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ORIGINAL ARTICLE

Negative metacognitive beliefs predict sexual distress over and above pain in women with endometriosis

Cristina Zarbo[1] · Agostino Brugnera[1] · Angelo Compare[1] · Rita Secomandi[2] · Ilario Candeloro[2] · Chiara Malandrino[2] · Enrico Betto[2] · Gaetano Trezzi[2] · Massimo Rabboni[3] · Emi Bondi[3] · Luigi Frigerio[2]

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Abstract

The aim of the study was to assess the predictive value of dyspareunia, general chronic pain, and metacognitive beliefs to sexual distress in a sample of women with endometriosis. Ninety-six women (mean age = 34.60 ± 6.44 years) with a diagnosis of endometriosis took part to this cross-sectional study. Sociodemographic and clinical data were collected by means of a structured ad hoc questionnaire. Metacognitive beliefs and sexual distress were assessed by means of the Metacognitions Questionnaire (MCQ30) and the Female Sexual Distress Scale-R (FSDS-r). General chronic pain intensity was collected by means of a Numeric Rating Scale. Data were subjected to Hierarchical logistic regression. We found high percentages of dyspareunia and sexual distress (i.e., 66% and 76%). Findings suggested that dyspareunia and chronic pain did not predict sexual distress, while negative beliefs about worries predicted sexual distress over and above them ($p = .040$, odd ratio 1.159). In the target population, metacognitive beliefs may have more influence on sexual distress than pain symptomatology.

Keywords Metacognition · Chronic disease · Sexuality · Pain · Dyspareunia

Introduction

Endometriosis is a chronic disabling condition, characterized by endometrial-like tissue setting down outside the uterus, affecting about 5% to 10% of female population in reproductive age (Vigano et al. 2004). Pain is the most common symptom of the disorder, claimed in almost half of patients, manifesting itself as chronic pelvic pain, dysmenorrhea, dyspareunia, pelvic or abdominal, dyschesia, and/or dysuria. Pain is considered the major stressor in the lives of women with endometriosis (Zarbo et al. 2017), severely affecting quality of life and mental health (Facchin et al. 2015; Moradi et al. 2014). The influence of pain is so high that several authors have suggested that is the pain symptomatology (and not the endometriosis itself) to negatively impact on women's life and cause distress (Cavaggioni et al. 2014; Culley et al. 2013; Facchin et al. 2015; Lorencatto et al. 2006).

Due to the adhesions and localization of nodules in regions subjected to traction during sexual intercourse (e.g., the uterosacral ligaments), women with endometriosis have a ninefold increased risk of recurrent or persistent genital pain during sexual intercourse (i.e., dyspareunia) than the general female population (Ballard et al. 2008). Both dyspareunia and chronic pelvic pain seem to have significant negative implications for sexual activity, quality of life, and distress in this population (Basson et al. 2000; Montanari et al. 2013; Pluchino et al. 2016; Tripoli et al. 2011). Dyspareunia negatively affects women's lives to the point that some of them avoid sexual activity, with decreasing in self-esteem and quality of couple relationships (Denny and Mann 2007).

Moreover, dyspareunia has been related to several forms of sexual dysfunctions, such as less sexual desire and/or lubrication, arousal difficulties, and orgasm disorders (Fritzer et al. 2013). Evidence has shown that women with endometriosis have more than twice sexual dysfunctions compared to women without the disorder (Fairbanks et al. 2017). Sexual difficulties can affect women with endometriosis in all phases of

✉ Cristina Zarbo
cristina.zarbo@unibg.it

[1] Department of Human and Social Science, University of Bergamo, Bergamo, Italy

[2] Department of Obstetrics & Gynaecology, Hospital Papa Giovanni XXIII, Bergamo, Italy

[3] Department of Psychiatry, Hospital Papa Giovanni XXIII, Bergamo, Italy

sexual response, such as desire, sexual arousal, and orgasm/sexual satisfaction (Fairbanks et al. 2017; Montanari et al. 2013), with a negative impact on quality of life (Montanari et al. 2013).

However, it should be highlighted that the presence of dyspareunia is not the only cause of sexual dysfunctions in this population (Pluchino et al. 2016). More than half of patients with endometriosis have sexual dysfunctions not limited to dyspareunia (Barbara et al. 2017a). Indeed, chronic pelvic pain, advanced stages of disease, the presence of physical and mental comorbidities, personality traits, women's expectations, educational level, body mass index, and previous surgery can affect sexual functioning (Di Donato et al. 2013; Pluchino et al. 2016).

Furthermore, despite the well-known link between sexual functioning and quality of life/wellbeing, and even if sexuality is known to be a complex phenomenon influenced also by psychosocial factors, few studies have focused on the concept of "sexual distress" in this population. Sexual distress refers to the personal distress related to a specific sexual difficulty (Hendrickx et al. 2016). The concept includes negative feelings about own sexual life, such as unhappiness, worry, anger, guilt, frustration, and dissatisfaction (Stephenson and Meston 2010a). The negative condition is particularly important as it is known to be associated with low sexual/relationship satisfaction and emotional wellbeing (Bancroft et al. 2003; Rosen et al. 2009; Stephenson and Meston 2010b). Indeed, women with sexual distress usually declare to be unhappier with their relationship compared with women without sexual distress (Rosen et al. 2009).

However, according to Burri et al. (2011), several women who experience sexual distress are not necessarily sexually dysfunctional. Indeed, sexual distress seems to be more related to general anxiety than to sexual dysfunctions (Burri et al. 2011).

Even if the importance of sexuality has been widely recognized for women's quality of life and a large part of studies has focused on sexuality-related to endometriosis, very few studies focused on sexual distress in this population. The study of Fritzer et al. (2013) found a prevalence of 78% of sexual distress and 32% of sexual dysfunction in a sample of one hundred and twenty-five patients with endometriosis and dyspareunia. Moreover, the study found statistically significant correlations between sexual dysfunctions and pain intensity during/after sexual intercourse, low number of episodes of sexual intercourse per month, high feelings of guilt towards the partner, and few feelings of feminity (Fritzer et al. 2013). These results evidenced that sexual distress in women with endometriosis is more common than sexual dysfunction (i.e., 40% higher), leading to the conclusion that it should be specifically explored to have a wider and complete picture of the sexual health of these patients.

In this context, psychological and cognitive factors may play an important role in influencing sexual distress. The metacognitive model of Wells and Simons (2009) could provide an efficient framework by which better understand the onset and maintenance of sexual distress. Metacognition refers to the "psychological structures, knowledge, events and processes that are involved in the control, modification and interpretation of thinking itself" (Wells and Cartwright-Hatton 2004). Metacognitive beliefs are defined as "stable knowledge or beliefs about one's own cognitive system, and knowledge about factors that affect the functioning of the system" (Wells 1995).

According to the model of Wells and Simons (2009), onset and maintenance of distress are not caused by the negative content of thoughts about stressors (e.g., "I cannot stop think about my problems"), but are related to how the individual copes to those thoughts (i.e., his metacognitive beliefs about his own worries; e.g., "it is bad to continuously think about my problems, I'm getting mad"). Examples of metacognitions include beliefs concerning the significance attributed to some thoughts (e.g., "It is bad to think X") or beliefs about coping strategies that impact on cognition (e.g., "Ruminating will help me find solutions to problems").

The theory of self-regulatory executive function (Wells and Matthews 1996) suggests that metacognitions have a central role in the persistence of maladaptive forms of coping, which in turn contribute to the onset and maintenance of psychological disorders or distress. A core principle of this model is that psychological disorders are linked to the activation of a particular toxic style of thinking called Cognitive-Attentional Syndrome (CAS; Wells 2009; Wells and Matthews 1996), which is characterized by perseverative thinking, unnecessary conceptual processing, and attentional hypervigilance to threats. In other words, metacognitions lead the individual to engage into unhelpful coping strategy and, in particular, to focus attention on information congruent with his own disorder, use inappropriate goals and internal criteria for judgment, and engage unhelpful coping strategies of worry/rumination (Wells and Cartwright-Hatton 2004). Maladaptive coping strategies contribute, in turn, to psychological disorders/difficulties or distress (Wells 2000; Wells 2009). Indeed, maladaptive metacognitive beliefs have been found to correlate positively with psychopathology (Sun et al. 2017).

Metacognitive model is part of the "third wave" cognitive-behavioral approaches, known to include functionalist models into their perspective. These models attribute importance to top-down mental functions such as voluntary attention and executive control, or on bottom-up experiential and interpersonal processes (Ruggiero et al. 2018). Nevertheless, these models have the limitations to focus on current problems and specific issues, as well as to minimize the importance of personality, unconscious processes, the characteristic of environment and individual's childhood and familiar system.

To date, metacognitive beliefs have been investigated in a wide range of populations (e.g., patients with cancer, gastrointestinal disorders, or pain) while, to the best of our knowledge, no studies have focused on endometriosis population. Previous studies on patients with cancer, have found that both positive and negative beliefs about worry are related to greater fear of recurrence of the pathology (Butow et al. 2015) as well as to symptoms of anxiety, depression, distress, and post-traumatic stress disorder (PTSD; Cook et al. 2015; Quattropani et al. 2016). Furthermore, metacognitive beliefs about worry have been associated with both self-reported pain behavior and pain catastrophizing (Spada et al. 2016).

In the field of sexuality, the model may contribute to explain the onset and maintenance of sexual distress, leading to important clinical implications. Indeed, beliefs about own worries about sexual difficulties (i.e., metacognitive beliefs) could affect the way the woman cope with the stressor (i.e., the pain and sexual problems) and impact on distress related to sexuality.

In summary, evidence has suggested that endometriosis and pain-related symptomatology may negatively affect sexuality and cause both sexual dysfunctions and sexual distress. However, pain, sexual dysfunctions, and sexual distress seem to be independent factors in this population. Indeed, it has been suggested that sexual distress could not depend only on pain and sexual dysfunctions. In this context, sexual distress could be related to psychological and cognitive factors, such as the way the woman cope with her own thoughts about stressors (i.e., pain and sexual difficulties).

Due to the fundamental role of sexuality on human life and its significant impact on quality of life, emerges the need for further research studies. In order to overcome existing limitations of literature, the main aim of this cross-sectional study was to explore the predictive value of dyspareunia, general chronic pain, and metacognitive beliefs to sexual distress in a sample of women with endometriosis. Investigating the role of psychological and cognitive factors in influencing sexual distress in this population would provide important clinical implications for the multidimensional treatment of these women and the role of the psychologist in medical setting.

Material and methods

Participants and procedure

In April 2017, women with a diagnosis of endometriosis were contacted in virtual mutual support groups, medical forums, and web associations. A public announcement has been published, containing a link to a web-survey on which to complete questionnaires and provide informed consent.

Inclusion criteria were being in fertility age (from 18 to 55 years old), clinical or surgical diagnosis of endometriosis, and ability to write and read in Italian language. We excluded women with past or concurrent neurological and psychiatric disorders or severe medical conditions.

Firstly, a total of 118 women were enrolled to the study and completed the battery. Then, sixteen of them were excluded for past psychiatric and neurological disorders, while six were excluded because they did not have any sexual intercourse in the last 3 months. Finally, ninety-six women took part to the study. Sociodemographic and clinical information of participants are shown in Table 1.

All questionnaires were self-administered and completed by means of a web-survey tool. Web-based survey method was chosen for its advantages over other formats (Evans and Mathur 2005) and to ensure honest answers on a very intimate topic. Indeed, the self-administered nature of web open-ended questions allows the generation of richer responses (Schaefer and Dillman 1998) and the avoidance of interviewer effects (Duffy et al. 2005).

The study was conducted in accordance with APA (1992) ethical standards for the treatment of human experimental volunteers; each participant provided consent in compliance with the Declaration of Helsinki (2013). The study was approved by the ethical committee of the local institution.

Instruments

Sociodemographic and clinical information were collected by means of a structured ad hoc questionnaire. We collected information about age, civil status, nationality, occupational status, education, family status, BMI, lifestyle (i.e., smoking). Moreover, we assessed the presence of past and present chronic medical condition in comorbidity to endometriosis, as well as clinical data about endometriosis (e.g., previous and current treatments, localization, stage, symptomatology history).

General chronic pain intensity over the last 3 months was assessed by means of a Likert scale from 0 (no pain) to 10 (the most terrible pain). Dyspareunia was assessed by means of a specific question referring to the last 3 months and coded as 0 (no dyspareunia) and 1 (yes dyspareunia). Metacognitive beliefs and sexual distress were assessed by means of the Italian version of two specific questionnaires, which will be presented below.

Female sexual distress scale-R (FSDS-r) (Derogatis et al. 2008) is a 13-item scale that assesses distress related to sexuality. The FSDS requests the participant to indicate how often each of the sexual-related problems (e.g., absence of desire, feeling of guilty) has caused distress in the previous 7 days. Sexual distress can be diagnosed when the FSDS-R total score is higher than 11. The scale demonstrated good discriminant validity, high test-retest reliability, a high degree of internal consistency, as well as good discriminant validity and test-retest reliability (Derogatis et al. 2008). The Italian translated version provided by the authors (copyright: American

Table 1 Sociodemographic and clinical characteristics of the sample ($N = 96$)

Sociodemographic information	
Age: mean (SD)	34.60 (6.44)
Range	22–51
Education: *n* (%)	
Middle schools	9 (9.4)
High schools	48 (50)
Bachelor's degree	10 (10.4)
Master's degree	18 (18.8)
Postgraduate/PhD degree	9 (9.4)
Other	2 (2.1)
Marital status: *n* (%)	
Engaged	15 (15.6)
Married	44 (45.8)
Common law	26 (27.1)
Single	7 (7.3)
Separated	3 (3.1)
Divorced	1 (1)
Profession: *n* (%)	
Student	9 (9.4)
Volunteer	1 (1)
Employed full-time	33 (34.4)
Employed part-time	19 (19.8)
Self-employed	18 (18.8)
Unemployed	16 (16.7)
Clinical information	
Endometriosis localization: *n* (%)	
Ovary	79 (82.3)
Intestine	42 (43.8)
Urinary tract	26 (27.2)
Rectovaginal septum	55 (57.8)
Uterus	16 (16.7)
Tube	2 (2.1)
Ureter	2 (2.1)
Other sides	13 (13.5)
Stage: *n* (%)	
Stage I	1 (1)
Stage II	8 (8.3)
Stage III	8 (8.3)
Stage IV	52 (54.2)
Not known	27 (28.1)
Pelvic pain*: *n* (%)	
No	18 (18.8)
Dysmenorrhea*: *n* (%)	
No	27 (28.1)
Not having menstruation	10 (10.4)
Dyspareunia*: *n* (%)	
No	33 (34.4)
Evacuation pain*: *n* (%)	
No	42 (43.8)
Urination pain*: *n* (%)	
No	65 (67.7)
Backache*: *n* (%)	
No	17 (17.7)
Time spent since diagnosis^: mean (SD)	79.58 (148.24)
Time spent since symptoms onset^: mean (SD)	146.40 (102.62)
Past treatment for endometriosis: *n* (%)	
Medical treatments	13 (13.5)
Surgical treatments	10 (10.4)
Both medical and surgical treatments	67 (69.8)
None	6 (6.3)
Contraceptive pills°: *n* (%)	
No	13 (13.5)
Contraceptive pills*: *n* (%)	
No	49 (51)

*In the last 3 months

°Over the last 3 months

^In months

Foundation for Urological Disease Inc.) has been used in this research study.

Metacognitions Questionnaire (MCQ-30; Cartwright-Hatton and Wells 1997; Quattropani et al. 2014) is a 30-items scale, validated in Italy, which allows the assessment of metacognitive beliefs (i.e., beliefs about own cognitions) through five subscales, which are (1) "positive beliefs" about worry, which assesses the thoughts about the beneficial effect of worrying (e.g., for avoiding problems, or remaining organized); (2) "negative beliefs" about uncontrollability of thoughts and corresponding danger, which includes items about the importance of controlling one's thoughts in order to prevent dangers related to the uncontrol; (3) "cognitive confidence," which refers to lack of self-confidence in one's memory and attention; (4) "Need to control thoughts," which concerns ideas of superstition and punishment related to some thoughts; and (5) "cognitive self-consciousness," which refers to items reflecting the tendency to be aware of and monitor thinking. Higher scores on each subscale indicate higher presence of that belief. Cutoff scores are not available for the total score and subscales of the questionnaire. The Italian validation of Quattropani et al. (2014) on healthy women ($N = 169$) has found the following mean scores: total score = 60.35 (11.73); negative beliefs = 11.97 (4.17); positive beliefs = 10.34 (3.62); cognitive confidence = 10.25 (3.37); need to control thoughts = 11.24 (3.17); cognitive self–consciousness = 16.54 (3.01).

The Italian version of the MCQ-30 has demonstrated good psychometric properties, satisfactory internal consistency, and

convergent validity, as well as a good test-retest reliability (Quattropani et al. 2014).

Statistical analyses

Preliminary analyses were performed to ensure no violation of the assumption of normality, linearity, multicollinearity, singularity, homoscedasticity, and independence of residuals. Standardized scores and box plots were used to identify univariate outliers. Variables with values ± 3.29 SD from the mean were considered outliers (Tabachnick and Fidell 2007). Outlier values were brought into range (Tabachnick and Fidell 2007). Normality was assessed for each variable by examining box plots, stem and leaf plots, histograms, and skewness and kurtosis values.

First of all, we calculated *chi-square* and *t-test* for independent samples in order to investigate relationships between variables. Sexual distress (FSDS; coded as no/yes) was inserted as dependent variable and the other measures as independent ones (i.e., age, education, marital status, profession, stage of endometriosis, pain, time spent since diagnosis, and the onset of symptoms, past and current treatments, MCQ total score, and subscales).

Then, we checked significative results and inserted them into Hierarchical logistic regression analyses. FSDS category (no/yes) was inserted as dependent variable, while MCQ-NEG was inserted at block 2 as predictor. General chronic pain over the last 3 months (NRS scale from 0 to 10) and dyspareunia (no/yes) were inserted at block 1 to be controlled.

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 23.0. All statistical tests were two-sided; a p value $\leq .05$ was considered significant.

Results

From preliminary analyses emerged that catastrophization subscale was slightly positively skewed and square root (sqrt) corrected the skew. However, findings were the same for the original and transformed data. Then, for ease of interpretation, we reported results using the original scores (Tabachnick and Fidell 2007). Results revealed no issues with normality, linearity, homoscedasticity, and independence of residuals. Missing data were not imputed and were treated as missing.

Differences between groups (no sexual distress; sexual distress) for sociodemographic and clinical data as well as for metacognitive beliefs were assessed by means of chi-square analyses for categorical variables and independent sample *t*-test for continuous ones. From these analyses, we found that the two groups differed only for dyspareunia ($p = .039$), general chronic pain intensity over the last 3 months ($p = .008$), and MCQ-NEG ($p = .028$).

Results from the hierarchical logistic regressions (odds ratios, 95% confidence intervals, and significance levels) are summarized in Table 2. From hierarchical logistic regressions, we found that negative metacognitive beliefs were able to predict the presence of sexual distress, over and above chronic pain and pain during sexual intercourse in the sample of women with endometriosis. Our findings showed that dyspareunia and chronic pain have no impact on sexual distress in this population. This means that women who reported sexual distress did not differ from women who did not report sexual distress as regards dyspareunia and chronic pain. Conversely, women with sexual distress had significant higher level of negative metacognitive beliefs about own worries than women without sexual distress. These results were maintained even controlling for chronic pain and dyspareunia.

As shown in Table 2, the full model (at block 2) was statistically significant, χ^2 (3, $N = 96$) = 12.49, $p < 0.05$, indicating that the model was able to distinguish between respondents who reported and did not report sexual distress. The model as a whole (at block 2) explained 18.3% (Nagelkerke R squared) of the variance in sexual distress status. At block 1 only NRS over the last 3 months approximated the statistical significance ($p = .057$). At block 2, our findings showed that MCQ-NEG predicted significantly sexual distress over and above dyspareunia and general chronic pain intensity ($p = .040$, odds ratio 1.159). These results suggested that participants who had higher negative metacognitive beliefs were over one time more likely to report sexual distress than those who had less negative metacognitive beliefs, even controlling for dyspareunia and general chronic pain intensity.

Discussion

The present study found high percentages of dyspareunia and sexual distress among endometriosis population (i.e.,

Table 2 Logistic regression analysis for sexual distress

Variables	B	SE	Wald	p	β
Block 1 ($R^2 = .118$)					
Dyspareunia[a]	−.601	.543	1.226	.268	.548
NRS-pain[a]	.194	.102	3.620	.057	1.21
(Constant)	.234	.748	.098	.754	1.264
Block 2 ($R^2 = .183$)					
Dyspareunia[a]	− .782	.571	1.877	.171	.458
NRS-pain[a]	.163	.106	2.369	.124	1.177
MCQ-NEG	.148	.072	4.205	.040*	1.159
(Constant)	− 1.757	1.232	2.032	.154	.173

[a] Over the last 3 months

NRS, Numeric Rating Scale; *MCQ-NEG*, Metacognitive beliefs questionnaire—negative beliefs about worries subscale

respectively 66% and 76%). Moreover, we found that negative metacognitive beliefs predict sexual distress, over and above dyspareunia and general chronic pain intensity. According to our findings, dyspareunia and pain intensity did not predict sexual distress in these patients. Findings suggested that sexual life is different between persons and that this difference may be explained by psychological and cognitive factors.

The percentage of sexual distress found in our study (i.e., 76%) was quite similar to that found by Fritzer et al. (2013). A high percentage of women with endometriosis in our study declared to feel (a) distressed, unhappy, worried, dissatisfied, and angry about sexual life; and (b) guilty, frustrated, inferior, inadequate, and embarrassed for sexual problems.

Moreover, our results highlighted how sexual distress is not even associated with dyspareunia or chronic pain intensity. These results are innovative and could be associated with those about sexual dysfunctions. Literature about sexual functioning in patients with endometriosis has shown that (a) dyspareunia is not the unique cause of sexual dysfunctions (Barbara et al. 2017a; Di Donato et al. 2013; Pluchino et al. 2016); (b) sexual distress is not necessarily related to a sexual dysfunction (Burri et al. 2011; Fritzer et al. 2013).

Furthermore, the main contribution of this paper to current literature is related to the role of cognition in the prediction of sexual distress. As concluded recently Barbara et al. (2017b), sexual functioning is a complex and multidimensional phenomenon, in which psychological and relational dimensions play a significant role. Our results showed that cognitions about own worries play the most important role in the prediction of sexual distress, over and above general chronic pain intensity or pain during sexual intercourse. Therefore, according to the model of Wells and Simons (2009), we can suggest that negative metacognitive beliefs about own worries about sexual health (e.g., thinking that worry will make her mad) affect sexual distress passing through the influence on coping strategies. In other words, beliefs about worries lead to a dysfunctional way to cope with stressors (i.e., catastrophizing or avoiding sexual difficulties, overestimating pain, enhancing guilt feeling towards the partner, ruminating about own problems). This means that sexual distress is not due to the presence or absence of a pain during sexual intercourse or sexual dysfunctions, but to the way the woman copes with his own thoughts about stressors (i.e., his maladaptive coping strategies).

The link between coping strategies and psychological distress in females with endometriosis has been claimed by previous studies and literature review (Donatti et al. 2017; Zarbo et al. 2017). Former studies have found positive correlations between suppression of emotions/specific negative coping styles or strategies (i.e., passive coping, and catastrophization) and the experience of pain (Zarbo et al. 2017). Moreover, some positive coping styles (e.g., detached, rational, focused to the problem) have been related to better mental health and adaptation to stress (Donatti et al. 2017; Zarbo et al. 2017).

In addition, significant clinical implications emerged from this study. Sexuality has an important role in a person's life and should be considered from different point of views, not only medical one. In our sample, 76% of women complained about sexual-related distress, in some cases even in absence of pain during sexual intercourse. Sexual issues need to be addressed and discussed in health services. Psychologists and therapists play a significant role in medical setting to engage in this objective.

Furthermore, the person with a diagnosis of endometriosis could benefit from metacognitive therapy, beyond that medication for the enhancement of sexual health. Sexual distress, indeed, seems to be not related to the presence of chronic pain and pain during sexual intercourse but to cognitive factors, like negative metacognitive about own worries. In this context, the therapist may support women in developing more flexible styles of cope with negative emotions and thoughts as well as alter the process of paying attention. Indeed, metacognitive therapy (Wells 2009) could help them to deal with negative emotions related to sexual problems, enhancing the acceptance of stressors and negative thoughts about them. In addition, the therapist may support them in replacing maladaptive coping strategies (e.g., rumination, avoidance) with more adaptive ones.

Despite the interesting findings and clinical implications emerging from the study, limitations due to small sample size, cross-sectional design, and the web-based recruitment should be noticed.

Further research needs to overcome the limitations of this study and investigate the role of metacognitive beliefs longitudinally to subsequent sexual distress. Moreover, further studies need to investigate which factors contribute to sexually related distress. They should investigate relationships between sexual distress and personality, psychological factors (e.g., quality of life, depression, etc.) and sexual dysfunctions. For example, recently, some studies have found significant relationships between personality traits and quality of life/experience of pain in this population (Bylinka and Oniszczenko 2016; Facchin et al. 2016; Gomibuchi et al. 1993; Zarbo et al. 2018).

Concluding, to the best of our knowledge, this is the first study assessing metacognitive beliefs in women with endometriosis and in relation to sexual distress. We can conclude that sexual health is not merely the absence of pain during sexual intercourse. Women with sexual distress, even if not reporting dyspareunia or chronic pain, should be kept into account for sexual health enhancement. Treatments should not be limited to the improvement of sexual functioning but include psychological and cognitive focus. Metacognitive therapy may be beneficial for women with sexual distress related to endometriosis.

Compliance with ethical standards

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Conflict of interest The authors declare that they have no conflicts of interest.

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