Original Article

Pain Prevalence, Experiences, and Self-Care Management Strategies Among the Community-Dwelling Elderly in Taiwan

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Abstract
The purpose of this study was to explore pain prevalence, experiences, and self-care management strategies among community-dwelling elderly in Taiwan. A convenience sample of elderly persons (n = 1054) was recruited from outpatient clinics of two hospitals in northern Taiwan. Participants’ pain prevalence was 50.0%, and the average number of pain sites was 3.9 (standard deviation [SD] = 5.8). Knees were the most commonly described pain site, but the most painful site was the spinal cord area. The mean pain intensity was 3.1 (SD = 1.8) and pain interference was 2.8 (SD = 2.1). Most participants took prescribed medications to deal with pain; doctors were the main information source for this self-care strategy. Although participants reported using various self-care pain management strategies, most still reported moderate-to-severe worst pain. Moreover, our participants identified far fewer self-care strategies than U.S. elders with chronic pain. These findings suggest that community-dwelling elders in Taiwan know little about managing pain symptoms or ascribe a different meaning to pain than their U.S. counterparts. Because health care providers play an important role in helping the elderly to manage pain, the authors recommend training health care providers about Taiwanese elders’ perceptions of pain, to perform regular pain assessments, and provide current knowledge about pain assessment and pain management strategies. J Pain Symptom Manage 2010;40:575–581. © 2010 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

Key Words
Pain, elderly, community, self-care, pain perception

Introduction
Advances in medical technology are contributing to longer life expectancies, making care of the elderly an important global health issue. Chronic nonmalignant pain is a common problem among the elderly, occurring in up to 50% of community-dwelling older adults.1 Because of its negative impact on functional independence, psychosocial consequences, and quality of life, pain among the elderly has been highlighted as a significant problem.2–4 Pain medications are an important modality for treating pain. However, the high cost and adverse side-effect profiles associated with
many analgesic treatments, as well as the potential for drug-drug interactions, operate as significant barriers to the use of standard pharmacological treatments in the elderly. In addition, many pain medications cannot be prescribed because of co-occurring morbidities (e.g., congestive heart failure, peptic ulcer disease), which are highly prevalent in seniors. These issues highlight the importance of exploring nonpharmacological therapies and strategies to treat or relieve pain in the elderly.

One approach to nonpharmacological pain management is the use of self-care strategies to relieve pain in the elderly, which has recently received more research attention in the United States. Results have indicated that older adults tend to use self-care strategies, such as taking medication, exercise, religious activities, task persistence, and cognitive coping, to deal with their pain, with most participants using at least one self-care strategy, and medication use being the most commonly used strategy.

In 2007, the life expectancy in Taiwan for women and men was 81.9 and 75.5 years, respectively. Moreover, by the end of 2007, the elderly accounted for 10.2% (22.95 million people) of the total Taiwanese population. Thus far, few studies have explored the prevalence of pain and pain management strategies in elderly Chinese populations. Most of these studies have focused on a special disease (such as osteoarthritis) or pain site (such as headache). Only two studies explored pain in general among the elderly. One study reported a pain prevalence of 65.3% among elderly nursing home residents (n = 150) in Taiwan. The self-care pain management strategy most often used by participants (54.21%) was taking prescribed medications; doctors were the main information source for this strategy. The other study reported that 42% of community-dwelling older people (n = 219) in Taipei City experienced chronic pain. Because both studies had small samples, their findings may not be representative. Knowledge of the extent of pain problems is crucial baseline information for health care service planning and for actually providing primary health care services. Therefore, this study was undertaken to explore the prevalence, experiences, and self-care management strategies for pain among a large sample of community-dwelling elders in Taiwan.

Methods
Sample and Setting
This study was part of a large research series to assess health-seeking behaviors among the community-dwelling elderly in Taiwan. Participants were sampled by convenience from a medical center and a regional hospital in northern Taiwan. Outpatients from internal medicine clinics at the selected hospitals were recruited if they met the following inclusion criteria: 1) aged 65 years or older and 2) able to communicate. Of 1312 outpatients approached because they appeared to be at least 65 years old, 132 did not meet this criterion. Of 1180 patients or clients who met the inclusion criteria, 125 refused to participate because of being too busy and one did not complete the questionnaire. Therefore, the final sample size was 1054. Data were collected from July to October 2008.

Measures
Data were collected on pain characteristics, self-care pain management strategies, and demographic characteristics. The multidimensional nature of pain was assessed by the Brief Pain Inventory-Chinese version (BPI-C), which measures pain sites, intensity, and interference with life activities in the previous seven days. The first part of the BPI-C consists of figures representing back and front body outlines. Participants were asked to mark their pain on the figures, sequentially numbering the different pain sites. The second part of the BPI-C consists of four single-item measures of pain intensity: worst pain, least pain, average pain, and current pain. Each item is rated from 0 (no pain) to 10 (the worst pain I can imagine). These four items were averaged to represent patients’ overall pain intensity. The third part of the BPI-C consists of seven items that assess the extent to which pain interferes with general activity, mood, walking, working, relations with others, sleeping, and enjoyment of life. Each item is rated on a 0–10 scale. Because most elders do not work, the item about interference with working was deleted. Scores on the remaining six items were averaged to give an overall pain interference score.

Self-care pain management strategies were assessed using self-report, open-ended, and semi-structured questionnaires. Participants were
asked to freely describe three common self-management strategies they used to relieve pain, the level of effectiveness (0 = not effective and 10 = extremely effective), and the information source for each strategy. No suggestions or list of alternatives were presented to them. Demographic information was also collected using a researcher-developed demographic sheet covering basic questions regarding age, gender, education, marital status, number of children, perceived health condition (1 = very poor, 2 = poor, 3 = neutral, 4 = good, and 5 = very good), and the number of chronic diseases.

Procedures
Each selected hospital was approached individually. After the hospitals’ institutional review boards approved the study, two research assistants (RAs) approached elderly outpatients sitting in the waiting areas of internal medicine clinics. After describing the study, screening for the inclusion criteria, and obtaining written consent to participate, the RAs read the questionnaire items to each participant and recorded their answers. Both RAs were experienced nurses who had studied geriatrics for several years.

Analysis
Descriptive statistics were used to describe the sample characteristics in terms of demographic and pain-related variables. Chi-square or t-tests were used to compare the characteristics of participants with and without pain. Content analysis was used to categorize all management strategies for pain symptoms. Frequencies of use also were computed for each strategy.

Results
In this sample of 1054 community-dwelling elderly, 527 reported pain, indicating a pain prevalence of 50.0%. Examination of participants’ demographic characteristics (Table 1) revealed five significant differences between participants with and without pain. Among participants with pain, more were female, had a lower education level, were widows/widowers, and had chronic diseases but perceived better health condition than participants without pain.

Participants with and without pain were compared by the prevalence of chronic diseases in terms of hypertension, heart disease, diabetes, osteoarthritis, respiratory disease, cataracts, digestive system disease, renal disease, stroke, urinary system disease, cancer, and fracture. Elders with pain had significantly higher prevalence of six chronic diseases (in decreasing order): hypertension, diabetes, osteoarthritis, cataracts, urinary system disease, and fracture.

For the elderly with pain, the average number of pain sites was 3.9 (standard deviation [SD] = 5.8, range: 1–23). Among elderly participants with pain, 109 (20.7%) experienced pain at only one site, 155 (29.4%) had pain in two separate sites, 81 (15.4%) experienced pain at three sites, 63 (12.0%) had pain at four sites, 33 (6.3%) had pain at five sites, 28 (5.3%) had pain at six sites, and 58 participants reported experiencing pain at seven or more sites. The most commonly described pain sites were knees (35.5%), lower back (31.5%), and the spinal cord area (26.9%). In addition, the most painful sites were described as the spinal cord area (36.4%), right knee (16.8%), and left knee (13.5%).

The overall pain intensity in elders with pain was 3.1 (SD = 1.8), indicating slight pain in this sample. The overall pain interference was 2.8 (SD = 2.1), indicating slight interference with life activities in this sample. Participants reported that their pain most interfered with their general activity, walking, and mood (Table 2).

Self-care strategies to manage pain and sources of this information are shown in Table 3. In general, 527 participants with pain identified 35 self-care strategies to manage their pain. Most participants (90.9%) identified at least one self-care strategy to manage their pain. They also applied different self-care strategies in managing their pain. The most commonly used strategies to relieve pain were to take prescribed medications, take a rest, and massage. The main information source for pain management strategies was doctors.

Discussion
The prevalence of pain in this sample of community-dwelling elders (50.0%) is similar
to findings reported in Western\textsuperscript{1} and Taiwanese\textsuperscript{22} studies. Moreover, participants reported multiple sites of pain similar to previous findings.\textsuperscript{21,25} Knee pain was commonly described by the present study’s participants, likely explaining why most of them reported interference with walking.

Analysis of the distribution of responses to items on the BPI-C about worst pain intensity revealed a troubling phenomenon. Among elderly participants with pain, 34.5\% (\(n = 182\)) suffered mild pain (score 1–4), 48.0\% (\(n = 253\)) had moderate pain (score 5–7), and 17.5\% (\(n = 92\)) had severe pain (score 8–10). These data reveal that the largest proportion of this subsample suffered from moderate-to-severe worst pain. This finding suggests that community-dwelling elders in Taiwan need help to relieve their pain. Future studies are needed to determine effective strategies for relieving pain in this population.

Our 527 participants with pain identified only 35 self-care strategies to manage their pain, in contrast to a report that 240 older U.S. adults with chronic pain recalled and identified 119 self-care strategies to manage their pain.\textsuperscript{11} Although our study and the U.S. study both used an open-ended question to collect data on self-care strategies, in our study we asked for the three commonly used strategies, whereas the U.S. study asked participants to describe all methods used to deal with pain.\textsuperscript{11} Thus, 8.9\% participants in our study could not recall any self-care strategy during the interviews. In addition, 73.6\% could recall only one strategy and 14.4\% recalled two strategies to manage their pain. Moreover, the effective levels of most strategies were rated as moderate (score 5–7), indicating that those strategies did not effectively relieve their pain. These findings suggest that community-dwelling elders in Taiwan know little about managing pain symptoms or ascribe a different meaning to pain than their U.S. counterparts. If Taiwanese elders lack information about managing pain symptoms, health care providers in Taiwan need to improve elders’

\begin{table}[ht]
\centering
\caption{Demographic Characteristics of Community-Dwelling Elders With and Without Pain (\(n = 1054\))}
\begin{tabular}{lccccc}
\hline
Characteristics & Elders with Pain (\(n = 527\)) & Elders without Pain (\(n = 527\)) & Degrees of Freedom & \(t\) & \(\chi^2\) \\
\hline
Age (years), mean \(\pm\) SD & 73.0 \(\pm\) 6.0 & 73.1 \(\pm\) 6.3 & 1 & 17.19\textsuperscript{a} \\
Gender, \(n\) (%) & & & & & \\
Male & 255 (48.4) & 322 (61.1) & & & \\
Female & 272 (51.6) & 205 (38.9) & & & \\
Education, \(n\) (%) & & & & & \\
No formal education & 137 (26.0) & 86 (16.3) & & & \\
Primary school & 222 (42.1) & 208 (39.5) & & & \\
Junior high & 83 (15.7) & 116 (22.0) & & & \\
\text{\(\geq\) Senior high} & 85 (16.1) & 117 (22.2) & & & \\
Marital status, \(n\) (%) & & & & & \\
Married & 402 (76.3) & 443 (84.1) & 3 & 22.66\textsuperscript{a} \\
Widow/widower & 108 (20.5) & 73 (13.9) & & & \\
Other & 17 (3.2) & 11 (2.1) & & & \\
Number of children, mean \(\pm\) SD & 4.0 \(\pm\) 1.5 & 5.9 \(\pm\) 1.7 & 2 & 10.04\textsuperscript{b} \\
Perceived health condition, mean \(\pm\) SD & 3.3 \(\pm\) 0.8 & 2.9 \(\pm\) 0.9 & & & \\
Number of diseases, mean \(\pm\) SD & 1.8 \(\pm\) 1.2 & 1.3 \(\pm\) 1.0 & & & \\
\hline
\end{tabular}
\end{table}

\textsuperscript{a}\(p < 0.01\).

\textsuperscript{b}\(p < 0.05\).

\begin{table}[ht]
\centering
\caption{Pain Intensity and Interference Among Community-Dwelling Elderly (\(n = 527\))}
\begin{tabular}{lcc}
\hline
Characteristics & Mean (SD) \\
\hline
Pain intensity & & \\
Worst pain & 3.1 (1.8) & \\
Least pain & 1.5 (1.9) & \\
Average pain & 3.1 (2.0) & \\
Current pain & 2.3 (2.1) & \\
Pain interference & & \\
General activity & 4.2 (2.6) & \\
Mood & 3.1 (2.9) & \\
Walking & 3.7 (3.1) & \\
Relations with others & 1.4 (2.2) & \\
Sleeping & 2.3 (2.9) & \\
Enjoyment of life & 2.2 (2.5) & \\
\hline
\end{tabular}
\end{table}
awareness of current pain management strategies. If older Taiwanese adults’ view of pain were influenced by Buddhism or Confucianism, they would ascribe a different meaning to pain than Westerners. For example, Buddhists believe that pain comes from a barrier in a past life and can only be ended by the eight right ways (i.e., view, intention, speech, action, livelihood, effort, mindfulness, and concentration).26 Similarly, pain is viewed in Confucianism as an essential element of life that must be endured, a trial or a sacrifice.26 Thus, Taiwanese elders would be likely to use fewer pain management strategies to deal with their pain. Further studies are needed to explore this issue.

The three most highly effective self-care strategies for managing pain, excluding having an injection and operation, were acupuncture, changing diet, and meditation. Acupuncture has been used to relieve pain in Western cultures,27–32 Two forms of meditation, mindfulness and transcendental meditations, have been used to treat pain in older adults.31 However, in a review of 20 studies using mind-body interventions for chronic pain in older adults, only two studies focused on adults aged 65 years or older.31 Mindfulness meditation has been shown to be feasible and significantly improve self-reported pain acceptance and physical function for older adults with chronic low back pain.32 In our study, elders with pain because of gastric ulcer managed their pain by changing their diet (such as by not eating spicy foods). These highly effective self-care pain management strategies were used by only one

### Table 3

<table>
<thead>
<tr>
<th>Self-Care Management Strategy (Frequency)</th>
<th>Effective Level</th>
<th>Source (Frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take prescribed medications (248)</td>
<td>6.83</td>
<td>Doctor 240</td>
</tr>
<tr>
<td>Take a rest (52)</td>
<td>4.90</td>
<td>Nurse 51</td>
</tr>
<tr>
<td>Massage (41)</td>
<td>5.59</td>
<td>Self 16</td>
</tr>
<tr>
<td>Use a patch (41)</td>
<td>6.02</td>
<td>Others 18</td>
</tr>
<tr>
<td>Go to see a doctor (28)</td>
<td>6.71</td>
<td>Others 15</td>
</tr>
<tr>
<td>Take over-the-counter medications (21)</td>
<td>6.29</td>
<td>6</td>
</tr>
<tr>
<td>Attend rehabilitation classes (17)</td>
<td>6.24</td>
<td>17</td>
</tr>
<tr>
<td>Use ointments (17)</td>
<td>6.12</td>
<td>9</td>
</tr>
<tr>
<td>Use a hot pad (11)</td>
<td>5.09</td>
<td>3</td>
</tr>
<tr>
<td>Exercise (10)</td>
<td>5.10</td>
<td>2</td>
</tr>
<tr>
<td>Have an injection (8)</td>
<td>8.13</td>
<td>1</td>
</tr>
<tr>
<td>Have an operation (4)</td>
<td>8.00</td>
<td>4</td>
</tr>
<tr>
<td>Use an assistive device (4)</td>
<td>6.00</td>
<td>2</td>
</tr>
<tr>
<td>Endure (4)</td>
<td>4.00</td>
<td>4</td>
</tr>
<tr>
<td>Take Chinese medicines (3)</td>
<td>6.33</td>
<td>1</td>
</tr>
<tr>
<td>Do not move (3)</td>
<td>6.00</td>
<td>3</td>
</tr>
<tr>
<td>Sleep (3)</td>
<td>4.67</td>
<td>3</td>
</tr>
<tr>
<td>Sit down (3)</td>
<td>4.67</td>
<td>3</td>
</tr>
<tr>
<td>Lie down (3)</td>
<td>3.00</td>
<td>3</td>
</tr>
<tr>
<td>Have a hot bath (2)</td>
<td>7.00</td>
<td>2</td>
</tr>
<tr>
<td>Keep joints warm (2)</td>
<td>5.50</td>
<td>2</td>
</tr>
<tr>
<td>Drink water/tea (2)</td>
<td>3.00</td>
<td>2</td>
</tr>
<tr>
<td>Acupuncture (1)</td>
<td>9.00</td>
<td>1</td>
</tr>
<tr>
<td>Change diet (1)</td>
<td>8.00</td>
<td>1</td>
</tr>
<tr>
<td>Meditate (1)</td>
<td>8.00</td>
<td>1</td>
</tr>
<tr>
<td>Drink alcohol (1)</td>
<td>7.00</td>
<td>1</td>
</tr>
<tr>
<td>Hit the pain site (1)</td>
<td>6.00</td>
<td>1</td>
</tr>
<tr>
<td>Use a cold pad (1)</td>
<td>5.00</td>
<td>1</td>
</tr>
<tr>
<td>Do not sit (1)</td>
<td>5.00</td>
<td>1</td>
</tr>
<tr>
<td>Listen to music (1)</td>
<td>5.00</td>
<td>1</td>
</tr>
<tr>
<td>Read a magazine (1)</td>
<td>5.00</td>
<td>1</td>
</tr>
<tr>
<td>Blame others (1)</td>
<td>5.00</td>
<td>1</td>
</tr>
<tr>
<td>Skin scrapingb (1)</td>
<td>5.00</td>
<td>1</td>
</tr>
<tr>
<td>Watch TV (1)</td>
<td>3.00</td>
<td>1</td>
</tr>
<tr>
<td>Total (541)</td>
<td>6.29</td>
<td>304</td>
</tr>
</tbody>
</table>

*a* Others includes family, friends, physical therapist, massage therapist, drugstore, and advertisement.

*b* A traditional Chinese therapy in which a wooden stick is used to scrape the skin of affected areas.
person each in our sample. Thus, health care providers may consider conducting a clinical study to test their safety and effectiveness in a larger Chinese sample. The results of such a study could provide health care providers some alternative strategies to offer the elderly for managing their pain.

Our sample of elders did not mention some other self-management strategies to reduce pain that have been reported in the literature. For example, yoga, tai chi, music therapy, hypnosis, and progressive muscle relaxation have been used for pain reduction in older adults. These strategies could be explored in future clinical trials to determine their effectiveness in relieving pain among Chinese community-dwelling elders.

Although our sample comprised older Chinese adults, few of them used traditional Chinese medicine, tai chi, or acupuncture to manage pain. In contrast, acupuncture and tai chi were used by U.S. elders more often than by our sample to manage their pain. This very interesting phenomenon may be explained by the way these traditional practices are viewed in Chinese culture. Energy is a very important concept for Chinese people, who believe that having enough energy can prevent infections or diseases. Taking traditional Chinese medicine, performing tai chi, or having acupuncture may be considered as a way to balance one’s energy. Although pain can be thought of as an imbalance of energy, our participants might have related their pain to disease because they were recruited as hospital outpatients. As a result, they did not connect these traditional Chinese practices with relieving pain. Further studies are needed to explore this issue.

Taking pain medication can influence the effectiveness of patients’ self-care strategies for pain management. However, medication use was not emphasized in this study. In addition, elderly participants were recruited from outpatient clinics, which might have biased the results to a higher prevalence of pain. However, recent government data indicate that 90.3% of Taiwanese elders visited a doctor in 2007, supporting our sample’s representativeness of community-dwelling elderly in Taiwan.

In conclusion, this study revealed a high prevalence of pain among the community-dwelling elderly in Taiwan. Their pain experiences caused enough suffering to interfere with their daily activities. Their inability to get relief from pain may have been because of their limited use of pain management strategies or their cultural view of pain. Further studies are needed to explore this issue. Because health care providers play an important role in helping the elderly to manage pain, in-service training about pain is recommended for health care providers in hospitals in Taiwan. The content of such training could focus on Taiwanese elders’ perceptions of pain, the importance of regular pain assessment, and current knowledge about pain assessment and management. Health care providers with a sound understanding and good knowledge of pain will give better care to elders and teach them appropriate self-care strategies to manage their pain.

References

10. Albert SM, Musa D, Kwoh CK, et al. Self-care and professionally guided care in osteoarthritis:


