

To walk or not to walk: insights from a qualitative description study with women suffering from fibromyalgia

Yolanda Sanz-Baños¹ · María-Ángeles Pastor¹ · Lilian Velasco² · Sofía López-Roig¹ · Cecilia Peñacoba² · Ana Lledo¹ · Charo Rodríguez³

Received: 13 December 2015 / Accepted: 2 March 2016
© Springer-Verlag Berlin Heidelberg 2016

Abstract Walking improves health outcomes in fibromyalgia; however, there is low adherence to this practice. The aim of this research was to explore the beliefs of women suffering from fibromyalgia toward walking, and the meaning that they attribute to the behavior of walking as part of their fibromyalgia treatment. This study is a qualitative description research. Forty-six (46) women suffering from fibromyalgia and associated with local fibromyalgia associations located in four different Spanish cities (Elche, Alicante, Madrid, and Talavera de la Reina) participated in focus group discussions in the summer 2012. Thematic content analysis was performed in transcribed verbatim from interviews. Participants perceived several inhibitors for walking even when they had positive beliefs toward its therapeutic value. Whereas participants believed that walking can generate improvement in their disease and their health in general, they did not feel able to actually do so given their many physical impediments. Furthermore, participants struggled with social isolation and stigma, which was lessened through the conscious support of family. Advice from family doctors was also a very important

facilitator to participants. In a health care delivery context that favors person-centered care, and in order to foster adherence to walking-based fibromyalgia treatments, it is recommended that therapeutic walking programs be tailored to each woman's individual circumstances, and developed in close collaboration with them to help them increase control over their health and their condition.

Keywords Behavior management in rheumatic diseases · Patient perspective · Fibromyalgia · Walking · Qualitative description · Primary health care

Introduction

Fibromyalgia is a health disorder characterized by generalized and diffused musculoskeletal pain lasting more than 3 months and associated, among other symptoms, with fatigue, sleeping disorders, anxiety and depression [1]. It is a rather common condition as its worldwide average prevalence is estimated 2.7 % in the general population, with a greater prevalence in women (4.1 %) than in men (1.4 %) [2]. Fibromyalgia affects many aspects of daily life and has serious personal and social implications [3, 4].

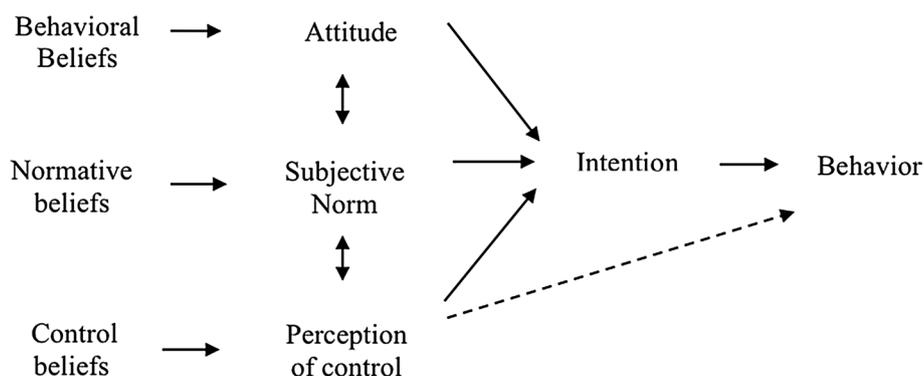
Though the treatment for fibromyalgia is still controversial, current evidence strongly suggests that the most effective intervention combines physical exercise, pharmacological treatment, and cognitive-behavioral therapy [5]. More specifically, it has been demonstrated that physical exercise is highly beneficial in (1) the management of pain; (2) the reduction in stiffness, fatigue, and depression; and (3) the adoption by patients of a more positive attitude toward the disease [6–8]. Walking, in particular, is a moderate-intensity exercise easily adaptable to any personal situation [9]

✉ María-Ángeles Pastor
mapastor@umh.es

¹ Department of Health Psychology, Miguel Hernández University, Ctra. Alicante-Valencia, km. 8.7, 03550 Alicante, Spain

² Department of Medicine and Surgery, Psychology, Preventive Medicine and Public Health and Medical Microbiology and Immunology, Faculty of Health Sciences, King Juan Carlos University, Av Atenas, S/N, 28922 Alcorcón, Madrid, Spain

³ Department of Family Medicine, Faculty of Medicine, McGill University, 5858, chemin de la Côte-des-Neiges, 3rd Floor, Montreal, QC, Canada

Fig. 1 Theory of planned behavior

and with corroborated positive health outcomes in patients suffering from this disorder [10].

However, patients with fibromyalgia have a low adherence to available therapeutic interventions [11–14], including walking [15–18]. Some authors have explored the beliefs and attitudes of patients suffering from chronic pain toward physical activity [19], but the literature is remarkably silent in regard to the reasons behind the decision to walk or not to walk of patients with fibromyalgia. Our aim in this study was to fill this knowledge gap in order to ultimately improve therapeutic interventions and increase adherence to walking as a foundation of these interventions in patients suffering from fibromyalgia. More specifically, we stated the questions that guided this investigation as follows: (1) What are the beliefs that women suffering from fibromyalgia have toward walking in relation to their health condition? (2) What meaning do they attribute to the behavior of walking as part of their fibromyalgia treatment?

Theoretical framework

We decided to focus on examining the beliefs of patients as this psychological construct represents the deepest level of cognition involved in understanding and explaining individual behavioral changes. Congruently, we adopted the theory of planned behavior by Fishbein and Ajzen [20] (henceforth TPB) as a theoretical framework in this study. TPB states that beliefs, which refer to the perceptions people have about performing a particular action, are the starting point to changing behavior. Interestingly, TPB has already been used to predict intentions and actions of people with respect to walking [21–23].

Fishbein and Ajzen [20] identify three types of beliefs underlying any human behavior, namely behavioral, normative, and control beliefs. In the context of this study, behavioral beliefs correspond to the attitude of patients toward walking following their positive or negative evaluation of the expected consequences thereof; normative beliefs refer to perceived social pressure, i.e., to the perception of patients of what others want them to do and to their

motivation to meet those expectations; and control beliefs relate to walking facilitators and inhibitors perceived by patients along with the assessment of power of each control belief to inhibit or facilitate the performance of the behavior. These intermediate constructs give shape to the intention of patients to walk, which is the proxy determinant of the action to walk. The perception of control that patients have can also directly influence how they behave. It is also important to note that, according to TPB, relevant beliefs are those most easily accessible and salient to the subject. Therefore, identifying and understanding *salient beliefs* of patients will be necessary in order to improve interventions and better affect their *intention* and *behavior* of walking (see Fig. 1).

Methods

Study design

This is a qualitative description study [24] conducted in the summer of 2012 as part of the first phase of a larger experimental research program aimed to increase treatment adherence in women with fibromyalgia. The study was approved by the ethical board of the Miguel Hernández University, Elche, Spain (DPS-MPM-001-11).

Participants

We identified a sample of participants through the joint use of probabilistic and purposive sampling techniques [25]. First, following a convenience sampling strategy, women from four Spanish fibromyalgia associations located in four different urban settings (Elche: AFEFE, Alicante: ADEFA; Madrid: AFIBROM; Talavera de la Reina: AFIBROTAR) were targeted ($N = 2438$). Then, we determined that, to be eligible, women had to have received a diagnosis of fibromyalgia (this is compulsory to get membership). The diagnosis criteria were those recommended by the Spanish Ministry of Health by the time of the recruitment of

participants, which follow the 1990 guidelines of the American College of Rheumatology [26, 27]. Also, they had to have between 18 and 70 years old, to not practice walking as a form of exercise, and to present no comorbidities preventing them from walking ($n = 582$) [28]. We defined the risk α as 5 % and the study power as 80 %. The minimum magnitude of the expected effect (in relation to the effect on control group, of the above-mentioned experimental study) was 10 % for experimental group 1 and 30 % for experimental group 2, which is equal to 345 participants. We added a 30 % dropout rate as a reasonable calculation, which resulted in a sample size of 449 women with fibromyalgia.

Taking TPB criteria into account, the recommended number of participants for a pilot study of this type is between 25 [29, 30] and 30 people [20]; as our selected sample belonged to four different associations, we then randomly selected 10 participants from three of these associations and 20 from the largest one ($n = 50$). Each of these 50 women, who respected the study selection criteria and came from the aforementioned pool of 449 women, was contacted by mail or phone and invited to participate in the study.

Key informants

Ultimately, 46 participants (92 %) attended the focus group sessions in their respective fibromyalgia associations where fieldwork was conducted in June and July of 2012. These women were mainly middle-aged (54.2 years; $SD = 8.9$). They experienced symptoms for an average of 17.10 years ($SD = 12.90$), and the diagnosis was made 9.69 years ago ($SD = 6.82$). Most of them were married or living with a partner (79.52 %), 6.8 % were single, and 13.6 % were divorced. 27.3 % were working and 18.2 % were housewives. The 27.3 % were unemployed. The rest were retired (9.1 %; due to pain 11.4 %) or temporary sick leave (6.8 %). Participants had, at least, primary (43.2 %) or secondary studies (29.5 %); only 13.6 % had university studies or had basic education (read and write) (11.4 %).

Data collection and analysis

Focus groups were undertaken immediately after women completed a 10-item questionnaire that allowed us to conduct an *elicitation study* whose results have been published elsewhere [28, 31]. As our objective was to go further in the description and understanding of the beliefs of the participants toward walking, the questions included in the semi-structured group interview guidelines mirrored the open-ended items included in the questionnaire (see Table 1).

Five focus groups were moderated by the second (MAPM) and fifth (CP) authors with experience conducting

focus groups, they did it with the assistance of the first (YSB) and fourth (LV) authors taking notes. Groups of discussion were composed of 8–10 participants (AFEFE: 10; ADEFA: 9; AFIBROM1: 10; AFIBROM2: 9; AFIBROTAR: 8) and lasted 1 h on average. With the permission of participants, they were recorded with tape recorder and then it was transcribed verbatim. Qualitative data were analyzed following a content thematic analysis [32] using QRS Nvivo 10 software. Sample characteristics were analyzed by IBM SPSS 21. Under the supervision of the last author (CR) with wide expertise in qualitative research, the first and third authors (YSB and LV) performed preliminary coding separately, and then met several times to discuss divergences and establish initial themes. Final themes and data interpretation resulted from several in-depth discussions among all co-authors. This manuscript constitutes part of the first author's (YS) doctoral dissertation. With regard to academic training, except the first, all authors are PhD; furthermore, SLR and CR are MD as well, and the rest are psychologists. All the authors contribute to their expert theoretical support and significantly contributed to the writing of this manuscript and approved the last version of the paper.

Results

From the hybrid semantic thematic analysis achieved, we found four overarching themes related to what women with fibromyalgia think of walking as a treatment for their disease. Of these themes, three were deductively set out according to the three types of beliefs involved in TPB, i.e., behavioral, normative, and control beliefs about walking; the fourth, more inductive, we labeled psychosocial repercussions of living with fibromyalgia.

Behavioral beliefs

Women with fibromyalgia participating in the study disclosed several perceptions of both the negative and positive consequences of walking. Participants who complained about walking were unable to contemplate any positive aspect to this behavior, and only regarded the impossibility of walking: "Walking does not help fibromyalgia, that is, it is not beneficial as, I do not know... Maybe, for instance, to me I see more benefits lying in bed than walking." These women reported experiencing physical discomfort (e.g., suffocation, heat, dizziness, strain, and swelling) as well as cognitive and emotional discomfort when walking, which discouraged them from walking in the future. They also explained that, in the past, fibromyalgia-related symptoms such fatigue and pain increased when walking: "I feel short of breath, and I do not suffer from a lung disease or

Table 1 Items about salient beliefs toward walking

Questionnaire	Semi-structured interview guidelines
<i>Behavioral beliefs</i>	
What advantages or positive consequences do you see to walking for at least 30 min, in bouts of 15 min, with a small rest between bouts, twice a week over a minimum of 6 consecutive weeks?	Regarding this particular behavior, what advantages are there in performing it?
What are the disadvantages or negative consequences?	What negative consequences might there be? What disadvantages?
Are there any further consequences that come to mind when you think of performing such behavior?	Are there any additional consequences that you think of?
<i>Normative beliefs</i>	
Which people or groups would approve of or would be in favor of you walking?	Who would be in favor of you performing this behavior?
What people or groups would disapprove or would be against you doing so?	Who would be against you doing so?
Is there any other person or group with whom you want to talk or consult if you're planning on walking within the parameters we have proposed?	What other people are important to you with respect to this particular behavior?
Please indicate which people or groups, if they had the same problem as you, would walk	Who else, if they were in the same situation as you, would perform this behavior?
Please indicate which people or groups, if they had the same problem as you, would not	Who would not, despite being in the same situation as you?
When you think of walking the way we are proposing it, make a list of people or groups who would guide you in this behavior	Is there any person or group that would serve to guide you in this particular behavior?
<i>Control beliefs</i>	
What things would make it easier or would help you to do so?	What other things, activities or any other factor would help or motivate you to perform this behavior?
What things would make it difficult or wouldn't help you to do so?	What things, aspects, difficulties, obligations, or activities, may make it difficult for you to perform this behavior?

anything, but I have to stop." Furthermore, participants talked about complications associated with walking, both physical (e.g., tendinitis, need of foot surgery) and cognitive (e.g., accentuation of bad memory or loss of concentration), which had a negative emotional impact on them, to the point of making them cry. For some women, walking caused immobility after exercise, which could last from a few hours to several days. Participants also mentioned that walking prevented them from performing tasks of daily life, as they had spent all their energy walking.

That being said, several women also expressed positive views on walking. Some women said that walking offered them the opportunity to move and improve their health condition in several ways: muscle strength and agility, better rest and increased pain relief, lower blood sugar and cholesterol levels, improved appetite, better breathing, and improved peripheral circulation. These participants considered that walking was a challenge as well, which therefore presented an opportunity for thriving: "I feel more comfortable with myself." What is more, improvements in self-esteem empowered these women to manage fibromyalgia more effectively: "I feel that I can face the disease." Another positive assessment of walking pertained to the fact that this behavior facilitates exposure to positive

stimuli, either social or environmental: sunbathing, breathing fresh air, seeing the landscape. In addition, walking was qualified a behavior that one can perform either with others or alone (see also Table 2).

Normative beliefs

Participants disclosed having important referents for walking. First of all, women stated that they respected the opinion of neighbors, acquaintances, and especially friends in regard to this behavior. Secondly, relatives—in particular husbands, partners, and children—were also cited as important people with respect to approving of and supporting participants in walking: "Basically, on this, my backing is my 22-year old daughter." Importantly, participants recognized that they greatly take into consideration the recommendations and support of health providers, especially family physicians: "My family doctor is... above all... all I could say is nothing compared to how important he is to me." Participants also reported that other people suffering from fibromyalgia were referents for walking as well. However, women did not always cite other people as supportive toward walking, and some participants stated that they had to encourage themselves (see also Table 3).

Table 2 Behavioral beliefs

Subthemes	Quotations
Complaints about the behavior	For me walking has no advantages
Physical, cognitive, and emotional discomfort	And then, above all, exhaustion, tiredness, fatigue. When I get home, I do not feel like doing anything, I have to go to rest... As happens to my colleagues... knee pain, foot pain, low back pain and a lot of hip pain... If I did not feel lousy after walking, it would be great for me...
Overload consequences	Walking is great because it seems that you are rusty and when you start you feel like the battery is being super-charged For me, the disadvantage is the great effort you make, because, really, it is always an effort...
Improved physical condition, symptoms, and health	Because it helps us to not be stiff, to not stand there... and you will become increasingly stiff, in a heap As you start walking you start to heat up the muscles and it is like removing the pain To lose weight, because there are people who have a tendency to gain weight with this disease
Self-esteem and well-being	You're distracted, you're talking, besides I have to go with someone else, but if I have to go alone, I really do not want to go out. But then, you are talking, you are distracted and I feel like I forget about the pain, the fatigue and all The first [advantage] is that I go out, I have that time for myself

Table 3 Normative beliefs

Subthemes	Quotations
Environment	A friend of mine, yes she would do that... if she were in the same situation as me, yes ...a neighbor who is very sporty
Family	My husband is always encouraging me to walk ...on vacation, a sister and a brother. And they support me, they cheer me up to come out to walk
Health professionals	My doctor supports me and tells me: "You have to go out, also for your Chondromalacia patella, even 10 min but you have to walk" My psychologist supports me in that, too... Doctors from Pain Relief Unit where I have been going for many years, advise me to walk
People with fibromyalgia	People like us who have the same disease My friend, who also has fibromyalgia
Myself	No, I think I would do it by myself. Only I approve of it

Control beliefs

Participants in the study reported several facilitators and inhibitors to walking. Internal motivation to accomplish the behavior of walking as part of their treatment for fibromyalgia was one of the facilitators that emerged from group discussions: "It is very difficult for me to walk, but tell myself to do it, and I have to go." In contrast, when participants did not feel such internal motivation, for example when they reported feeling lazy or an overwhelming sense of obligation, walking was much harder to do. Also, the specific walking program proposed was itself perceived by some as an inhibitor, e.g., the need to accomplish the walking time recommended, or the scheduled rests that

could prevent them resuming their walk. The feeling of being unskilled at walking was an additional inhibitor, as well as the presence of pain and fatigue: "And when I arrive at home at 15:00, I arrive broken, shattered, exhausted... Physically, I am not a person; and mentally, not much... Whereupon, who is able to walk?" Women also attributed associated physical impairments such as spinal problems and other comorbidities to their inability to walk. Moreover, they claimed having less ability to walk if they did not take their prescribed medication.

For most participants, it was necessary to feel well and balanced to be able to walk ("...because if you are in good mood, you cheer yourself but if you are not, even if you say 'this is holy glory'..."). In the same vein, they

Table 4 Control beliefs

Subthemes	Quotations
Adherence to a fixed program	And the fact of having the obligation to go out and walk also causes me some anxiety and distress and makes me feel bad For me it is better to rest because at some point my feet do not respond It is more difficult to start over again
Low self-efficacy	...thinking you will not be able to do certain things, because you are unable to, with what you are; then you also create stress for yourself In general, I think that the group does not feel like that, like we can not walk...
Physical and emotional problems	Things that can beat me down, of course, pain can beat me down, of course. That is undeniable It is that you can not do it... unless, of course, you take the medication again and in fact, I am already saturated with so much medication, really...
Daily responsibilities	Well I think mood is very important for this, because if you do not feel in the mood at that time... I have my parents, who are older, who are sick, I always have to go see them. You have to go home and you have your housework to do With a disease like this and to have to work or even take care of family... it's impossible! Sure walking is great, of course, it is great doing some therapy... Extraordinary! But can we? Being retired. That would give you more time and you can already say: "I will now dedicate myself to me and do these things that this lady is doing"
Environmental support	If I have someone to push me, it is easier for me I'd like to be understood by society, not to be seen like a strange person, that your children and your relatives be well-informed I prefer to go alone, because sometimes I do not feel like talking
Ideal circumstances for walking	For me... wearing a pair of good shoes for walking The foothold it is very important I can not stand slopes That the weather is good...

considered that it was very difficult to make the decision to walk if they had cognitive or mood problems, such as those resulting from a family dispute. Likewise, poor management of stress could hinder walking: "For me, organizing the day is stressful... I am already stressed in the morning." Poor management of time was also an inhibitor to walk, and some women declared that they would walk if they had more time to themselves, for example by being retired.

Whereas the accomplishment of domestic tasks was reported as a walking inhibitor, the specific task of taking the dog out was viewed as a facilitator. Participants asserted that feeling supported by the family and walking in their company was uplifting. On the other hand, some women reported that they preferred walking alone: "I find more motivation in that moment of solitude..." Accessory elements such as carrying a backpack or crutches were considered walking inhibitors, while wearing comfortable clothes, leaning on a cane, or listening to music on headphones were viewed as facilitators. Finally, location and weather were also important considerations: places with stairs or inclines as well as and rainy, windy, very sunny or very cold days being considered inhibitors (see also Table 4).

Psychosocial repercussions of living with fibromyalgia

Under this overarching theme, we regrouped ideas of women other than beliefs that could have an influence on their decision to walk or not to walk, which mainly concerned their being in their situated contexts (see also Table 5). In this regard, participants talked about the misunderstanding they felt from others, as well as their inability to work because of the disease. They were particularly concerned about the social isolation caused by their condition: "Thus, this entails that you are shutting yourself in your own world... you are giving up meeting people because, the truth is that not everyone understands the situation we are in." At the same time, participants brought up the need to think of themselves as a means of better managing their condition: "What happens is that if I am tired, I am now dedicating to me. I was dedicated to everybody before. Now, I am dedicated to me... to my disease." Finally, the support given to the participants by their respective fibromyalgia association was also stressed:

"When a new member arrives, I say to her: 'To me, the best medicine given to me was to come to the association'. When I came, I first said 'I will not come

Table 5 Psychosocial repercussions of living with fibromyalgia

Subthemes	Quotations
Disease consequences	And there comes a time where if nobody will take away the pain, then I take it away myself somehow... I gained 15 kilos in 2 years I have been without medication many times in my life: pregnancy, delivery, postpartum, etc. Even sometimes voluntarily because sometimes the medication has more side-effects than benefits
Reassertion	... Because you overcome, if you learn, you are taking a different way, but you have to be a little selfish... First you and then you and then you I've taken my life like this: first Me and Me; because if not... learning to say "no" first, for me...
Other physical activity	To me, yoga brings me peace and, above all, stretching is great, stretching is great for me I go to the gym, that, you can't imagine how I throw body into it, that's like a weight we carry, but I push it
Association support	We support each other a lot. Until I met the association, I was isolated, alone and very depressed and as a result of knowing the association, seeing young people, people who have been there, experiencing people who have children, who have the same problems as me, I felt supported and this is the people who can encourage and help us, not only to walk, but in general...

anymore'. It gives you a shock. But when we are all equal, we understand each other... A new member comes and you throw yourself into her because she suffers what you have suffered".

Discussion

The present study aimed to describe and understand the beliefs toward walking as a treatment strategy for fibromyalgia. Physical pain and fatigue were the most important behavioral beliefs identified that, as emphasized by women during the discussions, would generate physical and psychological discomfort when walking. Moreover, women also anticipated exhaustion due to the effort involved in walking. Such a negative assessment of walking as a behavior may reflect what has been defined as the "fear of movement" that provokes behavior avoidance [33]. If women walked in the past, they anticipated immobility and the feeling of being overwhelmed, beliefs that would prevent the performance of future walking behavior. This result is consistent with current evidence that points to incorrect subsequent performance due to a "great demand" for behavior accomplishment [34, 35].

The third set of more prevalent behavioral beliefs toward walking was however positive, with women referring to "feeling better" and to improving health in general. During the discussions, participants further highlighted the advantages of walking such as pain relief, increased strength and mobility, improved appetite, weight loss, lower blood sugar and cholesterol levels, as well as increased independence, self-esteem, and well-being. These findings are aligned with those obtained in previous studies with people suffering from chronic musculoskeletal pain [36] and from fibromyalgia specifically [6, 37].

In regard to normative beliefs, the results of this study highlight the important influence of close family and social

environment on walking, with the interesting nuance that doctors and other health providers conveyed more injunctive beliefs as women perceived them as people who want them to walk but that would not necessarily do so themselves, whereas family and friends would (descriptive norm). Importantly, women being their own guide were a finding that emerged during the discussions, but was not identified in the survey study.

With respect to control beliefs, the study points out that the adherence to a fixed walking program works as a facilitator for some women [9] but as an inhibitor for others. This result suggests that in order to foster facilitator beliefs, it would be recommended to elaborate an individually tailored walking program adapted to each particular situation of each woman [8, 38].

Once the walking program is initiated, it is paramount to maintain women's adherence to it. It therefore appears necessary to decrease or eliminate the set of very frequent physical and psychological inhibitors identified by women participating in this study. Again, tailoring walking programs in close collaboration with women themselves would be one way to support their confidence and facilitate their feeling of control over the physical activity that they are performing [37, 39, 40]. In addition, this approach would help overcome the "lack of time" barrier as women would be able to plan events and better manage their time, thus increasing their ability to walk [4, 37, 41]. The fact that these women consider the recommendations of their family doctor to be especially important is also highly relevant. Clinicians should be aware and take advantage of this finding to help patients identify their facilitators and inhibitors through a more in-depth assessment with greater personalized communication.

As demonstrated in prior works [6, 17], companionship acts as an important facilitator to walking for women suffering from fibromyalgia. However, an important

contribution of this study is the revelation that “walking alone” may also be a facilitator for certain women for whom walking instantiates a desire for self-management [4] and is an opportunity to take some time for themselves by engaging in a pleasant activity [42].

Through the TPB lens, data gathered in this study emphasize the psychosocial repercussions of living with fibromyalgia that could also play a role in walking behavior of women. In this regard, isolation resulting from their disease, no longer is being able to carry out the same social activities as before the disease [4] was a common complaint among participants. They also reported that people, even loved ones, had a low awareness and understanding of the disease, and that they experienced social stigma due to their reduced functional capacity and weight gain [4]. The combination of all these negative perceptions made them feel misunderstood and as though they lacked credibility [4, 6]. In this context, participants perceived the need to take time for themselves and to make themselves a priority could be seen as a springboard for them to foster self-management [41], and in turn encourage walking behavior. Likewise, the psychosocial support that participants reported receiving from their fibromyalgia associations helped them overcome social isolation and stigma, and become more active in the self-management of their condition while decreasing health expenditures associated with overuse of medical care [6, 43].

As with any other empirical research, and despite its undeniable important contributions, this study presents a number of limitations. The number of participants included in the investigation was limited due to the fact that it was considered as a first phase of a larger experimental study, which is currently in progress. Also, even though sampling strategies were rigorous and congruent with the research design adopted, the need for these women to express the negative physical, emotional, and social consequences of their health condition could inflate the real experience of the symptoms. Moreover, the negativity and eagerness of participants to complain could also have been influenced by the group discussion situation. Finally, the fact that this study was conducted in Spain—with its specific social and cultural characteristics in terms of its health care delivery system and the organization of fibromyalgia associations by provinces—may also have influenced the results obtained.

In sum, even though some of the women with fibromyalgia participating in this study believed in the positive impact of walking, the majority of participants anticipated symptoms such as fatigue, pain, exhaustion, and discomfort from walking. These behavioral beliefs could generate what has been labeled the “fear of movement,” which ultimately prevents them from adhering to a fibromyalgia treatment based on the walking. Social support from family, friends, health providers, and fibromyalgia associations appeared as important driving forces for participants

to overcome the anticipated negative consequences, and a number of women even found that walking was an excellent opportunity for them to manage their health condition by themselves.

Our findings strongly suggest that physical and psychological inhibitors to walking would be diminished, and facilitators fostered, if walking programs, rather than being standardized, were instead tailored to each woman’s individual circumstances and developed in close collaboration with them, i.e., avoiding too general prescription “you should go walking” and specifying the plan of walking with them (when, how, and how much), which would support their intention to walk as a means of increasing their perceived control over their disease. The need to overcome social isolation and stigma, and the conscious support from family physicians and fibromyalgia associations, would further catalyze a more active role in the self-management of their condition.

Acknowledgments The authors are deeply grateful to the women suffering from fibromyalgia who accepted to participate in the study, as well as to their respective fibromyalgia associations for their extraordinary support throughout the entire research period.

Funding This study was financially supported by the Spanish Ministry of Economy and Competitiveness (Reference: PSI2011-25132).

Compliance with ethical standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical approval This article does not contain any studies with animals performed by any of the authors. All procedures performed in studies involving human participants were in accordance with the ethical standards of the Institutional and/or National Research Committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

References

1. Wolfe F, Smythe HA, Yunus MB, Bennett RM, Bombardier C, Goldenberg DL et al (1990) The American College of Rheumatology 1990 criteria for the classification of fibromyalgia. Report of the Multicenter Criteria Committee. *Arthritis Rheum* 33:160–172
2. Queiroz LP (2013) Worldwide epidemiology of fibromyalgia. *Curr Pain Headache Rep* 17:356
3. Kayo AH, Peccin MS, Sanches CM, Trevisani VF (2012) Effectiveness of physical activity in reducing pain in patients with fibromyalgia: a blinded randomized clinical trial. *Rheumatol Int* 32:2285–2292
4. Lempp HK, Hatch SL, Carville SF, Choy EH (2009) Patients’ experiences of living with and receiving treatment for fibromyalgia syndrome: a qualitative study. *BMC Musculoskelet Disord* 10:124

5. Häuser W, Thieme K, Turk DC (2010) Guidelines on the management of fibromyalgia syndrome—a systematic review. *Eur J Pain* 14:5–10
6. Beltrán-Carrillo VJ, Tortosa-Martínez J, Jennings G, Sánchez ES (2013) Contributions of a group-based exercise program for coping with fibromyalgia: a qualitative study giving voice to female patients. *Women Health* 53:612–629
7. Herring MP, Puetz TW, O'Connor PJ, Dishman RK (2012) Effect of exercise training on depressive symptoms among patients with a chronic illness: a systematic review and meta-analysis of randomized controlled trials. *Arch Intern Med* 172:101–111
8. Busch AJ, Webber SC, Brachaniec M, Bidonde J, Bello-Haas VD, Danyliw AD et al (2011) Exercise therapy for fibromyalgia. *Curr Pain Headache Rep* 15:358–367
9. Gusi N, Parraca, J, Adsuar J, Olivares P (2009) Ejercicio físico y fibromialgia [Physical exercise and Fibromyalgia]. In: Penacho A, Rivera J, Pastor MA, Gusi N (eds) *Guía de ejercicios físicos para personas con fibromialgia [Physical exercise guidelines for people with fibromyalgia]*. Asociación Divulgación Fibromialgia, Vitoria, pp 39–56
10. O'Connor SR, Tully MA, Ryan B, Bleakley CM, Baxter GD, Bradley JM et al (2015) Walking exercise for chronic musculoskeletal pain: systematic review and meta-analysis. *Arch Phys Med Rehabil* 96:724–734
11. Dobkin P, Sita A, Sewitch M (2006) Predictors of adherence to treatment in women with fibromyalgia. *Clin J Pain* 22:286–294
12. Dobkin PL, Abrahamowicz M, Fitzcharles MA, Dritsa M, da Costa D (2005) Maintenance of exercise in women with fibromyalgia. *Arthritis Rheum* 15(53):724–731
13. Dobkin PL, Da Costa D, Abrahamowicz M, Dritsa M, Du Berger R, Fitzcharles M-A et al (2006) Adherence during an individualized home based 12-week exercise program in women with fibromyalgia. *J Rheumatol* 33:333–341
14. Rivera J, Alegre C, Nishishinyac MB, Heredad CA (2006) Evidencias terapéuticas en fibromialgia [Therapeutic evidences in fibromyalgia]. *Reumatol Clin* 2(Supl 1):S34–S37
15. Schachter CL, Busch AJ, Peloso PM, Sheppard MS (2003) Effects of short versus long bouts of aerobic exercise in sedentary women with fibromyalgia: a randomized controlled trial. *Phys Ther* 83:340–358
16. Richards SC, Scott DL (2002) Prescribed exercise in people with fibromyalgia: parallel group randomised controlled trial. *Brit Med J* 325:1–4
17. Jones KD, Liptan GL (2009) Exercise interventions in fibromyalgia: clinical applications from the evidence. *Rheum Dis Clin North Am* 35:373–391
18. Meyer BB, Lemley KJ (2000) Utilizing exercise to affect the symptomology of fibromyalgia: a pilot study. *Med Sci Sports Exerc* 32:1691–1697
19. Damsgård E, Dewar A, Røe C, Hamran T (2011) Staying active despite pain: pain beliefs and experiences with activity-related pain in patients with chronic musculoskeletal pain. *Scand J Caring Sci* 25:108–116
20. Fishbein M, Ajzen I (2010) *Predicting and changing behavior: the reasoned action approach*. Psychology Press, New York
21. Darker CD, French DP, Eves FF, Sniehotta FF (2010) An intervention to promote walking amongst the general population based on an “extended” theory of planned behaviour: a waiting list randomised controlled trial. *Psychol Health* 25:71–88
22. Galea MN, Bray SR (2006) Predicting walking intentions and exercise in individuals with intermittent claudication: an application of the Theory of Planned Behavior. *Rehabil Psychol* 51:299–305
23. Rhodes RE, Brown SG, McIntyre CA (2006) Integrating the perceived neighborhood environment and the theory of planned behavior when predicting walking in a Canadian adult sample. *Am J Health Promot* 21:110–118
24. Sandelowski M (2000) Whatever happened to qualitative description? *Res Nurs Health* 23:334–340
25. Teddlie C, Yu F (2007) Mixed methods sampling: a typology with examples. *J Mix Methods Res* 1:77–100
26. Ministerio de Sanidad, Política Social e Igualdad: Fibromialgia. Madrid: Ministerio de Sanidad, Política Social e Igualdad; 2011. <https://www.msssi.gob.es/profesionales/prestacionesSanitarias/publicaciones/docs/fibromialgia.pdf>. Accessed 15 Feb 2016
27. Wolfe F, Smythe HA, Yunus MB, Bennett RM, Bombardier C, Goldenberg DL et al (1990) The American College of Rheumatology 1990 criteria for the classification of fibromyalgia: report of the Multicenter Criteria Committee. *Arthritis Rheum* 33:160–172
28. XXXX (2014) Combining motivational and volitional strategies to promote unsupervised walking in patients with fibromyalgia: study protocol for a randomized controlled trial. *Trials* 15:120
29. Francis J, Eccles M, Johnston M, Walker A, Grimshaw J, Foy R et al (2004) Constructing questionnaires based on the theory of planned behavior. In: *A manual for health services researchers*. Centre for Health Services Research. University of Newcastle
30. Godin G, Kok G (1996) The theory of planned behavior: a review of its applications to health-related behaviours. *Am J Health Promot* 11:87–98
31. XXXX (2015) Walking as physical exercise in fibromyalgia: an elicitation study from the Theory of Planned Behavior. *Anales de Psicología* 31:433–46
32. Braun V, Clarke V (2006) Using thematic analysis in psychology. *Qual Res Psychol* 3:77–101
33. Vlaeyen JW, Linton SJ (2000) Fear-avoidance and its consequences in chronic musculoskeletal pain: a state of the art. *Pain* 85:317–332
34. Hallberg LR, Bergman S (2011) Minimizing the dysfunctional interplay between activity and recovery: a grounded theory on living with fibromyalgia. *Int J Qual Stud Health Well Being*. doi:10.3402/qhw.v6i2.7057
35. Palstam A, Gard G, Mannerkorpi K (2013) Factors promoting sustainable work in women with fibromyalgia. *Disabil Rehabil* 35:1622–1629
36. Damsgård E, Dewar A, Røe C, Hamran T (2011) Staying active despite pain: pain beliefs and experiences with activity-related pain in patients with chronic musculoskeletal pain. *Scand J Caring Sci* 25:108–116
37. Juuso P, Skär L, Olsson M, Söderberg S (2013) Living with a double burden: meanings of pain for women with fibromyalgia. *Int J Qual Stud Health Well Being* 34:694–706
38. Sañudo B, Galiano D, Carrasco L, de Hoyo M (2010) Evidencias para la prescripción de ejercicio físico en pacientes con fibromialgia [Evidences for physical exercise prescription in patients with fibromyalgia]. *Revista Andaluza de Medicina del Deporte* 3:159–169
39. Cedraschi C, Girard E, Luthy C, Kossovsky M, Desmeules J, Allaz AF (2013) Primary attributions in women suffering fibromyalgia emphasize the perception of a disruptive onset for a long-lasting pain problem. *J Psychosom Res* 74:265–269
40. Oliver K, Cronan T (2002) Predictors of exercise behaviors among fibromyalgia patients. *Prev Med* 35(4):383–389
41. Arnold LM, Crofford LJ, Mease PJ, Burgess SM, Palmer SC, Abetz L et al (2008) Patient perspectives on the impact of fibromyalgia. *Patient Educ Couns* 73:114–120
42. Darker CD, Larkin M, French DP (2007) An exploration of walking behaviour—an interpretative phenomenological approach. *Soc Sci Med* 65:2172–2183
43. Rivera J, Rejas J, Esteve-Vives J, Vallejo MA, the ICAF Group (2009) Resource utilization and health care costs in patients diagnosed with fibromyalgia in Spain. *Clin Exp Rheumatol* 27(5 Suppl 56):S39–S45