Brief multidisciplinary intervention for chronic pain management: pilot feasibility study

Intervenção multidisciplinar breve para manejo da dor crônica: estudo piloto de viabilidade

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ABSTRACT

BACKGROUND AND OBJECTIVES: Chronic pain has a negative impact on the quality of life of individuals and requires multidisciplinary attention. The aim of this study was to assess the feasibility of a brief multidisciplinary intervention for the management of chronic pain.

METHODS: A pilot feasibility study. The participants were individuals with chronic pain. The intervention had a psychoeducational focus and was carried out in a group for six weeks, with a two-hour weekly meeting. Participants received education on pain management, practiced stretching and relaxation techniques. The intervention was applied by two nurses, a psychologist and a physical therapist. The specific objective of this study was to assess the feasibility of the intervention through indicators of acceptability and feasibility.

RESULTS: Forty-eight people with chronic pain eligible to participate in the study were identified. Among the acceptability indicators, the acceptance rate to participate in the intervention was 52% and the retention rate among participants was 60%. The rate of adherence to the recommendations was moderate for walking (53.3%) and satisfactory for stretching (100%) and relaxation (73.3%). As for the feasibility indicators, the following aspects were considered "great": access to the intervention site (83.3%), the intervention room (66.6%), the intervention content (86.6%) and the number of sessions (46.6%). All participants (100%) suggested increasing the number of sessions.

CONCLUSION: The brief multidisciplinary intervention for chronic pain management was considered feasible and should be tested and implemented in primary care services and outpatient services specialized in pain management.

Keywords: Chronic pain, Cognitive behavioral therapy, Feasibility studies, Health education, Pain management, Self-efficacy.

RESUMO

JUSTIFICATIVA E OBJETIVOS: A dor crônica provoca impacto negativo na qualidade de vida dos indivíduos e requer atenção multidisciplinar. O objetivo deste estudo foi avaliar a viabilidade de uma intervenção multidisciplinar breve para manejo da dor crônica.

MÉTODOS: Estudo clínico de viabilidade. Os participantes foram pessoas com dor crônica. A intervenção teve foco psicoeducativo e foi realizada em grupo, por seis semanas, com um encontro semanal de duas horas. Os participantes receberam educação sobre manejo da dor, praticaram alongamento e técnicas de relaxamento. A intervenção foi aplicada por duas enfermeiras, uma psicóloga e uma fisioterapeuta. O objetivo específico deste estudo foi avaliar a viabilidade da intervenção por meio de indicadores de aceitabilidade e viabilidade.

RESULTADOS: Identificaram-se 48 pessoas com dor crônica elegíveis para participar do estudo. Entre os indicadores de aceitabilidade, a taxa de aceitação para participar da intervenção foi de 52% e a taxa de retenção foi de 60%. A taxa de adesão às recomendações foi moderada para caminhada (53,3%) e satisfatória para alongamento (100%) e relaxamento (73,3%). Quanto aos indicadores de viabilidade, foram considerados "ótimos": o acesso ao local da intervenção (83,3%), a sala da intervenção (66,6%), o conteúdo da intervenção (86,6%) e o número de sessões (46,6%). Todos os participantes (100%) sugeriram aumentar o número de sessões.

CONCLUSÃO: A intervenção multidisciplinar breve para manejo da dor crônica foi considerada viável e deve ser testada e implantada em serviços de atenção primária e serviços ambulatoriais especializados no tratamento da dor.

Descritores: Autoeficácia, Dor crônica, Educação em saúde, Estudos de viabilidade, Manejo da dor, Terapia cognitivo-comportamental.

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INTRODUCTION

Chronic pain causes physical, emotional and social losses[1-6]. Studies performed in different populations indicate that the prevalence of chronic pain in adults varies between 30% and 45%[1,3-7]. Studies developed in Brazil show an even higher prevalence, between 29.3% and 73.3%[8].

Interventions with a multidisciplinary approach, educational strategies and cognitive-behavioral therapy (CBT) have shown promising results in the management of chronic pain, contributing to reduce pain intensity and depressive symptoms, improving functionality and the perception of self-efficacy[9-14].

Self-efficacy has been shown to be an important variable in the context of chronic pain, since it is associated with better pain control, better functionality, and fewer depressive symptoms[15-17]. In addition, the strengthening of self-efficacy can contribute to the behavioral changes required for chronic pain management[17,18].

There are several proposals of non-pharmacological interventions for chronic pain management that use educational and cognitive-behavioral strategies and can contribute to strengthen patients' self-efficacy[17,18]. There are intensive, long-duration, and high workload approaches[10,19-22] and there are "brief" interventions, of short duration and reduced workload[9,23]. However, the optimal duration and/or mode of delivery for these interventions is not clear. Brief interventions may have lower costs of execution and lower dropout rates across sessions, but few studies have investigated this approach.

Therefore, the present study's objective was to evaluate the acceptability and feasibility of a multidisciplinary brief intervention for chronic pain management.

METHODS

This feasibility study followed the TiDier and CONSORT 2010-Checklist[24] recommendations for pilot studies or feasibility trials and used Sidani and Braden's methodology for developing and evaluating complex health interventions[25].

The present study was developed at the University of São Paulo Nursing School (Escola de Enfermagem da Universidade de São Paulo – EEUSP), in partnership with the Anesthesia Division Pain Control Outpatient Clinic (Ambulatório de Controle da Dor da Divisão de Anestesia – ACDDA) of the Central Institute of the University of São Paulo Medicine School Teaching Hospital (Instituto Central do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo – ICHC-FMUSP).

The non-probabilistic sample was made up of people with chronic pain of different etiologies seen at the ACDDA, interested people reached through an announcement made on the social network Facebook® and others indicated by the EEUSP community who met the inclusion criteria and agreed to participate in the brief multidisciplinary intervention called "Chronic Pain Control Program" or CPCP (Programa de Controle da Dor Crônica – PCDC).

The inclusion criteria were age between 18 and 65 years, pain complaint for more than 6 months and moderate to severe pain (pain intensity according to the Verbal Numerical Rating Scale)[26]. The exclusion criteria were pain related to oncologic origins, communication and comprehension difficulties, motor deficits, and diagnosis of dementia.

All potential participants were screened for eligibility to participate in the study. Patients who met the inclusion criteria were invited to participate, and those who agreed responded to an interview conducted by a nurse.

In the interview, the objectives, and procedures of the CPCP were clarified and, with the expression of interest of the patients, they were asked to sign the Free and Informed Consent Term (FICT). The interview was guided by an instrument specially developed for the study and allowed the collection of sociodemographic and clinical data to characterize the sample.

Brief multidisciplinary intervention: chronic pain control program

The brief multidisciplinary intervention called Chronic Pain Control Program (CPCP) tested in this pilot study was proposed by two nurses and is described in more detail in the Intervention Manual (supplementary material), developed to guide and standardize the intervention delivery.

The CPCP was tested over a six-week period, including a weekly two-hour meeting, totaling 12h of intervention. The activities were conducted at the EEUSP Nursing Skills Lab by four health care professionals: a nurse with a master's degree, a nurse with a PhD in nursing and CBT enhancement, a psychologist specialized in CBT, and a physical therapist specialized in Orthopedics and Traumatology, Global Postural Reeducation, and Myofascial Therapy.

Each two-hour session included one hour of educational strategies, 45 minutes of supervised stretching, and 15 minutes of relaxation. The nurses and the psychologist were responsible for the educational content, relaxation technique, and cognitive-behavioral strategies, and the physical therapist was responsible for the guidance and supervised practice of stretching.

In the first session, the CPCP, the interventionists, and the participants were presented, and personal goals were established. The participants received a kit with an educational booklet and folder about chronic pain management, a notebook, and pen for notes. In all sessions, a central theme was explored and cognitive exercises were performed, oriented to the respective theme, always related to pain control (basic physiology of pain, manifestations of chronic pain, physical exercise, stress, rhythm in activities, energy conservation and sleep hygiene).

The patients did homework between sessions, including notes on stressful situations and negative thoughts, which would be worked on by the psychologist and nurses in the following session. The tasks helped to promote cognitive restructuring through the comprehension between thought, emotion, and behavior in the context of chronic pains.

The theoretical basis for the association of the different techniques used in this intervention was the Self-efficacy Theory, proposed by Bandura[27], which explains that the perception of self-efficacy is based on four sources of information: personal accomplishments, observation of experiences, verbal persuasion, and emotional state, all managed in the intervention as described below.

For personal accomplishments, individual goals were set regarding new skills learned in the intervention (stretching exercises, walking,

and relaxation techniques throughout the week). Goal attainment was monitored and valued in order to promote improvement in perceived self-efficacy. For observation of experiences, group stretching and relaxation exercises were performed. Performing group activities allowed the observation of colleagues overcoming the challenge of retaking or learning a new skill, which contributes to promote improvement in perceived self-efficacy. For verbal persuasion, guidelines and educational strategies used by the interventionists were conducted. These reinforce the involvement with the proposed activities and promote improvement in the perception of self-efficacy. Finally, for emotional state, a relaxation technique with music and directed imagination were performed.

The individuals participated in 15 minutes of relaxation in all sessions and were instructed to practice the technique at home with the help of soft music in order to promote improvement in perceived self-efficacy. In the last session, the participants evaluated the intervention using acceptability and feasibility indicators, according to the theoretical framework of Sidani and Braden[25].

The outcomes of the study were acceptability and feasibility of the intervention. Acceptability indicators[25] were evaluated through the acceptance rate of study participation (number of invited patients who agreed to participate), patient retention rate (number of patients who completed the CPCP) and adherence rate to the intervention recommendations (use of the relaxation technique and practice of stretching/walking at home, from two to three times a week). The rate of adherence to the recommendations was obtained through questions about the weekly practice frequency of the recommended activities. Participants were expected to perform the relaxation technique, stretching, and walking two to three times a week.

The feasibility indicators[25] were the human resources to deliver the intervention (qualification and training of the interventionists), the material resources required (university chairs, multimedia projector, mats for stretching and relaxation practice, stereo system, notebooks, and pen for notes), the context (access to the location of the sessions, room used, content offered, and number of sessions), and the reach of the intervention (ability to reach the target population)[25].

The feasibility indicators will be presented descriptively. To evaluate the context, a printed instrument containing questions about the following items was used: access to the location, room used for the sessions, content, and number of sessions, rated by the participants as great, good, fair, and poor, as well as space for suggestions and comments on each of the evaluated items.

The project was approved by the Research Ethics Committee (*Comitê de Ética em Pesquisa* – CEP) of EEUSP (opinion number 2.831.470) and of the coparticipating institution, the Teaching Hospital (*Hospital das Clínicas*) of FMUSP (opinion number 3.339.401).

RESULTS

During the recruitment and selection period, 202 people were evaluated in order to be included in the study. Of these, 48 met the criteria and declared interest in participating. The intervention was applied to two consecutive groups (G1 and G2), with 10 and 15 patients, respectively, totaling 25 participants.

The analysis of the characteristics of the program participants (n=25) showed that 88% were women with a mean age of 55 years, living without a partner (52%) and with a mean pain duration of 10 years. The most frequent diagnoses were fibromyalgia, bursitis, arthrosis, herniated disc, and rheumatoid arthritis. It is worth mentioning that 60% were unemployed, away from work or retired, most were sedentary (80%), and the average sleep time was of 5 hours and 30 minutes.

The analysis of the acceptability indicators showed that, among the 48 patients invited, 25 attended one or more sessions of the intervention, characterizing an acceptance rate of 52%. Of these, 15 completed at least 5 sessions of the CPCP, resulting in a retention rate of 60%. The main reasons reported for failure to complete the program were personal commitments (caring for family members, court hearings, and previously scheduled travels), incompatibility with work schedules, severe pain, and financial difficulties to afford the transportation ticket costs.

The adherence rate to the intervention recommendations (perform the learned skills from two to three times a week at home) was 73.3% for the relaxation technique, 100% for stretching, and 53.3% for walking.

The analysis of the feasibility indicators showed that the human resources available for the delivery of the intervention presented adequate availability and qualification, since the interventionists were present in all sessions and had experience in the area of pain, with training compatible with the objectives of the intervention. The training of the interventionists was standardized and occurred based on the Intervention Manual prepared by the nurses, who trained the other psychology and physical therapy professionals.

The material resources available for the delivery of the intervention were university chairs, support table, mats, notebook, multimedia projector, USB flash drive, flipchart, colored pens for flipchart, sound system, and CD with soft instrumental music. The educational strategies were performed using a table, notebook, projector and flash drive with a Microsoft Power Point®, which was used as a visual resource to present the planned content. The flipchart paper and pens were used for notes and schemes.

For the muscle stretching activities and relaxation technique, mats and a sound system with soft music and nature sounds were used to promote a relaxing environment.

The evaluation of the context of the intervention delivery showed that several items were evaluated by the participants as "great": access to the location (83.3%), the room used for the intervention (66.6%), the content covered (86.6%), and the number of sessions (46.6%).

Access to the location was considered adequate because of easy access to the intervention site by public transportation (buses, trains, and subway), but some participants, who lived further away from the location, reported that the time spent in transportation was a negative point, generating fatigue.

The room where the intervention sessions took place was considered adequate, clean, and comfortable by most participants. However, one participant considered that the room was hot, and three said that the room was too small for practicing stretching.

The content covered was considered great by all participants (100%), with reports that the learning was indeed impactful in

their lives due to the change in thoughts regarding the way they see the world and themselves. The new knowledge and skills provided clarification of many doubts related to chronic pain and helped to better cope with pain. One of the participants, however, stated that he would've liked if the contents were deeper.

Only 46.6% of the participants considered the number of sessions "great", indicating that the program should have more sessions or could be offered continuously, because the contents were interesting and stimulated the desire to learn more about pain. Individuals reported that practicing the skills learned in a group setting was motivating, and they showed concerns of having difficulties for practicing them on their own.

Regarding the indicator of the intervention reach, the target population (individuals with chronic pain) was reached and the participants reported that the intervention provided a new treatment experience for chronic pain, in addition to the conventional treatment already experienced.

DISCUSSION

The analysis of the participants' characteristics showed a typical profile of individuals with chronic pain, with a predominance of women, mean age of 55 years old, unemployed or away from work, with pain for more than 10 years, sedentary and with impaired sleep pattern. Studies that analyzed populations with chronic pain describe a predominance of women, with ages between 40 and 58 years old, about 11 years of schooling and out of the labor market[8,9,19,29,30].

The mean time of pain among the participants of the present study was 10 years, similar to what is observed in other studies developed in populations with chronic pain[19,21,31]. Regarding the sleep pattern, the participants had around 5 hours of sleep per night, similarly to other studies on people with chronic pain[32,33]. A high rate of sedentary behavior was also observed, a common characteristic in populations with chronic pain[34,35].

In the present study, the main etiological diagnoses of pain were fibromyalgia, bursitis, arthrosis, herniated disc and arthritis, similar to other studies that analyzed populations with chronic pain[9,21,29,30].

The indicators of acceptability and feasibility of the intervention were positive, except for the number of sessions, which was evaluated as insufficient. This finding can be explained by the improvement in sociability and sense of belonging of the participants promoted by the group, which may have generated the desire to continue with the sessions.

A similar national study, consisting of a psycho-educational program for chronic pain management applied by a multiprofessional team, with cognitive-behavioral strategies, lasted eight weeks, with two weekly meetings and two hours long, totaling 32 hours[9]. The results were similar to those of the present study, which used similar strategies, but was offered briefly, lasting only 12 hours.

The qualification of the interventionists in the present study was similar to that observed by other authors[10,20,31]. A systematic review that analyzed multidisciplinary interventions with education for chronic pain management highlighted that the interventions were performed by at least two professionals from different disciplines, and physical therapists, psychologists and nurses were the most frequent ones[31].

As for the content of the intervention, pain education, cognitive restructuring strategies, stretching exercises and progressive muscle relaxation techniques were used, which are fundamental aspects for the quality of care of patients with pain[32]. Other studies tested relaxation techniques, meditation and stress control in patients with chronic pain and found positive results[9,33].

A study that analyzed the effects of a four-week intervention with progressive muscle relaxation showed a reduction in anxiety and depression symptoms in people with chronic pain[33]. The self-perception of the physiological state is one of the sources of information of the self-efficacy belief and it can favor the strengthening of this belief, contributing to the success of treatment[27]. An intervention based on CBT that used relaxation as one of the program elements showed that the experimental group showed an improvement in self-efficacy belief, which facilitated the control of chronic pain[10]. Stretching and relaxation techniques are elements that strengthen the intervention, providing more expressive changes, if compared to interventions that use only pain education[34].

The scope of the intervention was considered adequate, because it was able to reach the target population. However, the number of patients that left the program was high (40%) and should be minimized in future studies. Similar research has shown losses between 11% and 50% throughout similar programs[20-22].

To reduce patient losses throughout the intervention, this type of program should be offered in a location close to the participants' homes and with more than one option of time and day of the week. Studies highlight the value of group programs carried out in primary care, especially in units equipped with the Family Health Program (*Estratégia Saúde da Família*), because they promote health education and active participation of the individuals, transforming their behavior in search of better health outcomes[35-37].

This study has limitations that must be noted: an unusual method for patient recruitment (Facebook® social network) was used due to the difficulty encountered in the availability and possibility of participation of ACDDA patients from ICHC-FMUSP. The difficulties reported by potential participants were related to the difficulty of access to the study location and financial difficulties to pay for transportation, which was also associated with losses throughout the intervention, resulting in a very small sample. Other limitations were that the intervention was offered on the second floor of the building and on only one day of the week, factors that may have hindered the participation of people with mobility difficulties and people who had other commitments on the dates of the intervention. Furthermore, the data collection instruments in this study were applied by the interventionists themselves, which may have influenced, in some way, the participants' answers.

The strengths of the study were the proposition of an acceptable and feasible intervention for the treatment of chronic pain, in a way that complements pharmacological treatment. This pilot study presents data that will allow refinement of the proposed

brief multidisciplinary intervention for chronic pain management. Soon, it will be possible to test this intervention with more robust study designs and larger samples, as there are few national interventions of this nature for individuals with chronic pain.

CONCLUSION

The brief multidisciplinary intervention for chronic pain management was considered to be acceptable and feasible for patients with chronic pain and should be tested in larger samples, with more robust methods, in primary care or specialized outpatient services.

AUTHORS' CONTRIBUTIONS

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