Peer-Assisted Pain Management Program for Nursing Home Residents: Does it Help to Relieve Chronic Pain and Enhance Physical and Psychological Health?

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Abstract

Context: Chronic pain is common among older adults.

Objectives: To examine the effectiveness of a peer-assisted pain management program (PV-IPMP) in reducing pain, enhancing pain self-efficacy and functional mobility, reducing loneliness and increasing the level of happiness among nursing home residents.

Methods: We recruited 32 nursing home residents to participate in a 12-week group-based PV-IPMP. There were two 1-hour sessions per week. Education in pain and demonstrations of non-pharmacological pain management strategies were provided. Twelve peers were trained to assist in the sessions. Outcome measures for the participants were collected at baseline (P1) and at week 12 (P2) upon completion of the intervention. Data from peer volunteers were collected prior to training (V1) and at week 12 (V2). T-tests were used to compare the differences in outcome measures collected at two time points.

Results: A significant reduction in pain intensity from 5.8±2.6 (P1) to 3.4±2.5 (P2) was found among nursing home residents (p=0.003). Pain self-efficacy increased from 30.0±16.1 to 36.1±14.6 (p=0.05). Functional mobility significantly improved from 64.3±36.8 to 68.1±36.6 (p=0.008). There was an enhancement in happiness level for the nursing home residents from 16.8±5.3 to 20.6±4.4 (p<0.001), while the loneliness level dropped significantly from 44.5±8.7 to 34.3±8.3 (p<0.001). The peer volunteers showed a significant increase in self-rated pain management knowledge (2.9±2.6 to 8.1±1.2, p<0.001) and self-efficacy in volunteering (5.8±2.9 to 8.3±1.5, p=0.013).

Conclusion: The peer-assisted pain management program was feasible and effective at relieving the chronic pain and enhancing the physical and psychological health of nursing home residents.

Keywords: Medieval peer; Chronic pain; Older adult; Pain management

Introduction

Chronic geriatric pain is defined as an unpleasant sensory and emotional experience affecting persons who are over 65 years old for more than 3 months, which is associated with actual and potential tissue damage, or described in terms of such damage, and which is non-cancerous in nature [1]. In Hong Kong, 37%-50% of community-dwelling older adults suffer from chronic pain [2,3], with the prevalence being as high as 70% among nursing home residents [4]. Chronic pain has a severe impact on older adults, as it can hinder their activities of daily living and lead to depression and anxiety, decreased social interaction, impaired mobility and falls, sleep disturbances, malnutrition and, ultimately, an increase in health care utilization and expenditures [5]. Given this current burden, innovative and cost-effective ways of managing chronic pain should be developed.

Although pain management is likely to be most effective when both pharmacological and non-pharmacological strategies are utilized [6], the use of pharmacological methods has been found to be unpopular among older adults, who worried about adverse drug reactions, and accepted chronic pain as part of aging [7]. The use of non-pharmacological pain management strategies is supported as an effective approach to dealing with chronic pain [8]. The strategies include education programs, empowerment programs for pain sufferers, exercise programs, acupuncture, transcutaneous nerve stimulation, massage, relaxation therapies, cognitive-behavioral therapy, listening to music, visual stimulation, guided imagery, motivational interviewing, acupressure, and multisensory stimulation arts and crafts therapy. Indeed, the use of non-pharmacological interventions may be most appropriate for older adults who are already taking multiple medications for their chronic diseases.

There is a paradigm shift in pain medicine towards a mechanism-based approach [9] and pain management could be more effectively provided if such a mechanism-based approach is available. Casey et al. [10] demonstrated that during a subtle shift from acute to chronic pain, the role of cognitive and affective factors becomes more significant. Psychological factors play a significant role in the causative, receptive, perceptive, cognitive, reportive and behavioural aspects of chronic pain experience among patients [11]. Cognitive factors include patients’ knowledge and maladaptive understanding of pain and pain behaviour, while affective factors involve emotions and feelings associated with the pain experience. Therefore, pain management education helps to facilitate positive beliefs, problem-solving, enhanced patient functioning and self-management, and encourages active coping with chronic pain [12]. Educational interventions were shown to be beneficial when provided as in group therapy versus an individualized...
patient-therapist interactive pain talk. Such cognitive strategies have
direct beneficial effects on the attention and emotions involved with the
pain experience [13]. Enhancing self-efficacy through the development of
adequate coping strategies can eliminate catastrophizing thoughts [14].

Therefore, an integrated pain management program (IPMP)
conducted by health care professionals was carried out among nursing
home residents with chronic pain in Hong Kong [4]. Nursing homes
were randomized into an experimental group in which the participants
(n=296) received a one-hour session of pain management education
each week, or a control group in which the participants (n=239) were
provided with regular care only. The content of the IPMP included pain
education and an introduction to and demonstration of various non-
drug strategies. The study showed a significant reduction in pain scores,
and more happiness and less loneliness among the participants in the
experimental group than the control group. A significant increase in
the use of non-pharmacological methods of pain relief was also found
among the participants in the experimental group as compared to
those in the control group.

Like other chronic conditions, chronic pain requires effective
self-management for optimal outcomes. Self-management is “the
ability to manage the symptoms, treatment, physical and psychosocial
consequences and lifestyle changes inherent in living with a chronic
condition” [15]. Reid et al. investigated the evidence on self-managed
interventions for pain among older adults. Among the 27 articles
identified in the review, 96% showed positive outcomes from using
non-pharmacological approaches to manage pain, with a median
reduction in pain scores of 23% [16]. Despite the benefits of self-
management for people with chronic pain, pain self-management can
be challenging to implement in a busy clinical setting where health care
resources are limited.

Peer support models are becoming widely used because they are
cost-effective in helping patients manage chronic conditions and have
shown promising results [17]. Peer support, where lay individuals
receive a moderate amount of training to support those with whom
they have shared experiences, has been regarded as effective self-
management strategy for chronic conditions. The benefits of using
peers to lead health programs include the tendency for people of
similar ages and life experiences to have a high level of rapport with
each other [18], and to feel less threatened when supported by someone
like themselves as compared to the experience of seeking professional
help [19].

Previous studies demonstrated that pain management programs
with peer support yielded positive outcomes, including an improvement
in perceived quality of life, functional capacity, number of complaints
about pain, and belief in pain myths [20,21]. In addition, a Cochrane
review showed that self-management education programs by lay
individuals (rather than health professionals) for people with chronic
conditions had positive outcomes, such as reductions in pain, disability,
and fatigue [22]. The effectiveness of peer support interventions for
community-dwelling adults with chronic non-cancer pain was also
reported in a systematic review [23].

Despite the fact that peer education programs in pain management
have been shown to have positive outcomes and are recognized as
promising, to the best of our knowledge none of them have focused on
older adults in nursing home settings in particular. An integrated pain
management program (IPMP) led solely by health care professionals
has been found to be effective [4]. Therefore, the question of whether
an IPMP using peer volunteers for older adults in nursing homes would
also be effective seemed well worth exploring. Thus, the objectives of the
present study were to examine the effectiveness of a peer-assisted pain
management program (PV-IPMP) in reducing the pain, enhancing the
pain self-efficacy and functional mobility, reducing the loneliness and
increasing the happiness of this segment of the older population.

Methods

Study design

This study was a single group pre-post trial. Ethical approval from
the Ethics Committee of the university was obtained.

Peer volunteers

Peer volunteers were recruited from a pool of regular members in the
Institute of Active Ageing (IAA) of the Hong Kong Polytechnic
University, which is dedicated to providing opportunities for
older adults to contribute to society. The IAA staff announced and
promoted this study to those members. Individuals who expressed
an interest attended a selection interview. The selection criteria for
the PVs included those who were >50 years old (the requirement
for membership in the IAA), retired, committed to completing two
2-hour training sessions, and who had passed an exit test that included
knowledge and demonstration and re-demonstration of skills on the
use of the program materials and on leading the program.

Educational materials on pain relief were prepared. A “Guidebook
for Peer volunteers” was given to all PVs. It included instructions on
how to use the “I can do it” booklet, as well as a discussion of safety
and privacy issues. The “I can do it” booklet included information on
pain management strategies, the use of drugs and various non-drug
therapies, and pictures of the steps involved in the physical exercises.
The “I can do it” booklet was given to all participants. The contents of
these materials were validated by the research team.

Participants

A private nursing home in Hong Kong was approached and their
residents were invited to join our study. Inclusion criteria were older
adults aged >60 years, who scored >6 in the Abbreviated Mental Test
[24], have been experiencing non-malignant physical pain or discomfort
either all the time or on and off for more than three months, scored >1
in the frailty index, and are able to understand Cantonese. Exclusion
criteria were those with cognitive impairment and a history of mental
disorders, and those with cancer and currently on cancer treatment.
As this program involved physical activities, those suffering from
conditions that limit safe participation were excluded. These included
individuals who had suffered from a fracture or undergone surgery
in the past two months, and those with severe chronic obstructive
pulmonary disease, acute stroke, and acute myocardial infarction.

Interventions – PV-IPMP

Nursing home residents underwent screening. Those who were
eligible to participate in the study and who consented to do so were
offered a 12-week group-based PV-IPMP during weeks 1 to 12. Each
session involved a small group of 6 participants. Each PV accompanied
2-3 participants each time. There were a total of 24 sessions, with two
1-hour sessions each week. Table 1 shows the details of the program.
Briefly, each session was comprised of 3 components: physical exercise,
interactive teaching and sharing of pain management education,
and portfolio entry. All teaching components were written in the
“I can do it” booklet. The session started with physical exercises (20
minutes), including towel dancing, exercises on correct body posture

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and alignment, and the stretching of arms, legs, and body muscles. The second part of the session was the pain management education or revision (30 minutes), which included information on pain situations, the effects and impacts of pain on older adults, and the use of drugs and non-drug strategies in pain management. The use of non-drug therapies included viewing photographs of the natural environment, listening to music, and participating in multisensory stimulation arts and crafts activities. At the end of each session, portfolio entries on the knowledge and activities of the day were made to help the participants recall the various pain relief methods learned in class. Session 1 of each week was led by the researcher with the assistance of PVs; while session 2 of each week was led by the PVs only.

Data collection

The following data were collected from the participants at baseline (P1): demographic data (including age, gender, level of education, marital status, and frailty status), pain intensity, pain self-efficacy, functional mobility, loneliness level, and happiness level. Outcome measures were collected again at week 12 on the completion of the intervention (P2). The peer volunteers were asked to rate their confidence in implementing the pain education program (Likert scale from 10 (the most confident) through 1 (the least confident)) and their level of pain management knowledge (Likert scale from 10 (the most adequate) through 1 (the least adequate)).

A questionnaire containing closed questions was completed by the peer volunteers. The peer volunteers were asked to rate their confidence in implementing the pain management education (Likert scale from 10 (the most confident)) and their level of pain management knowledge (Likert scale from 10 (the most adequate) through 1 (the least adequate)).

Data analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS). A descriptive statistical analysis of the quantitative data was carried out. The Kolmogorov-Smirnov normality test was used to examine the normality of the outcome variables. To examine the effects of the intervention, t-tests were used to compare outcome measures collected at two time points (i.e., P1 and P2) because the data followed a normal distribution. The questionnaires for the volunteers collected at two time points (i.e., V1 and V2) were compared using a pair sample t-test. A score of p<0.05 was considered statistically significant.

Results

Demographic data

Table 2 shows the demographics of the nursing home residents and PVs. Thirty-two nursing home residents participated in the study.
Changes in pain, pain self-efficacy, and in the physical and psychological parameters of nursing home residents

Table 3 shows the changes in the outcome measures of the nursing home residents after they had completed the PV-IPMP. They experienced a significant reduction in pain intensity from 5.8±2.6 at baseline to 3.4±2.5 after completing the intervention (p=0.003). Although insignificant, pain self-efficacy increased in an expected direction, from 30.0±16.1 at baseline to 36.1±14.6 at week 12 (p>0.05), showing that participants had more confidence in managing their pain.

There was also an improvement in the physical parameters of the participants after they had completed the PV-IPMP. Their functional mobility improved significantly from 64.3±36.8 to 68.1±36.6 as measured by the MBI (p=0.008). In terms of psychological parameters, their happiness level grew from 16.8±5.3 to 20.6±4.4 post intervention (P2) compared with the baseline (P1) (p<0.001), while their loneliness level dropped significantly from 44.5±8.7 to 34.3±8.3 (p<0.001).

Evaluation of the volunteer experience

Peer volunteers also benefited from the PV-IPMP. They were asked to rate their knowledge of pain management and self-efficacy in carrying out the volunteer service (Table 4). It was found that their knowledge of pain management increased significantly from 2.9±2.6 before the training (V1) to 8.1±1.2 upon the completion of the program (V2) (p<0.001). Their confidence in carrying out the volunteer service also increased significantly from 3.4±2.5 at baseline to 5.8±2.9 (V1) to 8.3±1.5 (V2) (p=0.034).

Discussion

The present study demonstrated the effectiveness of a peer-assisted pain management program in reducing pain intensity, enhancing pain self-efficacy and functional mobility, and improving loneliness and happiness levels among older adults living in a nursing home. The results add to the growing body of evidence supporting the benefits of peer volunteers in pain education programs [20-23,31,32].

In a literature review, Kawi [33] identified four barriers to the self-management of chronic pain, namely, treatment (a belief that pain-relief strategies are ineffective), personal (challenges to controlling pain due to disability, a lack of self-efficacy, and limited resources), mental health (the presence of depression, anxiety, and fear of pain), and social barriers (a lack of social support). Traditional pain education programs, which are led by health care professionals, help to transfer knowledge to the participants, overcoming treatment and personal barriers. In this study, the addition of PVs helped to address all of the barriers. PVs reinforced the pain management knowledge of nursing home residents, re-demonstrated non-pharmacological pain management strategies, praised the participants’ accomplishments, shared personal experiences and developed social bonds with them, and persuaded them to adhere to treatment recommendations [34]. The success of using PVs can be seen in our findings, which included improvements in the pain levels, pain self-efficacy, and physical and psychological health of the participants.

Previous studies showed that the use of peers in pain education programs led to improvements in the pain situation of the participants, and increased their pain self-efficacy [31] and functional capacity [21,32]. However, the content and duration of the intervention, the instruments for measuring outcome measures and, most importantly, the target population differed from those in this study. Therefore, this study is the first to investigate the effectiveness of using peers in a pain education program for nursing home residents. The current study also
indicated that peer support improved the psychological parameters of the participants. Having a chronic pain condition can be a lonely experience. A previous study demonstrated that even those participants who described themselves as possessing strong social networks reported feeling isolated and lacking in support for dealing with their pain condition [32]. General social support does not necessarily ensure the receipt of effective pain-specific support, which may be difficult for the family to provide as they lack the coping resources required to support a person in pain. Therefore, peer volunteers with similar experiences may provide pain-specific support and emotional support, resulting in improvement in loneliness and happiness levels among nursing home residents with chronic pain. The positive outcomes of this pilot study provide evidence of this.

Although not investigated in our pilot study, another frequently mentioned advantage of the peer education model is that it is a cost-effective way of delivering an intervention, especially to those who may be unable to afford professional fees [35]. Given that the global population is aging and that the demand for health services is increasing, using older volunteers is considered an alternative model of delivering services, particularly where health systems are underfunded [19]. These older volunteers are not constrained by time and are a readily available, cost-effective labor resource [36]. They continue to contribute to society after their retirement. Drawing on them to help older adults with chronic pain will help to reduce health care expenditures.

One of the limitations of this study was the exclusive reliance on self-reports for the quantitative data that were collected. However, it was assumed that people will be as honest as possible to the extent that they are aware of their own thoughts, feelings, and functional abilities at the time of the collecting of the data. Our subjects were also mentally intact, and oriented as to time and place. It was recognized that some patients with chronic pain may either exaggerate or minimize their reports of pain. Nonetheless, it was assumed that these reporting patterns will be consistent over time. Given that the primary focus of this study was to document changes over time, it was determined that the benefits of self-reported questionnaires provided adequate justification for their use [37]. In addition, data were collected by individuals who were not responsible for the intervention. Therefore, reporting biases were minimized as the subjects did not necessarily report positive answers to please the researchers. Another limitation of this study is that it was a pilot study with a relatively small sample size, and therefore was underpowered to determine effectiveness. The sample was limited to one nursing home, which limits the generalizability of the study’s findings. However, this study has demonstrated the feasibility of recruiting and retaining peer volunteers and older adults for a peer-support intervention for nursing home residents with chronic pain.

Conclusion

To conclude, this study supports the feasibility of using peer volunteers in pain education programs for older adults. Future research involving a larger sample and a randomized controlled design will shed more light on the effectiveness of using peer volunteers for managing chronic pain among nursing home residents.

Disclosures and Acknowledgments

The authors declare that they have no conflicts of interest. The authors would like to thank the Pine Care (Manning) Elderly Centre for their help in recruiting participants for the study, and the Institute of Active Aging of the Hong Kong Polytechnic University for recruiting and contacting the peer volunteers.

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