Pain education to women with fibromyalgia using the *DolorÔmetro* game

Educação em dor de mulheres portadoras de fibromialgia com o jogo DolorÔmetro

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ABSTRACT

BACKGROUND AND OBJECTIVES: Doubts and questions about the general aspects of pain, maladaptive beliefs, knowledge about pain neurophysiology, and its impact on exercise are common in fibromyalgia patients. This study aimed to evaluate the knowledge about pain in women with fibromyalgia through the *DolorÔmetro* game.

METHODS: A quasi-experimental study with a qualitative and quantitative approach. Twenty women with a clinical diagnosis of fibromyalgia and aged 18 to 60 years were evaluated. The patients answered two questions at the beginning and end of the game. The intervention consisted of the use of 9 cards from the six domains of the game *DolorÔmetro* to motivate discussions about the theme.

RESULTS: The sample had a mean age of 50.6±9.6 years and a diagnostic time of 6.5±4.6 years. The number of hits and errors in each domain was observed. In the "acceptance" domain, four errors were found in statement 1 and twelve in statement 2. In the "attitudes" domain, only two in statement 4 and one in statement 8. In the "kinesiophobia" domain, all errors were only in statement 2. In the "knowledge" domain, nineteen women missed statement 3. In the "anxiety" domain, fifteen women missed statement 1. Finally, in the "catastrophic" domain, ten women missed statement 2.

CONCLUSION: Conducting an education in pain, lasting in one hour in a single moment, contributed to the participants expressing their doubts and previous questions and after the moment of education, however doubts persisted in the domains of acceptance, kinesiophobia, knowledge and anxiety.

Keywords: Chronic pain, Fibromyalgia, Health education, Physiotherapy, Rheumatology.

RESUMO

JUSTIFICATIVA E OBJETIVOS: As dúvidas e questionamentos sobre os aspectos gerais da dor, crenças mal adaptativas, conhecimento sobre neurofisiologia da dor e seu impacto na realização de exercícios são comuns nas pacientes com fibromialgia. O objetivo deste estudo foi avaliar o conhecimento sobre dor em mulheres com fibromialgia, por meio do jogo DolorÔmetro.

MÉTODOS: Estudo quase-experimental com abordagem quali-quantitativa. Foram avaliadas 20 mulheres com diagnóstico clínico de fibromialgia com idade de 18 a 60 anos. As pacientes responderam duas perguntas no momento inicial e final do jogo. A intervenção consistiu no uso de 9 cartas a partir dos 6 domínios aceitação, atitudes, cinesiofobia, conhecimento, ansiedade e catastrofismo, do jogo DolorÔmetro para motivar as discussões sobre a temática.

RESULTADOS: A média de idade foi 50,6±9,6 anos e o tempo diagnóstico de 6,5±4,6 anos. Foi avaliado o número de acertos e erros de cada domínio. No domínio "aceitação" foram 4 erros na afirmação 1 e 12 erros na afirmação 2. No domínio "atitudes", 2 na afirmação 4 e 1 na afirmação 8. No domínio "cinesiofobia", nenhum acerto na afirmação 2. No domínio "conhecimento", 19 erraram a afirmação 3. No domínio "ansiedade", 15 erraram a afirmação 1. No domínio "catastrofismo" 10 erraram a afirmação 2.

CONCLUSÃO: Realizar educação em dor, com duração de uma hora em único momento, contribuiu para as participantes expressarem suas dúvidas e questionamentos prévios e após o momento de educação, porém persistiram dúvidas referentes aos domínios aceitação, cinesiofobia, conhecimento e ansiedade.

Descritores: Dor crônica, Educação em saúde, Fibromialgia, Fisioterapia, Reumatologia.

INTRODUCTION

Education on pain neurophysiology is a strategy that teaches the biological process of pain and its relationship with central sensitization[1-3] in patients with chronic musculoskeletal pain such as fibromyalgia (FM), which can influence the poorly adaptive and negative cognitions related to pain, reducing it and improving movement behavior and performance[1,4].

FM treatment is interdisciplinary, combining pharmacological and non-pharmacological treatments[5], such as aerobic exercise[5], resistance exercise[6], cognitive-behavioral therapy[7], drugs[8], as well as pain

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education[2]. The latter produces changes in the therapist-patient relationship, where the patient becomes the protagonist in the therapeutic process, which is why socio-educational interventions are recommended by international guidelines in the treatment of FM[9]. Educational games are tools that contribute to the learning process and building knowledge and can be used as an intervention tool for pain education[10]. The *DolorÔmetro* game is a board game that uses cards of six domains developed from the most used scales and questionnaires for pain assessment, suitable for the approach to pain education of women participating in the dance project[11,12], due to constant questions and concerns about the general aspects of pain and its impact on the performance of the exercises. This study aimed to assess the knowledge about pain in women with FM, using the *DolorÔmetro* game.

METHODS

A quasi-experimental study with a qualitative and quantitative approach. Twenty women diagnosed with FM, aged 18 to 60 years, were selected according to the classification criteria of the American College of Rheumatology[13]. The exclusion criteria were refusal to participate and not answering all questions.

Pain education was conducted in the group activities room at the Physiotherapy School Clinic of a public university. The education session lasted one hour, held in a single moment during the dance extension project.

The pain education activity used the DolorÔmetro game, whose Portuguese version can be accessed through the *link* https://drive.google.com/drive/folders/1gnxEn7FbDZ1U4Ik7wuH0U5K-1NoNqYEg7. The game consists of six domains: acceptance, attitudes, anxiety, kinesiophobia, knowledge, and catastrophizing, with answer cards that have specific scores, and a board. Only the answer cards were used, disregarding the score and the board. From the domains, nine answer cards were selected for convenience, which were considered "true" or "false" by the participants. Then, the answers were quantified, and the pain education activity started.

In order to know the women's opinion before starting the game, with the purpose of analyzing their pain perception, the following question was asked: "What does pain do to you"? In the end, another question was asked to analyze what they understood about the general aspects of pain: "What did you learn from that moment"? The patients wrote the answers on a sheet of paper.

The qualitative data were analyzed, categorizing the answers into two subgroups, social and personal dimensions, based on Bardin's content analysis.

All patients signed the Free and Informed Consent Term (FICT) before the beginning of the study.

The Research Ethics Committee of the School of Health Sciences of Trairi approved this study under opinion No. 3.130.248 (CAAE 61904216.9.0000.5568).

RESULTS

Table 1 shows the clinical and sociodemographic characteristics of the patients, with a mean age of 50.6±9.6 years and with an FM clinical diagnosis time of 6.5±4.6 years.

Table 1. Clinical and sociodemographic characteristics of patients

Variables	Mean±SD
Age (years)	50.6 (9.6)
Time of diagnosis (years)	6.5 (4.6)

SD = standard deviation.

Table 2 shows the patients' reports regarding the first question before the pain education activity. In the personal dimension, the words that most stood out were of emotional origin, such as sadness, stress, unhappiness, and discouragement. In the social dimension, words that refer to the difficulty in carrying out work and daily activities, such as interfering, preventing, and failing.

Regarding the *DolorÔmetro* game, the number of hits and errors in each domain was observed. In the "acceptance" domain, four errors were found in statement 1, and 12 errors in statement 2. In

Table 2. "What does pain do to you"?

"Pain causes me stress, fatigue, malaise, discomfort, nervousness, interferes with my activities, makes me sad, desperate, unwilling to live, in short, it causes everything that does not make me happy".
"The pain makes me sad, I get very nervous, there are days when it is 9, 8 or 7".
"Pain causes me a lot of stress, makes me sad, afflicted, I don't feel like walking. There are days when I cry a lot, I get very nervous, I can't do my activities, I think I'm going to be crippled".
"(...) all I wanted was to get used to it, but I can't, I can't take so much pain anymore, it is very sad not to be able to cope (...)".
"Initially it was more difficult, due to the insomnia, discouragement, physical limitations, among other things that changes my day to day. Now I am accepting better and dealing better, despite the ups and downs".
"Pain represents torture, sadness, anguish, lack of energy, etc.".
"It is horrible, it causes discomfort, anger, sadness, the desire to cry, depression, bad mood".
"It makes me stressed, it's bad, it causes despair, malaise, fatigue, makes me want to die, cry, I'm afraid to walk, I don't do what I did before".
"It causes a lot of sadness and I get discouraged on a daily basis".
"The pain is very sad, I get very nervous, I just spend my time taking medicine, I don't feel like doing anything, I live with the pain but I don't get used to it (...)".
"Malaise, nervousness, tension, tiredness and sadness".
"Malaise, discomfort, it is very difficult to wake up in pain and end the day in the same way, it is very hard, I am sad, discouraged, there are days when I feel like disappearing".
"Sadness, insomnia, malaise, depression, lack of appetite".
"Sadness, anguish, lack of energy".
"Stress and nervous".
"A lot of concern. I am very upset. I take dipyrone when it hurts a lot. I am hypertensive. I feel anxiety taking medicine and it is strong.
"Impossibility to perform simple activities, affecting the emotional part arousing several feelings".
"Stress, malaise, nervousness, I wanted to get used to it, but I can't".
"Too bad, I can't sleep. Stress, I can't do things. Discouraged and sad all day long".
"I wanted to control myself, but I can't. I wish there was an injection to stop it, I cannot stay in the air conditioning and the fan that the pain increases with the cold ".

Patients' responses regarding question 1.

the "attitudes" domain, few errors were found, only in statements 4 and 8. In the "kinesiophobia" domain, all errors were just in statement 2. In the "knowledge" domain, 19 missed statement 3. In the "anxiety" domain, 15 missed statement 1. Finally, in the "catastrophizing" domain, 10 missed statement 2, as shown in table 3.

Table 4 shows the participants' reports regarding the second question. Regarding the personal dimension, terms about learning, awareness, acquired knowledge, and understanding about pain were highlighted. In the social dimension, the importance of participating in lectures was emphasized.

Table 3. Number of hits and errors of patients referring to the six domains of the DolorÔmetro game

Domain: Acceptance						
	Statement	Answer right	AF True	RF %	AF False	RF %
1	The best way is not to accept this pain.	False	4	20	16	80
2	A person in pain takes care of the household chores.	True	8	40	12	60
3	A person in pain would only be happy if the pain disappeared.	False	0	0	20	100
4	A person can live well even in pain.	True	20	100	0	0
5	The first step to improving is to accept that pain is present in life.	True	20	100	0	0
6	A person in pain could resume life little by little.	True	20	100	0	0
7	It is possible to have a good life despite the pain.	True	20	100	0	0
8	It is normal to have days with more pain and others with less pain.	True	20	100	0	0
9	It is important to have other goals in life than to control pain.	True	20	100	0	0
Domain: Attitudes						
	Statement	Answer right	AF True	RF %	AF False	RF %
1	A person with chronic pain can do almost everything, a few adaptations will suffice.	True	20	100	0	0
2	Exercise and movement are recommended for people with chronic pain.	True	20	100	0	0
3	Stressful situations can increase pain.	True	20	100	0	0
4	A person in pain can influence the intensity of the pain they feel.	True	18	90	2	10
5	Feeling of sadness and depression can increase the pain.	True	20	100	0	0
6	A person with chronic pain that sleeps poorly helps to maintain the pain condition.	True	20	100	0	0
7	Even with pain, one should try to resume daily activities.	True	20	100	0	0
8	A person with chronic pain will only improve when the pain is gone.	False	1	5	19	95
9	There is a strong link between emotions and the intensity of the pain.	True	20	100	0	0
Domain: Kinesiophobia						
	Statement	Answer right	AF True	RF %	AF False	RF %
1	A person with chronic pain can exercise gradually.	True	20	100	0	0
2	The pain tells you when to stop exercising.	False	20	100	0	0
3	Although in pain, a person would be better if it was active.	True	20	100	0	0
4	Being in pain means you should not exercise.	False	0	0	20	100
5	Pain always means that the body is hurt.	False	0	0	20	100
6	Even in pain, it is possible to exercise.	True	20	100	0	0
7	When the pain increases, it doesn't mean that the injury has increased.	True	20	100	0	0
8	Not always pain means that there is an injury.	True	20	100	0	0
9	Even if the exercise increases the pain, it does not mean that it is dangerous.	True	20	100	0	0
Domain: Knowledge						
	Statement	Answer right	AF True	RF %	AF False	RF %
1	Exercises cause the body to release substances that reduce pain.	True	20	100	0	0
2	The tests are meant to show the amount of pain we feel.	False	0	0	20	100
3	The brain is capable of producing substances that decrease pain.	True	1	5	19	95
4	Relaxation practices can help regulate the alarm system.	True	20	100	0	0
5	When we feel pain for a long time, our sensors can become more sensitive.	True	20	100	0	0
6	Stress, lack of sleep, anxiety, do not influence pain.	False	0	0	20	100
7	The way we think and what we feel has no influence on pain.	False	0	0	20	100
8	The brain has nothing to do with the pain.	False	1	5	19	95
9	Pain is the most powerful alarm system of our body.	True	20	100	0	0

Continua...

Table 3. Number of hits and errors of patients referring to the six domains of the DolorÔmetro game – cotinuação

Domain: Anxiety						
	Statement	Answer right	AF True	RF %	AF False	RF %
1	A person with chronic pain can't enjoy life as before.	False	15	75	5	25
2	A person who feels sad all the time can increase the pain.	True	20	100	0	0
3	Trying to improve your mood can help lessen the pain.	True	19	95	1	5
4	A person in pain should try to do the things she still likes.	True	20	100	0	0
5	Pain should always be the biggest concern in the life of a person with chronic pain	False	0	0	20	100
6	What happens to a person who feels pain is a punishment.	False	0	0	20	100
7	A person in pain should try to be active even when feeling discouraged.	True	20	100	0	0
8	A person in pain should feel disappointed with herself.	False	0	0	20	100
9	Not everything that happens in the life of a person in pain is bad.	True	20	100	0	0
Domain: Catastrophizing						
	Statement	Answer right	AF True	RF %	AF False	RF %
1	A person in pain should try avoid thinking about pain all the time.	True	20	100	0	0
2	A person with chronic pain knows that the pain will always get worse.	False	10	50	10	50
3	Pain prevents the person from moving on.	False	0	0	20	100
4	It is normal that in some days the pain is stronger and weaker in others.	True	20	100	0	0
5	Having pain every day not always means that the pain is severe.	True	20	100	0	0
6	Chronic pain is always terrible and it will never get better.	False	5	25	15	75
7	There is nothing to do to decrease the pain.	False	0	0	20	100
8	A person with chronic pain should be thinking about pain all the time.	False	0	0	20	100
9	It is possible to learn how to deal with pain.	True	20	100	0	0

AF = absolute frequency; RF = relative frequency.

Table 4. "What did you learn from this moment"?

"I learned a lot at this meeting. It was very fruitful to exchange experiences, and I became more aware of how to deal with the pain in my daily life".
"It is important to participate in lectures like this; we learn a lot about many things."
"I learned that I want to get over this pain because I think I will stay in a wheelchair, but God is more."
"This moment is important to improve the knowledge about our disease, and how to live with it, positive attitudes, and physical exercise are essential in this recovery process and acceptance of the disease."
"I continue to live without accepting this disease."
"I learned that it is important to cope with the disease, and I learned many different things."
"It was good because we learn more."
"The exchange of experiences was very good; we learned that it is necessary to live better with pain (...). Any pain is sad ".
"It is important, because the exchange of experience helps to know more about pain and that exercises help you even more. It was great."
"I liked the lecture because I can live with the pain. It is interesting to listen to others and try to live better ".
"I liked the game. I understood the pain better ".
"I learned to live with pain, and today I feel better."
"It was very important to me."
"For me it was great, it told more about the problems I felt, I understood more about the pain. I understood more about how to live with pain because there are days when I get very depressed ".
"Important for us to know how to deal with pain without letting it paralyze our lives".
"I learned about things I didn't know".
"It was good, I have to live with the pain".
"I learned that I want to improve even more, and that self-esteem is the first step in everything, and control too. Another thing, I am criticized for being the person I am. It bothers. Despite all these illnesses and problems, I manage to have an almost perfect life, almost normal, and it bothers people, but I don't care. Sometimes, I burst out and can't control myself. My doctor said that I have to learn not to burst out with everything, but sometimes I can't, but I don't give up easy and God will help me. I am sure that God is more ".

Patients' responses regarding question 2

DISCUSSION

The patients presented a high level of unfamiliarity in the domains of acceptance, kinesiophobia, knowledge, and anxiety, which proves the importance of pain education in patients with chronic pain.

Regarding the first question "what does the pain do to you?" in the social dimension, it was possible to observe that pain interferes in daily activities and work, as a result of daily attitudes and behaviors having a direct connection with the individual's capacity to improve their levels of activity and performance[14].

The impact of pain in the personal dimension, especially of emotional origins, such as sadness, discouragement, unhappiness, and stress, making the emotional balance difficult in the face of the symptomatology stood out, reflecting directly in the perspective of improving the symptomatic condition[1-3,10,11,13] and limiting the process of self-care and coping reactions. For this reason, education on the pain neurophysiology is considered a strategy that aims to reconceptualize pain and change patients' inappropriate cognitions[15], being able to understand and remember in the long term the content used in pain education[2].

As for the second question, "what did you learn from that moment?" regarding the personal dimension, the most emphasized terms were learning, awareness, acquired knowledge, and understanding related to pain. Understanding and knowledge about pain are essential points in the treatment in order to improve the way they will deal with the FM symptoms. In the social dimension, the importance of participating in lectures that approach education on pain neurophysiology was described, emphasizing the importance of exchanging knowledge with the mediators of the discussion and among the participants.

In accordance with the terms reported, a study that conducted a pain education session concluded that patients showed improvement in pain understanding and less intention to catastrophizing when compared to the control group[16]. Thus, the review[17] that aimed to determine the level of evidence of educational interventions on the psychosocial results showed that studies using education on pain neurophysiology as a form of intervention provided a significant improvement in the concepts of catastrophizing and knowledge about pain.

Regarding the quantitative results, it was possible to analyze the participants' knowledge about the pain neurophysiology from the answers given to the game domains. In the "anxiety" domain, there were 15 wrong answers in one statement and "kinesiophobia" 20 wrong answers in just one statement, and it was necessary to explain the two statements to the group. The data of this study are similar to another[18], which after the education on pain neurophysiology, showed a decrease in reports of anxiety, stress, and pain catastrophizing, which are also closely related to the kinesiophobia aspect in chronic pain[18].

Regarding the "knowledge" domain, 19 women missed statement 3 that stated that the brain is capable of producing substances that reduce pain. Thus, it was possible to observe the importance of providing pain education and its benefits, as patients were able to understand the neurophysiological aspects[2], as well as to address a review on the use of pain education as an efficient tool for the patient to acquire the knowledge on the topic[19].

Finally, in the "acceptance" domain, 16 errors were observed, having a relationship with the perception that each patient has about their pain and the necessary adjustments for their daily life[20]. In addition, in the answers to the second question, the participants were more aware of their pain and the importance of the knowledge acquired during the game to help them to accept their condition.

Regarding the interaction of patients with the intervention, it was possible to observe a good adherence that provided a moment of relaxation and knowledge construction about their pain and the FM implications, so that they can actively participate in the treatment, and the awareness about the aspects of pain, as addressed in the game domains. In the same line, other studies support the conclusion that interventions combined with pain education have a moderate to great effect on the construction of their knowledge[19,20].

The present study had some limitations, such as the small sample and the intervention in a collective space, since the conversation shared among the participants may have interfered in the moment of expressing personal answers about the questions asked.

CONCLUSION

Pain education helped the participants to express their concerns before and after the moment of education. Educating patients about their health condition, especially about understanding pain, is a powerful component in the treatment process, although there are some concerns regarding the acceptance, kinesiophobia, knowledge and anxiety domains in women with fibromyalgia.

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