BrJP. São Paulo, 2021 jan-mar;4(1):43-50

ORIGINAL ARTICLE

Factors related to self-rated quality of life among women with fibromyalgia according to International Classification of Functioning

Fatores relacionados a qualidade de vida autorrelatada em mulheres com fibromialgia de acordo com a Classificação Internacional de Funcionalidade

Cristiane Vitaliano Graminha[1], Juliana Martins Pinto[1], Shamyr Sulyvan de Castro[2], Maria Cristina Cortez Carneiro Meirelles[1], Isabel Aparecida Porcatti de Walsh[1]

DOI 10.5935/2595-0118.20210006

ABSTRACT

BACKGROUND AND OBJECTIVES: Fibromyalgia is characterized by diffuse pain, which may compromise the self-rated quality of life (SRQoL). Little is known about the influence of psychosocial and environmental factors on SRQoL in women with fibromyalgia. The objective was to investigate factors related to SRQol among women with fibromyalgia, according to International Classification of Functioning domain.

METHODS: A cross-sectional population-based study was performed with 1,557 women. Those who self-reported fibromyalgia answered the Fibromyalgia Impact Index. SRQoL was evaluated by questions ranging from 1 (unsatisfied) to 3 (very satisfied). Exposures included personal and environmental factors distributed in four blocks according to hypothesized influence on outcome. Multiple linear regression was performed, considering 95% of confidence interval, using IBM SPSS version 24.

RESULTS: Income sufficiency was related to higher SRQoL in model 1. Physical environment was related to SRQoL in model 2, 3 and 4. Functional capacity measurement was related to SRQoL in model 4. In the final model, only depressive symptoms (ß:-0.374; CI: -0.037/ -0.004) and number of painful body areas (ß: 0.204; CI: -0.102/-0.001) remained significantly related to SRQoL, explaining 27% of the variance.

CONCLUSION: SRQoL was related to depressive symptoms and number of painful body areas even after controlled by socioeconomic, environment and health status. However, other aspects may mediate or moderate that outcome, deserving attention in a biopsychosocial approach. The results highlighted the relevance of biopsychosocial aspects on quality of life of women with fibromyalgia, addressing factors that could be approached in clinical practice to promote health and well-being.

Keywords: Chronic pain, Depression, Health surveys, Musculoskeletal diseases, Public health.

RESUMO

JUSTIFICATIVA E OBJETIVOS: Fibromialgia é caracterizada por dor difusa, que pode comprometer a qualidade de vida autorrelatada (QVAR). Sabe-se pouco sobre a influência de fatores psicossociais e ambientais na QVAR em mulheres com fibromialgia. O objetivo deste estudo foi investigar fatores relacionados à QVAR entre mulheres com fibromialgia, segundo o domínio da Classificação Internacional de Funcionalidade.

MÉTODOS: Estudo transversal de base populacional realizado com 1.557 mulheres. Aquelas que se autorrelataram com fibromialgia responderam ao Índice de Impacto da Fibromialgia (n=115). A QVAR foi avaliada por questões que variavam de 1 (insatisfeita) a 3 (muito satisfeita). As exposições incluíram fatores pessoais e ambientais distribuídos em quatro blocos de acordo com a influência hipotética no desfecho. Foi realizada regressão linear múltipla, considerando 95% do intervalo de confiança, utilizando-se a versão 24 do IBM SPSS.

RESULTADOS: Suficiência de renda foi relacionada à maior QVAR no modelo 1. Ambiente físico estava relacionado à QVAR nos modelos 2, 3 e 4. Medição da capacidade funcional esteve relacionada à QVAR no modelo 4. Apenas sintomas depressivos (ß:-0,374; IC: -0,037/ -0,004) e número de áreas corporais dolorosas (ß: 0,204; IC: -0,102/-0,001) mantiveram-se significativamente relacionado à QVAR, explicando 27% da variância.

CONCLUSÃO: QVAR esteve relacionada a sintomas depressivos e número de áreas corporais dolorosas mesmo depois de controlada por condição socioeconômica, ambiental e saúde. Outros aspectos podem mediar esse desfecho, merecendo atenção na abordagem biopsicossocial. Os resultados destacaram relevância dos aspectos biopsicossociais na qualidade de vida das mulheres com fibromialgia, recorrendo a fatores que poderiam ser abordados na prática clínica para promover saúde e bem-estar.

Descritores: Depressão, Doenças musculoesqueléticas, Dor crônica, Inquéritos epidemiológicos, Saúde pública.

Cristiane Vitaliano Graminha – https://orcid.org/0000-0002-7013-2688;
Juliana Martins Pinto – https://orcid.org/0000-0003-2617-3308;
Shamyr Sulyvan de Castro – https://orcid.org/0000-0002-2661-7899;
Maria Cristina Cortez Carneiro Meirelles – https://orcid.org/0000-0002-4427-9563;
Isabel Aparecida Porcatti de Walsh – https://orcid.org/0000-0002-2317-1326.

1. Federal University of the Triângulo Mineiro, Department of Applied Physiotherapy, Uberaba, MG, Brazil.
2. Federal University of Ceará, Department of Physiotherapy, Fortaleza, CE, Brazil.

Submitted on August 26, 2020.
Accepted for publication on December 17, 2020.
Conflict of interests: none – Sponsoring sources: This work was supported by Research Support Foundation of State of Minas Gerais (FAPEMIG) APQ – 01825 - 12

Correspondence to:
Cristiane Vitaliano Graminha
Rua Santa Beatriz da Silva Ave, 111, Ap. 102
38020-233 Uberaba, MG, Brasil.
E-mail: crisgraminha@yahoo.com.br/cristiane.graminha@uftm.edu.br

INTRODUCTION

Fibromyalgia (FM) is a complex rheumatic syndrome, which affects predominantly women, characterized by chronic and diffuse pain, presence of points sensible to palpation (tender points) at predetermined anatomical sites, and associated symptoms such as anxiety, depression, sleep and mood issues, fatigue, paresthesia and cognitive problems[1,2]. Worldwide prevalence ranges between 0.2 and 6.6%[3], estimated in Brazil in 2.5%[4].

The syndrome involves physical and psychological symptoms and is frequently associated with multimorbidity, leading to restriction of social activities and relations[5,6]. Depression is the main mental condition that affects people with FM, contributing to worsen pain symptoms. Authors[6] showed that 50% of people with FM have depressive symptoms, 33% with moderate to severe symptoms. People with FM who have severe depressive symptoms report increased pain and fatigue intensity, poorer sleep quality, greater overall severity of the disease and a greater impairment of the emotional aspects of health-related quality of life (HRQL) than people with FM with mild depressive symptoms[7,8].

Recent studies have found relationships between physical environment and disability[9-13]. Socioeconomic condition and neighborhood characteristics seemed to impact functioning and quality of life (QoL) regardless of individual characteristics[9,10]. As for the physical environment, characteristics such as social connectivity, sidewalk and street quality and house accessibility were negatively associated with disability[11,12]. Therefore, the worse the environmental conditions, the greater the level of disabilities[13].

QoL is recognized as a construct that summarizes the personal satisfaction with several life domains reflecting the impact of objective conditions on perceived functioning[14,15]. This self-perception is influenced by individual and social expectations, as well as cultural and socioeconomic aspects[15]. Such body of evidence calls for the need of a biopsychosocial approach of people with FM, investigating a broader range of aspects that may inform physicians and positively impact QoL of those people. The World Health Organization proposed in The International Classification of Functioning, Disability and Health (ICF) that human functioning is a multicausal phenomena determined by the interaction between aspects comprising the following domains: body function, activity limitation, participation restriction, personal factors and environment. To provide a comprehensive understanding of SRQoL, the present study operationalized the independent variables (exposure) according to the respective domain of ICF.

The objective of this study was to investigate factors related to self-rated QoL among women with FM, according to the ICF domain.

METHODS

The Women's Health Survey is a cross-sectional population-based study performed in 2014 and 2015 to investigate health conditions among women living in Uberaba, Minas Gerais, Brazil. A representative sample of 1.557 women aged 18 or over, who understood the content of the survey and signed the Free and Informed Consent Term (FICT), was interviewed at their home. Participants who failed to understand the research objective or did not agree to commit to the research protocol were excluded. The sampling process was stratified by clusters to be representative for the study population. The probabilistic sampling was carried out in two stages, firstly by census tracts and then by houses, according to recommendations of the Brazilian Institute of Geography and Statistics (IBGE). For the final calculation of the sample, a 50% prevalence estimate, a 95% confidence level, a maximum error of 0.10 and a drawing effect of approximately 2 were considered. The minimum sample size for the study was approximately 400 participants. However, in order to maximize the representativeness of sample, 1,557 women were randomly selected and interviewed.

Home interviews were conducted by female interviewers, specially trained for this study and coordinated by the technical support team.

Data collection was arranged in structured questionnaires elaborated by the researchers who coordinate this project and instruments translated and validated for the Brazilian population. The first part of the research protocol evaluated sociodemographic and economic conditions, chronic self-reported diseases, QoL, eating habits, musculoskeletal symptoms, physical activity, depressive symptoms and common mental disorder. From the answers obtained, the participants were invited to respond to specific instruments according to their reported conditions, for example, QoL in urinary incontinence, climacteric women's health, work capacity and impact of FM.

In order to answer research questions built for this study, a sub-sample composed by 115 participants who self-reported FM and answered the Fibromyalgia Impact Questionnaire (FIQ) was selected. Variables and instruments selected to analyses are described below.

Self-rated quality of life (SRQoL) was evaluated through one question adapted from The World Health Organization Quality of Life (WHOQOL-brief), an instrument validated to Brazilian people[15]: "how do you evaluate your quality of life?", to which participants answered: very badly or bad (zero), neither bad nor good (1), good or very good (2). Scores ranged from zero to 2, the greater, the better QoL.

Personal aspects included age, partnership, schooling, and sufficiency of income. All variables were obtained by self-report. Age and schooling were considered as quantitative variables, both in years; partnership was derived from marital status report which was grouped in "having a partner" and "not having a partner"; sufficiency of income was evaluated through the question "do you have enough money to meet your needs?" Participants' answers were categorized in ''nothing or very little", ''average" and ''very or completely".

Environment aspects were indicated by satisfaction with social support and satisfaction with physical environment, both questions from The WHOQOL-brief[15]. The questions were: "How satisfied are you with the support you get from people?" and "How satisfied are you with the conditions of the place where you live?" Answers were categorized in ''very unsatisfied or unsatisfied", ''neither satisfied nor unsatisfied" and ''satisfied or very satisfied".

Participation restriction was indicated by satisfaction with social relations and satisfaction with leisure opportunities, which were evaluated by the questions: "how satisfied are you with your social relationships?", being the answer options ''very unsatisfied or unsatisfied", ''neither satisfied nor unsatisfied" and ''satisfied or very satisfied"; and "to what extent do you have opportunities for leisure activities?", to which answer options were ''nothing or very little", ''average" and ''very or completely".

Limitations for daily activities were evaluated by the FIQ[16] which comprises questions about disability to perform daily activities such as shopping, laundering, cooking, housekeeping, walking for many blocks, visiting relatives and friends, gardening and transportation. Furthermore, the instrument contains other questions about how pain, fatigue, sadness and stress have impacted their work and daily life. Scoring was performed according to the recommendations of American Association of Rheumatology[17]. The FIQ score shows a maximum of 100 that represents the greatest possible impact of the disease on the participant's QoL, but attention should be directed to the calculation of this value, since each item of the questionnaire should be analyzed separately. The first item, which corresponds to functional capacity, consists of the 10 questions, whose answers vary from zero to 3, and, by summing the answers, a maximum score of 30 can be obtained (R1). Item 2, related to feeling good, presents a score (R2) inversely proportional to the result marked, that is, if the patient indicated answer 7, their score would be zero or if they indicated zero, they would receive a score of 7. Item 3 presents a question about absences to work and was noted (R3) directly related to the response indicated, that is, 7 = 7 and zero = zero. Items 4 to 10 present visual scales that were scored according to distance in centimeters displayed between the icons from left to right, and can display values (R4 – R10) from zero to 10 cm. To calculate the final score, the values obtained with the previous calculations in the following formula: (R1/3) + (R2x1.43) + (R3x1.43) + (£ R4-R10) were substituted[16]. This formula was used to compute the individual scores of the subjects from the study.

Body dysfunctions included number of painful body areas, depressive symptoms, satisfaction with sleep, body mass index (BMI) and number of drugs taken. Number of painful areas was evaluated asking them whether they feel pain in the neck, shoulders, thoracic spine, elbows, lumbar spine, wrists and hands, hips and thighs, knees, ankles and feet. Then, the number of painful areas was calculated for each participant. Depressive symptoms were assessed by the Center for Epidemiologic Studies Depression Scale (CES-D), adapted and validated for Brazilian people, with 20 items regarding frequency of negative feelings, ranging from ''rarely" (zero) to ''mostly" (3). The greater score means the more depressive symptoms[18,19]. Satisfaction with sleep was evaluated by the question "How satisfied are you with sleep?", being the answers very unsatisfied or unsatisfied (zero), neither satisfied nor unsatisfied (1) and satisfied or very satisfied (2). The BMI was defined as the body mass divided by the square of the body height, expressed in units of kg/m^2. Number of drugs taken was obtained by self-report.

The research project was approved by the Research Ethics Committee of the Federal University of the Triângulo Mineiro, under the number 1826.

Statistical analysis

Means, median and percentages were calculated to describe the characteristics of the sample. Given the data distribution, a non-parametric test was performed to verify bivariate associations and correlations of independent variables with SRQoL. To compare the median of life quality between groups the Mann-Whitney and Kruskal-Wallis tests were used; for quantitative variables the Spearman's Correlation test was used. The multivariate model was tested through linear regression in five blocks based on ICF domains. They were: model 1 – personal factors; model 2 – personal factors and environment factors, social, support and physical environment; model 3 – personal factors, environment factors and participation restrictions, social relations and leisure opportunities; model 4 – personal factors, environment factors, participation restrictions and activity limitation, fibromyalgia impact; model 5 – personal factors, environment factors, participation restrictions, activity limitations and body dysfunctions. Significance level adopted was 5% and confidence interval 95%. Data were analyzed in the IBM SPSS 24 for Windows.

RESULTS

Mean age was 56.45±11.45 years, and schooling 8.72±4.98 years; 62.3% had a partner and approximately half (47%) of the participants stated that income was insufficient to meet the needs. Regarding environmental factors, 30.5% reported low satisfaction with social support and 42.6% reported low satisfaction with physical environment. Regarding the indicators of restriction of social participation, 72.1% presented low satisfaction with leisure opportunities and 29.5% with social relations. The mean score of the FM impact in daily life activities was 59.12±23.10.

Regarding the body dysfunctions indicators, the sample was characterized by consuming, on average, approximately three drugs, with a high average of depressive symptoms 21.16±13.67), BMI of 29.32±5.4 and a mean of painful body areas of 4.31±3.09. In addition, more than half of the sample was classified as having low sleep satisfaction (57.4%) (Table 1).

Table 2 shows results from the associations and correlations tests used to bivariate comparisons of exposure and SRQoL, which showed significant and low correlation between QoL and schooling ($p=0.002$), FM impact ($p<0.001$), number of drugs ($p=0.042$) and number of painful body areas ($p<0.001$) while moderate correlation was observed for depressive symptoms ($p<0.001$). Further associations were with income ($p=0.005$), social support ($p<0.001$), physical environment ($p=0.002$), leisure opportunities ($p=0.047$) and sleep satisfaction ($p=0.036$).

The mean of QoL was lower among those classified with dissatisfaction with income, social support, physical environment, lei-

Table 1. Characteristics of the sample

		F (%)	M (SD)	Md (IR)
Personal factors	Age (n=115)		56.45 (11.45)	56 (16)
	Partnership (n=114)			
	Not having a partner	43 (37.7)		
	Having a partner	71 (62.3)		
	Schooling (n=109)		8.72 (4.98)	8 (8)
	Sufficiency of income (n=115)			
	Nothing	54 (47)		
	Average	39 (33.9)		
	Very	22 (19.1)		
Environment factors	Satisfaction with social support (n=115)			
	Unsatisfied	11 (9.6)		
	Neither satisfied nor dissatisfied	24 (20.9)		
	Satisfied	80 (69.6)		
	Satisfaction with physical environment (n=115)			
	Unsatisfied	19 (16.5)		
	Neither satisfied nor dissatisfied	30 (26.1)		
	Satisfied	66 (57.4)		
Participation restriction	Satisfaction with leisure opportunities (n=115)			
	Unsatisfied	55 (47.8)		
	Neither satisfied nor dissatisfied	28 (24.3)		
	Satisfied	49 (42.6)		
	Satisfaction with social relations (n=115)			
	Unsatisfied	12 (10.4)		
	Neither satisfied nor dissatisfied	22 (19.1)		
	Satisfied	81 (70.4)		
Activity limitation	FIQ (n=115)		59.12 (23.10)	65.12 (34)
Body dysfunction	Number of painful body areas (n=107)		4.31 (3.09)	4 (5)
	Depressive symptoms (n=113)		21.16 (13.67)	20 (21)
	Satisfaction with sleep (n=112)			
	Unsatisfied	42 (36.5)		
	Neither satisfied nor dissatisfied	24 (20.9)		
	Satisfied	49 (42.6)		
	BMI (n=112)		29.32 (5.74)	28.94 (24.75)
	Number of drugs (n=115)		2.92 (2.12)	3 (4)
How do you evaluate your quality of life? (n=115)			1.32 (0.76)	1.50 (1)

F = Frequency; M = mean; SD = standard deviation; Md = median; IQR = interquartile range; FIQ = Fibromyalgia Impact Questionnaire; BMI = Body Mass Index.

sure opportunities and sleep. Likewise, the lower the mean of life quality, the greater were the means of FM impact, the number of drugs, the depressive symptoms, and the number of painful body areas. The higher the years of schooling, the greater was QoL (Table 2).

The multivariate analysis allowed understanding the influence of the exposures on SRQoL, according to the functioning domains (ICF). According to the results, income sufficiency was related to higher SRQoL among the personal factors (model 1). After the inclusion of the environmental domain (model 2), physical environment was an important predictor of SRQoL, a relation which was maintained in model 3, when variables of the participation domain were included. In model 4, the functional capacity measurement was included, which proved to be a predictor of SRQoL, together with satisfaction with the physical environment. However, in the final model (model 5), after inclusion of indicators of body dysfunctions, only depressive symptoms and number of painful body areas remained significant related to SR-QoL in women with FM (Table 3).

The final model explained 27% of the variance of SRQoL.

Table 2. Distribution of means, median and Spearman's Correlation Coefficient of quality of life evaluation, according to independent variables

	SCC	M (SD)	Md (IQR)	p-value
Age	0.033			0.729
Partnership				0.382
Not having a partner		1.23 (0.78)	1 (2)	
Having a partner		1.37 (0.72)	2 (2)	
Schooling (years)	0.292			0.002
Sufficiency of income				0.005
Insufficient		1.11 (0.71)	1 (2)	
Average		1.44 (0.75)	2 (2)	
Sufficient		1.64 (0.65)	2 (2)	
Satisfaction with social support				0.001
Dissatisfied		0.91 (0.94)	1 (2)	
Neither satisfied nor dissatisfied		0.96 (0.62)	1 (2)	
Satisfied		1.49 (0.69)	2 (2)	
Satisfaction with physical environment				0.002
Dissatisfied		0.95 (0.78)	1 (2)	
Neither satisfied nor dissatisfied		1.10 (0.75)	1 (2)	
Satisfied		1.53 (0.66)	2 (2)	
Satisfaction with social relations				<0.001
Dissatisfied		0.67 (0.77)	0.5 (2)	
Neither satisfied nor dissatisfied		1.05 (0.72)	1 (2)	
Satisfied		1.49 (0.67)	2 (2)	
Satisfaction with leisure opportunities				0.047
Dissatisfied		1.16 (0.73)	1 (2)	
Neither satisfied nor dissatisfied		1.39 (0.73)	2 (2)	
Satisfied		1.53 (0.71)	2 (2)	
FIQ	-0.366			<0.001
Number of drugs	-0.190			0.042
Depressive symptoms	-0.531			<0.001
BMI	-0.025			0.792
Number of painful body areas	-0.394			<0.001
Satisfaction with sleep				0.036
Dissatisfied		1.17 (0.82)	1 (2)	
Neither satisfied nor dissatisfied		1.17 (0.70)	1 (2)	
Satisfied		1.53 (0.64)	2 (2)	

SCC = Spearman's Correlation Coefficient; M = mean; SD = standard deviation; Md = median; IQR = interquartile range; FIQ = Fibromyalgia Impact Questionnaire; BMI = Body Mass Index.

Table 3. Linear regression using enter method

	Model 1 β (CI)	Model 2 β (CI)	Model 3 β (CI)	Model 4 β (CI)	Model 5 β (CI)
Age	0.112 (-0.008-0.023)	0.077 (-0.010-0.021)	0.060 (-0.011-0.019)	0.050 (-0.012-0.018)	0.035 (-0.013-0.018)
Partnership	0.073 (-0.206-0.437)	0.000 (-0.311-0.312)	-0.008 (-0.329-0.303)	-0.023 (-0.346-0.274)	-0.004 (-0.309-0.297)
Schooling	0.166 (-0.058-0.331)	0.105 (-0.108-0.280)	0.086 (-0.125-0.267)	0.096 (-0.113-0.270)	0.055 (-0.144-0.235)
Sufficiency of income	0.217 (0.004-0.425) *	0.136 (-0.070-0.340)	0.106 (-0.116-0.326)	0.064 (-0.156-0.282)	-0.026 (-0.242-0.190)

Continue...

Table 3. Linear regression using enter method – continuation

	Model 1	Model 2	Model 3	Model 4	Model 5
	β (CI)	β (CI)	β (CI)	β (CI)	β (CI)
S. social support		0.168 (-0.040-0.423)	0.095 (-0.149-0.365)	0.058 (-0.187-0.320)	0.034 (-0.211-0.288)
S. physical environment		0.292 (0.096-0.486) *	0.251 (0.050-0.451)*	0.237 (0.039-0.433) *	0.148 (-0.059-0.353)
S. social relations			0.174 (-0.059-0.458)	0.143 (-0.091-0.419)	0.050 (-0.205-0.320)
S. leisure opportunities			0.055 (-0.142-0.240)	-0.018 (-0.211-0.180)	-0.024 (-0.218-0.176)
FIQ				-0.242 (-0.015-0.001) *	-0.078 (-0.010-0.005)
Number of drugs					0.052 (-0.062-0.100)
Depressive symptoms					-0.374 (-0.037—0.004) *
BMI					0.008 (-0.024-0.026)
Number of painful body area					-0.204 (-0.102—0.001) *
Satisfaction with sleep					-0.049 (-0.255-0.141)

BMI = Body Mass Index; FIQ = Fibromyalgia Impact Questionnaire. β = Standardized coefficient; CI = Confidence interval.
Model 1 – personal factors; model 2 – personal factors and environment factors; model 3 – personal factors, environment factors and participation restrictions; model 4 – personal factors, environment factors, participation restrictions and activity limitation; model 5 – personal factors, environment factors, participation restrictions, activity limitations and body dysfunctions.

DISCUSSION

The study aimed at identifying factors related to SRQoL of women with FM based on ICF domain which allowed an overview of aspects that determine well-being in this population beyond physical health problems and symptoms. This approach contributes to an integrative health management addressed to prevent functional decline and promote health and QoL among people with FM.

The literature characterizes FM as a multidimensional and multifactorial condition requiring a broader approach given its associations with sleepiness, pain, drugs, depressive symptoms, lack of social support, lower schooling level and social vulnerability[7,20-22]. The present study's findings support those data and add some insights and further contributions.

Using ICF domain to group different exposures according to their level of influence on SRQoL allowed maximizing the understanding of the role of several aspects beyond body dysfunction which are strongly investigated and have well known influence. This strategy meets the recent movement of researchers who have been studying chronic pain from a multidimensional perspective. They are embodying and approaching emotional, cognitive, behavioral and social aspects in their research and clinical practice. In this context, the present results include FM as a health condition that has potential to be managed whether those aspects were considered.

Other strength of this study was analyzing exposure variables in blocks. This strategy allowed to identify significant relationships that are covered when all independent variables are entered together. Also, it's possible to observe the changes in significance when variables are being entered in the model. From this analysis was possible to identify the stronger predictor and the potential mediators or moderators. In the present study, the final model showed depressive symptoms and number of painful body areas as the stronger predictors of SRQol, however, in the previous models, physical environment and functional capacity were related to SRQoL. This may suggest that these aspects have a mediator or moderator role on the relationships between depressive symptoms, pain and SRQoL.

Some sample characteristics deserve attention and discussion. The mean age of 56.4 years was higher compared to others studies whose mean age ranged from 47 to 52 years[22]. Schooling level was 8.7 years, which is lower than of the findings of study[22], which found a mean of around 11 years. BMI mean was 29.3, higher than other findings which range from 22 to 27[6,22]. FIQ mean score agreed with findings of the study[22], which was 59, however, it differed from other authors who found a mean around 64[7,20]. The depressive symptoms mean score was 21.16 points which is higher than means found among people with other rheumatic diseases, for instance, systemic lupus erythematosus (mean 18.3)[23].

Although bivariate results showed all exposure related to SRQoL except age, partnership and BMI, such variables were kept in the model in the multivariate analysis in order to control the effect of other predictors. Income sufficiency is a relevant aspect related to SRQoL among other personal aspects such as age, schooling level and partnership. Indeed, economic and social status are closely related to health status, functionality and, consequently, QoL, because it allows greater health services and information access and use of community resources that support healthier behaviors. Authors[13] performed a systematic review of literature and discussed the influence of physical/built and socioeconomic neighborhood aspects on disability. The influence of the socioeconomic characteristics of the neighborhood is explained by the fact that they are restricted to house, with fewer amenities and services options that provide interaction and social support, and this contributes to the loss of functional autonomy. In addition, areas with greater social deprivation also reflect a smaller social network, contributing to greater social restriction. Conditions of poverty and social vulnerability can be precursors to precarious working conditions, such as low levels of schooling, which limit the access and information needed to perform more complex activities and maintain health. This context is recognized to increase the vulnerability to chronic and disabling diseases[24].

The literature dedicated to studying the influence of physical environment on health status is re-emergent. According to study[25], human functioning is a result of the personal competence and environment press; therefore, as people grow older and become less physically able, the environment implies more barriers to the functioning. People living with pain, fatigue and depression may be more sensitive to the environment barriers than others. They tend to avoid challenging environments and are more physically and socially restrict to their homes which contributes to health and functional decline. Better street characteristics, such as greater connectivity between them and even sidewalks, tend to influence the mobility and level of physical activity contributing to health promotion and postponement of disabilities[26]. In addition, the lack of accessibility in public places affects individuals directly with reduced mobility which can aggravate the levels of limitations and restrictions on social participation[27]. Healthy environments tend to offer common spaces and greater social interaction among residents of the same place[28]. Evidence suggests that paved streets increase the sense of security in the place, avoiding the isolation, and consequently, its negative impacts on functionality[29]. Those assertions probably explain the relevance of physical and social environment aspects in SRQoL of people with chronic pain condition, such as FM.

This study allowed identifying that environment conditions and activities limitations have influence on SRQoL when body functions were not entered. When body dysfunctions were included, the final model shows that the better predictors of QoL were depressive symptoms and number of painful body areas. Those findings corroborate the literature whose data have shown the prevalence and the impact of these symptoms in people's life. 71% of people with FM reported moderate and severe depressive symptoms. Furthermore, depressed people reported greater pain intensity than those not depressed[7]. Corroborating these findings, the incidence rate of depressive disorders in patients with rheumatoid arthritis was 11.2 per 1000 person-year against 5.1 in people without rheumatoid arthritis[30]. Besides, the impact of FM in daily life activities was related to depressive symptoms in findings from study[22], which suggests that limitations in daily activities can be a mediator of impact between body dysfunctions and QoL in people with FM. Additionally, age differences may play a role in the incidence and prevalence of depression among people with rheumatic diseases[30], which requires more investigations.

The present findings should be interpreted considering some limitations. The Women's Health Survey was not designed to study FM specifically, but to be a secondary source of data for its investigation. FM was indicated by self-report from the participants, not by physical evaluation as recommended to its diagnosis. Probably, the prevalence of FM was overestimated because participants tend to associate body pain to this condition. Nevertheless, the proportion of women with FM in the sample study was like the population, which is around 6%. Secondly, self-rated conditions regarding to environment and leisure opportunities may be underestimated because people tend to be satisfied even when there are real limitations and restrictions in the environment. In this sense, future studies should approach environment characteristics objectively in order to better estimate its impact on SRQoL.

These findings highlighted the relevance of depression and pain approach in women with FM in order to promote better QoL. In addition, the potential impact of socioeconomic and environmental aspects was noted, highlighting the necessity of a biopsychosocial approach of people with FM.

CONCLUSION

SRQoL of women with FM is influenced by depressive symptoms and the number of painful body areas. However, attention should also be drawn to income, physical environment and the impact of FM in daily activities. These are modifiable aspects to be approached by physicians in clinical practice and public health managers aiming to promote health and quality of life for this population.

ACKNOWLEDGMENTS

To thank the participants and students involved in the data collection, without which this study would not have been possible

AUTHORS' CONTRIBUTIONS

Cristiane Vitaliano Graminha
Conceptualization, Writing - Preparation of the original, Writing - Review and Editing.
Juliana Martins Pinto
Statistical analysis, Writing - Preparation of the original, Writing - Reviewing and Editing.
Shamyr Sulyvan de Castro
Funding aquisition, Resource management, Project management, Methodology, Writing - Review and Editing.

Maria Cristina Cortez Carneiro Meirelles
Funding aquisition, Data collection, Resource management, Project management, Methodology, Writing - Review and Editing.
Isabel Porcatti de Walsh
Funding aquisition, Data collection, Resource management, Project management, Methodology, Writing - Review and Editing.

REFERENCES

1. Wolfe F, Smythe HA, Yunus MB, Bennett RM, Bombardier C, Goldenberg DL, et al. The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. Report of the multicenter criteria committee. Arthritis Rheum. 1990;33(2):160-72.
2. Wolfe F, Clauw DJ, Fitzcharles MA. The American College of Rheumatology preliminary diagnostic criteria for fibromyalgia and measurement of symptom severity. Arthritis Care Res (Hoboken). 2010;62(5):600-10.
3. Marques AP, Santo ASDE, Berssaneti, AA, Matsutani LA, Yuan SLK**.** Prevalence of fibromyalgia: literature review update. Rev Bras Reumatol Engl Ed. 2017;57(4):356-63.
4. Senna ER, De Barros AL, Silva EO, Costa IF, Pereira LV, Ciconelli RM, et al. Prevalence of rheumatic disease in Brazil: a study using the COPCORD approach. J Rheumatol. 2014;31(3):594-7.
5. Provenza JR, Pollak DF, Martinez JE, Paiva ES, Helfenstein M, Heymann R, et al. Fibromialgia. Rev Bras Reumatol. 2004;44(6):443-9.
6. Santos AMB, Assumpção A, Matsutani LA, Pereira CAB, Lage LV, Marques AP. Depressão e qualidade de vida em pacientes com fibromialgia. Rev Bras Fisioter. 2006;10(3):317-24.
7. Soriano-Maldonado A, Amris K, Ortega FB, Segura-Jiménez V, Estévez-López F, Álvarez-Gallardo IC, et al. Association of different levels of depressive symptoms with symptomatology, overall disease severity, and quality of life in women with fibromyalgia. Qual Life Res. 2015;24(12):2951-7.
8. Bradley LA, McKendree-Smith NL. Central nervous system mechanisms of pain in fibromyalgia and other musculoskeletal disorders: behavioral and psychologic treatment approaches. Curr Opin Rheumatol. 2002;14(1):45-51.
9. Clarke PJ. The role of the built environment and assistive devices for outdoor mobility in later life. J Gerontol B Psychol Sci Soc Sci. 2014;69(Suppl 1):S8-15.
10. Hand CL, Howrey BT. Associations among neighborhood characteristics, mobility limitation, and social participation in late life. J Gerontol B Psychol Sci Soc Sci. 2019;74(3):546-55.
11. Rosso, AL, Tabb LP, Grubesic TH, Taylor JA, Michael YL. Neighborhood social capital and achieved mobility of older adults. J Aging Health. 2014;26(8):1301-19.
12. Vafaei A, Pickett W, Zunzunegui MV, Alvarado BE. Neighbourhood social and built environment factors and falls in community-dwelling Canadian older adults: a validation study and exploration of structural confounding. SSM Popul Health. 2016;2:468-75.
13. Danielewicz AL, Anjos JC, Bastos JL, Boing AC, Boing AF. Association between socioeconomic and physical/built neighborhoods and disability: a systematic review. Prev Med. 2017;99:118-27.
14. Stucki G, Kostanjsek N, Ustün B, Cieza A. ICF-based classification and measurement of functioning. Eur J Phys Rehabil Med. 2008;44(3):315-28.
15. Fleck MP, Louzada S, Xavier M, Chachamovich E, Vieira G, Santos L, et al. Application of the Portuguese version of the abbreviated instrument of quality life WHOQOL-bref. Rev Saude Publica. 2000;34(2):178-83.
16. Marques AP, Santos AMB, Assumpção A, Matsutani LA, Lage LV, Pereira CAB. Validation of the Brazilian version of the Fibromyalgia Impact Questionnaire (FIQ). Rev Bras Reumatol. 2006;46(1):24-31.
17. American College of Rheumatology. Empowering Rheumatology Professionals. Available from: https://www.rheumatology.org.
18. Radloff LS. The CED-D scale: A self-report depression scale for research in the general population. Appl Psychol Measurement. 1977;1(3):385-401.
19. Batistoni SST, Neri AL, Cupertino AP. Validity and reliability of the Brazilian version of the Center for Epidemiological Scale - Depression (CES-D) in Brazilian elderly. Psico-USF. 2010;15(1):13-22.
20. Linares MCU, Ruiz-Pérez I, Pérez MJB, Labry-Lima AO, Hernández-Torres E, Plazaola-Castaño J. Analysis of the impact of fibromyalgia on quality of life: associated factors. Clin Rheumatol. 2008;27(5):613-9.
21. Salaffi F, Sarzi-Puttini P, Girolimetti R, Atzeni F, Gasparini S, Grassi W. Health-related quality of life in fibromyalgia patients: a comparison with rheumatoid arthritis patients and the general population using the SF-36 health survey. Clin Exp Rheumatol. 2009;27(5, Suppl 56):S67-74.
22. Lee JW, Lee KE, Park DJ, Kim SH, Nah SS, Lee JH, et al. Determinants of quality of life in patients with fibromyalgia: a structural equation modeling approach. PLoS One. 2017;12(2):e0171186.
23. Julian LJ, Gregorich SE, Tonner C, Yazdany J, Trupin L, Criswell LA, et al. Using the center for epidemiologic studies depression scale to screen for depression in systemic lupus erythematosus. Arthritis Care Res (Hoboken). 2011;63(6):884-90.
24. Louvison MCP, Lebrão ML, Duarte YAO, Santos JLF, Malik AM, Almeida ES. Inequalities in access to health care services and utilization for the elderly in São Paulo, Brazil. Rev Saude Publica. 2008;42(4):733-40.
25. Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist. 1969;9(3):179-86.
26. Arango CM, Páez DC, Reis RS, Brownson RC, Parra DC. Association between the perceived environment and physical activity among adults in Latin America: a systematic review. Int J Behav Nutr Phys Act. 2013;10:122.
27. Satariano WA, Kealey M, Hubbard A, Kurtovich E, Ivey SL, Bayles CM, et al. Mobility disability in older adults: at the intersection of people and places. Gerontologist. 2016;56(3):525-34.
28. Leyden KM. Social capital and the built environment: the importance of walkable neighborhoods. Am J Public Health. 2003;93(9):1546-51.
29. Cohen DA, Inagami S, Finch B. The built environment and collective efficacy. Health Place. 2008;14(2):198-208.
30. Matcham F, Rayner L, Steer S, Hotopf M. The prevalence of depression in rheumatoid arthritis: a systematic review and meta-analysis. Rheumatology. 2013;52(12):2136-48.