



Original Article

Assessing the quality of life of infertile Chinese women: a cross-sectional study



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ABSTRACT

Objective: To assess QoL of infertile Chinese women and determine the specific factors adversely affecting QoL for improving the care and treatment compliance of infertile women.

Materials and methods: We conducted a cross-sectional study on a randomized, demographically matched, controlled population of infertile married Chinese women to determine their demographic, menstrual, family stress, and infertility characteristics and then applied the World Health Organization QoL Instrument (WHOQOL-100) to determine which factors would be associated with significant QoL differences between infertile women and their demographically matched fertile controls.

Results: Infertile women showed lower QoL scores in the facets of spirituality/religion/personal beliefs, self-esteem, financial resources, and accessibility to and quality of health and social care, as well as increased pain and discomfort, while also experiencing positive QoL adjustments in terms of mobility, daily living activities, work capacity, sexual activity, freedom, physical safety, security, and transport.

Conclusion: Married infertile Chinese women had significantly lower overall and comprehensive QoL scores, as well as higher anxiety scores, compared with fertile controls.

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Introduction

Infertility, which is defined as the failure to achieve a successful pregnancy after 12 months or more of appropriate, timed unprotected intercourse or therapeutic donor insemination [1], remains a global public health issue. Since 2007, 72.4 million women were estimated to be infertile with the 12-month prevalence rate ranging from 3.5% to 16.7% in more developed nations and from 6.9% to 9.3% in less developed nations, with an estimated overall median prevalence of 9% [2].

The inability to conceive children is experienced as highly stressful by infertile women. Although quantitative psychological assessments of infertile women have shown equivocal results with respect to depression and anxiety, the qualitative descriptive

literature on female infertility demonstrates that infertile women are more likely to experience higher levels of psychological distress than fertile comparators [3]. Moreover, although this psychological distress has not been shown to affect the success of fertility treatment [4], previous reports do suggest higher levels of emotional distress in infertile women that underwent unsuccessful fertility treatment [5,6]. Therefore, female infertility and an unsuccessful fertility treatment process likely have a negative impact on quality of life (QoL), defined by the World Health Organization (WHO) as “an 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” [7]. Thus, assessing QoL and determining the specific factors adversely affecting QoL should improve the care and treatment compliance of infertile women.

To that end, the fertility problem inventory has been the traditionally used measure of psychological distress in infertile women [8]. Although the fertility problem inventory is a useful psychometric tool, it merely assesses psychological stress levels in infertile

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women as opposed to the broader WHO construct of QoL, and has only been validated by samples primarily consisting of Caucasian patients from a homogeneous socioeconomic category with access to assisted reproductive techniques, which may not be directly translatable to a broader demographic of Chinese patients. Although several QoL measures for infertile women have also been developed, they have been designed for specific disease sub-populations [e.g., polycystic ovary syndrome (PCOS), endometriosis] [9,10], or for Caucasian populations in developed countries [11]; therefore, they cannot be directly applied as a QoL measure in a general population of Chinese infertile women.

In contrast to these disease-specific and culturally-specific QoL measurement tools, the WHO QoL Instrument (WHOQOL-100) was specifically developed to be a cross-cultural QoL measurement tool by simultaneous development across 15 global centers through a process of item creation, focus groups, pilot tests, and field tests [12,13]. From 236 select items in pilot studies, a final set of 100 items scored on a 5-point Likert scale, with only the anchor points being specified (never–always, etc.), were grouped into 25 facets—one facet examining overall QoL and general health perceptions, and 24 QoL facets grouped into six larger domains (i.e., physical, psychological, level of independence, social relationships, environment, and spirituality). The universality of the WHOQOL-100 has been globally examined in various respects across several countries (e.g., USA, several European countries, Russia, India, China, Japan, Australia, Panama, and Zimbabwe) and has been found to be remarkably adept at identifying QoL facets that are cross-culturally relevant [14].

Based on this cross-cultural success of the WHOQOL-100, the objective of this study was to assess the QoL of infertile Chinese women through the WHOQOL-100. We conducted a cross-sectional study on a randomized, demographically-matched controlled population of infertile Chinese women to first determine their demographic, menstrual, family stress, and infertility characteristics and then applied the WHOQOL-100 to determine which factors are associated with significant QoL differences between infertile women and their demographically matched fertile controls. This QoL assessment can help identify specific aspects of the infertility experience associated with poor QoL in order to improve health service evaluation, patient satisfaction, and policy making [14].

Methods

Ethics statement

This study was conducted according to the principles expressed in the Declaration of Helsinki. The study was approved by the Institutional Review Board (Ethics Committee) of the First Affiliated Hospital of Anhui Medical University (Hefei, Anhui Province, China; approval no. 2014009). All research participants provided written informed consent for the collection of data and subsequent analysis.

Study design and recruitment

WHOQOL-100 data was collected using a cross-sectional design. Data collection methods followed the internationally agreed protocols designed during the development of the WHOQOL-100 [12,13]. Using a common and consensually agreed protocol, quota sampling was used to structure the sample such that equal numbers of infertile and fertile candidates would be recruited spanning the adult age range of 22–57 years of age, six educational levels (primary, middle, senior, technical education, college/university, and above), three levels of occupational intensity (low, moderate, and high), two types of marriage status (primary and

secondary), menarche, four levels of dysmenorrhea (no, light, moderate, and serious), two types of infertility (primary infertility defined as having never gestated and no contraception after marriage, and secondary infertility defined as infertility 2 years after gestation), three reasons for infertility (female, male, and both), and two diagnosis for infertility (male and female).

The inclusion criteria for infertile participants were as follows: women, of fertile age and seeking fertility treatment, who met the diagnostic criteria for infertility with no utilization of any contraception method, a normal sex life, and cohabitation with a male marriage partner for at least 2 years. The inclusion criteria for fertile controls were as follows: healthy women with a positive birthing history who presented with an unremarkable annual health examination. The exclusion criteria for all participants were as follows: candidates who had difficulty understanding the content of the questionnaire, found it impossible to complete the questionnaire, or candidates possessing another disease adversely affecting their QoL.

Participants

From February 2014 to April 2014, a randomly selected sample of 81 female infertile women and 81 demographically matched (aged 22–57 years, female, Han Chinese, married) fertile controls from inpatient and outpatient treatment facilities of the First Affiliated Hospital at Anhui Medical University meeting the aforementioned inclusion and exclusion criteria were finally recruited. All women were examined by standard hormonal testing to exclude the presence of endocrine disease and by hysteroscopy to examine the uterine cavity. Both infertile women and fertile controls received detailed instructions on the WHOQOL-100 questionnaire from trained staff and then independently completed the WHOQOL-100 questionnaire. Any questions concerning the process were immediately explained by the staff.

Statistical analysis

All questionnaire data were blindly analyzed by a qualified statistician (Table 1). As a measure of the scale's internal consistency, Cronbach α was calculated for the total population and each domain and facet (Table 1). For the entire sample, Cronbach α values were acceptable (> 0.7) for the six domains and 25 facets. Because the probability of Bartlett's test for sphericity was < 0.001 and the Kaiser-Meyer-Olkin sample accuracy was 0.8857, the scale and construct validity were both deemed suitable for factor analysis. Chi-square testing was performed to discriminate the frequency rate of item response. Student t test was used to compare infertile and fertile control individuals in each domain and facet. All p values < 0.05 were deemed significant. All data analysis was conducted on Stata 12.0 software (StataCorp, College Station, TX, USA).

Results

Demographic characteristics of infertile women

The demographic characteristics of the 81 infertile women are detailed in Table 2. The age of infertile women ranged from 23 years to 41 years of age with a mean \pm standard deviation (SD) of 30.34 ± 4.07 years. Age of menarche for the infertile participants ranged from 12 years to 18 years of age with a mean \pm SD of 14.28 ± 1.37 years. All infertile women were married with 97.53% in their first marriage. As for appetite, most infertile women reported a Level 3 (so-so; 40.72%) or Level 4 (good; 48.12%) appetite. By means of Chi-square testing, there were no significant differences in the distribution of appetite levels across the various levels of occupational intensity or education (Table 2).

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