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ORIGINAL RESEARCH

Do patients undergoing physical therapy in a rehabilitation center have a high prevalence of pelvic floor dysfunction and psychological disorders? A cross—sectional study

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KEYWORDS
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Abstract
Background: Prevalence of pelvic floor dysfunction (PFD) and its relationship with anxiety in a population undergoing physical therapy treatment in Rehabilitation Centers seems to have been little investigated in the literature.
Objective: 1) to investigate the prevalence of PFD, anxiety, depression; 2) to assess quality of life (QoL) in patients undergoing physical therapy in a Rehabilitation Center, 3) to compare the results by sex; and 4) to assess the relationship between PFD and anxiety, depression, and QoL.
Methods: This cross-sectional study included participants receiving physical therapy care in a Rehabilitation Center. Validated questionnaires were used to assess PFD, QoL, depression, and anxiety. The Chi-square test, Pearson's correlation coefficient, and a binary logistic regression model were used for data analysis.
Results: 253 participants (56.9% female) were included, 45% of them reported at least one PFD symptom. Females had higher prevalence of urinary incontinence (UI) (28% vs 14%); constipation (25% vs 10%); sexual dysfunction (75% vs 9%); anxiety (47% vs 35%); and depression (34% vs 17%) than males. A weak correlation was found between anxiety and depression with UI and sexual dysfunction for females. For all participants, poor QoL was found in physical functioning, physical role, bodily pain and emotional role. Being elderly (OR: 2.58 [1.24, 5.37]), partnered (OR: 1.82 [1.04, 3.17]), female (OR: 3.38 [1.91, 5.99]), and anxious (OR: 2.03 [1.14, 3.62]) were risk factors for reporting PFD.

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Conclusion: This study found a high prevalence of PFD symptoms in patients attending a Rehabilitation Center. All symptoms except fecal incontinence were more prevalent in females than in males. There was a weak correlation between UI with QoL and psychological disorders among females.

Introduction

Functional and structural disorders in the pelvic floor can lead to pelvic floor dysfunctions which include urinary incontinence (UI), fecal incontinence, functional constipation, and sexual dysfunction.[1,2] Some pelvic floor dysfunctions have a high prevalence in the general population[3-6] significantly impacting symptom-related quality of life (QoL).[4,7,8] Anxiety and depression might aggravate the severity of UI symptoms, which seems to be also aggravated by increased age.[9]

The population's access to pelvic floor rehabilitation is limited. A reason behind this limitation is the low number of public health services offering pelvic floor rehabilitation. Additionally, scarce information is offered to the general population about therapeutic options.[8] The most common reasons for patients seeking rehabilitation programs are physical injuries/illnesses and neurological diseases.[6,10,11] This same population seeking rehabilitation programs may concomitantly present with pelvic floor dysfunction.[6,12]

Studies have highlighted the importance of improving the knowledge about pelvic floor dysfunction among patients who have chronic diseases.[13,14] This is recommended when pelvic floor dysfunction symptoms, such as UI, have the potential to aggravate the mobility impairment reported by those individuals. Therefore, the physical impairments being treated by physical therapists can be negatively affected by the coexistence of UI or, conversely, the UI symptom itself can be caused by mobility restrictions.[6,9-15] For example, a fracture or soft tissue injury caused by a fall/accident might be related to an urinary urgency episode in a patient with mobility difficulties to reach the bathroom.[16,17]

The prevalence of pelvic floor dysfunction and its relationship with anxiety and functionality in a population undergoing physical therapy treatment in Rehabilitation Centers is poorly investigated in the literature. Better knowledge of the scenario of pelvic floor dysfunction in this environment could contribute to the development of a more integrative assistance system. This could influence physical therapy treatment in different areas, requiring shared information and actions between health professionals to improve the service offered to patients.[18] Therefore, the primary aim of this study was to determine the prevalence of pelvic floor dysfunction, anxiety, and depression by sex and to assess the QoL in patients undergoing physical therapy treatment in a Rehabilitation Center in Brazil. Additionally, this study aimed to assess the risk factors of pelvic floor dysfunction symptoms and the correlation between UI and sexual dysfunction with psychological disorders (anxiety and depression) and QoL.

Methods

This is an observational cross-sectional study.

Setting

The study was conducted at the Rehabilitation Center "Lucy Montoro" at the Clinics Hospital of Ribeirão Preto Medical School in the State of São Paulo in Brazil. This institution is a public center specializing in rehabilitation, serving 23 cities of the regional health directorate in which Ribeirão Preto is located.[19] During the period of recruitment, a total of 4109 patients were treated by physical therapists in this center, excluding women's health/pelvic floor rehabilitation and pediatric patients. The number of patients (proportions) within areas of physical therapy were: orthopedics [2918 (71%)], amputees [276 (6.7%)], neurology [269 (6.5%)], dermatology [217 (5.3%)], immuno-rheumatology [152 (3.7%)], respiratory [97 (2.3%)], cardiology [89 (2.2%)], gerontology [52 (1.3%)], and liver disease and others [39 (1%)].

Participants

Participants regardless of sex who were 18 years old or older and receiving physical therapy care in any specialty at the Rehabilitation Center were eligible to participate in this study. Those who agreed to participate signed an informed consent form before inclusion. This study considered sex a dichotomous variable based on the sex assigned at birth (male/female).[20]

People being treated in the department of pelvic floor physical therapy, and anyone who had difficulty in understanding the interview or did not answer all the questionnaires were excluded from the study. Participants were recruited from March 2018 to March 2020.

This study was approved by the Research Ethics Committee of the Clinics Hospital of Ribeirão Preto Medical School (approval number 62326616.6.0000.5440) and followed the ethical standards established in the Declaration of Helsinki.

Outcomes

Sociodemographic and clinical data were collected using a form specially developed for this study which included clinically relevant information for characterization of the participants such as sex, age, body mass index, parity, marital status, chief complaint, and frequency of physical exercise. Participants who reported performing physical exercise for at least 30 min three times a week were considered physically active.[21]

The following pelvic floor dysfunction symptoms were assessed: UI, fecal incontinence, functional constipation, and sexual dysfunction. All questionnaires were previously validated and adapted to Brazilian culture.[22-28] UI symptoms were assessed using the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-UI- SF). This validated questionnaire contains six questions about reports of

urinary loss in a timeframe of four weeks, defined as the four weeks prior to participation in the study. Higher scores indicate greater impairment from UI symptoms.[22]

Intestinal incontinence complaints were assessed using the Fecal Incontinence Quality of Life (FIQL) questionnaire. The instrument consists of 29 questions divided into domains: lifestyle, behavior, depression, and embarrassment. The total score is interpreted as the higher scores indicating less impact of fecal incontinence on QoL.[23] Meanwhile, functional constipation was assessed considering the ROMA IV criteria.[24]

Sexual function was assessed using different instruments depending on the sex of the participants. For female participants, Female Sexual Function Index (FSFI) was used to assess desire, arousal, lubrication, orgasm, satisfaction, and painful symptoms that were experienced in any timeframe of the previous month before the assessment for the study. For the adequate use of this instrument, sexual intercourse with penis-vagina penetration is needed. Therefore, female participants who reported not having vaginal penetration were not eligible to answer this questionnaire. The score is interpreted as, the higher the score, better the sexual function. A cutoff score $\leq$26.5 was used as an indicator of female sexual dysfunction.[25] For male participants, the Sexual Quotient - male version (SQ-M) was used. This 10-item instrument assesses male sexual function in the last six months. The score ranges from 0 to 100 and it is interpreted as participants with higher scores present greater sexual performance/satisfaction.[26]

The Hospital Anxiety and Depression Scale (HADS) was used to identify symptoms of anxiety and depression. HADS is composed of 14 multiple-choice questions, seven of which assess anxiety and the other seven depression. The maximum possible score is 21 points per subscale. Scores between eight and 10 define mild cases, from 11 to 15 moderate cases, and 16 or more severe cases.[27] The SF-36 was used to assess the domains Physical Functioning; Role Physical; Bodily Pain; General Health; Vitality; Social Functioning; Role Emotional; Mental Health. The higher the score, the better the QoL.[28] The cut-off value used was $<$60, meaning poor QoL and $>$60, meaning preserved or good QoL.[29,30]

Data collection

Participants were recruited in the waiting room of the Rehabilitation Center. The researcher asked the people in the waiting room which physical therapy sector they were receiving care from. The research was explained in detail to the potential participants and those who consented were interviewed in the waiting room before and/or after their regular physical therapy session.

The interview was conducted by one of seven female researcher assistants. All research assistants were trained by a senior researcher with more than 20 years of experience assessing symptoms of pelvic floor dysfunction. The training consisted of a period for familiarization with the questionnaire and a simulation of the recruitment and data collection between each other with the supervision of one member of the research group. The assistant researchers were instructed to not interfere in the answers, just read the questionnaire and register the answers. Each assistant researcher was scheduled at different periods, five days a week. The data collection took 30 min per participant on average. Participants could decide if they would prefer to answer the questionnaires by themselves or have it read and recorded by the research assistant.

Sample size

Using the Epidemiological Analysis from Tabulated Data software (EPIDAT 3.1), it was estimated that a minimum sample size of 240 participants would be required. The outcome considered for the sample size calculation was the proportions of UI in a sample stratified by sex and with uniform allocation. The sample size calculation was obtained from a pilot sample of 20 patients (10 women and 10 men), derived from a finite population of patients who fulfilled our inclusion criteria and attended physical therapy in the rehabilitation center in 2017 (n = 3834). The prevalence of UI in our pilot sample was 50% and 30% in women and men, respectively. The confidence level adopted was 95%, a precision of 5% and the design effect was 1.

Statistical analysis

Descriptive statistics were used to characterize the sample and estimate the prevalence of pelvic floor dysfunction, psychological aspects, and QoL. For qualitative variables, frequency and percentage distributions were used. Measures of central tendency and dispersion were used for quantitative variables. The Kolmogorov-Smirnov test was used to test normality of the data.

The Chi-square test and the Student's T-Test were used, respectively, to establish the difference for qualitative and quantitative variables between male and female participants. Pearson's correlation coefficient was used to correlate the ICIQ-UI-SF, SQ-M, and FSFI scores with HADS and SF-36 scores. Dancey and Reidy's criteria[31] were used to interpret r values: 0.01$-$0.39 weak correlation, 0.40$-$0.69 moderate correlation, 0.70$-$0.99 strong correlation, 1.00 perfect correlation.

Binary logistic regression model was used to establish the relationship between the presence or absence of at least one pelvic floor dysfunction with psychological aspects and possible risk. A backward selection process of variables was used, which consisted of adjusting an initial model, considering all the variables that, in the literature and according to the objective of the study, are or could be associated. The variables entered in the model were dichotomized except age that was considered a dummy variable. The variables were considered for the model based on the relevance in the literature and data distribution. One by one, the variables that no longer showed statistical evidence of a relationship with pelvic floor dysfunction were eliminated. New models were adjusted for each eliminated variable, until finding a model that considered only the variables that effectively showed a relationship between them.

The SPSS version 22 statistical software was used. In all tests, a 95% confidence interval was adopted, with a significance level of p $<$0.05.

Results

A total of 253 participants were included (56.9% female and 43.1% male). Fig. 1 shows the flow of participants in this study.

The age range was between 20 and 96 years for female participants and 18 and 84 years old for male participants. Most female participants (72.9%) were multiparous, and most participants were not physically active (74.3%). Table 1 shows the sociodemographic characteristics of the sample.

Prevalence of pelvic floor dysfunctions, psychological aspects, and QoL

Table 2 shows the data for pelvic floor dysfunction symptoms by sex. Almost half of the participants (45.4%) reported at least one pelvic floor dysfunction (UI, functional constipation, fecal incontinence, and/or sexual dysfunction). Among sexually active female participants, 75% reported symptoms of sexual dysfunction.

Table 2 also shows that 47.2% (n = 68) and 34% (n = 49) of female participants reported anxiety and depression symptoms, respectively. Meanwhile, 34.9% (n = 38) and 17.4% (n = 16) of male participants reported anxiety and depression symptoms, respectively.

The results also show that the mean score among female participants was low which indicates mild depression. The domains of physical functioning, role physical, bodily pain, and role emotional had low values (score below 60) for both sexes. A significant difference was found between the scores of body pain, vitality, and mental health between sex, with females presenting a worse condition.

Association between pelvic floor dysfunctions and psychological aspects and QoL

Table 3 presents the correlation between the scores of anxiety, depression, and QoL, with UI and sexual function in male and female participants. In female participants, a correlation was found between the severity of UI reports and the anxiety score (r = 0.18), between the severity of UI reports and depression (r = 0.23), and between the FSFI score and depression (r = −0.31). Likewise, a correlation was observed between UI and physical functioning (r = −0.32), general health perception (r = −0.22), vitality (r = −0.29), limitations of social functioning (r = −0.23), role emotional (r = −0.19), and mental health (r = −0.24) in females participants.

In male participants, a correlation was only found between the severity of UI reports and anxiety score (r = 0.19).

Table 4 presents the multiple logistic regression performed to ascertain the effects of sex, age, marital status, anxiety, and physical functioning on the likelihood that participants have (n = 115) or do not have (n = 138) pelvic floor dysfunction. The logistic regression model was statistically significant, $\chi 2(6)=44.652$, $p<0.001$. The model explained 21.6% (Nagelkerke R^2) of the variance in pelvic floor dysfunction and correctly classified 67.6% of cases. Women were approximately three times more likely to report pelvic floor dysfunction symptoms than men. Participants of both sexes aged over 60 years old were more likely to have pelvic floor dysfunction when compared to the reference group (<40 years). Having a partner and showing symptoms of anxiety almost doubled the chance of having any pelvic floor dysfunction.

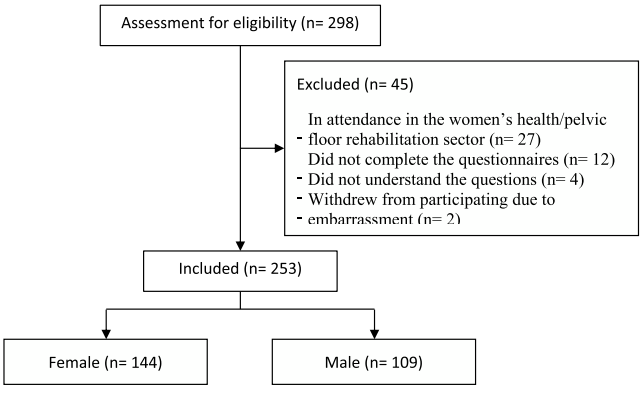

Fig. 1 Flow diagram of the participants in the study.

Table 1 Sociodemographic characteristics between sex.

Variables	Female *N* = 144	Male *N* = 109
Age,* years	56.4 (15.89)	49.4 (17.53)
BMI,* kg/m^2	28.5 (5.83)	27.2 (5.31)
Self-reported ethnicity, *n* (%)		
White	93 (64.6)	63 (57.8)
Black	16 (11.1)	11 (10.1)
Others	35 (24.3)	35 (32.1)
Marital status, *n* (%)		
With partner	68 (47.2)	57 (52.3)
Without partner	76 (52.8)	52 (47.7)
Educational background, *n* (%)		
No formal education	1 (0.7)	0 (0)
Elementary school	78 (54.2)	56 (51.4)
High school	45 (31.3)	39 (35.8)
Graduate school	20 (13.9)	11 (10.1)
Postgraduate	0 (0)	3 (2.7)
Occupation, *n* (%)		
Employed	51 (35.4)	54 (49.5)
Unemployed	9 (6.3)	12 (11.1)
Retired	51 (35.4)	40 (36.7)
Housewife	28 (19.4)	1 (0.9)
Student/intern	5 (3.5)	2 (1.8)
Service sector, *n* (%)		
Geriatrics	9 (6.2)	8 (7.3)
Orthopedics and traumatology	88 (61.1)	54 (49.5)
Neurology	11 (7.6)	20 (18.4)
Headache	8 (5.6)	0 (0)
Cardiovascular	5 (3.5)	0 (0)
Hand therapy	4 (2.8)	8 (7.3)
Amputee	3 (2.1)	8 (7.3)
Rheumatology and immunology	14 (9.7)	5 (4.6)
Dermatology	2 (1.4)	6 (5.5)

* Results are mean (standard deviation). BMI, body mass index.

Table 2 Comparison of pelvic floor dysfunctions, anxiety, depression, and quality of life scores between women and men.

	Female *N* = 144	Male *N* = 109	*p* value*	95% CI
PFD symptoms, *n* (%)				
No PFD	59 (41)	79 (72.5)	<**0.001**	–
Presented 1 PFD	63 (43.7)	24 (22)		–
Presented 2 PFD	20 (13.9)	6 (5.5)		–
Presented 3 PFD	2 (1.4)	0 (0)		–
Urinary incontinence, *n* (%)				
No	104 (72.2)	94 (86.2)	**0.007**	–
Yes	40 (27.8)	15 (13.8)		–
Types of urinary incontinence				
Stress urinary incontinence, *n* (%)	8 (20)	2 (13.3)		–
Urgent urinary incontinence, *n* (%)	13 (32.5)	8 (53.3)		–
Mixed urinary incontinence, *n* (%)	19 (47.5)	5 (33.3)		–
Mean score *ICIQ-SF* (SD)	11.7 (5.4)	11 (6.1)	**0.69**	–
Functional constipation, *n* (%)				
No	108 (75)	98 (89.9)	**0.003**	–
Yes	36 (25)	11 (10.1)		–
Fecal incontinence, *n* (%)				
No	144 (100)	105 (96.3)	**0.02**	–
Yes	0 (0)	4 (3.7)		–
Median score *FIQL* (IQR)				
Lifestyle	–	38 (29, 39.5)		–
Behavior	–	30 (28.5, 33.2)		–
Depression	–	21 (26, 28.7)		–
Embarrassment	–	9 (9, 11)		–
Sexually active, *n* (%)			–	
No	100 (69.4)	46 (42.2)		–
Yes	44 (30.6)	63 (57.8)		–
Sexual dysfunction self-reported[a] *n* (%)				
Present	11 (25)	57 (90.5)		–
Absent	33 (75)[+]	6 (9.5)[++]		–
HADS score - Mean (±SD)				
Anxiety	8.7 (5.18)	6.5 (4.41)	<**0.001**[b]	(0.98, 3.36)
Depression	6.4 (4.81)	4.7 (3.35)	**0.001**[b]	(0.69, 2.71)
***SF-36* score - Mean (±SD)**				
Physical functioning	44.9 (29.03)	47.9 (29.07)	0.44	(−10.60, 4.59)
Role physical	19.5 (32.67)	20.9 (31.83)	0.74	(−9.42, 6.73)
Bodily pain	33.7 (21.46)	47.3 (29.02)	<**0.001**[b]	(−20.09, −7.06)
General health	64.01 (24.61)	69.3 (21.98)	0.07	(−11.22, 0.54)
Vitality	55.7 (25.33)	64.04 (21.64)	**0.005**[b]	(−14.20, −2.55)
Social functioning	61.5 (29.64)	61.01 (28.14)	0.88	(−6.71, 7.79)
Role emotional	53.01 (44.67)	56.2 (43.31)	0.57	(−14.23, 7.82)
Mental health	62.02 (24.86)	69.7 (20.93)	**0.008**[b]	(−13.38, −2.03)

SD, standard deviation; IQR, interquartile range; PFD, pelvic floor dysfunction (including urinary and fecal incontinence, constipation, and sexual dysfunction); ICIQ-SF, International Consultation on Incontinence Questionnaire Short-Form; FIQL, Fecal Incontinence Quality of life; HADS, Hospital Anxiety and Depression Scale; *SF-36*, Quality of life scale; 95% CI, 95% confidence interval.

[*] Chi-squared test.

[a] The data were analyzed considering 100% the report of the participants with that symptom.

[b] Student *t*-test with different variances,.

[+] Data extracted from the Female Sexual Function Index questionnaire.

[++] Data extracted from the male version sexual quotient.

Discussion

This study established the prevalence of pelvic floor dysfunctions, anxiety, and depression and determined the QoL in patients receiving physical therapy treatment in a Rehabilitation Center. Additionally, it investigated the correlation between symptoms of pelvic floor dysfunctions and anxiety, depression, and QoL, including functionality in these patients. The results showed a high prevalence of pelvic floor dysfunctions symptoms in patients attending a

Table 3 Correlation between pelvic floor dysfunction, psychological aspects, and quality of life.

		Female *N* = *144*		Male *N* = *109*	
Score		*ICIQ-SF*	FSFI[a]	*ICIQ-SF*	M-SQ[b]
HADS					
Anxiety	***r***	**0.18***	−0.21	**0.19***	−0.04
	p	**0.03**	0.17	**0.04**	0.78
Depression	***r***	**0.23***	**−0.31***	−0.03	−0.13
	p	**0.005**	**0.04**	0.76	0.29
SF-36					
Physical functioning	***r***	**−0.32***	0.16	−0.06	0.09
	p	**<0.001**	0.31	0.53	0.49
Role physical	***r***	−0.07	0.02	−0.05	−0.15
	p	0.38	0.90	0.59	0.25
Bodily pain	***r***	−0.16	−0.18	−0.09	0.15
	p	0.06	0.25	0.31	0.25
General health	***r***	**−0.22***	0.19	−0.16	0.21
	p	**0.008**	0.21	0.10	0.10
Vitality	***r***	**−0.29***	0.14	−0.02	0.11
	p	**<0.001**	0.36	0.85	0.39
Social functioning	***r***	**−0.23***	0.08	0.07	0.17
	p	**0.006**	0.62	0.45	0.18
Role emotional	***r***	**−0.19***	0.09	0.03	0.14
	p	**0.02**	0.56	0.72	0.27
Mental health	***r***	**−0.24***	0.12	−0.12	0.09
	p	**0.004**	0.43	0.22	0.45

r = Pearson's correlation coefficient test value.
ICIQ-SF, International Consultation on Incontinence Questionnaire Short-Form; FSFI, Female Sexual Function Index; HADS, Hospital Anxiety and Depression Scale; *SF-36*, Quality of life scale.
* Statistical significance $p \leq 0.05$.
[a] *n*=44 women;.
[b] *n*=63 sexually active men.

Table 4 Factors influencing pelvic floor dysfunctions of 144 female and 109 male participants. Multivariate analysis.

Variable	Odds ratio	95% CI
Sex		
Female	3.38	**(1.91, 5.99)***
Male	Reference	–
Age range		
<40 years	Reference	–
40–60 years	1.58	(0.76, 3.29)
>60 years	2.58	**(1.24, 5.37)***
Marital status		
With partner	1.82	**(1.04, 3.17)***
Without partner	Reference	–
Anxiety[a]		
Score <8	Reference	–
Score >8	2.03	**(1.14, 3.62)***
Physical functioning[b]		
Score <60	1.36	(0.76, 2.42)
Score >60	Reference	–

* Significance of the Likelihood Test $p \leq 0.05$.
[a] Domains of the Hospital anxiety and depression scale.
[b] Domains of the 36-item Short Form Health Survey questionnaire; 95% CI = 95% confidence interval.

Rehabilitation Center, especially functional constipation and female sexual dysfunctions, when compared with the prevalence for the general population reported in literature reviews.[3-6] All symptoms, except fecal incontinence, were more prevalent in female than in male participants. Similar data can be found in the literature,[7] with a prevalence rate of UI varying from 23% to 40% increasing according to age and with higher prevalence in women (28% - 49% in women vs 14% - 23% in men).[5,32] Our results indicated that being female, being over 60 years old, having a partner, and showing anxiety symptoms were risk factors for having at least one pelvic floor dysfunction in the assessed sample. Although no previous studies investigated a sample of patients undergoing rehabilitation in different physical therapy areas, these findings are in agreement with the literature.[3,7,33-35]

The prevalence of functional constipation in studies conducted in North America and Northern Europe is approximately 14% (95%CI: 12.0, 17.0%), being higher in women than in men.[33] However, in the present study, the prevalence found was slightly higher (19% reported constipation), but still more prevalent in female participants. Regarding fecal incontinence, contrary to the findings of the present study (prevalence for all participants of 1.6%

[female: 0% and male: 3.7%]), the systematic review by Ng et al. found a mean prevalence of fecal incontinence of 7.7%.[34] Factors strongly related to fecal incontinence[34] such as patient's age above 70 years old, presence of neurological diseases (stroke, Parkinson's disease), and metabolic disorders had a low rate in our sample, as most of the participants were derived from the orthopedics and traumatology sector.

An epidemiological literature review found that the prevalence of female sexual dysfunction can vary from 40% to 50% regardless of age, while it can vary between 17% and 80% for men, presenting a relationship with increasing age.[3] The reports of the present study showed a high prevalence of 75% of self-reported sexual dysfunction by female and 9.5% by male participants. These findings may be related to cultural aspects and methodological limitations of the study, as male participants could have had difficulties reporting sexual dysfunction and UI symptoms. The literature demonstrates that pelvic floor dysfunctions can be multifactorial and interactive, and in one of four patients seeking treatment for a specific pelvic floor dysfunction, a possible interaction between one dysfunction and another can be identified.[35] This supports the findings of our study where 45.4% of participants reported at least one symptom of pelvic floor dysfunction and one of four participants (11.1%) reported having more than one dysfunction.

Anxiety had a higher prevalence in both sexes compared to depression, but female participants had a higher prevalence of anxiety than the males. Anxiety was weakly correlated with UI severity in both sexes, depression was also weakly correlated with UI severity and sexual dysfunction only in female participants. The literature has also found a weak correlation between female sexual function and reports of depression according to HADS.[36] Other studies confirmed that these psychological disorders are risk factors that increase the prevalence or worsen the symptoms of pelvic floor dysfunctions.[3,7] In our study it was not possible to analyze the association of psychological aspects with the fecal incontinence score due to the low number of patients reporting this symptom.

The mean QoL score (SF-36) was worse in females compared to male participants in bodily pain, vitality, and mental health domains. Additionally, a weak correlation was found between UI and general QoL in females, showing the higher the severity of UI, the greater the physical functioning limitations, role physical and mental health, poor general health perception, and changes in vitality. The study conducted by Xu et al.[9] found a moderate correlation between the severity of UI symptoms evaluated by ICIQ-SF and the QoL assessed by t*he Incontinence Quality-of-Life* (I-QOL). It is important to highlight that both tools used in the previous study were classified as A or A+ instruments by the 7th ICI for assessing QoL for lower urinary tract symptoms, possibly justifying the similarity in the correlation found.[37]

In contrast to another study[15] we found no correlation between sexual function and general QoL, however QoL can be impacted by several factors such as age,[38] and the degree of bother related to sexual dysfunction might not appear in a heterogeneous sample like this one. The lack of correlation between general QoL with UI and sexual dysfunction may be due to the variability in the participants' reason for attending the physical therapy sessions or whether the participant was at the beginning or end of treatment before we collected the present research data.[39-41] These factors were not analyzed in this study.

The results of the present study reinforce the importance of all physical therapists routinely questioning their patients in rehabilitation about pelvic floor dysfunction symptoms. Therefore, the results of the current study were reported to the Rehabilitation Center where this study was conducted, with a proposal for interprofessional training and a referral system.[42] New studies are needed to further explore the relationship of pelvic floor dysfunctions with aspects of QoL and especially patient's functionality, with a larger sample to investigate possible associations by categorizing UI severity and sexual dysfunctions with psychological aspects and activities patients undertake.

This study has limitations. Although the questionnaires used to assess pelvic floor dysfunction symptoms were designed to be self-administered, interviews were undertaken by different trained assistant researchers if the patient chose this option. This could generate a bias on data as participants could feel uncomfortable and reveal the symptoms being addressed, possibly resulting in an underestimated prevalence. However, we opted to have researchers available to read the questionnaires because of the low socioeconomic level of the patients. Another limitation is that data collection was conducted in the waiting room of the Rehabilitation Center. Despite efforts to conduct the interviews in a quieter place, this environment and the nature of the questions might have to some degree influenced the responses of the participants. An indication that the participants' embarrassment might have influenced to some extent the results is the fact that there was no report of fecal incontinence by female participants, which differs from the prevalence reported in the literature ranging from 2% to 20%.[43]

Conclusion

A high prevalence of functional constipation and female sexual dysfunction was found among patients undergoing physical therapy in this Rehabilitation Center. Females were more likely to report UI, functional constipation, sexual dysfunction, anxiety, depression, and low QoL than the males. A relationship was found between symptoms of anxiety with UI in female and male participants, and symptoms of depression with female UI and sexual dysfunction. UI was weakly correlated to physical functionality, general health perception, vitality, mental health, social functioning, and emotional role in females. Regarding the possible risk factors, individuals with anxiety and a partner were more likely to have pelvic floor dysfunction. The elderly were more likely to have pelvic floor dysfunction than other age groups. There is a strong need to provide visibility on the high prevalence of pelvic floor dysfunction in individuals being treated in rehabilitation centers. Additionally, it seems relevant to promote knowledge about the impact of pelvic floor dysfunctions on patients' functionality, enabling different physical therapy specialties to quickly identify the symptoms, give general advice, and refer patients to receive adequate treatment.

Conflicts of interest

The authors declare no conflict of interest.

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