



Depressive symptoms, anxiety, and quality of life in women with pelvic endometriosis[☆]

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ABSTRACT

Objective: To assess depressive symptoms, anxiety and quality of life in women with pelvic endometriosis.

Study design: A prospective study of 104 women diagnosed with pelvic endometriosis. The Beck Depression Inventory (BDI) and the Hamilton Rating Scale for Depression (HAM-D) were used to evaluate depressive symptoms; the Spielberger State-Trait Anxiety Inventory (STAI) and the Hamilton Rating Scale for Anxiety (HAM-A) to evaluate anxiety symptoms; and the short (26-item) version of the World Health Organization Quality Of Life instrument (WHOQOL-BREF) to evaluate quality of life.

Results: Of the patients evaluated, 86.5% presented depressive symptoms (mild in 22.1%, moderate in 31.7%, and severe in 32.7%) and 87.5% presented anxiety (minor in 24% and major in 63.5%). Quality of life was found to be substandard. Age correlated positively with depressive symptoms, as determined using the BDI ($P = 0.013$) and HAM-D ($P = 0.037$). There was a positive correlation between current pain intensity and anxiety symptoms, as assessed using the STAI (state, $P = 0.009$; trait, $P = 0.048$) and HAM-A ($P = 0.0001$). The complaints related to physical limitations increased in parallel with the intensity of pain ($P = 0.017$). There was an inverse correlation between duration of treatment and quality of life ($P = 0.017$). There was no correlation between psychiatric symptoms and endometriosis stage.

Conclusions: A rational approach to endometriosis should include an evaluation of the emotional profile and quality of life. That approach would certainly reduce the functional damage caused by the endometriosis.

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1. Introduction

Endometriosis is a chronic and progressive disease that results in lesions of the reproductive tract, pain and infertility [1]. The disease might impair work capacity, social interaction, and family life [2].

Women suffering from endometriosis present greater susceptibility to mental disorders. Diagnosis is often delayed in both conditions, leading to frustration. Depression and anxiety also play a role in the development and chronicity of pelvic endometriosis [3].

It is estimated that 10–15% of women of reproductive age suffer from pelvic endometriosis. Despite its prevalence, this disease remains poorly understood [4]. It has been demonstrated that there is no relationship between the extent of this disease, its painful and psychic symptoms [5].

The aetiology of pelvic endometriosis is as yet unknown. However, it is known that stress and mood disorders affect the immune system, increasing susceptibility to inflammatory diseases [6]. Endometriosis is currently analyzed from a biopsychosocial point of view, characterized by recurrence and impaired quality of life [3]. There have been few studies correlating endometriosis with mental disorders.

The objective of this study was to evaluate the prevalence of depressive and anxiety symptoms, as well as quality of life, in women with endometriosis.

2. Methods

This was a prospective study involving 104 women treated between July of 2004 and December of 2006 at the two hospitals: the Hospital Santa Casa de Misericórdia de Curitiba-Pontifícia Universidade Católica do Paraná, Brazil; and at the Dr. Lima Hospital in Cascavel, Brazil. All of the women evaluated presented surgically diagnosed, histopathologically confirmed pelvic endometriosis. The minimum age was 18 years old. None of the women

[☆] This study was conducted in Curitiba, Paraná, Brazil.

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selected had used non-steroidal anti-inflammatory drugs, anxiolytics, or antidepressants within the previous 3 months. Patients diagnosed with any condition that might increase the risk of depression or anxiety, such as fibromyalgia and irritable bowel syndrome, were excluded. This study was approved by the PUCPR Ethics Committee.

All of the subjects completed a questionnaire developed by the authors. The questionnaire was composed of questions regarding demographic, health, and psychosocial factors. The presence and location of pain were determined, and the intensity of the pain was quantified using the visual analogue scale (0–10 points). The endometriosis was staged in accordance with the guidelines of the American Society for Reproductive Medicine (ASRM) [7]. The Beck Depression Inventory (BDI) and the Hamilton Rating Scale for Depression (HAM-D) were used for the evaluation of depressive symptoms. In order to evaluate anxiety, the Spielberger State-Trait Anxiety Inventory (STAI) and the Hamilton Rating Scale for Anxiety (HAM-A) were applied. The short (26-item) version of the World Health Organization quality of life instrument (WHOQOL-BREF) was used to evaluate quality of life. All of these instruments have been translated to Brazilian Portuguese and previously validated for use [8–11].

This was a descriptive study, and the sample size was determined through evaluating the scores of previous clinical patients and through out a pilot study. The study did not include a control group, since the patterns of normality are well established for all of the scales employed. The cut-off values for the scales were established according to the results of studies involving validation for their use in Brazil. In order to confirm the objectives, Pearson's correlation coefficient and the parametric Student's *t*-test were used, together with the non-parametric Mann–Whitney test, the chi-square test, and Fisher's exact test (using Epi Info). The level of significance was set at <5% ($P < 0.05$).

3. Results

The demographic evaluation revealed the following: the mean age was 34.6 ± 6.3 years (range, 19–48 years); 38.5% of the subjects had completed high school; 54.8% were married; and 65.4% had children. The median per capita income was 1.2 times the minimum wage.

We observed that 58.7% of the women had been diagnosed with at least one condition in addition to endometriosis, principally arterial hypertension (10.6%). We observed that 70.2% of the women were sedentary, according to the American College of Sports Medicine criteria [12].

When questioned regarding the use of psychoactive substances, 73.1% were non-smokers. Of the women evaluated, 50% reported having a previous history of use of psychiatric medications. Only 15.4% of the women reported having been abused physically or sexually.

The evaluation of the data related to endometriosis revealed that 80.8% had undergone up to two surgical procedures. There were 42 women (40.4%) in ASRM initial stages (I or II), compared with 62 (59.6%) in ASRM advanced stages (III or IV).

We observed that 80.8% of the women evaluated presented pelvic pain, and the mean intensity of current pain on the visual analogue scale was 5. Half of the women (50.0%) reported prolonged difficulty in conceiving (mean, 7.5 years).

The mean age at onset of typical endometriosis complaints was 21 years. The mean interval between the onset of symptoms and diagnosis, as well as the mean time in treatment prior to the study outset, was 5 years.

The BDI scores revealed that 86.6% of the women presented depression, which was moderate to severe in 63.5% (Table 1). The

Table 1
Results – Beck Depression Inventory.

Degree of depression	Patients	
	N	%
None or minimal	14	13.4
Mild to moderate	24	23.1
Moderate to severe	39	37.5
Severe	27	26.0
Total	104	100.0

HAM-D scores revealed 86.5% with depressive symptoms (mild in 22.1%, moderate in 31.7%, and severe in 32.7%) (Table 2).

The STAI scores revealed that, among the women evaluated, state-anxiety was of medium intensity (median STAI-1 score, 44.5), and trait-anxiety was high (median STAI-2 score, 52).

The Statistical Package for the Social Sciences program was used to evaluate the WHOQOL-BREF data. The results revealed that the women classified their quality of life as medium in both the psychological and social domains (median score, 50). The physical domain scores were slightly below average (median score, 48.2), whereas the environmental domain scores were slightly above average (median score, 54.7).

Based on the HAM-D and HAM-A scores, respectively, 31.7% presented moderate depression, 32.7% severe depression and 63.5% a high level of anxiety (Table 2).

There was a statistically significant correlation between advanced age and a higher BDI score ($P = 0.013$). The STAI and WHOQOL-BREF scores were not found to correlate significantly with age. There was a significant correlation between a higher HAM-D score and advanced age ($P = 0.037$).

The duration of typical endometriosis complaints (probable time since onset of the disease) did not correlate significantly with any of the scales employed.

Using the WHOQOL-BREF, we found that duration of treatment correlated significantly and negatively with quality of life in the physical domain (Table 3), lower scores translating to moderately impaired quality of life ($P = 0.017$). The current intensity of pain correlated significantly with the STAI-1 score ($P = 0.009$) and moderately with the STAI-2 score ($P = 0.048$), the STAI scores increasing in parallel with the intensity of the pain. The current intensity of pain also correlated significantly and negatively with the WHOQOL-BREF score, especially in the physical domain ($P = 0.017$), the score, and therefore the quality of life, decreasing as the intensity of the pain increased. A correlation was also observed between greater pain intensity and higher HAM-A score ($P < 0.0001$). The authors have done the registration of the different types of endometriosis pain (like dysmenorrhea and dyspareunia), although there were no relation between any type of pain and psychological symptoms. A positive correlation was

Table 2
Results – Hamilton Scales of Depression and Anxiety.

Hamilton Scale	Patients (N = 104)	
	N	%
Depression		
None	14	13.5
Mild	23	22.1
Moderate	33	31.7
Severe	34	32.7
Anxiety		
None	13	12.5
Minor	25	24.0
Major	66	63.5

Table 3
Correlation between WHOQOL domains and variables studied.

WHOQOL domains	No.	Age			Time of complain		
		Correlation (r)	p value	Significance	Correlation (r)	p value	Significance
Physical	104	−0.0904	0.361	N	−0.0985	0.320	N
Psychological	104	−0.1106	0.264	N	−0.0880	0.374	N
Social	104	−0.0276	0.781	N	−0.0441	0.657	N
Environment	104	+0.0009	0.993	N	+0.0678	0.494	N
WHOQOL domains	No.	Time of treatment			Pain intensity		
		Correlation (r)	p value	Significance	Correlation (r)	p value	Significance
Physical	104	−0.2337	0.017	Y	−0.2344	0.017	Y
Psychological	104	−0.1016	0.305	N	−0.1771	0.072	N
Social	104	−0.0842	0.395	N	−0.1078	0.276	N
Environment	104	+0.0164	0.868	N	−0.1613	0.102	N

Note: Applied the correlation coefficient of Pearson. Y = yes and N = no.

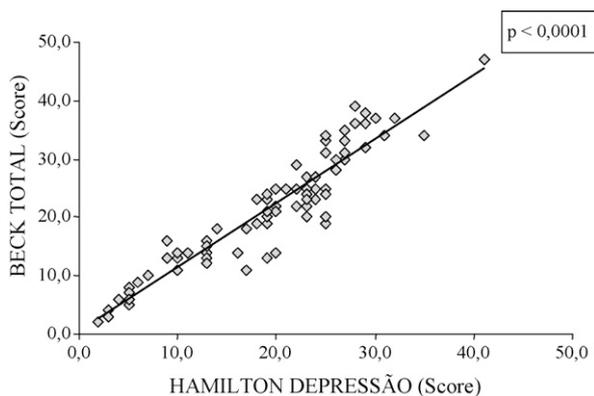


Fig. 1. Correlation between the Hamilton Rating Scale for Depression (HAM-D) and the Beck Depression Inventory (BDI).

observed between the HAM-D and BDI scores ($P < 0.0001$), as well as between the HAM-A and STAI scores, demonstrating the internal validity of the study, since the physician observed the same aspects reported by the women (Fig. 1).

The mean time since the diagnosis and staging of endometriosis was seven years in this study. The mean time between the staging of endometriosis and the study was three years. There was no correlation between these factors and the scales results. None of the scales employed were found to correlate significantly with the initial stages (I and II) or the advanced stages (III and IV) of endometriosis. No difference in the results of scales was found when analysing the subgroup of women with infertility.

4. Comment

Certain factors can contribute to the development of mental disorders in women with chronic pelvic pain. In 2000, Lampe et al. [13] found that chronic pelvic pain was related to sexual abuse, which permanently alters the function of the hypothalamic-pituitary-adrenal axis.

In 2001, Roth et al. [14] studied a sample of 187 women. The authors determined that a low level of education is a risk factor for chronic pelvic pain, and that low socioeconomic status can also contribute. However, the data in the literature are contradictory. In 1996, Peveler et al. [15] conducted a comparative study involving 51 women with pelvic endometriosis and 40 women with pelvic pain of unknown aetiology. Those with pelvic endometriosis presented higher socioeconomic status, greater social dysfunction, and more pelvic pain.

The infertility caused by pelvic endometriosis can also contribute to the development of mental disorders. In 2001, Bergqvist and Theorell [2] compared infertile women with endometriosis to fertile women and found that 50% of the women in the former group had looked for psychiatric help, or expressed a need for such help, within the preceding 4 weeks. In this study there was no correlation between infertility and psychic symptoms.

Factors related to emotional suffering (socioeconomic condition; history of physical or sexual abuse; and domestic violence) did not correlate significantly with any of the psychiatric scales employed. Nor were other factors, such as being married and having children, both of which have been suggested to be protective against emotional suffering, found to correlate with psychological symptoms. In addition, none of the scales employed correlated with, level of education and infertility. As suggested in other studies, endometriosis, per se, appeared to be the factor principally responsible for mental suffering among the women evaluated in this study. Also the mental diseases could contribute to the endometriosis developing.

In this study, there was a significant association between age and depressive symptoms. We concluded that advancing age could be related with the increase of the severity of the emotional suffering caused by the disease, which manifests as depressive symptoms.

We determined that there was no relationship between the staging/extent of endometriosis and the painful symptoms, a finding that is in agreement with other studies [16].

In 2006, Lorençatto et al. [17], evaluating 100 Brazilian women with endometriosis, identified depression in 86% of those with chronic pelvic pain, compared with 38% of those without such pain. In a similar study employing the BDI to evaluate depression in women with endometriosis [18], a lower prevalence of depression was observed: 23.5% of those in the group with pain; and 13% of those in the group without pain. In this study, 86.6% of the women evaluated presented depression, which ranged from moderate to severe in the 63.5%.

In 1995, Waller and Shaw [18] used the STAI to evaluate anxiety in women with endometriosis. The authors observed no difference between the groups in terms of the STAI scores. Women with mild symptomatic endometriosis presented greater depression and more often suffered from sexual dysfunction. These results differ from those obtained in a study conducted by Renaer et al. [19], who demonstrated higher anxiety levels in the women with endometriosis-related pain. In this study, the median state-anxiety score was 44.5, and the median trait-anxiety score was 52. Anxiety scores were higher than those estimated for women with other

pathologies: mean state-anxiety score, 42.4 ± 13.7 ; and mean trait-anxiety score 41.9 ± 12.7 [20].

Although depression in women with chronic pelvic pain has been the target of many studies, it continues to be underdiagnosed. The effect of pain at its onset in women with endometriosis is not clear [17]. Depression is related with chronic pelvic pain, and there is no consensus as to which is the cause and which is the consequence [21]. It is possible that the intensity of the pain is related to the degree of depression and anxiety [22].

In 1993, Low et al. [23] evaluated 81 women with pelvic pain: 40 with endometriosis and 41 with other gynaecological diseases. The authors found that introversion and anxiety were more prevalent among the women with pelvic endometriosis.

In this study, the current intensity of pain correlated significantly with anxiety symptoms, as quantified using the STAI and HAM-A. We also calculated the probability of a correlation between pain intensity and the depressive symptoms identified using the BDI and HAM-D.

The high prevalence of depressive and anxiety symptoms found in this study corroborates the observations made by Barsky in 1979 [24]. This high prevalence can be explained by the fact that women with anxiety and depression demonstrate less tolerance to pain, present greater sensitivity to physical sensations in general, and more often seek treatment [25]. In 1988, Simon [26] also reported that psychiatric disorders are related to greater number and severity of physical symptoms reported, as well as to higher rates of treatment-seeking behaviour.

Few studies have evaluated the interval between the onset of symptoms and diagnosis. This delay affects such women negatively [27]. In 2003, Arruda et al. [28] found that the mean time to diagnosis in a group of 200 Brazilian women with endometriosis was 7 years. In this study, the mean interval between the onset of typical endometriosis complaints and diagnosis was 5 years.

Endometriosis has a considerable impact on patient quality of life. Of the few studies on the subject, virtually all have employed generic instruments of evaluation. Although two specific quality of life questionnaires for endometriosis have been developed [29], neither has yet been validated in Brazil.

In 2000, Garry et al. [30] evaluated 57 consecutive patients undergoing laparoscopic excision of endometriosis. Questionnaires, both pre-operatively and 4-month post-operatively, SF12 and EuroQOL (version of the WHOQOL for Europe), were recorded. They concluded that meaningful improvements in clinical symptoms and quality of life can be obtained with surgical approach.

In this study, quality of life was found to be impaired in comparison with the general population. This impairment was greater in the physical domain. In addition, duration of treatment and intensity of pain both correlated with impaired quality of life. The majority of the women evaluated had been referred from the public health care system and presented low socioeconomic status, which can also contribute to impaired quality of life.

On potential limitation of our study is that the patient sample might not be representative of the entire population of Brazilian women with pelvic endometriosis, since the study was conducted in referral centres that typically treat more complex cases.

Due to the high prevalence, uncertain aetiopathogenesis, chronicity, and morbidity of endometriosis, a great deal of research has been done in the mental health area in attempts to gain a better understanding of the disease and its consequences, as well as to find new treatment modalities to improve prognosis and avoid recurrence.

In developing countries, little research has been conducted. In our cohort study, pelvic endometriosis had a negative impact on

the quality of life of Brazilian women, leading to significant depressive and anxiety symptoms. Further studies should be carried out in order to elucidate these aspects.

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