Sexual satisfaction among involuntarily childless women: a cross-cultural study in Italy and Brazil

Paola Gremigni, PhD[a], Giulia Casu, PhD[a], Victor Mantoani Zaia, MSc[b], Maria Geralda Viana Heleno, PhD[b], Ciro Conversano, PhD[c], and Caio Parente Barbosa, MD, PhD[d]

[a]Department of Psychology, University of Bologna, Italy; [b]Graduate Program of Health Psycology, School of Medical and Health Sciences, Methodist University, São Paulo, Brazil; [c]Department of Surgical, Medical, Molecular & Critical Area Pathology, University of Pisa, Italy; [d]Ideia Fértil Institute and Graduate Program of Faculdade de Medicina do ABC, São Paulo, Brazil

Address correspondence to: Paola Gremigni, PhD, Department of Psychology, University of Bologna, Viale Berti Pichat, 5, 40127 Bologna, Italy; E-mail: paola.gremigni2@unibo.it.

Abstract

Infertility has been negatively associated with sexual satisfaction. This study aimed to estimate the relation of infertility to sexual satisfaction from a cross-cultural perspective, comparing Italian and Brazilian women. Between June 2012 and January 2013, 528 women seeking Assisted Reproduction Technology (ART) treatment in Italy (39%) or Brazil (61%) completed self-reports of sexual satisfaction (ISS) and infertility-related stress in the marital domain (IRS). IRS was the same across countries, ISS differed, with 34.31% of the Italians and 43.52% of the Brazilians being sexually dissatisfied at a clinical level (ISS score > 30). Multiple logistic regression models showed that being sexually dissatisfied at a clinical level was associated with lower education and higher IRS among Italian women, regardless of having a diagnosed cause of infertility. It was instead associated with higher IRS only among the Brazilian women who had a

diagnosed cause of infertility. These findings suggest that, regardless of nationality, sexual satisfaction and infertility-related stress need to be addressed in the treatment of infertile women turning to ART. However, as factors associated with these dimensions vary across countries, interventions to promote sexual satisfaction among infertile women should be adapted to their specific socio-cultural context.

Introduction

Sexual satisfaction for heterosexual individuals in committed exclusive relationships includes both personal and relational aspects, and can be defined as the emotional experience of frequent mutual sexual pleasure (Pascoal, Narciso, and Pereira 2014). Sexual satisfaction has been associated with relationship and marital satisfaction, psychological well-being, and overall quality of life in both men and women (Bakhshayesh and Mortazavi 2010; Gadassi et al. 2016; Sánchez-Fuentes, Santos-Iglesias, and Sierra 2014). From an evolutionary perspective, sexual activity is mainly regarded as a reproductive behavior (Gray 2013). However, technological

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advances in reproductive biology have separated sexuality from reproduction As a consequence, sex without reproduction is viewed as a source of natural pleasure that can facilitate interpersonal bonding and promote relationship and sexual satisfaction Benagiano, Carrara, and Filippi 2010   Notwithstanding, when a couple's desire to have a child is impeded by infertility, sexual satisfaction appears to be negatively affected by this condition especially   in   women   Nelson   et   al.   2008;   Shahhosseini et al.   Wischmann   .

Infertility is defined as the failure to conceive after at least one year of regular unprotected sexual intercourse Zegers-Hochschild et al. 2009   and affects 9-15% of the childbearing population Boivin et al. 2007 , the majority of whom seek medical advice in the hope of achieving parenthood Bunting and Boivin 2007 . Involuntary childlessness exerts a stress effect at the individual and couple levels in several domains of life, such as psychological well-being, marital relationships, and sexual relationships (Luk and Loek 2015). Women tend to report higher levels of infertility-related stress than men (Casu and Gremigni 2016; Cserepes et al. 2013; Galhardo, Cunha, and Pinto Gouveia 2013; Wichman et al. 2011). Moreover, infertility-related stress has been found to reduce the chances of a pregnancy outcome in assisted reproductive technology (ART) treatment (Gourounti, Anagnostopoulos, and Vaslamatzis 2011; Matthiesen et al. 2011). Despite the well-established intra- and inter-personal implications of the infertile condition, Tao, Coates, and Maycock   2012   observed that few studies have explored the impact of infertility on the marital relationship from psychosocial, emotional, and sexual perspectives. With this in mind, the present study was conducted to explore the relation of infertility-related stress to women's sexual satisfaction, taking into consideration their societal

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and cultural backgrounds, because individuals from different backgrounds may have a different experience and awareness of their sexual functioning (Meston and Ahrold 2010). We examined and compared data from Italy and Brazil because they represent different cultural attitudes and gendered expectations that are likely to affect relationship satisfaction   Indeed, Italy is a developed country with a more egalitarian and individualistic culture, while Brazil is a developing country with a more pronounced patriarchal culture and collectivist features   Oyserman and Sorensen 2009 . As a consequence of their different socio-cultural roles, we might expect a slightly higher level of sexual dissatisfaction in the Brazilian infertile women than in the Italian infertile women. We instead expected the same degree of infertility-related stress across countries, because involuntary childlessness is cross-culturally recognized as a potential threat to individuals' well-being and the stability and quality of their relationships   Cousineau and Domar 2007; Lansakara, Wickramasinghe, and Seneviratne 2011; Qadir, Khalid, and Medhin 2015; Štulhofer, Træen, and Carvalheira 2013   .

We decided a priori to control for specific demographic and clinical characteristics, based on findings from the literature. Among demographic characteristics, age was taken into consideration, because previous studies had had inconsistent results regarding an association between age and sexual satisfaction in infertile women (e.g. Drosdzol and Skrzypulec 2009; Winkelman et al. 2016). Education was also controlled, as women with higher education have, in general, been found to express more sexual satisfaction (Shahhosseini et al. 2014). Among clinical characteristics, we included infertility etiology because women with female-related infertility reported a greater impact on sexual satisfaction than women with male factor infertility (Winkelman et al. 2016).

The aim of the present study was twofold: to compare the level of sexual satisfaction reported by women seeking ART treatment in Italy and Brazil, and to test a model of sexual satisfaction based on infertility-related stress in the marital domain, controlling for age, education and diagnosed cause of infertility and to compare this model cross-culturally.

Methods

Study Participants

This was a cross-sectional study conducted in two countries, Italy and Brazil. Data were collected from Italian-speaking and Portuguese-speaking infertile women seeking ART treatments at two fertility clinics that were located in central Italy and in Greater São Paulo, Brazil, respectively. During the period from June 2012 to January 2013, all consecutive women attending the first infertility consultation were asked by a psychologist to participate in the survey after receiving detailed information about the aim of the study. Patients were asked to complete a brief self-report paper-and pencil questionnaire at the time and return it completed before entering the infertility consultation. The inclusion criteria were age 18 years or older, self-reported infertility condition Zegers-Hochschild et al. 2009 , seeking ART, and ability to complete a questionnaire in Italian or Portuguese.

Of the 600 women contacted, 528 (88%) met all inclusion criteria and agreed to participate in the current study. All participants returned the questionnaire completed without missing values before entering the consultation room.

Measures

Index of Sexual Satisfaction   ISS)

To measure the degree of sexual satisfaction, we used the ISS (Hudson   , a 25-item questionnaire that focuses on sexual functioning as a natural part of a relationship and allows identification of sexual problems. A sample item is: "My partner does not want sex when I do". Items are rated on a 7-point scale ranging from 1 (never) to 7 (always). As suggested by Hudson (1998), raw scores were converted to a 100-point scale, with higher scores indicating greater sexual dissatisfaction. A cutoff ISS score of 30 was used to indicate potential sexual dysfunction, which should entail the provision of specialist help (Pechorro et al. 2009). In this study, we used the validated Portuguese version of the ISS   Pechorro et al. 2009). An Italian version was obtained by translating the original ISS from English into Italian and then back-translating it by two bilingual experts according to standard procedures (van de Vijver and Hambleton 1996). In this study, the Cronbach's alpha reliability coefficient was 0.94 for the Italian and 0.92 for the Brazilian ISS, respectively.

Infertility-Related Stress in the Marital Domain

Perceived infertility-related stress in the marital domain was assessed using two items from the 14-item Fertility Problem Stress Inventory (Schmidt et al. 2005): "How much stress has your fertility problem placed on (1) your marital relationship and on (2) your level of perceived sexual pleasure?" rated on a 7-point scale from 1 (no stress at all) to 7 (a great amount of stress). These two items were strongly correlated ($r = 0.63$, $p < 0.001$) based on Cohen's effect size criteria, and

thus they were been summed to obtain a single score of infertility-related stress in the marital domain. The Cronbach's alpha reliability coefficient was 0.75 in the Italian and 0.79 in the Brazilian sample, respectively. Only these two single items were selected to be used for data collection due to time constraints**.** Because the study procedure required participants to complete the questionnaire before entering the infertility consultation, a very short and not time-consuming tool was needed to be used.

The self-report questionnaire also asked for sociodemographic characteristics (age and education), and diagnosed cause of infertility. Age was dichotomized using a standard of age 30 yeas as the cutoff Iris, Kirmizi, and Taner   . Educational attainment was dichotomized into lower education (12 or fewer years of schooling) and higher education (13 or more years of schooling). Participants were also classified based on the presence or absence of a diagnosed cause of infertility at the time of recruitment. Many participants had not yet received a diagnosis of the cause of infertility, although they were considered infertile based on failure to conceive after at least one year of regular unprotected sexual intercourse Zegers-Hochschild et al. 2009   Among those who already had a diagnosed cause of infertility, the cause was coded into one of three main categories: female factor (e.g., blocked tubes and/or irregular ovulation or anovulation), male factor only (i.e., pretesticular, testicular or post-testicular causes), and unexplained infertility (e.g., diagnosed by exclusion of known factors, by the use of conventional criteria of analysis). Male factor only was coded when a complete clinical evaluation of the infertile male had been performed. For the few cases (less than 10%) of mixed infertility (i.e., both female and male infertility), an exact cause was assigned for the female partner only, whereas the male factor was classified only as present or not present based on semen analysis but

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not on laboratory testing of sperm function. Because semen analysis alone is poorly predictive of male infertility, and the data available for the male factor were at risk of being partial and generic (Turchi 2015), we included these few cases in the female factor category.

Ethical consideration

The Brazilian Ethical Committee Board of the Faculdade de Medicine do ABC and the Italian Regional Public Health Ethical Committee approved the study. Written and signed informed consent was obtained from each participant after a full explanation of the study. The participants were assured that the information collected would be kept confidential and used only for research purposes.

Statistical analysis

Comparisons between Italian and Brazilian participants were performed using chi-square tests (χ^2) regarding the composition of the samples and analysis of variance (ANOVA) for the infertility-related stress score, taking into consideration also demographic variables (age, education) and diagnosed cause of infertility as these variables differentiated the two country samples. Multiple logistic regression analyses were used to test the association of clinically relevant sexual difficulties (ISS score >30) with infertility-related stress in Italian and Brazilian women separately. Potential confounding variables (i.e., age, education, and diagnosed cause of infertility) were included a priori in the models and their interactions with infertility-related stress were examined. Although preliminary explorative bivariate analyses are usually conducted to select socio-demographic variables that may affect an outcome, we decided a priori to include

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age, education and diagnosed cause of infertility into the multivariable models based on previous studies, which identified them as associated with sexual satisfaction (Drosdzol and Skrzypulec 2009; Shahhosseini et al. 2014; Winkelman et al. 2016). In this way, we limited the number of statistical tests conducted to those based on hypotheses established a priori to reduce the risk of spurious findings due to type 1 error. Model summary included Nagelkerke R^2 value, and goodness-of-fit was assessed with Hosmer-Lemeshow test (HL).

In the evaluation of estimates, we based conclusions on both statistical significance and standardized measures of effect (Cohen's *d* and odds ratio). Cohen's *d* was calculated with formulas developed for dichotomous dependent variables Cooper 2010 where appropriate. An effect size of 0.20 was considered small, 0.50 medium, and 0.80 large Cohen . The significance level was set at $p < 0.05$. Analyses were performed with IBM SPSS 22.

Results

Among the 528 study participants, 204 (38.6%) were Italian, and 324 (61.4%) were Brazilian. The two country samples significantly differed in demographic characteristics (Table 1). Brazilian women were younger (mean age 33.79 vs. 36.23 years) and more highly educated (65.43% vs. 39.22% had more than 12 years of education) than Italian women. The majority of Italian women had a diagnosed cause of infertility, while the majority of Brazilian women did not. For those for whom a diagnosis of the cause of infertility had been made, the most frequent

cause was a female factor among Brazilian women (48.73%) and unexplained infertility among Italian women (43.52%)..

Insert Table 1 approximately here

Concerning infertility-related stress in the marital domain, Italian (Mean = 7.06, SD = 3.55) and Brazilian (Mean = 6.92, SD = 3.59) women showed similar levels (d = 0.04, p = 0.08), regardless of age (p = 0.16), education (p = 0.61), and having or not having a diagnosed cause of infertility (p = 0.08)   corrected model $F_{(1,512)}$ = 1.28, p = 0.22 .

Concerning sexual satisfaction, 34.31% (n = 70) of the Italian sample and 43.52% (n = 141) of the Brazilian sample scored above the clinical cutoff (> 30) on the ISS to indicate potential sexual dysfunction, with a statistically significant difference between countries (p . (Table 2).

Insert Table 2 approximately here

Because this difference might have been related to age, education level, or diagnosed cause of infertility, which differed between the two country samples (see Table 1), multiple logistic regression analyses were performed to test a model of associations with the likelihood of a patient having a level of sexual dissatisfaction above the clinical cutoff, separately across countries, while adjusting for confounding. No evidence of interactions between the confounding variables and infertility-related stress among both samples was observed (all interactions p > 0.05). In the Italian sample, lower education ,and increased infertility-related stress in the marital domain were associated with an increase in sexual dissatisfaction, with a pseudo-R^2 value of 0.22

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and no evidence of poor fit (HL $p > 0.05$). In the Brazilian sample, none of the considered factors was significantly associated with an increase in the sexual difficulties, with a small summary pseudo-R^2 of 0.02 (Table 3).

Insert Table 3 approximately here

To investigate the relation of the cause of infertility to sexual difficulties, additional multiple logistic regression analyses were run only on women who had a diagnosed cause of infertility ($n = 351$). In the Italian sample ($n = 193$), lower education and increased infertility-related stress in the marital domain were associated with sexual difficulties, with a pseudo-R^2 of 0.22 and no evidence of poor fit (HL $p > 0.05$). In the Brazilian sample ($n = 158$), infertility-related stress was associated with sexual dissatisfaction with no evidence of poor model fit (HL $p > 0.05$), but a small pseudo-R^2 value of 0.07 (Table 4).

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Discussion

The present study aimed to compare levels and factors associated to sexual satisfaction among Italian and Brazilian women seeking ART treatment.

First, Brazilian women were younger, more educated, and more frequently without a diagnosed cause of their infertility than Italian women in our study. In instances in which a specific diagnosis had already been made, the primary cause of infertility for most women was a female factor in the Brazilian sample and unspecified infertility in the Italian sample. These

disparities might stem, in part, from cultural differences in the approach to ART services. In the past few decades, an increasing proportion of women have delayed childbearing for educational, career, social and economic reasons in industrialized countries like Italy   Kravdal and Rindfuss 2008; Mills et al. 2011). The fact that advanced maternal age has been associated with increased rates of infertility   Practice Committee of the American Society for Reproductive Medicine 2008) is reflected in the large proportion of women older than 30 years attending infertility clinics in Italy. In Brazil, the demographic shift toward later childbearing, although present, has only just begun, and the pressure to fulfill the mothering role urges young infertile women to turn to ART   Lanius and Souza 2010   . This could explain why in this study Brazilian women seeking ART treatment were younger than the Italian women.

Brazilian participants were more likely to seek infertility evaluation and treatment if they reported that they had a postsecondary degree. This could be associated with a financial factor: a link between education and socioeconomic status is well established, those with higher education being more likely to have higher incomes   Card   . Many couples in Brazil cannot afford to pay for infertility treatments and, as a result, only those with high income and elevated employment status seek treatment   Farley Ordovensky Staniec, and Webb 2007   . Furthermore, in our sample, Brazilian women turned to the private infertility clinic seeking a preliminary infertility evaluation aside from treatment, both of which are expensive and only partially covered by insurance. In contrast, the higher prevalence of a diagnosed cause of infertility among Italian women suggested that they tended to obtain a complete diagnosis before deciding to visit a fertility clinic for ART treatment. Finally, despite evidence that men are infertile as often as women, among those who had a diagnosed cause of infertility, Brazilian women using ART

services were more likely than Italian women to have a female factor diagnosis. This might indicate that in Brazil the female partner disproportionately bears the medical, social, and cultural burden of a couple's failure to conceive　Burns 2007　.

Italian and Brazilian women reported similar levels of infertility-related stress in the marital domain, as expected, in agreement with previous studies　Cousineau and Domar 2007; Lansakara, Wickramasinghe, and Seneviratne 2011; Qadir, Khalid, and Medhin 2015; Štulhofer, Træen, and Carvalheira 2013　.

Concerning the main outcome of this study, sexual satisfaction, between 34 and 44 percent of women reported a clinically relevant level of sexual difficulties. This tendency has been attributed by Wischmann et al.　2014　to a loss of spontaneous sexuality during the experience of infertility. Our prevalence rates of potential sexual dysfunction varied slightly across countries, with a larger proportion among Brazilian women, as expected, and were higher than those found in other studies, where 13-30% of infertile women have been epoted to have clinically relevant sexual difficulties　Drosdzol and Skrzypulec 2009; Sultan and Tahir　　　　However, an Italian study showed that 45% of infertile women reported sexual troubles (Quattrini et al. 2010) and risk for sexual dysfunction was found in 40% of an US infertile sample (Millheiser et al 2010).

Concerning factors associated with clinically relevant sexual difficulties in infertile women, in the Italian sample, increased infertility-related stress in the marital domain was significantly associated with sexual difficulties, together with a lower education level.. Among Italian women who had a diagnosed cause of infertility, these factors remained significantly

associated with sexual dissatisfaction. In the Brazilian sample, potential sexual dysfunction was not related to the variables included in the model; however, among Brazilian women who had a diagnosed cause of infertility, an increased infertility-related stress in the marital domain was negatively related to sexual satisfaction. Therefore, among women who had a diagnosed cause of infertility, models of sexual satisfaction were not very different across countries.

The relationship found between infertility-related stress in the marital domain and sexual satisfaction was consistent with previous findings   Casu and Gremigni 2016). Societal pressures to achieve parenthood and social stigmatization can indeed cause marital distress, which may predispose women to report sexual difficulties (Cousineau and Domar 2007; Onat and Beji 2012).

The association between sexual satisfaction and education level found in the Italian sample was consistent with findings from studies that have shown that women with higher education express more sexual satisfaction (Drosdzol and Skrzypulec 2009; Shahhosseini et al. 2014). However, it was not the same in the Brazilian sample. A study on educational level and sexual satisfaction by Rainer and Smith (2012) could help in interpreting these results. It showed that, although education was indirectly related to improved sexual satisfaction through more efficient communication within the couple, direct adverse effects of schooling on sexual wellbeing were also observed. Indeed, the more highly educated typically have greater labor market opportunities, with longer working hours and more job pressure, which, in turn, have been associated with more work-family conflict (Schieman and Glavin 2001). On the other hand, higher levels of work-family conflict have been associated with decreased quality of couples'

relationships (Fellows et al. 2016) and women's sexual desire (Taghizadeh et al. 2016), arguably because of women's greater difficulties in coordinating their work and private lives. As a consequence, highly educated women might be less able to satisfy their sexual needs and desires. Because in Brazil among people seeking ART treatment, those with high income and elevated employment status are more prevalent (Farley Ordovensky Staniec, and Webb 2007), it seems likely that in our Brazilian sample the potential negative direct effects of schooling observed by Rainer and Smith (2012) on sexual satisfaction counteracted the potential positive indirect effects of education.

In this study, age was unrelated to sexual satisfaction,, contrary to findings from previous studies. For example, Winkelman et al. (2016) showed that, in a sample of US infertile women, older women were more sexually satisfied than younger women while, in contrast, in a sample of Polish infertile couples (Drosdzol and Skrzypulec 2009), the risk factors for marital dissatisfaction included an age over 30 years. Thus, the relationship between age, education and sexual satisfaction among infertile women needs to be investigated further, taking into consideration that it may vary across countries.

Infertility etiology was also not associated with sexual satisfaction. However, among women with a diagnosed cause of infertility and clinical levels of sexual difficulties, the proportion of women with male factor or unexplained infertility was higher in the Brazilian than in the Italian sample. This difference reflects the variety of findings from the literature, in which female infertility was associated with increased sexual satisfaction in a sample of US women (Winkelman et al. 2016); male infertility was associated with lower sexual satisfaction in a

Polish sample (Drosdzol and Skrzypulec 2009); and the cause of infertility was not related to female sexual function and satisfaction in Turkish (Kucur Suna et al. 2016) and Iranian (Khademi et al. 2008) samples. One can hypothesize that the impact of infertility etiology on sexual satisfaction is mediated by societal and cultural factors. For example, gender roles was found to affect sexual satisfaction Sánchez-Fuentes, Santos-Iglesias, and Sierra 2014) and countries may differ on this regard. Therefore, further cross-cultural studies are needed to investigate the relation of the cause of infertility to sexual satisfaction.

Limitations

The main limitation of this study was the cross-sectional design that did not allow drawing conclusions about temporal and thus potentially causal relationships among the study variables. Another limitation was the different composition of the samples across countries. However, such heterogeneity reflects the demographic and clinical characteristics of women who turn to ART in the two countries, potentially increasing the generalizability of the results. In addition, many other sociodemographic and clinical characteristics not included in this study might be associated with sexual satisfaction, which could have resulted in residual confounding. Finally, the use of self-report measures could have resulted in recall and/or social acceptability biases; therefore, future studies should also include clinical evaluation of sexual difficulties or, at least, measures of social desirability.

Conclusions

In this study we observed that: over one third of infertile women, regardless of their nationality, scored above the clinical cutoff for sexual difficulties; the same degree of infertility-related stress in the marital domain was reported by Italian and Brazilian women; and this type of stress was associated with sexual dissatisfaction, although with slight differences across countries. The first practice implication is that both sexual satisfaction and infertility-related stress need to be addressed as a means to improve the quality of treatment offered to infertile women turning to ART. However, because factors associated with sexual dissatisfaction seem to vary by level of educational attainment, another implication is that increased importance should be placed on delivering interventions that are specific to the individual's and couple's characteristics as well as to community and societal factors. Effective counseling and interventions aimed to reduce the impact of infertility on marital and sexual life might help infertile couples to cope better with infertility and its treatment.

To provide better services to infertile women and couples further research is also needed on sexuality, intimacy, and infertility-related stress to understand the role of sociodemographics, clinical conditions and socio-cultural specificities, since this is a central but still underinvestigated issue.

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Table 1. Participants' characteristics and country comparisons

	Italian women	Brazilian women	Country comparison	
Participants, n = 528, n (%)	204 (38.64)	324 (61.36)		
Age, years, mean SD (range)	36.23 4.48 (23-50)	33.79 5.32 (23-54)	$F_{(1,527)} = 29.61^{**}$, d	
Age, category, above 30 years, n (%)	120 (58.82)	106 (32.72)		d
Level of education, high, n (%)	80 (39.22)	212 (65.43)		d
Diagnosed cause of infertility,	193 (94.61)	158 (48.77)	d	

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present, n (%)

Diagnosed cause of infertility,			$\chi^2_{(2)} = 12.51^*$
female factor, n (%)	59 (30.57)	77 (48.73)	$d = 0.33$
male factor, n (%)	50 (25.91)	34 (21.52)	$d = 0.10$
unexplained, n (%)	84 (43.52)	47 (29.75)	$d = 0.29$

$^*p < 0.05$; $^{**}p < 0.001$; SD = standard deviation; d = Cohen's d

Table 2 Frequency of sexual dissatisfaction (score > 30) as measured by the Index of Sexual Satisfaction (ISS)

	Italian women	Brazilian women	Country comparison
	n = 204	n = 324	
ISS score >30, n (%)	70 (34.31)	141 (43.52)	
ISS score >30 x Age			
30 years, n (%)	27 (32.14)	95 (43.58)	*d*
>30 years, n (%)	43 (35.83)	46 (43.40)	*d*
ISS score >30 x Education			
low education, n	51	46 (41.07)	*d*

(%)	(41.13)		
high education, n (%)	19 (23.75)	95 (44.81)	*d*
ISS score >30 x cause of infertility			
undiagnosed, n (%)	7 (63.64)	66 (39.76)	*d*
diagnosed, n (%)	63 (32.64)	75 (47.47)	*d*
ISS score >30 x diagnosed cause of infertility:	n = 63	n = 75	
female factor, n (%)	22 (37.29)	32 (41.56)	*d*
male factor, n (%)	16	19 (55.88)	*d*

(32.00)

unexplained, n (%) 25 24 (51.06) *d*

(29.76)

*p<0.05; **p<0.001; *d* = Cohen's *d* effect size

Table 3. Multiple logistic regression results with score >30 in the ISS as the event

| Country | | B | S.E. | Sig. | O.R. | 95% C.I. for O.R. | |
						Lower	Upper
Italy	Age >30 years	0.70	0.37	0.05	2.01	0.94	4.15
n = 204	Education, low	1.02	0.38	0.007	2.77	1.31	5.83
	Cause of infertility, undiagnosed	1.05	0.78	0.18	2.86	0.63	13.11
	Infertility stress	0.35	0.06	0.001	1.42	1.27	1.59

Model summary: $\chi^2 = 61.28$, $p = 0.001$; -2 log likelihood = 201.10

Brazil	Age >30 years	0.01	0.24	0.95	1.01	0.63	1.63
n = 324	Education, low	-0.09	0.24	0.70	0.91	0.57	1.46
	Cause of infertility, undiagnosed	0.33	0.23	0.16	1.39	0.88	2.17
	Infertility stress	0.05	0.03	0.14	1.05	0.99	1.11

Model summary: χ^2 = 4.33, p = 0.36; -2 log likelihood = 439.37

Table 4. Multiple logistic regression with score >30 in the ISS as the event among women with a medical diagnosis of infertility

Country		B	S.E.	Sig.	O.R.	95% C.I. for O.R.	
						Lower	Upper
Italy	Age >30 years	0.43	0.39	0.26	1.54	0.72	3.31
n = 193	Education, low	0.78	0.40	0.05	2.18	1.01	4.74
	Cause of infertility[a]						
	female factor	0.85	0.42	0.06	2.33	0.96	5.64
	male factor	0.32	0.46	0.49	1.38	0.55	3.41
	Infertility stress	0.40	0.06	0.001	1.50	1.31	1.70

Model summary: χ^2 = 60.42, p = 0.001; -2 log likelihood = 183.36

Country		B	S.E.	Sig.	O.R.	Lower	Upper
Brazil	Age >30 years	0.05	0.36	0.88	1.05	0.52	2.14

n = 158

Education, low	0.14	0.38	0.71	1.15	0.55	2.42
Cause of infertility [b]						
male factor	0.65	0.43	0.13	1.91	0.82	4.45
unexplained	0.37	0.39	0.35	1.45	0.67	3.12
Infertility stress	0.13	0.05	0.009	1.14	1.03	1.25

Model summary: χ^2 = 9.54, *p* = 0.09; -2 log likelihood = 209.09

[a] reference level is unexplained infertility; [b] reference level is female factor