Intensity of pain, disability and psychosocial factors in women with chronic pelvic pain: cross-sectional study

Intensidade da dor, incapacidade funcional e fatores psicossociais em mulheres com dor pélvica crônica: um estudo transversal

Jennifer Nogueira Rocha[1], Luiz Eduardo de Castro[1], Virgínia Martello Riccobene[1], Michele Souza Menezes Autran[2], Leandro Alberto Calazans Nogueira[2,3], Felipe José Jandre dos Reis[3,4]

ABSTRACT

BACKGROUND AND OBJECTIVES: Chronic pelvic pain can be considered one of the main causes of morbidity and functional disability in women. The influence of psychosocial factors on chronic pelvic pain has been little explored in the literature. This study sought to characterize the profile of chronic pelvic pain in women, the presence of psychosocial factors and the association with pain and disability.

METHODS: This cross-sectional study included women with chronic pelvic pain. Data on pain, disability and psychosocial factors was collected using specific questionnaires. Analysis of frequency, central tendency and dispersion were presented. Pearson's correlation test was used to verify the correlation between pain, disability and psychosocial factors. The statistical significance was set as alpha=95%.

RESULTS: The study consisted of 25 women, with a mean age of 45.4 years. The mean pain intensity at the time of the assessment was 4.76±3.39. The mean disability was 4.01±2.32. Anxiety presented a mean of 7.16±3.36 and stress 7.04±3.16. The level of disability had a negative correlation with pain intensity (r = -0.474; p=0.017), with the pain severity domain (r=-0.566; p=0.003) and with kinesiophobia (r = -0.550; p=0.001).

CONCLUSION: Women with chronic pelvic pain had moderate levels of pain intensity and disability. The psychosocial factors with the highest mean score were anxiety and stress. The intensity of pain and disability were correlated with each other and with kinesiophobia.

Keywords: Chronic pain, Pelvic pain, Psychosocial impact.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor pélvica crônica pode ser considerada uma das principais causas de morbidade e incapacidade funcional para as mulheres. A influência dos fatores psicossociais na dor pélvica crônica foi pouco explorada na literatura. O objetivo deste estudo foi caracterizar o perfil da dor pélvica crônica em mulheres, bem como buscar a presença de fatores psicossociais e a associação com dor e incapacidade.

MÉTODOS: Estudo transversal que incluiu mulheres com dor pélvica crônica. Os dados referentes da dor, incapacidade e os fatores psicossociais foram coletados utilizando questionários específicos. Foram apresentadas as análises de frequência, tendência central e dispersão dos dados. O teste de correlação de Pearson foi utilizado para se verificar a correlação entre dor, incapacidade e fatores psicossociais. O valor de significância estatística adotado foi de alfa=95%.

RESULTADOS: O estudo foi composto por 25 mulheres, com média de idade de 45,4 anos. A intensidade de dor média no momento da avaliação foi de 4,76±3,39. A média de incapacidade foi de 4,01±2,32. A ansiedade apresentou média de 7,16±3,36 e estresse 7,04±3,16. O nível de limitação funcional teve correlação negativa com a intensidade da dor (r= -0,474; p=0,017), com o domínio gravidade da dor (r=-0,566; p=0,003) e com cinesiofobia (r= -0,550; p=0,001).

CONCLUSÃO: As mulheres com doença pélvica crônica apresentaram níveis moderados de intensidade de dor e limitação funcional. Os fatores psicossociais com maior pontuação média foram a ansiedade e estresse. A intensidade de dor e o nível de limitação funcional estiveram correlacionados entre si e com a cinesiofobia.

Descritores: Dor crônica, Dor pélvica, Impacto psicossocial.

Jennifer Nogueira Rocha – https://orcid.org/0000-0003-3953-2816;
Luiz Eduardo Castro – https://orcid.org/0000-0001-6124-9588;
Virgínia Martello Riccobene – https://orcid.org/0000-0001-6073-5058;
Michele Souza Menezes Autran – https://orcid.org/0000-0002-8300-428X;
Leandro Alberto Calazans Nogueira – https://orcid.org/0000-0002-0177-9816;
Felipe José Jandre dos Reis – https://orcid.org/0000-0002-9471-1174.

1. Universidade Federal do Estado do Rio de Janeiro, Hospital Universitário Gaffrée e Guinle, Rio de Janeiro, RJ, Brasil.
2. Centro Universitário Augusto Motta, Programa de Pós-Graduação em Ciências da Reabilitação, Rio de Janeiro, RJ, Brasil.
3. Instituto Federal do Rio de Janeiro, Curso de Fisioterapia, Rio de Janeiro, RJ, Brasil.
4. Universidade Federal do Rio de Janeiro, Programa de Pós-Graduação em Clínica Médica, Laboratório de Psiconeurofisiologia, Rio de Janeiro, RJ, Brasil.

Correspondence to:
Felipe Reis
Instituto Federal do Rio de Janeiro, Campus Realengo
Rua Carlos Wenceslau, 343 – Realengo
21715-000 Rio de Janeiro, RJ, Brasil.
E-mail: felipe.reis@ifrj.edu.br

INTRODUCTION

Chronic pelvic pain (CPP) is the chronic or persistent pain observed in the structures related to the men or women's pelvis, frequently associated with cognitive, behavioral, sexual

and negative emotional consequences, as well as suggestive symptoms of the inferior urinary tract, sexual organs, intestine, pelvic floor or gynecological disorder[1]. Like in other chronic pain scenarios, CPP may be associated with cognitive, behavioral, sexual, and negative emotional consequences[2]. Although CPP may have a gynecological, gastrointestinal, urologic, or musculoskeletal origin, most cases don't present one determined cause[3]. Pelvic pain can be considered one of the main causes of morbidity and functional disability for women and can interfere with daily life activities and lead to the need of health services[4]. It's estimated that about 3.8% of women at any age and 12% of women at reproductive age complain about sensations of pain in the pelvic region[5,6], in addition to about 18% leaving work at least one day every year due to pelvic pain[7,8]. Data from a survey in the United States that included 773 women with CPP identified that approximately a quarter of them needed rest for 2.5 days per month and close to 25% presented dysfunction or dyspareunia, and the direct and indirect costs of productivity loss were estimated at approximately 3 billion dollars[7].

Besides the primary health conditions characterized by pelvic pain, several mechanisms and structures may be involved in CPP, including the upper genital tract, muscles and fascia of the abdominal wall and pelvic floor, bladder, ureters and gastrointestinal tract[8,9]. The clinical approach focused only on biological aspects may increase the use of health care and diagnostic tests, in addition to more situations in which surgical procedures or hospitalizations for pain treatment are proposed[3]. It's important that, besides biological factors, the influence of cognitive, emotional, environmental and social factors on the experience of pain is considered[10,11]. It's also necessary to recognize that neurophysiological mechanisms such as peripheral sensitization, central sensitization and neuroplastic modifications in various regions of the brain can contribute to the chronification, maintenance and evolution of CPP[12-14].

A great challenge for the clinical practice is to identify the interaction between psychological, behavioral and social factors, as well as their contributions to the experience of pain. Numerous studies demonstrated the influence of psychological factors in the development, persistence and treatment of chronic pain[15-17].

This study's objective was to describe the profile of CPP in women, regarding the location and intensity, the level of disability and association with psychosocial factors

METHODS

A cross-sectional observational study, which followed the recommendations of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)[18]. Data was collected from September 2019 to January 2020 in the gynecology outpatient clinic of one hospital and pelvic physiotherapy outpatient clinic of another hospital, both from the urban area of Rio de Janeiro.

Women over 18 years old with pain in the pelvis, lower abdomen, lumbar region, medial aspect of the thigh, inguinal area and perineum, on most days for at least 6 months, selected by convenience according to the schedule of appointments in these clinics, were included. Women with history or diagnosis of neoplasia, neurological diseases of the central nervous system and cognitive deficit were not eligible for the study.

For the evaluation of sociodemographics and general aspects of pain, the Questionnaire for Chronic Pelvic Pain Assessment (QCPPA) from the International Pelvic Pain Society (IPPS) previously translated and validated into Portuguese[19] was used. QCPPA presents sociodemographic questions about work, professional history, age, marital status, home cohabitants and education level. It also evaluates the pain, menstrual, urinary, gastrointestinal, emotional, surgical, or obstetric antecedents, the occurrence of physical, psychological, or sexual violence, among other questions. QCPPA was applied except for the matters of drugs, professional help and physical examination; also, in the pain map section, only the item concerning perineal and vulvar pain was used.

Next, for the assessment of pain, the Brief Pain Inventory (BPI) was used, which is a multidimensional instrument that evaluates pain intensity and its interference with general activities, mood, motion, work, relationships with other people, sleep and fun based on an 11-point scale ranging from zero (no pain/no interference) to 10 (pain as severe as possible). Scores for both dimensions range from zero to 10 and are calculated using the average of the total items. High scores represent high pain intensity or high pain interference in general activities[20]. In order to characterize the most frequent pain descriptors, the McGill questionnaire was used, which allows the patient to portray their experience of pain in more detail[21].

Disability was assessed through the Patient Specific Functionality Scale (PSFS). The patient is asked to identify up to three activities that he/she considers unable to perform or that present some difficulty. The measurement is done by 11 points Likert scales for each activity, and the higher the average score, ranging from zero to 10 points, the better the patient's ability to perform the activities[22]. The PSFS is a self-administered questionnaire, it's validated and widely used in several musculoskeletal conditions, with reproducibility of 0.85 (ICC 0.77-0.90)[23].

The evaluation of pain-related psychosocial factors was performed by the Brief Screening Questionnaire (BSQ), which covers the presence of symptoms of depression, social isolation, anxiety, stress, kinesiophobia and catastrophism[24]. The tool comprises nine items, being one for anxiety, two for kinesiophobia, one for stress, one for social isolation, two for catastrophism and two for depression[24,25]. The answers are graded from zero and 10, and the higher the answer value, the worse is the outcome. Zero represents "I never do this" or "not at all", increasing up to 10, which represents "I always do this" or "quite a lot"[24]. The tool uses brief questions for the specific scales for each of the psychosocial items previously validated for Brazil. The research protocol was previously submitted to and approved by the HUGG Ethics and Research Committee (CAAE: 17465419.0.0000.5258) and all participants signed the Free and Informed Consent Term (FICT).

Statistical analysis

The data was presented and coded using Microsoft Office Excel, 2013 Windows version, and analyzed using Statistical Package for Social Science (SPSS), version 20 for Mac. The Kolmogorov-Smirnov test was used to check the normal distribution of the variables. Frequency, central tendency (mean or median) and dispersion (standard deviation) analyses were presented according to the analyses of data normality. The association between pain intensity, disability and psychological variables was performed using the Pearson correlation test. The statistical significance value adopted for all analyses was p<0.05.

RESULTS

Twenty-five women were included, with a mean age of 45.4±10.8 years old: xmin=30 to xmax=72. Regarding the other characteristics of the sample, 11 (44%) had completed high school, 11 (44%) were married, 21 (84%) were non-smokers, 18 (72%) didn't drink alcohol, and 19 (76%) were sedentary. As for the obstetric history, 20 (80%) had already become pregnant, 9 (36%) reported having had at least one abortion, and 10 (40%) had two children. Considering the characteristics related to work, 14 (56%) were in economically active age and 8 (32%) were away from work due to presence of pain.

As for the clinical characteristics, all participants used more than one drug for pain, including several classes of drugs. Among the studied sample, 18 (72%) used analgesics, 10 (40%) opioids, 10 (40%) non-hormonal anti-inflammatories, 6 (24%) anticonvulsants, 5 (20%) antidepressants, 3 (12%) muscle relaxers and 1 (4%) hormonal anti-inflammatories, hormonal drug, adrenergic receptor agonist and antiflatulent. Regarding surgeries, 9 (36%) had carried out some type of procedure related to CPP. In relation to the comorbidities commonly associated with CPP, it was found that 8 (32%) presented depression, 15 (60%) urinary symptoms, 14 (56%) irritable bowel syndrome, 11 (44%) migraine, 10 (40%) symptoms of pelvic congestion syndrome, 6 (24%) diagnosis of endometriosis and 1 (4%) presented fibromyalgia and adenomyosis. From the total, 5 (20%) reported having suffered some form of sexual abuse and 15 (60%) suffered some form of psychological and/or physical abuse in childhood and/or adult life. As for coping strategies, 19 (76%) women showed a passive and negative strategy in relation to pain, such as resting and assuming pelvic pain as the main problem in life. The clinical characteristics are grouped in table 1.

In the representation of the body map described by BPI, identifying the areas affected by pain, there was greater presence of lumbar pain (84%), vulvar/perineal pain (76%), followed by pain in the buttocks/hip/pubis/inguinal region and pain in the lower limbs, both with 72% (Figure 1).

The pain intensity reported at the moment of evaluation presented a mean of 4.76±3.39; xmin=zero to xmax=10. When describing the characteristics of pain, the most used McGill descriptors were "heavy" and "sensitive". The mean time of pain was 79.36±61.6 months; xmin=6 to xmax=216.

Through the evaluation of disability by PSFS the participants had a mean score of 4.01±2.32; xmin=0 to xmax=8.6. Regarding

Table 1. Clinical characteristics of the sample

Variables	n (%)
Drugs	
Analgesics	18 (72)
Opioids	10 (40)
Non-hormonal anti-inflammatories	10 (40)
Hormonal anti-inflammatories	1 (4)
Anticonvulsants	6 (24)
Antidepressants	5 (20)
Muscle relaxer	3 (12)
Adrenergic receptor agonist	1 (4)
Antiflatulent	1 (4)
Hormonal	1 (4)
Surgeries	
Yes	9 (36)
No	16 (64)
Comorbidities	
Urinary symptoms	15 (60)
Irritable bowel syndrome	14 (56)
Pelvic congestion syndrome	10 (40)
Migraine	8 (44)
Depression	8 (32)
Endometriosis	6 (24)
Adenomyosis	1 (4)
Fibromyalgia	1 (4)
Sexual abuse	
Yes	5 (20)
No	20 (80)
Psychological and/or physical abuse	
Yes	15 (60)
No	10 (40)
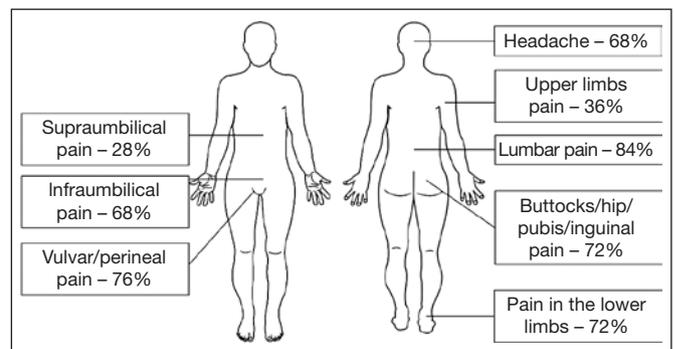
Figure 1. Body map representing the frequency of the location of pain in the sample

the results of BPI, the mean for the domain of pain severity was 5.70±2.07; xmin=1.50 to xmax=9.00 and the mean for the domain of pain impact was 6.69±2.22; xmin=2.85 to xmax=10.0. Regarding the psychosocial factors evaluated by BSQ, anxiety presented a mean of 7.16±3.36; xmin=zero to xmax=10,

social isolation 4.12±4.05; xmin=zero to xmax=10, stress 7.04±3.16; xmin=zero to xmax=10, catastrophism 6.0±3.81; xmin=zero to xmax=10), depression 5.72±3.96; xmin=zero to xmax=10 and kinesiophobia 3.94±4.36; xmin=zero to xmax=10. The results of pain evaluation and psychosocial measures are shown in table 2.

Table 2. Mean and standard deviation for pain-related and psychometric measurements

Variables	Mean (SD)
BPI (zero/10)	
Pain intensity (at the moment)	4.76 (33.9)
Pain severity	5.7 (2.07)
Pain impact	6.69 (2.22)
Time of pain (months)	79.36 (61.6)
Disability (zero/10)	4.01 (2.32)
BSQ (zero/10)	
Anxiety	7.16 (3.36)
Stress	7.04 (3.16)
Catastrophism	6.0 (6.81)
Social isolation	4.12 (4.05)
Depression	5.72 (3.96)
Kinesiophobia	3.94 (4.36)

BPI = Brief Pain Inventory; BSQ = Brief Screening Questionnaire; SD = standard deviation

The level of functional limitation had a negative correlation with pain intensity (r=-0.474; p=0.017), with the domain of pain severity (r= -0.566; p=0.003) and with the kinesiophobia mean (r=-0.550; p=0.001). The pain intensity presented correlation with the BPI domain of pain severity (r=-0.53; p=0.006). For the other psychometric variables there was no statistically significant correlation. The data is shown in table 3.

Table 3. Correlation between psychological variables, intensity of pain and disability

Variables	Disability r (p-value)	Pain intensity r (p-value)
Disability	-	**-0.474 (0.017)**
Pain intensity	**-0.474 (0.017)**	-
Pain severity	**-0.566 (0.003)**	**0.812 (<0.001)**
Pain impact	-0.164 (0.433)	-0.027 (0.896)
Anxiety	0.101 (0.630)	-0.040 (0.848)
Social isolation	-0.255 (0.220)	0.008 (0.969)
Stress	0.049 (0.818)	0.137 (0.515)
Catastrophism	-0.106 (0.615)	0.010 (0.963)
Depression	-0.132 (0.531)	-0.093 (0.657)
Kinesiophobia	**-0.550 (0.004)**	**0.458 (0.021)**

The values in bold correspond to statistically significant correlation.

DISCUSSION

It was possible to identify that women with CPP presented moderate levels of pain intensity and disability. Regarding psychosocial factors, anxiety and stress had the highest averages, followed by catastrophism, social isolation, depression and kinesophobia. The intensity of pain and the degree of disability were correlated with each other and with kinesophobia.

The values of pain intensity assessed in the present study can be considered moderate[26], resembling other studies with people with CPP[27-29]. In a study conducted in Brazil with 91 women, pain intensity varied according to body mass from 2.66 to 3.15[28]. In another study conducted in Norway, 108 women with CPP participated and the average pain intensity assessed was 4,2[30]. The moderate pain intensity observed may justify the use of different analgesic methods reported by the participants.

The widespread pain characteristic on this sample may be suggestive of the involvement of central sensitization mechanisms[31,32]. The absence of correlation between the location of pain and injuries in patients with CPP was already observed in another study[33]. It's possible that peripheral and central sensitization mechanisms may partially explain this clinical scenario[34]. However, in order to confirm this hypothesis, other tests need to be performed, such as the application of the central sensitization inventory[35]. Although a clinical evaluation tool for central sensitization in the context of CPP has already been elaborated, its psychometric validation and cut-off points still need to be established[36]. The levels of disability found in the study may be influenced by several factors, such as, for example, concerns, fears and possible incorrect explanations related to the cause of pelvic pain[37]. The lower education level also presents a reverse relation to CPP, since women with lower education have more severe pain, suffering, concerns, and degree of disability[38].

Considering the investigated psychosocial factors, anxiety and stress were those with higher averages. Previous studies have reported a high prevalence of anxiety in women with CPP, reaching 63% of the sample in a study also conducted in Brazil[39]. In general, the high prevalence of anxiety is also accompanied by depression in people with CPP[40,41]. In another study, also conducted in Brazil, 73% of women with CPP presented anxiety and 40% depression[41]. In the United States, a study including 107 women with CPP identified a prevalence of 38.6% of anxiety and 25.7% of depression[42]. These prevalence values can be considered high when compared to the overall prevalence of anxiety in women, which is 4.6% (9.3% in Brazil) and depression, which is 5.1% (5.8% in Brazil)[43]. The average values for symptoms of depression observed in the participants was considered one of the lowest in relation to the other variables. Although two questions that presented validation when compared to the Beck Depression Inventory (BDI)[25] were used, this difference with the literature findings may be related to the different tools used in the other studies. Stress was the second major observed mean. Pain and stress are two distinct and overlaid processes, presenting multiple conceptual and physiological overlays. Any factor, be it physical, psychosocial, or emotional capable of challenging homeostasis can be considered as a stressful element[44]. Thus, several factors may be consi-

dered as stress agents, like anxiety[45], mistreatment during childhood[46], as well as sexual and physical abuse[47]. Even though some participants reported a history of physical or psychological sexual abuse, it was not possible to determine the origin of the perceived stress.

Among evaluated psychological factors, only kinesiophobia presented a correlation with disability and pain intensity. This finding can be explained by the fear-avoidance model[49]. This model was developed in order to provide an understanding of how exaggerated pain perception contributes to the maintenance of chronic pain[50]. People who adopt more negative thoughts and behaviors about their condition begin to avoid activities and experiences that they consider painful. Generally, the behavior of avoidance promotes negative physical and psychological consequences, like disability, high intensity of pain and adoption of passive behaviors towards pain. People with fears related to pain are likely to avoid activities or movements that they believe cause pain, further exacerbating negative thoughts related to pain and disability. In fact, numerous studies in the literature have shown the association of pain-related fear with functional disability in people with chronic[51] and acute[52] lumbar pain, hip and knee osteoarthritis[53,54] and foot and ankle disorder[55].

Among the limitations of this study, the relatively small size of the sample is one of the main. The sample was collected in reference hospitals in the metropolitan area of Rio de Janeiro, nevertheless, the number of participants in the study was considered small. This is possibly due to the fact that many women stop seeking health services considering that pain in the pelvic region is normal, seeking care only when the pain becomes more severe. Therefore, it's necessary to be cautious when generalizing this study's results. Another limitation is that the cross-sectional design of the study does not allow the attribution of causality. It's still necessary to investigate the influence of other factors such as sleep, socioeconomic condition, states of mood and self-efficacy over CPP.

This study's findings can contribute to a wider view of CPP, considering the therapeutic approach of these factors instead of an approach centered in physical components and clinical diagnosis. Considering that kinesiophobia may have an influence over disability and intensity of pain, it's possible that therapeutic strategies used in other chronic pain conditions, such as progressive exposure and exercise, may contribute as non-pharmacological resources in the treatment of women with CPP. Thus, it's recommended that clinical trials that address these interventions on psychological factors are performed in order to measure their effects on people with CPP.

CONCLUSION

The present study identified that women with CPP presented moderate levels of pain intensity and disability. The psychosocial factors that presented the higher mean score were anxiety and stress. The intensity of pain and degree of disability were correlated with each other and with kinesiophobia.

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