

Importance of Dyadic Approach in Managing Pain for Community-Dwelling Older Adults and their Informal Caregivers

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Abstract

Chronic pain impacts the quality of life of older adults and their informal caregivers physiologically, psychologically, and financially. Therefore, this paper examines the challenges of pain management among older adults and their informal caregivers. Moreover, the Dyadic Pain Management Program (DPMP), an alternative approach that empowers older adults and their caregivers to provide friendly care, has proven effective. The DPMP aligns with various dominant welfare ideologies in different regions around the globe, which can potentially reduce social expenditure by emphasizing the role of families. Therefore, this paper advocates for the broader implementation of DPMP and reviews the existing policies managing older adults' chronic pain by addressing its advantages at the micro- and macro levels of the DPMP.

Keywords: chronic pain management; dyadic pain management program; informal caregivers; aging population; public health costs

Abbreviations

DPMP: Dyadic Pain Management Program.

Introduction

Chronic pain is one of the health issues caused by aging, which older adults commonly experience. In the United States, it is estimated that 50 million adults have experienced chronic pain. Pain affects older adults' daily lives physically and psychosocially. Nonetheless, pain in older adults is constant and is challenging to manage. Also in the United States, approximately 50 million adults were reported to experience chronic pain, resulting in colossal healthcare costs and loss of productivity in 2016 [1, 2]. Moreover, the prevalence of chronic pain is expected to increase due to the growth of the aging population [3]. Therefore, pain management is introduced by healthcare professionals, but the fee is

burdensome. Deloitte Access Economics reported that in 15.4% of Australian people afflicted by chronic pain, the annual expenses range from AU\$ 22,588 to AU\$ 42,979 [4]. Thus, older adults in the lower class lack the economic resources to access medical services in society. As a result, chronic pain is a public health issue that governments should not neglect.

Dyadic Pain Management Programs (DPMPs) have been used as alternative approaches. Simply put, through education on pain management for informal caregivers (mainly family members), older adults can receive care in familiar environments. DPMP offers advantages to older adults at the micro level, including improved pain self-efficacy, enhanced quality of life, reduced psychological symptoms, and so forth [5]. At the macro level, DPMP aligns with the notions of several welfare ideologies, such as neoliberalism, the residual model, and new conservatism. Countries adopting these welfare ideologies emphasize the family's role and responsibilities to enhance its members' well-being and reduce social expenditure [6-8].

Considering the benefits of DPMP at both the micro- and macro levels, which enhance psychosocial health and reveal policymaking insight, it has the potential to be introduced more widely in different regions. Thus, this paper aims to justify the necessity of DPMP by illustrating the effects of pain on older adults, caregivers' challenges, perspectives on public health costs, DPMP itself, and its insight. In short, this paper offers policy advocacy for policymakers to review the existing policies that manage older adults' chronic pain.

Effects and situations of chronic pain on older adults

Chronic pain afflicts older adults' health in various ways and can be fundamentally divided into two categories: (1) physiological impact: chronic pain disrupts sleep, cardiovascular health, cognitive processes, and sexual function; and (2) psychological impact: it has adverse effects on mood and mental health. Combining these impacts, the consequences of chronic pain severely affect the quality of life of older adults.

With respect to physiological impact, disturbed sleep commonly occurs in approximately 50-89% of individuals with chronic pain [9-11]. The severity of pain is directly related to the degree of sleep disturbance. A study revealed a bidirectional relationship between pain and sleep disturbances. The finding suggests that pain and sleep disturbances exist simultaneously and exacerbate each other. Therefore, patients with both chronic and sleep disturbances result in experiencing more severe pain and longer pain duration simultaneously [12, 13]. In addition to sleep disturbances, chronic pain affects patients' cardiovascular health, which is a statistically significant predictor of hypertension risk [14]. Chronic pain in patients leads to diminished baroreflex sensitivity and increased risk for hypertension. This pain intensifies the patients' reactions to stimuli, thereby escalating the potential of cardiovascular morbidity [15]. For cognitive processes and brain function, evidence shows that chronic pain causes neurological changes, abnormal brain chemistry, and neocortical gray matter loss [16, 17]. Regarding sexual function, findings demonstrate that patients experience significant sexual dysfunction [18]. To conclude, chronic pain disrupts sleep, exacerbates pain-related disability, and exposes patients to significant risks of cardiovascular diseases, cognitive processes, brain dysfunction, and sexual activity, therefore profoundly impacting patients physiologically.

Concerning psychological impact, patients with chronic pain frequently experience depression and anxiety. Chronic pain increases the incidence of major depressive disorder, suicidal ideation, and suicide attempts [19]. 8% of patients who experienced chronic back pain for less than six months developed significant depression. In addition, chronic pain reduces patients' ability to participate in social activities [20, 21]. Research has also shown that depression among older adults is associated with changes in brain structure, such as cortical and subcortical changes, hippocampal atrophy, and white matter hyperintensities [22]. As a result, chronic pain significantly affects older adults' mental health. Moreover, these psychological disorders change the physiology of patients, which makes chronic pain difficult to manage.

Caregivers' challenges

Approximately 67 million informal caregivers are unpaid caretakers in the United States. The primary caregivers are predominantly family members, including spouses, elderly parents, or children. They provide care to the patients within their daily lives for almost 20

hours weekly [23]. Therefore, this kind of strain has resulted in a burden to caregivers who are confronted with a lack of pain management knowledge and psychological health. Acquiring pain management knowledge is critical for informal caregivers to help their family members afflicted with chronic pain. However, they are mostly not healthcare professionals. Studies have repeatedly indicated that caregivers experience difficulties as a result of their beliefs about analgesics and pain, knowledge deficits, and lack of access to support and information [24]. Consequently, poor decision-making deteriorates patients' chronic pain physiologically and psychologically.

Emotional stress does not solely occur in patients but also significantly impacts their caregivers. Caregiving for older adults with chronic pain is a source of emotional stress. Among different caregiving responsibilities, pain management is recognized as a significant task that stresses caregivers [25]. Informal caregivers always feel frustrated, unprepared, and helpless because of several challenges they experience in managing pain for older adults. It is stressful and overwhelming for them to witness patients' suffering [26-28]. Studies have also demonstrated that caregivers encounter incredible difficulty in comprehending the administration of pain medication, leading to elevated levels of anxiety [29, 30]. In a study by Shanmugasundaram, patients suffering from inadequate pain management resulted in dissatisfaction with caregivers [31]. Given such a psychological burden to caregivers, the support they receive is inadequate, and their needs are often neglected.

Economic hardships are also burdensome for informal caregivers, as related treatments are costly. Hong Kong is taken as an example. Although the costs of physiotherapy in public hospitals are low, approximately HK\$80 per attendance (USD\$ 10.2), patients need to queue for extended waiting times for initial appointments, so patients often find that seeking physiotherapy services in the private sector is a more time-efficient approach. Nevertheless, the cost of treatment in the private sector is high. In private hospitals, the initial consultation fee ranges from HK\$200 to \$5,000 (USD\$25.4 to USD\$638.5), and the follow-up sessions range from HK\$300 to \$3,000 (USD\$38.3 to 383.1) per attendance; in private clinics, generally, the fees range from HK\$1,000 to \$2,500 (USD\$127.7 to USD\$319.3) for 40-60 minutes, which does not include add-on costs for any special treatment required [32]. However, the classlessness of pain makes pain unavoidable regardless of people's socioeconomic status. The cost of physiotherapy in the private sector economically and socially excludes patients from participating in the broader society.

Public health costs

The financial burden to governments is heavily increasing due to its prevalence and demand. Cohen et al. reported that chronic pain affects more than 30% of the population worldwide [33]. The US Centers for Disease Control and Prevention estimated a 20.4%-point prevalence [34]. The UK has also reported a pooled chronic pain incidence rate of 43.5% [35]. With such a substantial population globally, financial costs in the public health domain have burdened economic systems across countries, costing approximately USD\$560 to USD\$635 billion per year in lost productivity and medical burden [33]. In addition, the shortage of healthcare professionals worldwide, including those specialized in pain management, is the most critical constraint to achieving health. These factors include the migration of health workers, a lack of resources, and a shortage of mental health workers [36-38]. Therefore, the costs associated with chronic pain are not simply monetary but include human resources. Also, given the disproportion of healthcare professionals and patients, health system-related barriers have emerged. Research by Hadi et al. revealed six barriers to healthcare professionals in pain management: (1) lack of empathy and interest, (2) lack of specialized knowledge, (3) lack of communication between healthcare professionals, (4) long waiting times for appointments in secondary care, (5) short consultation times with general practitioners, and (6) lack of an integrated multidisciplinary approach [39]. This situation has resulted in increased expenditure on pain management to seek services from healthcare providers, which is a recurrent dilemma.

The global population is aging rapidly; the number of people aged 60 years or older will increase to five years by 2020, and it is expected that 1 in 6 people will be 60 years or older by 2030, according to the World Health Organization [40]. As the aging population grows, the prevalence of chronic pain will increase. Thereby, the greater the costs are, the greater the financial stress of the family. Consequently, it contributes to the reproduction of poverty and class due to the rising expenditure on pain treatments. Once this situation passes through generations, intergenerational poverty is unavoidable. Intergenerational poverty can lead to the social exclusion of future generations in that children have fewer opportunities for participation in broader society and social mobility. This implies

that governments need to redistribute social resources more proactively to address public health and poverty. Considering this, a comprehensive approach is required to break this cycle.

Dyadic pain management program and its insight

An insight has been drawn that the effects of chronic pain should be examined at both micro- and macro levels. From this point forward, the dyadic pain management programme (DPMP) serves as an alternative intervention, empowering informal caregivers with greater extent of autonomy. It enhances the quality pain management after following education from healthcare professionals. “*The Effectiveness of a Dyadic Pain Management Program for Community-Dwelling Older Adults with Chronic Pain: A Pilot Randomized Controlled Trial*” was conducted by Li, Tse, and Tang in 2020 [41]. This study provides substantial evidence supporting the effectiveness of DPMP in relieving pain and enhancing psychological health among older adults living in the community. It randomly divided the 64 dyads into a DPMP group (intervention group) and a control group. An 8-week intervention that integrates face-to-face, home-based, and digital-based activities is delivered to the DPMP group. The results of this study revealed significant improvements in several key areas. For instance, pain scores and enhancements in pain self-efficacy, quality of life, and exercise habits are notably decreased. The stress is significantly reduced. These results highlight the potential of dyadic interventions in managing the complex challenges of chronic pain. A long-term benefit to older adults with chronic pain is achievable through the involvement of informal caregivers in the therapeutic process. Therefore, this study may provide insight for policymakers in public health seeking to promote a dyadic approach to pain management.

In the sense of policy studies, the DPMP can be adopted into various welfare states, aligning with their respective ideologies. Neoliberalism, neoconservatism, and the residual model are three dominant welfare ideologies across countries in America, Europe, and Asia. The neoliberal model emphasizes minimal state intervention to reduce social expenditure; the neoconservative model strengthens the traditional function of the family to support individuals, reflecting the notion that social policies are often family-based; and the residual model assumes that the market and families are the natural channels for fulfilling the needs of individuals [7, 8, 42]. In light of these rationales, family policies are significant characteristics of the neoconservative and residual model, especially, and thereby, the role of the family is underscored. Meanwhile, the DPMP recognizes the importance of family as a primary informal caregiver in managing chronic pain. In the context of public health policies, the DPMP aligns with the above welfare ideologies: reduce dependence on the public healthcare system, individuals seek pain management from their families, and policies are family-based rather than subsidizing patients to seek healthcare services. In summary, the DPMP identifies the pivotal role of families in healthcare policies, which is also the notion of neoliberal, neoconservative, and residual model policies; therefore, policy insight is significant and viable for implementation in various public health systems.

DPMP is also a cost-effective alternative to physiotherapy in the private sector. Considering the duration of DPMP is eight weeks. The average cost of a physiotherapy session is HK\$1,750 (the midpoint of the mentioned range is HK\$1,000 to HK\$2,500), and the frequency of physiotherapy sessions is once a week. It follows that the cost of 8 private physiotherapy sessions is $\text{HK\$}1,750/\text{session} \times 8 \text{ sessions} = \text{HK\$}14,000$ (USD\$ 1787.9). However, DPMP courses can be delivered on various free platforms, such as online platforms, which can significantly reduce pain management costs. This makes pain management more accessible and alleviates the financial burden on disadvantaged groups. Moreover, the DPMP is designed to empower both older adults and their caregivers to manage chronic pain effectively. This leads to long-term effects and savings by reducing the dependence on healthcare professionals' intervention.

Conclusion

In conclusion, chronic pain is a constant issue that heavily affects both the quality of life of older adults and their caregivers. The prevalence of chronic pain involves the aging population, public health costs, and the socioeconomic status of people. Therefore, the Dyadic Pain Management Program (DPMP) can be introduced as a promising solution that aligns with various welfare ideologies and offers a cost-effective approach instead of traditional physiotherapy. Thus, the potential of DPMP at the micro level underscores its advantages. By empowering both older adults and their caregivers through education, DPMP alleviates the physiological and psycho-

logical impacts of chronic pain as well as the financial burden on families and the healthcare system. The DPMP can also influence policymaking at the macro level due to its adaptability to different welfare states. Therefore, this paper advocates for implementing the DPMP and reviews the current policies for managing chronic pain in older adults. Future studies can further examine the long-term effects of DPMP and its applicability in different social contexts.

Conflict of interest

The authors declare no conflicts of interest.

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