The Association between Dyspareunia and Dysmenorrhea in Women with Deep Endometriosis: A Pre-Planned Observational Study

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Abstract

Deep infiltrating endometriosis (DIE) is a particular form of endometriosis that extends more than 5 mm under the peritoneal surface. The radical surgical exeresis of the lesions may be necessary to improve symptoms, the mainstay of its treatment. In this sectional pre-planned observational study (Canadian Task Force Classification II-2), we evaluated the association between the two main endometriosis-associated painful symptoms in 77 women, in which the diagnosis of deep infiltrating endometriosis (DIE) was based on medical history, physical examination and magnetic resonance imaging (MRI). The statistical approach included non-parametric bivariate correlation and hierarchical agglomerative clustering method as exploratory multivariate analysis. This study was previously approved by the Research Ethics Committee (CEP IFF-FIOCRUZ: 0035.0.008.000-11). The median values were 5.0 (CI95%: 3.0 – 6.5; IQR: 1.75 – 8.00) and 8.5 (CI95%: 6.4 – 9.1; IQR: 3.15 – 9.93) for dyspareunia and dysmenorrhea intensities, respectively. There was no significant correlation between dyspareunia and dysmenorrhea (P=.86). Regarding the multivariate cluster analysis, women’s age presented much more similarity with dysmenorrhea than with dyspareunia intensity. In fact, the similarity between dyspareunia and dysmenorrhea was very poor. Concerning women affected by deep infiltrating endometriosis, we concluded that dyspareunia and dysmenorrhea occur in an independent way, which denotes a quite heterogeneous condition.

ABBREVIATIONS

CI95%: 95% Confidence Interval; IQR: Interquartile Range; DIE: Deep Infiltrating Endometriosis

INTRODUCTION

The two most common endometriosis-related symptoms are deep dyspareunia and dysmenorrhea [1]. Once the painful symptoms have usually oriented physicians about the choice of the best type of treatment (i.e. radical surgical exeresis of the lesions) for improving quality of life [2,3], this study aimed to assess (preoperatively) the relationship between dyspareunia and dysmenorrhea in a group of young adult women affected by deep infiltrating endometriosis (DIE).
squared Euclidean distance as exploratory multivariate analysis to identify groups of variables correlated with each other. All variables were standardized before applying cluster analysis (range 0 to 1). Graphics and statistics were performed with IBM® SPSS® Statistics Standard Grad Pack 20 (NY, USA). Statistical results were considered significant when \( P < 0.05 \) (2-sided).

This study was previously approved by the Research Ethics Committee (CEP IFF-FIOCRUZ: 0035.0.008.000-11), which is a subcommittee of the National Research Ethics Commission of the Brazilian Ministry of Health, in accordance with the Guidelines and Regulatory Standards for Research Involving Human Beings (CNS196/96). All patients gave their informed consent prior to their inclusion in the study.

**RESULTS AND DISCUSSION**

We recruited a total of 77 women with DIE aging 19 to 52 years (median: 35; Interquartile range: 32-39). In this sample, a median of 5 sites (min=1; max=15) was affected by DIE (deeper than 5 mm). Regarding the self-reported intensity of dysmenorrhea and dyspareunia, VAS values showed a non-normal distribution according to both Kolmogorov-Smirnov and Shapiro-Wilk tests \( (P<.01) \). Actually, the histograms similarly showed a bimodal pattern with peaks when there is no pain (VAS=0) and when pain is unbearable (VAS=10). Figure 1 shows the graphical representation of data distribution.

Figure 2 shows dyspareunia and dysmenorrhea intensities (quartiles). The median values were 5.0 (CI95%: 3.0 - 6.5; IQR: 1.75 – 8.00) and 8.5 (CI95%: 6.4 – 9.1; IQR: 3.15 – 9.93) for dyspareunia and dysmenorrhea intensities, respectively. Although these numbers may suggest that dysmenorrhea has a stronger role on women’s health-related quality of life, readers should take into account that painful symptoms were reassessed as constant along the cycle. That is, people often do not consider how often these symptoms affect women throughout the month, regardless of the intensity. In fact, deep dyspareunia (one of many determinants of sexual functioning in women with endometriosis) [4] may fluctuate along the cycle, whereas very severe dysmenorrhea, for example, may occur only during few days. Besides, physicians and patients’ perception of the painful experience of endometriosis may be quite different [5].

![Figure 1](image1.png)  
**Figure 1** Graphical representation of the non-normal distribution of dyspareunia and dysmenorrhea intensities (VAS: visual analogue scale; dashed lines: normal curve on histogram).

![Figure 2](image2.png)  
**Figure 2** Boxplot showing the visual analogue scale scores of dyspareunia and dysmenorrhea intensities (quartiles).
The relationship between dysmenorrhea and dyspareunia scores (if any) seems to occur essentially by chance, since the non-parametric bivariate (Spearman) correlation between them was close to zero (rho=.02; P=.86) (Figure 3).

Despite not significant, there was a negative correlation between age and dyspareunia (rho = -.09; P=.47) and, particularly, between age and dysmenorrhea (rho = -.191; P = .11), which may suggest that young women have a tendency to report more severe pain than older ones. Actually, when age, dysmenorrhea and dyspareunia were simultaneously considered in the multivariate cluster analysis, age presented more similarity with dysmenorrhea than with dyspareunia intensity (Figure 4).

Regarding limitations, this study may show a mathematical point of concern that is the nature of self-rating scores (particularly at one or both extremes of the scales) [6]. Therefore, we used both ordinal and ratio methods to assess the variables. We also admit the possibility of selection bias because this study was performed in a service specialized in DIE management.

CONCLUSION

Concerning women affected by deep infiltrating endometriosis, we concluded that deep dyspareunia and dysmenorrhea occur in an independent way, which denotes a quite heterogeneous condition.

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