17.6	16.9	11.3	32.4
An IVF treatment is extremely heavy and painful	46.5	28.2	16.9	5.6	2.8
Your whole world is destroyed when you/your partner have/has your/her period after replacement of the embryos	58.5	21.8	10.6	2.8	6.3
The waiting during an IVF cycle puts you through hell	43	28.2	11.3	7.7	9.9
One's whole world is destroyed when the last IVF treatment fails	52.8	17.6	12.7	4.2	12.7
Not having children causes lifelong suffering	45.1	28.9	10.6	9.9	5.6
One would want to do anything to get pregnant	54.9	24.6	7.7	3.5	9.2

**Abbreviation:** IVF, in vitro fertilization.

negative effect on their quality of life.<sup>4</sup> Our study did not show a correlation between the quality of life and the length of time receiving treatment, but the length of time attempting to become pregnant appeared to be an independent predictor of quality of life. In line with our study, Ragni et al<sup>16</sup>, who studied infertile Italian couples, found a slightly lower quality of life score among patients attempting to have children for long periods of time. However, as stated, a selection bias should be considered because patients with pain complaints may have postponed in vitro fertilization more than those without these complaints.<sup>16</sup>

Although not statistically significant in the present study, quality of life seemed to vary according to variations of other measures, such as age, education, and economic level. Younger subjects had lower quality of life in our study, which was in line with some previous studies.<sup>4,22</sup> As confirmed by the results of the present study, education was mainly a predictor of irrational parenthood cognitions rather than quality of life. Thus, it seems quite reasonable that improved education may improve quality of life by helping the patients have better cognitions. However, due to variable explanations, which we will discuss later, this cannot be proven until concrete interventional studies are conducted. The descriptive covariation of economic levels must also be interpreted cautiously because assessing economic level is often difficult and possibly subject to bias in developing countries.<sup>23</sup>

The authors found that infertile women with higher education levels, especially those with academic education, were less likely to have irrational parenthood cognitions. The effect of education, especially academic education, can mainly be explained by several factors, including having higher overall insight and also greater life independence, which may affect their mental reactions. Higher education can also be an indicator of living at a higher level of social class.

The association of irrational parental cognition with quality of life and psychological disorders may affect the general health status of women and may cause negative healthcare seeking behaviors affecting the treatment process. The consequent change in immune response that is reported to occur due to psychological aftermaths of infertility should also be considered.<sup>18,24-26</sup>

A recent study about quality of life, anxiety, and depression among infertile women by Aarts et al indicates that considering these variables may give rise to positive care experiences and improved patient-centered care. They stated that future research should focus on identifying causal relationships among these variables.<sup>27</sup> Herrmann et al<sup>28</sup> stated that resilience can be considered as an unspecific protective factor against infertility-specific distress and impaired quality of life. When offering counseling to involuntarily childless couples, awareness should be raised regarding resilience as a resource and a "generic" factor of coping for couples.<sup>28</sup> Therapeutic counseling is recommended



before initiation of infertility treatment to improve the coping skills of the patients.<sup>9</sup> Cognitive therapy has been shown to be a reliable alternative to pharmacotherapy and superior to fluoxetine in the resolution or reduction of depression and anxiety in infertile women.<sup>29</sup> Its role may be even larger when used for women who have poor scores regarding irrational parenthood cognitions.

Knowing the predictors of low health-related quality of life, including having higher levels of irrational parenthood cognitions, being under high social pressure from relatives, and having spent a long time attempting to become pregnant, could help physicians to identify the infertile women who are at higher risk of poor health. This is supposed to help in recognizing target groups and implementation of therapeutic or preventive measures for such groups.

## Disclosure

The authors report no conflicts of interest in this work.

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