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# Management of Chronic Non-malignant Pain in Nursing Homes Residents

## **Abstract**

Pain in nursing homes remains underassessed, underreported and undertreated, consequently, becoming a growing concern in the United States. The purpose of this inquiry is to review the current evidence guiding the management of chronic non-malignant pain among nursing home residents. Twelve articles relevant to this topic were obtained from a search of the electronic databases PubMed and Cumulative Index of Nursing and Allied Health (CINAHL). Findings underscore an urgent need to improve assessment, documentation, and management of pain in nursing home residents.

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## Abstract

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Pain in nursing homes remains underassessed, underreported and undertreated, consequently, becoming a growing concern in the United States. The purpose of this inquiry is to review the current evidence guiding the management of chronic non-malignant pain among nursing home residents. Twelve articles relevant to this topic were obtained from a search of the electronic databases PubMed and Cumulative Index of Nursing and Allied Health (CINAHL). Findings underscore an urgent need to improve assessment, documentation, and management of pain in nursing home residents.

Nursing home residents experience under-recognized and undertreated pain that adds to the decline in their quality of life. Among nursing home residents, pain has a prevalence of 49% to 83%, while its occurrence is less than 10% to 40% in the general community and 60% in hospitalized patients (Herman, Johnson, Ritchie, & Parmelee, 2009). Only about half of nursing home residents experiencing pain receive analgesic medications on an as-needed basis and 25% of residents reporting daily pain receive no analgesic medications. Untreated pain can lead to depression, impaired ambulation, sleep disturbance, less social interaction, and greater utilization of healthcare. Pain can also aggravate some conditions, delay recovery, impair physical functioning, and lead to polypharmacy (Herman et al., 2009).

With such a high percentage of nursing home residents receiving inadequate pain control, it is important to understand the current practices as these relate to pain management for nursing home residents and find the best methods to control non-malignant pain. The purpose of this paper is to review the literature related to treatment of chronic, non-malignant pain in nursing home residents. Research studies were obtained using online databases. Specifically, this paper analyzes pain prevalence, detection of pain, improving pain assessment practices, and approaches to effective pain management in managing pain in nursing home residents.

## Methods

A literature search was conducted to identify recent research reports addressing any aspect of pain assessment or management in the nursing home setting using two databases: Cumulative Index of

Nursing and Allied Health (CINAHL) and PubMed. Publications were limited to the last five years and the snowball technique was employed to identify additional relevant articles through reviewing the reference list of included articles. A total of twelve relevant articles were found, which are used as evidence for this paper.

## Presentation of Empirical Evidence

### Pain Prevalence

Pain is a common problem in older individuals living in nursing homes, with the incidence of persistent pain between 49% and 84% and one-quarter of residents experiencing daily episodes of pain (Won, Lapane, Vallow, Schein, Morris, & Lipsitz, 2004). From a cross-sectional study that analyzed pain prevalence among 21,380 nursing home residents in 10 states, occurrence of persistent pain was highest for nursing home residents with musculoskeletal pain and those with a history of falls, fractures, or surgery (Won et al., 2004). Chronic pain is characterized by at least one of the following criteria: usually lasts three months or longer, lasts at least one month beyond the usual course of an acute disease or the reasonable time for an injury to heal, is associated with a chronic pathological process that causes continuous pain, recurs intermittently for months or years, and is often correlated with a long-standing functional and psychological impairment.

Hanlon and colleagues (2010) investigated pain in nursing home hospice and palliative care residents. This study used a cross-sectional design to evaluate 303 patients from 1174 nursing homes. Facility staff was asked if, in the past 7 days, the residents reported or showed evidence of pain. Medication use data were derived from medication admin-

istration records and demographic information and health status were retrieved from the Minimum Data Set records. Pain symptoms were present in over one-third of elderly nursing home hospice or palliative care residents despite use of opioids for pain relief among two-thirds of patients experiencing pain. Acetaminophen was administered in 31% of residents. Hanlon et al. (2010) conducted one of the first national studies of pain prevalence in older nursing homes hospice and palliative care residents. They found that when comparing patients in pain to those without pain, patients enduring pain had longer lengths of stay in hospice/palliative care and were more likely to be incontinent of bowel and bladder. Race was not a significant factor as to whether residents received adequate pain control in this study. Because of the cross-sectional study design, it was not possible to establish causal-effect relationships in determining effective pain management. Researchers also did not have sufficient data to report information about pain severity and analgesic dosages, and with the small sample size, meaningful multivariable analyses could not be performed.

### Detection of Pain

Buhr and White (2006) trace the lack of appropriate treatment of pain to the inability of nursing facility staff members to recognize and distinguish chronic pain from acute pain. Differentiating acute pain from chronic pain in patients with cognitive impairments is an additional challenge. In a study to field test a standardized resident interview and medical record review protocol to assess and score quality indicators relevant to pain, Cadogan et al. (2005) noted that physicians infrequently assessed for pain. This descriptive study of 794 nursing home residents and medical records from 542 patients showed that during the patient interview, 48% reported symptoms of chronic pain and 81% of the group reported a need for pain medication. However, nearly half of these patients had no physician assessment of pain in the last year. Overall, physician pain assessments were infrequent or incomplete (Cadogan et al., 2005). This study included evidence-based quality indicators with explicit selection and scoring criteria for each indicator to permit reliable data recording. Interviews identified chronic pain in a stable fashion which allows for judgments to be made about the quality of physician and nursing home staff documented pain assessment. It was noted that the cross-sectional methodology used did not allow determination of the direction of the re-

lationship between documented physician pain assessment and Minimum Data Set documentation of pain, which is a limitation of the study.

Edelen and Saliba (2010) investigated effective tools to assess for pain in nursing home residents. Two of the most common and supported methods are the 0-10 numeric rating scale (NRS) and the verbal descriptor scales (VDS), which asks the patient to choose a verbal description of pain such as mild, moderate or severe on a 4-5 point scale. These researchers (2010) chose to use the item response theory (IRT) as a cross-calibration of the two scales to test NRS and VDS (Edelen & Saliba, 2010). They sampled over three thousand nursing home residents from 71 nursing homes across 8 states and demonstrated that either of the two scales can be used in practice depending on physician preference. Eden and Saliba (2010) did not discuss the cognitive status of their patients.

Another method of determining pain in older adults in nursing homes was examined by Jones, Vojir, Hutt and Fink (2007). Authors compared three different pain assessment instruments (VDS, Faces Pain Scale and NRS) to examine the equivalency of pain intensity scores for 135 nursing home residents. They found that the pain levels across the three tools were highly correlated although residents were found to underrate pain intensity on the Faces Pain Scale. They noted that nursing home residents generally preferred the VDS but residents with language difficulties appeared to prefer the Faces Pain Scale. A study limitation was the inclusion of nursing homes from only one state, however, generalizability was enhanced by the fact that rural and urban nursing homes were included in the study along with a meaningful number of Hispanic subjects represented in the sample.

### Improving Pain Assessment

Buhr and White (2006) researched methods to improve pain assessment in nursing homes. Their intervention was the formation of a quality improvement team that reviewed current clinical practice guidelines, updated policies and procedures, developed tools for pain assessment, and educated the staff in pain assessment and management. This intervention involved a "Plan-Do-Study-Act" (PDSA) methodology that was carried out in one nursing home in North Carolina with three related facilities as secondary sites. The staff's pain-related knowledge was measured with multiple choice tests as well as the completeness of pain assessments before and after the education. Re-

sults showed that education and the use of the PDSA paradigm improved staff knowledge as well as patient and family satisfaction with chronic pain evaluation. This was evident by increased scores on the multiple choice test for all 1 members of the nursing team and measurable improvements in documentation. A limitation was the fact that the program was carried out over a short time span, and therefore assessment of continuous quality improvement was not possible. There was also a lack of involvement of nurses and other direct care workers in the planning process. A strength of Buhr's and White's (2006) work was related to their focus on quality of care as perceived by the patients and families rather than merely improving documentation practices. Educational strategies engaged professional nurses, licensed practical nurses, certified nursing assistant, physicians and nurse practitioners as well as patients and families. Their approach underscored the need to involve all health care providers in pain assessment practice.

### **Detection of Pain in Patients with Cognitive Impairment**

Not all nursing home residents are able to answer questions about pain. Special consideration needs to be taken when detecting pain in nursing home residents with cognitive impairments. In a study conducted by Leone et al. (2009), researchers analyzed verbal as well as nonverbal pain scales for nursing home residents. They selected their sample of 40 participants from two of the major skilled care and dementia units at a Columbia, NY area nursing home. Verbal tools that were reviewed included the visual analog scale, faces pain scale, Wong-Baker pain scale and others. These scales have been used extensively in different age groups with good results but require verbal communication with a patient and sometimes require abstract thinking, making them suitable for patients with intact cognition. Nonverbal tools were chosen based on their ability to detect pain in patients with cognitive deficits and sometimes no ability to communicate their pain status. These researchers used a cycle of the PDSA model. The tools chosen for the study were the visual analog scale for verbal patients and for the cognitively impaired, the Non-communicative Patient's Pain Assessment Instrument (NOP-PAIN), Assessment in Advanced Dementia (PAINAD), and the Non Verbal Indicators for Pain scales fulfilled the requirements of the researchers. These tools were chosen as the most sensitive, specific, appropriate,

time sensitive and widely accepted. Leone and colleagues (2009) concluded that tools such as the above mentioned are necessary for both verbal and nonverbal evaluation of pain in nursing homes. In addition, they found that regular cognitive and behavioral assessment may help assess pain by providing additional information to physicians, nurses, and other caregivers when treatment becomes more complex and challenging. One limitation of this study was its small sample size. However, the participants were randomly chosen and both verbal and nonverbal pain scales were studied.

### **Pain Management**

Won, Lapane, Vallow, Schein, Morris and Lipsitz (2004) found that pain is highly prevalent in nursing homes and that there is suboptimal compliance with geriatric prescribing recommendations. A total of 21,380 nursing home residents were included in this cross-sectional study. The Minimum Data Set assessments on pain, analgesics, cognitive, functional, and emotional status were summarized. The study findings showed that acute pain was thought to be an important contributory source of chronic pain, and that physicians may not always properly prescribe analgesics and many residents do not always receive analgesic medications. Although The American Geriatrics Society guidelines state that most analgesics should be given as standing doses for chronic pain, only 46% of these drugs were given as standing doses and analgesics were typically only prescribed on an as needed basis. Weaknesses of this study included the lack of instruments for evaluating pain in patients with cognitive or communication impairments. The fact that the MDS coordinator completed the MDS raised concerns as this individual may not have been directly involved in clinical care. This may have lead to the underestimation of prevalence of pain.

Baier and colleagues (2004) conducted a collaborative quality improvement project to ameliorate pain in nursing homes. This quasi-experimental design used pretests and posttests to study 21 nursing home facilities. The project consisted of a multifaceted collaborative intervention involving audit feedback of pain management, education, training, coaching, and using rapid-cycle-quality-improvement techniques as well as inter-nursing home collaboration. Each nursing home had a quality improvement team composed of directors of nursing, unit nurses, and certified nursing assistants. The five components of the interventions were: education on pain management,

audit and feedback, a systematic quality-improvement approach focusing of PDSA cycles, one-on-one mentoring for each nursing home, and collaboration between participating facilities. The results of the study showed that this intervention improved pain-management process and outcome measured in nursing homes. This is one of the first projects conducted in the nursing home setting demonstrating that a multifaceted intervention using a collaborative quality-improvement model significantly reduced the prevalence of pain and improved adherence to processes of care recommended in clinical care guidelines. One weakness was that sustainability of the results was not addressed.

A study by Horner and co-investigators (2005) examined whether a quality improvement intervention can improve pain management in nursing homes. In this study, experts in quality improvement and clinical pain management provided nursing home staff leaders with feedback on pain quality indicator data, pain management education, and technical assistance to apply the PDSA model. After the intervention, residents in pain who underwent pain assessments increased from 8% to 29% and residents receiving non-pharmacological pain treatments increased from 31% to 42%. Pain medication prescription, however, did not change. For residents with daily moderate or excruciating pain, complete pain assessment was associated with an increase in likelihood of pain medication prescription. This study suggests that quality improvement methods can be used to improve pain management for nursing home residents as previous research has shown success in pain management in acute care hospitals with quality improvement efforts. The intervention did not change pain medication prescribing practices, although it may have reinforced the relationship between assessment and prescription of scheduled medications for residents in more severe daily pain. This finding emphasizes the need for thorough assessment of pain to ensure adequate treatment strategies, particularly among residents with the worst pain. The pre-post study design included a baseline chart data collection on three established quality indicators. However, researchers did not measure resident response to treatment, and, therefore, cannot define the clinical effect of current prescribing practices.

Jones et al. (2004) tested a multifaceted, culturally competent intervention to improve nursing home pain practices, improve staff, resident, and physician knowledge and attitudes about pain and its

management, improve actual pain practice in nursing homes, and improve nursing home policies and procedure related to pain. In this study, six Colorado nursing homes were studied as the control group while six others were chosen as the intervention group. The intervention successfully improved the percentage of residents reporting constant pain but there was no reduction in percentage of residents reporting pain or moderate/severe pain. Researchers found that interventions to improve pain management in nursing homes must target residents, nursing home staff, and primary care physicians. Jones et al. (2004) included an equal number of rural and urban nursing homes and employed both educational and behavioral change strategies. However, authors reported several challenges that occurred during implementation that had to be modified to enhance translation strategies being used.

When comparing pain management for hospice nursing home patients and non hospice patients, Miller and colleagues (2002) found that analgesic management of daily pain is better for residents enrolled in hospice than nursing home residents not enrolled in hospice. The study found that many dying nursing home residents in daily pain receive no analgesic administration or are receiving analgesic treatment inconsistent with the American Medical Directors Association and other pain management guidelines. Although analgesic prescribing patterns for hospice residents were more consistent with recommended prescribing guidelines, there was a high prevalence of undesirable prescribing practices found for all dying residents. A high proportion of all dying residents received analgesics only on an as needed basis and opioid prescriptions were used more frequently by hospice residents than non hospice residents. The investigators concluded that it is necessary to improve analgesic management of pain in nursing home residents if high quality end-of-life care is to be achieved. This study was a retrospective and comparative cohort study. The findings were similar to those of comparable studies of pain management in nursing homes that used different data sources than the Minimum Data Set and studies have shown that most MDS data are reliable and valid. One reported limitation of the study was that multivariate analyses could not control for all patient or facility selection bias and the study could not control for all patient characteristics that predispose them to elect hospice care.

### Assessment of the State of the Science of the Empirical Evidence

Publications assessed in this paper included cross sectional studies, quasi-experimental, pretest and posttest, quality improvement models, descriptive studies, multifaceted and culturally competent interventions, qualitative and quantitative methods and retrospective and comparative cohort studies. Of the twelve articles, only two mentioned populations that were not Caucasian. Jones et al. (2007) included Hispanics in their study, while Jones et al. (2004) was the only study that mentioned cultural competency. The majority of the studies did not include residents with cognitive impairments, only Buhr et al. (2006) and Cadogan et al. (2005) mentioned residents with cognitive disorders and Buhr et al. (2006) merely mentioned that the residents with cognitive disorders could not fill out the NHP. Cadogan et al. (2004) was the only study that mentioned nonverbal tools to assess pain.

Overall, the empirical literature reviewed suggests that pain is not adequately treated in nursing home settings. Whether it is a problem with detecting or assessing pain or physicians misunderstanding residents' pain, both hospice and non hospice patients do not report adequate pain management in nursing homes. There are a variety of tools available to adequately assess pain and there are many quality improvement methods that can and should be implemented to improve pain management in nursing home residents.

### Recommendations

Based on findings, recommendations for practice include frequently assessing all nursing home patients for pain. This included using both the VDS and NRS since different patients report greater satisfaction with different tools (Edelen & Salibe, 2010). Using a variety of the tools from the Leone et al. (2009) study is a recommendation for residents who are nonverbal or who have cognitive impairments. The visual analog scale should be used for verbal patients and for the cognitively impaired, the Non-communicative Patient's Pain Assessment Instrument (NOPPAIN), Assessment in Advanced Dementia (PAINAD), and the Non Verbal Indicators For Pain scales should be used. After the intensity and frequency of pain is found and a baseline is noted, nursing home staff should ensure that standing orders of pain medication are available when appropriate. There are guidelines and evidence for how to manage pain in nursing home residents, it

is now necessary to implement these guidelines and translate evidence into practice. Using the quality improvement tools and teaching nursing home staff are ways to improve pain control that are proven effective (Buhr et al., 2006).

Policies should be developed and implemented in nursing homes settings to guide clinicians in selecting the most appropriate pain evaluation measures, specifically the frequency for how often pain is assessed, and when it is necessary, administering standing orders for pain medications. Buhr and White (2006) noted that a quality improvement team which utilizes a "Plan-Do-Study-Act" paradigm improves pain assessment in nursing homes. Updating policies and procedures and employing tools for rating pain based on reviews of current literature will improve the likelihood that pain will be assessed and addressed in nursing homes settings.

Since acute pain may be an important contributing source of pain, more effective provider education and research is needed to determine whether the treatment of acute pain could prevent persistent pain (Won et al., 2004). Substantial knowledge gaps and suboptimal attitudes and beliefs about pain and its treatment demonstrated by nursing home staff and pharmacological knowledge must be addressed to promote better pain assessment practices. Educational content on pain should be expanded in medical and nursing school curriculum, and licensing and certifying exams should have an emphasis on gero-pharmacology (Jones et al., 2004).

Future studies should be conducted to look at minority population who might differ in the terms of the quality of their pain management in nursing homes. More research on how effective pain control can improve quality of life, sleep patterns, ADL, and recovery will provide a stronger foundation for evidence-based practice in nursing homes. Greater attention should be given to testing pain assessment scales and intervention in older adults receiving palliative care or hospice in nursing homes.

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