

## Quality of life, anxiety, depression and hopelessness in infertile couples

Qualidade de vida, ansiedade, depressão e desesperança em casais inférteis

Calidad de vida, ansiedad, depresión y desesperanza en parejas infértiles

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### Abstract

**Objectives:** Evaluate quality of life, anxiety, depression and hopelessness of couples undergoing assessment/treatment at the public Human Reproduction Service in Brazil. **Methods:** All couples that were under assessment and treatment for fertilization from September 2014 to July 2015 were interviewed. The instruments used were the Hospital Anxiety and Depression Scale, the Fertility Quality of Life tool and Beck's Hopelessness Scale. **Results:** 272 people participated in this study (57.4% female). Symptoms of anxiety were found in 20.9%, of depression in 12.2% and hopelessness in 18.4% of the group. The results showed that the low indexes in the Emotional and Mind/Body subscales were related to depression symptoms in women, while in men the relationship with depression centered on the Mind/Body subscale. In the women, low indexes were found in the Emotional and Mind/Body subscales related to hopelessness, while in men the Mind/Body and Tolerability subscales were the most significantly compromised. **Conclusions:** The couple's experience becomes a greater risk of damage to quality of life during treatment, which furthers the possibility of significant impact to the physical and mental health of the couple.

**Keywords:** Quality of life; Anxiety; Depression; Infertility.

### Resumo

**Objetivo:** Avaliar qualidade de vida, ansiedade, depressão e desesperança em casais submetidos a avaliação/tratamento em serviço público de Reprodução Humana no Brasil. **Método:** Todos os casais estiveram em avaliação e tratamento para fertilização de setembro de 2014 a julho de 2015 foram entrevistados. Os instrumentos utilizados foram a Escala de Ansiedade e Depressão Hospitalar (HAD), o Fertility Quality of Life tool e a Escala de Desesperança de Beck. **Resultados:** Participaram do estudo 272 participantes (57,4% mulheres). Foram encontrados 20,9% de sintomas de ansiedade, 12,2% de depressão e 18,4% de desesperança no grupo. Os resultados mostraram que os baixos índices nas subescalas Emocional e Mente/Corpo estavam relacionados aos sintomas depressivos em mulheres, enquanto a relação com a depressão centrava-se na subescala Mente/Corpo. Nas mulheres, os baixos índices foram encontrados nas subescalas Emocional e Mente/Corpo relacionados com a desesperança, enquanto nos homens as subescalas Mente/Corpo e Tolerabilidade mostraram-se significativamente comprometidas. **Conclusões:** A experiência do casal

pode se tornar um fator de risco maior aos danos na qualidade de vida durante o tratamento, o que aumenta a possibilidade de um impacto significativo na saúde física e mental do casal.

**Palavras-chave:** Qualidade de vida; Ansiedade; Depressão; Infertilidade.

### Resumen

Objetivo: Evaluar la calidad de vida, la ansiedad, la depresión y la desesperanza en parejas en evaluación/tratamiento en un servicio público de Reproducción Humana en Brasil. Método: Se entrevistó a todas las parejas que estaban en evaluación y tratamiento de fertilización desde septiembre de 2014 hasta julio de 2015. Los instrumentos utilizados fueron la Escala de Ansiedad y Depresión Hospitalaria (HAD), la herramienta de Fertility Quality of Life y la Escala de Desesperanza de Beck. Resultados: Un total de 272 participantes (57,4% mujeres) participaron en el estudio. En el grupo se encontraron síntomas de ansiedad en un 20,9%, depresión en un 12,2% y desesperanza en un 18,4%. Los resultados mostraron que los índices bajos en las subescalas Emocional y Mente/Cuerpo estaban relacionados con los síntomas depresivos en las mujeres, mientras que la relación con la depresión se centraba en la subescala Mente/Cuerpo. En las mujeres, se encontraron índices bajos en las subescalas Emocional y Mente/Cuerpo relacionadas con la desesperanza, mientras que en los hombres las subescalas Mente/Cuerpo y Tolerabilidad estaban significativamente comprometidas. Conclusiones: La experiencia del hogar puede convertirse en un factor de mayor riesgo para los daños en la calidad de vida durante el tratamiento, lo que aumenta la posibilidad de un impacto significativo en la salud física y mental del hogar.

**Palabras clave:** Calidad de vida; Ansiedad; Depresión; Infertilidad.

## 1. Introduction

The World Health Organization (WHO) describes infertility as a problem that affects men and women all over the world and defines it as lack of conception after at least twelve months of regular intercourse without a contraceptive method. Two million new cases of infertility occur each year, and approximately 8 to 12% of couples experience some sort of infertility-related issue throughout their reproductive life. More than 186 million couples in developing countries are affected by infertility. Infertility rates vary considerably from country to country; in more heavily affected areas, more than 25% of couples may be unable to have children (Mascarenhas et al., 2012).

A diagnosis of infertility can be devastating in a couple's life, affecting psychological welfare and being recognized as a deeply distressing experience for many couples (Rooney & Domar, 2018), similar to what is experienced by patients with other serious illnesses and/or chronic diseases, such as cancer, heart disease, being HIV-positive, among others (Domar et al., 2012; Simionescu et al., 2021). The impact of infertility is multifaceted, causing a range of emotions and negatively affecting women's lives, in addition to the treatment being stressful as well as carrying the possibility of causing relationship trouble for couples. The psychological impact of infertility treatments is high, and a contributing factor is the uncertainty of the result. Therefore, fear of failure is the most important barrier to the treatment of infertility, although there are other significant concerns such as time of treatment, possibility of multiple pregnancies, costs and side effects (Domar et al., 2012).

Over the last decades, the emphasis of the male role in the biological context has aroused interest in the experience of infertility, and even more recently the experience of the infertile couple in the sense of understanding how the relationship interferes in the perception of this health condition, since the results are often reported to women and men separately (Chachamovich et al., 2010). Thus, assessment and approach are also no longer seen as an exclusively female problem, shifting the management focus from an individual issue to the view of the couple as a dyad (Tao et al., 2012). Regarding differences in quality of life and emotional status among infertile women and their partners, it has been shown that women are at greater risk of developing emotional problems during and after fertility treatments (Huppelschoten et al., 2013).

Several emotional problems (Huppelschoten et al., 2013) such as stress, guilt, feelings of inadequacy, sexual problems, with impact differing according to gender (Martins et al., 2011), depression (Fallahzadeh et al., 2019; Yang et al., 2022; Zhang et al., 2022), anguish (Verhaak et al., 2007), anxiety (Fallahzadeh et al., 2019; Yang et al., 2022; Zhang et al., 2022), suicide (Kjaer et al., 2011), directly affect the quality of life of the couple (Aarts et al., 2012; Bagheri et al., 2021; Huppelschoten et al., 2013; Namdar et al., 2017; Royani et al., 2019).

Findings suggest that psychological counseling and informative material are welcomed by patients undergoing treatment and may be related to pregnancy rates even if the establishment of cause or consequence is not consensual in the literature (Boivin & Gameiro, 2015a; Domar et al., 2012; Mokhtari Sorkhani et al., 2021).

The objective of this study was to evaluate and analyze levels of anxiety, depression, hopelessness and quality of life of the couples undergoing assessment/treatment in a human reproduction public service.

## 2. Methodology

Descriptive, cross-sectional study, carried out from September 2014 to July 2015 at a Human Reproduction Service in Recife, Pernambuco, Brazil, which deals exclusively with the public health system offered universally. In the cross-sectional study, the researcher analyzes a sample of the population, based on two variables: whether or not the participant has a certain disease and whether or not he or she was exposed to the risk factor (Vieira & Hossne, 2015). We interviewed couples diagnosed as infertile who were undergoing fertilization and/or insemination treatments or undergoing assessment for either of these two procedures. Individuals who had difficulty reading and understanding the data collection instruments were excluded. The research was approved by the Ethics Committee for Research with Human Beings (CAAE: 25848013.8.0000.5569).

The data was collected in person by the researchers on the days of routine medical consultations in the Service. The instruments used were:

1) Fertility Quality of Life (FertiQoL): The FertiQoL tool is a self-report inventory. It was designed specifically for infertile patients to evaluate their quality of life by specialists from the European Society of Human Reproduction and Embryology (ESHRE) and the American Society of Reproductive Medicine (ASRM). Two main modules make up the FertiQoL tool: the FertiQoL central module and the optional treatment module. There are 24 items in the FertiQoL Core module and 10 items in the FertiQoL treatment module. The 24 items of the FertiQoL Core are classified into four domains, including emotional, cognitive and physical (marked as Mind/Body), relational and social domains. The Emotional domain assesses the impact of infertility on emotions, such as sadness, resentment or sorrow. The Mind/Body domain refers to the influence of infertility on physical health, cognition and behavior. The Relational and Social domains are used to quantify the impact of infertility on partnership and social aspects (e.g. social inclusion, expectations and support), respectively. The optional treatment module consists of two domains that are used to assess the Tolerability to the environment and the Treatment of infertility. Items from these domains are presented randomly in the questionnaire and graded from 0 to 4. The subscale and total FertiQoL scores are calculated and converted into a range of 0 to 100, where higher scores indicate a better quality of life. FertiQoL was translated into 20 different languages (Aarts et al., 2011; Boivin et al., 2011; Dural et al., 2016; Hsu et al., 2013) and in this research the Brazilian Portuguese version was used. (<http://sites.cardiff.ac.uk/fertiqol/files/2015/02/fertiqol-Brazil-Portuguese.pdf>)

2) Hospital anxiety and depression scale (HADS): Somatic symptoms found in anxiety and depression are often present in patients with clinical diseases. In cases of comorbidity, the psychological symptoms, rather than the somatic ones, discriminate better between mood disorders and other clinical diseases. With this in mind, the Hospital Anxiety and Depression Scale (HADS) was developed, a self-report inventory with seven items for anxiety and seven for depression. The scoring in each subscale ranges from 0 to 21. In each of the subscales, scores starting at 8 are suggestive of anxiety or depression. HADS has been widely used for both diagnostic screening and for measuring the severity of anxiety and depression. The Brazilian Portuguese version of this instrument was validated among patients hospitalized in a medical clinic, in outpatients and normal subjects (Botega, 2017).

3) Beck Hopelessness Scale (BHS): this instrument presents brief instructions in its answer sheet. It is a dichotomous scale consisting of 20 true/false questions examining cognition and hopelessness, suicidal ideation, feelings of helplessness, limitation

of life. The sum of the scores in each item is divided into four categories of Hopelessness manifestation levels: 0 to 4 = minimum level; 5 to 8 = light level; 9 to 13 = moderate level; 14 to 20 = severe level (Cunha, 2001).

4) Sociodemographic information was collected regarding: sex, age, origin, education, marital status, occupation, religion, biological or adoptive children in the current relationship and/or in other relationships.

Data analysis was carried out using SPSS 13.0 and Excel 2010 for Windows. All tests were administered with 95% confidence, and the numerical variables are represented by measures of central tendency and measures of dispersion. Kolmogorov-Smirnov Normality Test for quantitative variables and two-sample comparison: Mann-Whitney (Non-Normal).

### 3. Results

A total of 272 people took part in the study, 156 (57.4%) being women and 116 (42.6%) men, all of whom filled out the research protocol in person. The average age of participants was 36.7 years old, 261 (96.1%) being from Pernambuco and the rest from other states. 64 (23.6%) had higher education. When the research took place, 225 (82.7%) participants were employed and 219 (80.5%) followed some faith principle. All participants were either married or in a domestic partnership. 253 (93.0%) had no children in the current relationship, 41 (15.1%) had children from another marriage and 13 (4.8%) had adopted children.

Symptoms of anxiety were found in 57 (20.9%) participants, symptoms of depression in 33 (12.2%) and hopelessness in 50 (18.4%).

Table 1 shows that women had a lower quality of life score than men in the Emotional subscales ( $p < 0.001$ ), Mind/Body ( $p = 0.001$ ), Social ( $p < 0.05$ ), Tolerability ( $p < 0.05$ ) and Total FertiQoL Score ( $p < 0.001$ ).

**Table 1 - FertiQoL subscales broken down by gender**

FertiQoL Variables	Gender		p-value *
	Female Mean $\pm$ SD	Male Mean $\pm$ SD	
<b>Core subscales</b>			
Emotional	69.49 $\pm$ 15.72	75.17 $\pm$ 14.40	< <b>0.001</b>
Mind/body	83.80 $\pm$ 20.66	91.00 $\pm$ 13.79	<b>0.001</b>
Relational	55.90 $\pm$ 7.59	56.29 $\pm$ 7.21	0.507
Social	70.21 $\pm$ 12.71	74.08 $\pm$ 13.30	<b>0.003</b>
Total Core	71.86 $\pm$ 11.47	76.40 $\pm$ 9.62	< <b>0.001</b>
<b>Treatment subscales</b>			
Environment	57.80 $\pm$ 16.83	60.00 $\pm$ 17.53	0.340
Tolerability	82.86 $\pm$ 20.11	88.78 $\pm$ 14.70	<b>0.014</b>
Total Treatment	68.93 $\pm$ 12.86	72.13 $\pm$ 12.15	<b>0.033</b>
Total FertiQoL	71.06 $\pm$ 10.62	75.50 $\pm$ 8.14	< <b>0.001</b>

(\*)Mann-Whitney Test. Source: Authors.

Table 2 shows that men and women presented a lower score in the Emotional ( $p < 0.05$ ), Mind/Body ( $p < 0.05$ ), Social ( $p < 0.05$ ) and Tolerability ( $p < 0.05$ ) subscales when related to the presence of anxiety symptoms.

**Table 2 – FertiQoL and HADS Ratio (anxiety).**

Variables	HADS anxiety		p-value *
	Altered Mean $\pm$ SD	Normal Mean $\pm$ SD	
<b>Both genders</b>			
Emotional	62.52 $\pm$ 18.97	74.42 $\pm$ 13.25	<b>&lt; 0.001</b>
Mind/Body	72.40 $\pm$ 25.48	90.75 $\pm$ 13.61	<b>&lt; 0.001</b>
Relational	54.86 $\pm$ 8.70	56.38 $\pm$ 7.04	0.272
Social	63.96 $\pm$ 16.35	73.94 $\pm$ 11.20	<b>&lt; 0.001</b>
Environment	60.14 $\pm$ 13.07	58.40 $\pm$ 17.98	0.886
Tolerability	74.07 $\pm$ 25.79	88.15 $\pm$ 14.62	<b>&lt; 0.001</b>
Total Core	65.48 $\pm$ 15.06	75.97 $\pm$ 8.34	<b>&lt; 0.001</b>
Total Treatment	66.39 $\pm$ 14.36	71.26 $\pm$ 12.02	<b>0.007</b>
Total FertiQoL	65.57 $\pm$ 13.73	74.88 $\pm$ 7.51	<b>&lt; 0.001</b>
<b>Male</b>			
Emotional	63.73 $\pm$ 18.66	77.36 $\pm$ 12.40	<b>0.002</b>
Mind/Body	77.64 $\pm$ 20.86	93.53 $\pm$ 10.35	<b>0.001</b>
Relational	52.86 $\pm$ 9.46	56.93 $\pm$ 6.58	0.120
Social	63.52 $\pm$ 20.00	76.11 $\pm$ 10.59	<b>0.007</b>
Environment	61.94 $\pm$ 9.82	59.65 $\pm$ 18.60	0.791
Tolerability	78.47 $\pm$ 19.06	90.58 $\pm$ 13.14	<b>0.004</b>
Total Core	66.78 $\pm$ 15.22	78.18 $\pm$ 6.95	<b>&lt;0.001</b>
Total Treatment	68.78 $\pm$ 10.94	72.70 $\pm$ 12.30	0.125
Total FertiQoL	67.59 $\pm$ 12.68	76.96 $\pm$ 6.03	<b>0.001</b>
<b>Female</b>			
Emotional	61.95 $\pm$ 19.34	72.00 $\pm$ 13.50	<b>0.003</b>
Mind/Body	69.91 $\pm$ 27.30	88.42 $\pm$ 15.48	<b>&lt; 0.001</b>
Relational	55.84 $\pm$ 8.27	55.92 $\pm$ 7.40	0.880
Social	64.17 $\pm$ 14.61	72.19 $\pm$ 11.42	<b>0.003</b>
Environment	59.24 $\pm$ 14.49	57.39 $\pm$ 17.49	0.894
Tolerability	72.01 $\pm$ 28.45	86.17 $\pm$ 15.51	<b>0.014</b>
Total Core	64.87 $\pm$ 15.15	74.13 $\pm$ 8.96	<b>0.001</b>
Total Treatment	65.28 $\pm$ 15.74	70.05 $\pm$ 11.70	<b>0.045</b>
Total FertiQoL	64.62 $\pm$ 14.26	73.15 $\pm$ 8.18	<b>0.001</b>

(\*)Mann-Whitney Test. Source: Authors.

Table 3 indicates that in women the low indexes in the Emotional (p=0.001) and Mind/Body (p=0.001) subscales were related to symptoms of depression, while in men the relationship with depression centered on the Mind/Body (p<0.05) subscale.

**Table 3 – FertiQoL and HADS Ratio (depression).**

Variables	HADS depression		p-value *
	Altered Mean ± SD	Normal Mean ± SD	
<b>Both genders</b>			
Emotional	60.55 ± 19.64	73.46 ± 14.07	< <b>0.001</b>
Mind/body	72.42 ± 22.72	88.85 ± 16.80	< <b>0.001</b>
Relational	55.89 ± 8.67	56.09 ± 7.26	0.661
Social	67.58 ± 13.84	72.42 ± 12.89	0.074
Environment	62.15 ± 7.98	58.35 ± 17.86	0.641
Tolerability	77.31 ± 23.99	86.40 ± 17.15	0.067
Total Core	65.88 ± 13.81	74.86 ± 10.07	< <b>0.001</b>
Total Treatment	69.93 ± 13.71	70.35 ± 12.52	0.481
Total FertiQoL	65.90 ± 12.71	73.90 ± 9.05	< <b>0.001</b>
<b>Male</b>			
Emotional	66.67 ± 12.84	75.56 ± 14.40	0.096
Mind/Body	79.17 ± 11.79	91.55 ± 13.67	<b>0.034</b>
Relational	57.14 ± 10.41	56.25 ± 7.10	0.757
Social	68.33 ± 10.46	74.35 ± 13.39	0.153
Environment	61.46 ± 11.97	59.93 ± 17.77	0.708
Tolerability	81.25 ± 21.04	89.09 ± 14.45	0.216
Total Core	70.21 ± 7.60	76.68 ± 9.64	<b>0.047</b>
Total Treatment	69.38 ± 13.29	72.24 ± 12.16	0.548
Total FertiQoL	69.99 ± 6.89	75.75 ± 8.13	<b>0.043</b>
<b>Female</b>			
Emotional	59.41 ± 20.64	71.66 ± 13.59	<b>0.001</b>
Mind/Body	71.17 ± 24.16	86.52 ± 18.84	<b>0.001</b>
Relational	55.65 ± 8.52	55.95 ± 7.43	0.661
Social	67.44 ± 14.54	70.80 ± 12.27	0.427
Environment	62.29 ± 7.37	57.01 ± 17.89	0.355
Tolerability	76.63 ± 24.83	84.12 ± 18.90	0.277
Total Core	65.08 ± 14.63	73.29 ± 10.20	<b>0.006</b>
Total Treatment	70.03 ± 14.07	68.71 ± 12.65	0.910
Total FertiQoL	65.14 ± 13.47	72.31 ± 9.52	<b>0.006</b>

(\*)Mann-Whitney Test. Source: Authors.

Table 4 shows that in women low indexes in the Emotional ( $p < 0.05$ ) and Mind/Body ( $p < 0.001$ ) subscales were linked to hopelessness, whereas in men the Mind/Body ( $p < 0.05$ ) and Tolerability ( $p < 0.05$ ) subscales were the most significantly compromised.

**Table 4 – FertiQoL and BHS Ratio.**

Variables	BHS		p-value *
	Altered Mean $\pm$ SD	Normal Mean $\pm$ SD	
<b>Both genders</b>			
Emotional	62.93 $\pm$ 20.12	73.94 $\pm$ 13.35	<b>&lt; 0.001</b>
Mind/Body	75.37 $\pm$ 23.40	89.48 $\pm$ 15.97	<b>&lt; 0.001</b>
Relational	57.37 $\pm$ 7.81	55.79 $\pm$ 7.32	0.219
Social	66.20 $\pm$ 16.65	73.08 $\pm$ 11.84	<b>0.037</b>
Environment	61.51 $\pm$ 15.57	58.16 $\pm$ 17.42	0.376
Tolerability	77.90 $\pm$ 24.18	86.93 $\pm$ 16.37	<b>0.028</b>
Total Core	67.72 $\pm$ 14.59	75.14 $\pm$ 9.48	<b>0.001</b>
Total Treatment	68.40 $\pm$ 12.24	70.70 $\pm$ 12.70	0.185
Total FertiQoL	67.90 $\pm$ 13.48	74.07 $\pm$ 8.53	<b>0.002</b>
<b>Male</b>			
Emotional	67.23 $\pm$ 22.40	76.59 $\pm$ 12.08	0.096
Mind/Body	82.92 $\pm$ 17.44	92.43 $\pm$ 12.61	<b>0.024</b>
Relational	58.67 $\pm$ 5.49	55.88 $\pm$ 7.42	0.117
Social	69.58 $\pm$ 18.87	74.84 $\pm$ 12.10	0.837
Environment	68.97 $\pm$ 13.50	58.64 $\pm$ 17.73	0.061
Tolerability	82.89 $\pm$ 15.07	89.73 $\pm$ 14.51	<b>0.029</b>
Total Core	72.62 $\pm$ 12.9	77.05 $\pm$ 9.00	0.108
Total Treatment	74.56 $\pm$ 9.78	71.75 $\pm$ 12.48	0.738
Total FertiQoL	73.30 $\pm$ 10.62	75.88 $\pm$ 7.64	0.175
<b>Female</b>			
Emotional	60.65 $\pm$ 18.76	71.84 $\pm$ 13.97	<b>0.003</b>
Mind/Body	71.37 $\pm$ 25.36	87.11 $\pm$ 17.92	<b>&lt; 0.001</b>
Relational	56.66 $\pm$ 8.84	55.71 $\pm$ 7.27	0.630
Social	64.51 $\pm$ 15.47	71.70 $\pm$ 11.50	0.031
Environment	57.92 $\pm$ 15.44	57.78 $\pm$ 17.23	0.879
Tolerability	75.31 $\pm$ 27.67	84.72 $\pm$ 17.45	0.249
Total Core	65.12 $\pm$ 15.21	73.61 $\pm$ 9.61	<b>0.004</b>
Total Treatment	65.21 $\pm$ 12.32	69.85 $\pm$ 12.88	0.071
Total FertiQoL	65.03 $\pm$ 14.09	72.63 $\pm$ 8.95	<b>0.006</b>

(\*)Mann-Whitney Test. Source: Authors.

#### 4. Discussion

The current study evaluated 272 people of both genders, 116 being men (42.6%). The inclusion of men and women in more equitable ways has been stimulated by other studies involving infertility research (Chachamovich et al., 2010; Cunha, 2008; Malik & Coulson, 2008) and, compared to similar studies that included men in their sample representing 41.9% (Huppelschoten et al., 2013), 8.7% (Boivin et al., 2011), 11.8% (Hsu et al., 2013), 50% (Sexty et al., 2016), our findings are quite significant in comparing genders.

It is important to point out that infertility must be understood as a process that accompanies the couple's life, not just as a series of independent signs and psychic symptoms. In this sense, our work corroborates with other studies (Boivin & Gameiro, 2015;; Hakim et al., 2012; Kjaer et al., 2011) that emphasize the need for psychological support towards the psychic suffering that can arise during the experience of infertility.

Our data shows decline in the general quality of life of the couple during the treatment of infertility that can directly affect the emotional, social and general aspects of physical and mental health. A relation with depression, anxiety and hopelessness was present and other recent studies have uncovered similar data (Aarts et al., 2011; Dural et al., 2016; Hsu et al., 2013), specifically a higher prevalence of anxiety and depressive symptoms related to infertility, as well as the association of infertility with hopelessness leading to declining quality of life (Yağmur & Oltuluoğlu, 2012).

Studies in countries such as the Netherlands, Turkey, Taiwan, Asia, North America, Oceania, United Kingdom and other countries, even considering great cultural differences, corroborate as to the impairment of quality of life of those who have trouble conceiving (Aarts et al., 2011; Boivin et al., 2011; Hsu et al., 2013; Yağmur & Oltuluoğlu, 2012).

It is important to emphasize that psychosocial and cultural differences influence the individual and consequently interfere in the representation of infertility. That way, there are hypotheses that infertility is also socially constructed and its meaning is shaped by several factors, among them: gender ideology, importance of parenting, treatment options, social policy and cultural stereotypes (Sexty et al., 2016)

Observing the relationship between quality of life and gender, the woman seems also to suffer more cultural influence, depending on the region of the study (Yağmur & Oltuluoğlu, 2012). In this sense, when compared to men, the women in our study presented lower scores in all FertiQoL indexes (Table 1), except in the Relational (impact on the conjugal relationship) and Environment (impacts related to the treatment environment) subscales. It is important to emphasize that in our study the results of the Relational and Environment subscales showed that men and women present similar quality of life impairment when it comes to the couple's relationship and treatment environment, thus demonstrating that the impact on physical and mental health occurs in different cultures.

Studies that presented the same comparative pattern in these subscales showed that emotional, cognitive and physical impairment, as well as functional impairment with the interruption of daily activities 19 social exclusion and lack of social support (Huppelschoten et al., 2013; Sexty et al., 2016) is higher in women.

Although a Dutch study indicates that women appear to be more likely to develop emotional problems during and after fertility treatment than their partners, the couple was acknowledged as vulnerable to different sources of psychological stress, emphasizing the importance of identifying risk factors for the couple's members separately and finally receive, if necessary, adequate psychosocial support (Huppelschoten et al., 2013). Regarding the Relational domain, even though there was no statistical significance, our study found similar significant impairment for both genders, since these scores were lower in relation to the other domains (Hsu et al., 2013), differing in this aspect from other studies also involving couples (Boivin et al., 2011; Huppelschoten et al., 2013; Sexty et al., 2016). Evidence of greater impairment in the Mind/Body subscale in women may be attributed to the effects of treatment, investigation, and invasive procedures.



One of the validation studies of the FertiQoL tool (Hsu et al., 2013) through treatment-related subscales (Environment and Tolerability) showed significant greater damage to women in relation to the service environment, while our analysis suggests a greater difference in relation to the generally more invasive treatment and its tolerability. These scales take into account accessibility, relationship with the team, quality of service, and the possible negative consequences of treatment, such as side effects or the need to interrupt daily activities.

In our study, based on the total FertiQoL score, women presented lower quality of life than men. These findings differ from other studies. Although one of them (Chachamovich et al., 2009) suggested no significant difference between couples, its outcome may have been affected by having compared quality of life scores using a generic tool (Whoqol-bref) and not a specific one such as FertiQoL. This observation was also reported by the Dutch study (Huppelschoten et al., 2013). A systematic review also pointed out that infertile women have lower quality of life when compared to infertile men (Chachamovich et al., 2010). We emphasize that our work does not use the couple as a unit, since men and women who underwent fertility treatment in the same service were evaluated individually; however, the analysis of the results belongs to the couple as a global view of the relationship.

Symptoms of anxiety, depression and feelings of hopelessness to some degrees were present in our sample, demonstrating in women and men impairment due to anxiety symptoms and concomitant decline in the subscales Emotional, Mind/Body, Social and Tolerability. Thus, a viable hypothesis is that the couple's relationship can be protective, being recognized as a factor that minimizes the negative impact on the couple's quality of life.

Our data confirms the relation between FertiQoL and anxiety and depression symptoms as well as hopelessness, with predominance of depressive (12.2%) and anxiety (20.9%) symptoms. For comparative purposes, an epidemiological study (Kessler et al., 2010) performed on a general population group in developing countries found the presence of depressive disorders in 5.9% of adults as well as estimating that circa 10% of the general population present traces of anxiety (Kessler et al., 2001). It is important to emphasize that psychic suffering can be enhanced by cultural aspects and social pressure, especially in women. These findings were present in other researched populations (Yağmur & Oltuluoğlu, 2012), demonstrating that prejudice can affect one's own femininity and, consequently, added to the fear of infertility, might compromise the marital relationship, raising the degree of hopelessness.

Our results showed that women had Emotional, Mind/Body and Social subscales associated to anxiety while the Emotional and Mind/Body subscales were related to depression, with both syndromes (anxiety and depression) impairing significantly the Mind/Body subscale. These findings were corroborated by other studies that used only women as participants (Aarts et al., 2011; Dural et al., 2016), and these same studies showed a decrease in all subscales, with less impact in the Relational subscale, which was also found in our study.

Taking into account the gender separation, it is important to gather the greater suffering of women due to infertility from worse scores in the FertiQoL subscales. Data from the Tolerability subscale in our study is quite important when associated to hopelessness levels, as men's scores of hopelessness showed less tolerability towards the infertility treatment than women. It may be that cultural aspects may influence this difference, as has already been reported in other studies (Sexty et al., 2016; Yağmur & Oltuluoğlu, 2012), however it is worthy of note that there were no studies evaluating quality of life and hopelessness in men using the FertiQoL tool.

## 5. Conclusion

Our study presents some limitations. Among them is the lack of equity in the number of men and women interviewed, which made a more detailed analysis per couple, not just by gender, impossible. It is important to emphasize that the selection

of heterosexual couples was due to a technical limitation of the service itself, a limitation that did not occur in research conducted in Dutch clinics (Huppelschoten et al., 2013).

In being a cross-sectional study, it is impossible to make a reliable causal link between quality of life, depression, anxiety and hopelessness. Greater reliability of the data is due to the fact that the approach was fully face-to-face and not using other means (online or mail). It is also emphasized that the study site was a public health service located in a developing country, and this can be an important stimulus for other emerging countries to offer human reproduction services, something that can be transformative in the life of many couples.

To date, this study is a pioneer in relating a specific tool to assess quality of life (FertiQoL) to anxiety, depression and hopelessness considering the specificities of both genders, making the understanding of the couple's relationship more viable.

In conclusion, using the validated Brazilian Portuguese version of FertiQoL, our data showed that women have greater impairment in quality of life compared to men in the context of infertility, and consequently the female gender is affected by a greater degree of hopelessness, as well as symptoms of anxiety and depression. In addition, this tool (FertiQoL) reiterates the need to consider a holistic and integral view of people seeking treatment for fertility problems.

Finally, finally, we recommend segment studies that can assess further relationships between quality of life, anxiety, depression and hopelessness in infertile couples.

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