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Original Research

The Effect of a Non-Pharmacological Multicomponent Pain Management Program on Pain Intensity and Quality of Life in Community-Dwelling Elderly Men With Chronic Musculoskeletal Pain

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ABSTRACT

Background and Aim: Improving the level of care for the elderly with musculoskeletal pain requires pharmacological and non-pharmacological pain control methods. This study aimed to investigate the effect of a non-pharmacological pain management intervention on pain intensity and quality of life in community-dwelling older men with musculoskeletal pain who were referred to comprehensive healthcare centers in the city of Ilam, Iran.

Materials and Methods: A quasi-experimental study with pre and post-test design was performed on **6**5 older men with chronic musculoskeletal pain. The samples were selected regarding inclusion criteria as available and randomly assigned to either the control (usual care) or the experimental group (educational intervention plus physical exercises). Baseline characteristics of participants, the Visual Analogue Scale, and the CASP-19 Quality of Life were used to collect data. Data were analyzed by SPSS software using the ANCOVA, independent and paired t-test, and chi-square test at the statistically significant level of 5 %.

Results: According to the findings, there was a significant difference between the experimental and control groups in terms of quality of life ($p < .05$) and pain intensity ($p < .05$) after the intervention. No relevant differences were found between groups regarding demographic characteristics at baseline.

Conclusions: A six-week physical activity and education program for community-dwelling older men with chronic musculoskeletal pain could improve quality of life and decrease pain intensity after a one-month follow-up compared with usual care. Therefore, it seems necessary to consider pain management programs in the elderly care program and familiarize health care professionals with these pain control methods.

Chronic pain will become more prevalent as the population ages and life expectancy increases; thus, the demand for proper pain management is increasing dramatically and will continue to do so (Kress et al., 2014). Approximately one-third of the older adults at the community level and in nursing homes suffer from chronic musculoskeletal pain, mainly resulting from a pathophysiologically diverse set of musculoskeletal conditions such as spinal trouble, rheumatoid arthritis, and osteoporosis (Mehta et al., 2018). Persistent musculoskeletal pain is the most common reason the elderly seek medical attention, which can place a significant economic burden on the healthcare system and individuals (Tompkins et al., 2017). The reported prevalence of musculoskeletal pain ranges from 25%-43% in community-dwelling older adults in the US, with 40% reporting pain in more than two sites (Nawai, 2019). In Iran, musculoskeletal pain among community-dwelling older adults was reported as 82.4 %, with a prevalence of 76.2 % in men and 89.9 % in women (Mirzaei et al., 2022).

Despite the high prevalence of pain and its physical and mental comorbidities in later life, pain frequently remains untreated or undertreated among older adults, and they are often hesitant to report pain because many interpret chronic pain as a natural part of aging that must be tolerated (Savvas & Gibson, 2015). In fact, there are common cultural stereotypes about pain and its management among healthcare givers and the general population, who often underestimate the extent of pain experienced by older adults. For example, they may believe older patients deserve less medi-

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cal attention than younger patients with the same clinical characteristics (Tang et al., 2019). This stands in contrast with the fact that the chronic pain experienced by older adults could lead to severe physical and psychological consequences such as poor mobility, fallings, frailty, poor mental health, cognitive impairment, poor sleep quality, and ultimately, a reduction in health-related quality of life in both physical and mental dimensions (Cederbom et al., 2019). Nurses play an essential role in developing pain policies and educational programs. Nurses are in a critical position because they are the professionals who have the most contact with patients and are fully involved in the pain management program (Salim et al., 2020). This puts nurses in a unique position to diagnose patients with pain and effectively assess and manage their pain and underscores that nurses, as part of the multidisciplinary team, must understand myths related to chronic pain and pain management among older adults (Nawai, 2019).

Today, pharmacological treatment remains the mainstay of pain control methods in older adults (El-Tallawy et al., 2021; Tripathi et al., 2022). However, the age-related changes in pharmacokinetics and pharmacodynamics make it challenging to reach a balance between the appropriate dosage of analgesics for the best pain-relieving effect and control of side effects (Tripathi et al., 2022); therefore, the effective management of pain in older adults needs more than just pharmacological management (Noroozian et al., 2018). It seems necessary to provide older adults and their caregivers with pain-related knowledge and pain control skills that urge using non-pharmacological approaches such as pain education, cognitive-behavioral therapy, physio-occupational therapies, complementary medicine, and physical and mental exercises.

Background

Management of chronic pain in the elderly is often complex. This complexity can directly result from the decline in the function of body organs, increased vulnerability to the side effects of drugs, polypharmacy, atypical pain presentation, cognitive and mental impairments, and the interaction between underlying diseases (Blyth & Noguchi, 2017).

Numerous studies have shown that using non-pharmacological approaches in pain management lowers the chances of developing adverse effects of analgesics and improves pain control by reducing pain intensity and increasing the threshold of pain tolerance, reducing pain-related distress, strengthening the ability to deal with problems, and giving a sense of control over pain to the patients and the patient's families (Fouladbakhsh et al., 2011).

An association between suffering from chronic musculoskeletal pain and reduced quality of life has been reported in several investigations (Achterberg, 2019; Ferretti et al., 2018; Katz, 2002; Şahin et al., 2020). A previous systematic review found a clear association between pain severity and poor quality of life and suggested that prevention and treatment of chronic pain are likely to improve quality of life and increase healthy life expectancy by at least two years (Nawai, 2019). Therefore, if the pain is not effectively identified and treated, it can also reduce the quality of life and adversely affect relationships between older adults and their caregivers (Edeer & Tuna, 2012). Adults with chronic musculoskeletal pain have also been reported to be less physically active than those without pain. Nonetheless, exercise has been reported to alter pain regulation in older adults (Otones et al., 2020). Physical activity has specific benefits of reducing pain and improving mental health and physical function in older people with chronic pain, as recommended by the American Geriatrics Society (AGS) in its recommendations for the care of older adults with chronic pain. (Sit et al., 2021).

In the pain management literature, pain education (Kuvačić et al., 2018; Tse et al., 2021; Zahari et al., 2020) and physical exercises (Meeus et al., 2015; Öztürk et al., 2021; Sit et al., 2021) have effectively reduced pain intensity in older people, leading to an evidence-based guideline for incorporating both methods in managing musculoskeletal pain. Most studies have been conducted among the heterogeneous population of older adults with almost small effect sizes, and there were more physical activity interventions. Only a few studies have integrated pain education sessions (Kuvačić et al., 2018; Wong et al., 2010), and there is a lack of evidence among the older male population. It was hypothesized that implementation of the non-pharmacological multicomponent pain management intervention could decrease the pain intensity of the target population and ultimately result in an improvement in their quality of life. Therefore, the current study aimed to evaluate the effect of a non-pharmacological multicomponent intervention on pain intensity and quality of life among community-dwelling elderly males living in Iran.

Methods

Study Design

This was a quasi-experimental study with a pre-test and post-test design.

Participants and setting

Sixty-five elderly men with musculoskeletal pain referred to five Comprehensive Health Care Centers in the city of Ilam, southwest of Iran, were included in the study. After obtaining baseline information, the participants who met the inclusion criteria were selected using convenience sampling and randomly assigned either to the control (n = 33) or the experimental group (n = 32). To determine the group allocation, pre-prepared cards indicating the group allocation were put in sealed opaque envelopes and then drawn through a lottery by a third party who was not involved in the participants' outcome assessment (Figure 1).

The inclusion criteria were elderly male aged ≥60 years; able to communicate in Farsi; medically diagnosed with chronic musculoskeletal pain; having a fair cognitive state (based on MMSE test score ≥18) and mental state (based on the Iranian version of abbreviated mental test score ≥8) (Foroughan et al., 2017); having the physical ability to perform exercises without medical prohibition; and willingness to participate in the study. Older adults were excluded if they were under other experimental programs simultaneously; failed to attend sessions for more than two sessions; had an unstable hemodynamic status; initiated or modified a drug regimen within the past six months; had a history of long-term use of opiates; or had an exceptional condition that might preclude them from fulfilling the program's requirements, such as speech and hearing impairment, fracture, or a recent surgery or cancer treatment, etc.

Sample size

Calculating the sample size was based on a similar study that reported a medium effect size (Wong et al., 2010). At a power of 80% and 95% confidence interval using the following statistical formula, 30 participants were required per group and 60 in total. Considering the sample drop-out during the study course, 65 subjects planned to be included.

$$n = \frac{\left(z_{1-\alpha/2} + z_{1-\beta}\right)^2 \left(s_1^2 + s_2^2\right)}{\left(\mu_1 - \mu_2\right)^2} = 30$$

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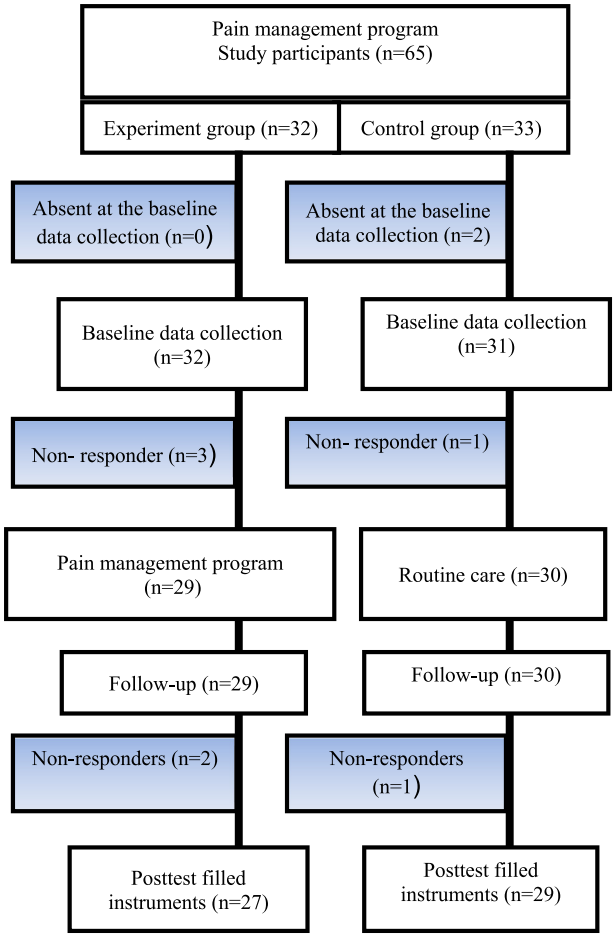

Figure 1. Participants' enrollment in this study.

Intervention

After completing the informed consent form, the participants were recruited for the study. Then, all subjects attended a pre-test session in which a non-researcher nurse completed the questionnaires. The control group received only routine care, such as monthly health assessment visits and counseling delivered by healthcare workers in Comprehensive Health Care Centers. The structured pain management program for the experimental group was designed and implemented for six weeks (one weekly session). In order to present the pain management program, the participants were provided with the intervention timetable and arranged into groups of 7-8 people. The program was administered during weekdays in a standard gym club, reserved for the training program presentation after coordination with the certified instructor. Each session was 45 minutes and offered to the participants in two parts. The first part included the first 20 minutes of each session, comprising theoretical materials regarding pain basics, non-pharmacological pain management techniques, physical activity, diet, etc. The second part included the last 25 minutes of each session, which consisted of warm-up, progressive muscle relaxation, breathing exercises, stretching, strengthening, and balancing exercises. All participants attended a post-test session four week after completing the training sessions. The detailed content of the program is summarized in Table 1.

Instruments

All data were collected at baseline and four weeks after the end of the intervention. The first phase of data collection involved participants' demographic and medical history information, including age, body mass index (BMI), educational level, current cigarette smoking, history of hospitalization within the past two years, non-steroidal anti-inflammatory drug (NSAID) usage, and potential co-morbidities, such as hypertension and diabetes.

Pain intensity was measured using the Visual Analogue Scale (VAS), which consists of a 10 centimeter horizontal line on paper with zero indicating "no pain" on one end and ten indicating "most pain possible" at the other end. Participants were asked to indicate their pain level by marking an "X" along the scale line number. A higher score indicates greater pain intensity. The VAS is a valid measure of pain intensity and is sensitive to changes in pain perception. This scale has shown moderate to good reliability in patients with chronic musculoskeletal pain (Boonstra et al., 2008). Establishing construct validity, the VAS is highly correlated with a Numerical Rating Scale (NRS) and a 5-point Verbal Descriptive Scale (VDS), with correlations ranging from 0.62-0.91 and 0.71-0.78, respectively (Downie et al., 1978).

The third part of the data collection instrument was the CASP-19. This questionnaire measures older adults' quality of life and contains 19 items in four dimensions, including control (six items), autonomy (five items), self-realization (four items), and pleasure (four items). The lowest score for each statement is zero to select the option of "never," and the highest score is three to select the option "most of the time." The scoring of the questionnaire's six statements, including items 9, 8, 6, 4, 2, and 1, was opposite to other statements. The designers reported the maximum and minimum scores of the questionnaire as 57 (complete satisfaction with all four dimensions) and zero (complete lack of quality of life). This instrument was psychometrically evaluated in Iran by Heravi-Karimooi and colleagues, and its internal consistency was confirmed by Cronbach's alpha coefficient, which ranged from 0.93-0.98 across the dimensions (Heravi-Karimooi et al., 2018).

Data analysis

Descriptive statistics for study sample characteristics were applied using frequency, mean, and standard deviation. Also, the chi-square test investigated the differences in education level, smoking, past hospitalization, NSAID usage, hypertension, and diabetes between the experimental and control groups. Kolmogorov–Smirnov test was used to examine if variables are normally distributed. Analysis of Covariance (ANCOVA) was used to measure the post-test differences in pain and quality-of-life of groups, with the pre-test serving as covariate. Paired t-test was applied to compare the mean of pain and quality of life in each group before and after the intervention. An Independent t-test was used to compare the groups regarding age and BMI. All statistical analyses were performed by SPSS software version 23 (IBM SPSS statistics 23.0), adopting a p value $<.05$ as statistically significant.

Ethical considerations

Ethical confirmation for the study protocol was obtained from the regional Ethics Committee of Ilam University of Medical Sciences (Ethic. Number: IR.MEDILAM.REC.1398.085). Before implementing any study-related procedure, the research procedure and its objectives were fully explained to the participants, and all of them provided their written informed consent forms. All ethical codes relating to participants, including voluntary participation (ensuring their right to withdrawal from participation at any time) and the maintenance of anonymity and confidentiality of their identity and information, were considered.

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Table 1
Details of Multicomponent Pain management Program.

Sessions	Physical exercise	Pain education
Session 1	• principles and guidelines for safe physical exercise • arranging participants into groups of 7-8 people	• introducing study goals and program stages to the participants • providing information about the benefits of physical activity on musculoskeletal pain • group discussion: • thoughts and emotions on pain • sharing experiences regarding musculoskeletal problems and using pain management methods
Session 2	• warm-up exercises • balancing exercises • progressive muscle relaxations • cooling down	• providing general information on musculoskeletal pain, its causes, and types • the impact of untreated chronic pain on the elderly's health • the benefits of proper pain management
Session 3	• warm-up exercises • stretching exercises • progressive muscle relaxations • cooling down	• pharmacological and non-pharmacological pain management therapies • addressing merits and demerits of pharmacological pain control • things to notice while taking medicine
Session 4	• warm-up exercises • strengthening exercises • breathing exercises • cooling down	• pain and quality of life • impact of social engagement and support • coping and pain
Session 5	• warm-up exercises • breathing exercises • muscle relaxation • wall push-up • cooling down	• impact of sleep problems and insomnia on pain • managing sleep problems • proper diet and nutrition
Session 6	• training hot/cold pack application • reviewing the exercise and relaxation techniques	• reviewing the content of the previous sessions • setting participants' duties in the follow-up period • providing participants with an illustrated pain management booklet

Results

As shown in the study flowchart (Figure 1), regarding the inclusion and exclusion criteria, a total of 65 eligible participants underwent the pre-intervention assessment at baseline, of whom five participants in the experimental group and four participants in the control group were excluded from various parts of the program. Then, both groups were subjected to a post-test four weeks after the end of the intervention using the VAS and CASP-19 questionnaires. Finally, the data of 56 subjects in the experimental (n = 27) and control (n = 29) groups were included in the main data analysis.

The demographic and disease-related characteristics of participants are shown in Table 1. As shown in Table 2, there was no significant difference between the two groups regarding age, education, smoking, hospitalization, NSAID usage, hypertension, and diabetes at baseline ($p > .05$).

Table 3 shows the frequency (%) of musculoskeletal pain sites in both groups at baseline. The lower limb (hip/pelvis, thigh, knee, leg, and ankle/foot) was the frequent site of pain in both groups. Knee was the highest pain complaint site in both groups. About half of the experimental (48.1%) and control group participants (48.3%) reported pain at two sites. As shown in Table 2, there was no significant difference between the two groups regarding the site of pain at baseline. Table 4 shows the participants' quality of life and pain scores in the experimental and control groups before and after the implementation of the pain management program. As shown in Table 4, a significant difference was found in all domains of CASP-19 between post-tests in the experimental and control groups ($p < .05$), except in the control domain, indicating that the experimental group had a better quality of life compared with the control group at the post-test. Furthermore, compared with before and four weeks after implementation of the pain management program, the experimental group had a better quality of life in autonomy, pleasure, and total CASP-19 score than before the intervention ($p < .01$). In contrast, in comparison with the pre-test and post-test, no significant difference was found in CASP-19 and its domains in the control group ($p > .05$). Table 4 also shows a significant difference between the reported pain of the experimental and control groups at the post-test ($p < .001$). Also, compared with before and eight weeks after implementation of the pain management program, the experimental group had lower pain scores than before the intervention ($p < .001$).

Discussion

The multicomponent program in the present study contained two major parts, educational sessions and physical exercise activities plus breathing exercises and progressive muscle relaxation. It has been widely recognized that multicomponent pain management incorporating medications with non-pharmacological approaches is more effective in pain reduction than single-component approaches (Cederbom et al., 2019). The widely accepted biopsychosocial model considers pain as an interactive psycho-physiological pattern that cannot be separated into distinct components. Therefore, a multidisciplinary approach has been recommended to investigate all options for optimal management (Kress et al., 2014). However, no conclusive judgment can be drawn about which pain management program provides the best pain reduction effect in community-dwelling older men because the evidence on comparing the efficacy of the different modalities among this population is scarce.

This quasi-experimental study showed that, compared to the control group, participants who received the six-week pain management intervention reported better quality of life and lower pain intensity. Furthermore, after one month, participants in the experimental group reported better quality of life and lower pain intensity than at baseline. Therefore, the results support the study's hypothesis that a pain management program is effective in reduc-

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Table 2
Socio-Demographic and Health-Related Characteristics of Subjects in Both Groups at Baseline.

Variables	Experimental (n=27)		Control (n=29)		*p* value
	No. (%)	Mean±SD	No. (%)	Mean±SD	
Age (y)		64.02±2.54		64.1±2.51	.809
BMI		24.22±2.46		23.42±2.31	.212
Education					.905
≥12	21(77.8)		23 (79.4)		
<12	6 (22.2)		6 (20.6)		
Smoking					.611
yes	13 (48.2)		12 (41.4)		
no	14 (51.8)		17 (58.6)		
History of hospitalization					
yes	12 (44.5)		9 (31.1)		.380
no	15 (55.5)		20 (68.9)		
NSAID usage					.420
yes	12 (44.5)		16 (55.2)		
no	15 (55.5)		13 (44.8)		
Hypertension					.351
yes	8 (29.7)		12 (44.5)		
no	19 (70.3)		15 (55.5)		
Diabetes					.267
yes	2 (7.4)		5 (17.2)		
no	25 (92.6)		24 (82.8)		

BMI = body mass index; NSAID = nonsteroidal anti-inflammatory drug.

Table 3
Frequency (%) of Musculoskeletal Pain in Both Groups at Baseline.

Variables	Experimental (n=27)	Control (n=29)	*p* value
	N (%)	N (%)	
Head/neck	5	5	.587
Thoracic/lumbar	13	16	.398
Upper limb	13	16	.398
Lower limb	25	28	.473

ing pain intensity and improving the quality of life of elderly men with musculoskeletal pain.

These results are in line with those of previous studies on older adults. The effect of physical activity in enhancing quality of life, improving mobility, and reducing pain intensity has been reported in previous trials. A trial by Otones et al. showed that an eight-week physical-activity-plus-education program among pre-frail older adults with chronic pain could effectively improve quality of life after the intervention and at three months' follow-up compared with the usual care. Additionally, they reported that participants who joined the program also showed better physical performance and high satisfaction with the intervention (Otones et al., 2020). Consistently, a study conducted in Hong Kong showed the effect of exercise training on pain, efficiency, and mental well-being in older adults in nursing homes, including holding eight training sessions in which physiotherapists and nurses taught pain control exercises. The results showed that the exercise program could reduce pain intensity and increase mental performance in the elderly (Tse et al., 2012).

The finding of a systematic review revealed that non-pharmacological interventions, including acupressure, acupuncture, guided imagery, periosteal stimulation, and Tai Chi, had sustainable pain reduction effects in community-dwelling older adults. However, no conclusion was drawn regarding which interventions offered the best pain reduction effects in community-dwelling older

Table 4
Comparison of the Participants' Pain Intensity and Quality of Life Scores in the Experimental and Control Groups Before and After Implementation of the Pain Management Program.

Variables	Domains	Control (n=29)		Experimental (n=27)		F	*p* value (ANCOVA)	Partial eta squared
		Baseline Mean±SD	10 Weeks Mean±SD	Baseline Mean±SD	10 Weeks Mean±SD			
CASP-19	**Control**	4.27±2.15	4.65±2.27	4.77±1.76	5.22±0.47	0.302	.840	0.006
	Autonomy	4.41±1.59	4.17±1.77	4.77±2.00	6.03±2.22*	14.646	<.001	0.217
	Pleasure	3.20±2.44	2.96±2.22	3.33±2.21	4.62±2.02**	35.679	<.001	0.402
	Self-realization	6.82±2.31	6.24±1.82	7.18±1.81	7.70±1.48	13.369	.016	0.201
	Total-CASP 19	18.72±6.36	18.03±6.14	20.07±6.21	23.59±5.00**	38.40	<.001	0.420
VAS	**Pain intensity**	6.52±1.02	6.45±1.05	6.33±0.96	4.89±0.93**	49.882	<.001	0.485

Note: $^{**}p < .001$ compared with baseline within the group (paired t-test); $^{*}p < .01$ compared with baseline within the group (paired t-test).
ANCOVA = analysis of covariance; VAS = Visual Analogue Scale.

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adults (Tang et al., 2019). A direct comparison of our results with existing literature is difficult due to differences in study design, intervention, and target population.

Despite the benefits of physical exercise on pain management, the effects of physical exercise among older adults are inconsistent in the literature. An overview of 21 Cochrane reviews including 381 studies found that exercise interventions produced small-to-moderate positive effects on pain intensity and physical performance with few adverse effects and some benefits on psychological function and, consequently, quality of life (Geneen et al., 2017). Some studies showed that older people might have problems with conventional exercises due to a decline in the function of the musculoskeletal system and muscle atrophy that can impede regular exercise participation; therefore, exercises such as yoga (Mirzaei et al., 2022), pilates (Devasahayam et al., 2016; Lim et al., 2011; Patti et al., 2015), and neuro-muscular exercises (Ageberg et al., 2013; Bokarius, 2008; Sit et al., 2021) are suggested as preferred options. Furthermore, a combination of exercise and educational intervention was more effective than exercise alone in reducing pain intensity in community-dwelling older adults (Tang et al., 2019; Tripathi et al., 2022).

In this study, about half of the participants reported pain at two sites. This finding is consistent with existing literature that reported that about half of older adults experience multisite pain (Neupane et al., 2013; Rundell et al., 2019; Wranker et al., 2016). The large epidemiological study highlighted the high incidence of multisite pain, in which 16.8% of participants reported localized musculoskeletal pain compared with 53.2% who reported pain in more than one site (Kamaleri et al., 2008). A systematic review showed that multisite pain in older adults is significantly associated with a decline in several aspects of physical function, including decreased lower and upper limb mobility, increased balance/coordination problems, increased risk of falling, and fear of falling. Additionally, multisite pain is associated with psychological dysfunction, particularly anxiety and depressive symptoms, and social factors, such as lower income and educational level. While multisite pain appears to have severe consequences, the underlying neurobiological mechanism which explains how this pain characteristic contributes to pain-related dysfunctional outcomes is unclear (Butera et al., 2019). Further studies should investigate the biological mechanism associated with multifocal pain and its context in the elderly, as their results may explain how multisite pain leads to disability and subsequent mortality.

Moreover, the current study showed that the most painful zone among older males was around the knee area. This is comparable to other studies conducted in Iran (Mirzaei et al., 2022; Shirazi et al., 2015), which also reported the same finding. In a study by Shirazi et al., the knee was the most frequent region of pain (80%), followed by the neck, shoulder, waist, and hands (Shirazi et al., 2015). This might be explained by considering the culture of traditional Iranian society. In many activities, such as sitting on the ground or using Iranian toilets, the knees bend for more than 90 degrees, which can put massive stress on them. Another study stated that older adults with a BMI $\geq$30 had significantly more knee pain than others; knee pain can result in reduced physical activity and weight gain, which can also lead to more pressure on the knee (Alipour et al., 2015).

Although demographic and health-related variables in this study, such as age, educational level, smoking, hospitalization, NSAID usage, hypertension, and diabetes, did not have confounding effects on pain intensity and quality of life, there may be other mediative factors that were not addressed in this study, such as stressors in daily life, anxiety, depression, etc.

Strengths and Limitations

To the best of the authors' knowledge, this was the first study that assessed the general effects of a non-pharmacological pain management program that incorporated physical exercises and pain education on chronic musculoskeletal pain in community-dwelling older men. Therefore, the present study provided new evidence on managing chronic pain among this population. A low drop-out rate and high commitment to the program protocol were observed. However, this study had some limitations. First, this study was conducted among community-dwelling elderly males; consequently, the results may not be generalizable to female adults or nursing homes. Second, the program was developed only in comprehensive healthcare centers, which could undermine the external validity of the results. Lastly, another limitation of this study was the lack of long-term follow-up. Therefore, information about the long-term effects of the program remains unclear. Further large-scale investigations with consistent follow-up are warranted to reassess whether the observed benefits can be sustained within the broader population over a more extended period.

Research Implications

Implications for Nursing Education

Considering the effectiveness of non-pharmacological pain management methods in improving the quality of life of the elderly and controlling their pain, education about pain management and how to use non-pharmacological pain management methods in medical centers can be taught to students to prepare them with higher knowledge and a better attitude, improving the quality of patient care.

Clinical Implications for Nurses

This intervention is feasible and worth implementing by nurses who are involved in the care of elderly patients and could be included in routine nursing care in different clinical and social settings as an evidence-based and low-cost intervention that can facilitate older adults' access to pain control services.

Implications for Nursing Research

While non-pharmacological pain management techniques pose minimal safety issues, the evidence base for long-term effectiveness of such therapies to manage chronic musculoskeletal pain of older adults requires further development. Research to assess the benefits of using pharmacological versus non-pharmacological approaches for managing chronic pain of older adults is also required.

Conclusion

A six-week pain management program for community-dwelling older men with chronic musculoskeletal pain could effectively improve quality of life and decrease pain intensity after one-month follow-up compared with usual care; therefore, our findings demonstrated the potential of incorporating pain education with physical exercises as an effective short-term modality in older men with a high prevalence of musculoskeletal pain in multiple sites.

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Conflicts of Interest

The researchers claim no conflicts of interest.

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