



## Research Article

# Pain Management in Cognitively Impaired Older Adults

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## Abstract

**Background:** Pain identification and management in cognitively impaired older adults, especially those with major neurocognitive disorder, are challenging because of communication barriers and health care providers who are unaccustomed to the patient's baseline behavioral and psychological conditions. **Management Considerations:** Appropriately distinguishing pain-associated behaviors separate from dementia, utilizing effective assessment tools, and administering proper interventions and medications to treat pain promptly for this population need to be considered. **Conclusions:** Nurses play critical roles in implementing various evidence-based assessment tools to assess pain and choosing appropriate pain management interventions by training and supporting other nurses to use these assessment tools and develop their critical assessment skills to quickly identify pain and evaluate pain management interventions.

**Keywords:** Pain management; Older adults; Cognitive impairment

## Introduction

In the US, approximately 6.7 million older adults age 65 and older are currently living with dementia [1]. Dementia is projected to reach almost 13.8 million by 2060 as the older adult population continues to rise [1]. Chronic pain is the most frequently reported symptom by patients with major neurocognitive disorder (MND) like dementia and their caregivers [2]. It is estimated that about 30 to 68% of older adults with MND experience persistent chronic pain [2]. While pain is often a complicated symptom to identify, measure, and treat effectively it is severely underdiagnosed and

undertreated in the cognitively impaired older adult (CIOA) population due to the barriers related to their disease processes such as inability to express their needs and advocate for themselves [3-5].

About 60-80% of CIOAs fall annually, and they have two to three times higher risk for falls and fall-related injuries compared to their cognitively intact counterparts.6 Whereas, only one-third of CIOAs received analgesic medication compared to their cognitively intact counterparts for pain secondary to hip or pelvic fractures [5]. Persistent and untreated pain in CIOAs have many detrimental consequences such as functional decline, compromised mobility, social isolation, impaired sleep, depression, excessive healthcare utilization, delirium, worsening cognitive function,

falls, injury, and even death [2,5].

Nurses play the most important roles in pain identification, assessment and management in CIOAs as they are at the patient’s bedside providing direct care, often spending the most time with the patient, building rapport, and gaining invaluable information regarding the patient’s condition and behaviors. However, recent survey studies reported nurses caring for CIOAs having fears, lack of confidence and experience, and limited knowledge of dementia care [7,8] These factors have been linked to the delay of pain identification and assessment, underuse of pro re nata (PRN) pain medication, and suboptimal treatment compared to their cognitively intact counterparts [4,7,9,10-12].

Nurses have the responsibility of using their critical thinking skills and training to assess and advocate for their patients’ needs, implement interventions, and escalate concerns and collaborate with providers, who often prescribe orders in consideration of nursing judgment and assessment. Thus, nurses need to be trained to appropriately distinguish pain-associated behaviors separate from dementia, utilize effective assessment tools, and administer appropriate interventions and medications to treat pain promptly for this population [3-5,13]. This review includes useful screening tools for pain, pharmacological and nonpharmacological management strategies for nurses when taking care of older adults

with cognitive impairment.

## Management Consideration

### Screening Tools

Comprehensive and accurate pain assessment is challenging for most patients, especially for CIOAs due to communication deficits and the lack of standardized pain assessment practices [7] Specialized assessment tools may help bridge that gap.

There are roughly 30 tools developed and tested to assess pain in older adults with cognitive impairments, many quantifying behavioral indicators such as facial expression, body movements, vocalization, and changes in activity and mental status [3,14] Information on the more commonly reviewed and utilized assessment tools is included in Table 1. Although there are subtle differences, the majority of tools assess facial expressions like grimaces or clenched teeth as well as body movement such as guarding, bracing, flinching, or striking out, and vocalizations of pain like moans, cries, or verbal protest. Others designed for use in critical care or with non-verbal patients incorporate physiologic metrics such as changes in vital signs, intubation status, and perspiration [15]. Many health care providers may be familiar with other tools commonly used in pediatric care including FLACC and Wong-Baker FACES, but these are not appropriate to assess pain in CIOAs.

Tool	Authors	Metrics	Time to Complete	Considerations
Checklist of Non-Verbal Pain Indicators (CNPI)	Nygaard et al, 2006 <sup>23</sup>	Vocalization, facial expression, bracing, restlessness, rubbing, vocal complaints. All measured at rest and with movement	5 minutes	Assesses all metrics both with movement and at rest
Non-Verbal Pain Scale (NVPS)	Odhner et al., 2003 <sup>15</sup>	Facial expression, movement, guarding, vital signs, physiologic II	5 minutes	Includes more physiologic metrics
Pain Assessment in Advanced Dementia (PAINAD)	Warden et al., 2003 <sup>24</sup>	Breathing, vocalizations, facial expression, body language, consolability	3 minutes	Developed specifically for use in dementia
Critical Care Pain Observation Tool (CPOT)	Gelinas et al., 2006 <sup>25</sup>	Intubation, facial expression, movement, muscle tension	2 minutes	Developed for use in critical care
PACSLAC-II	Chan et al., 2014 <sup>26</sup>	Facial expression, vocalization, movement, changes in interpersonal interaction, activity and mental status	7 minutes	Longer, incorporates change in behavior patterns

**Table 1:** Pain Assessment Tools for cognitively impaired older adults.

Multiple systematic reviews reveal no consensus as to a universally recommended pain assessment tool in CIOAs [3,14] Future research into behavioral pain assessment should evaluate the psychometric properties of existing tools and their utility across clinical settings rather than the creation of new ones [16,17]. While specialized assessment tools can be effective, self-report can and should be used to assess pain in the early stages of cognitive impairment. These simple techniques such as verbal comparison, the Numerical Rating Scale 0-10, or the Verbal Descriptor Scale (VDS) have been found valid and reliable even with moderate dementia [18,19].

The current practices of pain assessment can be often compared to putting together a large puzzle using pieces of information from various sources [7,9,16]. Healthcare workers report that input from the patient's family and/or caregivers can improve the accuracy and individualization of a pain assessment [11,13]. Qualitative data show familiarity with an individual patient also improves the validity of these behavioral-based assessments [20]. Quantifying pain solely based on observational assessment may present an opportunity for bias in the clinical encounter, as body movements or facial expressions of pain are judged by subjective interpretation [21]. In addition, existing tools rarely differentiate between chronic and acute pain, or between types of pain such as neuropathic that requires a specific approach to identify and quantify [13]. With these limitations in mind, other studies have noted that trends or patterns in scores can be more informative to clinicians than a single numerical pain score [9]. Although specialized assessment tools can help identify and quantify pain, they should be used as part of a more comprehensive strategy that includes trending values, self-report, caregiver report, robust patient history, and vital signs or other relevant individual physiological markers [17,22].

### **Pharmacological Interventions**

Pharmacological treatment options are limited in older adult patients due to their fragile physiology, such as slower GI motility, decreased kidney and renal function, and decreased mobility. Frailty is common in older adult populations and can manifest in various symptomatology such as muscle weakness, bone fragility, increased fall risk, trauma vulnerability, infection risk, delirium risk, and substantially reduced physical capabilities [27]. Beers criteria attempt to mitigate this risk by offering a list of medications to avoid when possible in older adult populations. Beers criteria are a nationally recognized list of medications that are potentially inappropriate for use in older adults.

According to Beers criteria, those with chronic kidney and liver failure should avoid non-steroidal anti-inflammatory drugs (NSAIDs), [28] narrowing the options for pharmacological pain medication in this population. Some alternative pain medications include acetaminophen, lidocaine patches, and selective norepinephrine reuptake inhibitors (SNRIs) [28]. Non-opioids should be considered first-line therapeutics, and include aspirin and acetaminophen, gabapentin, and SNRIs [12]. Gabapentin/pregabalin, lamotrigine, or SNRIs should be used in neuropathic pain instead of tricyclic antidepressants (TCAs) due to their cardiovascular contraindications [29].

Commonly used opioids in older adults include oxycodone, tramadol, morphine, buprenorphine, and fentanyl [12]. Buprenorphine is a commonly used pharmacological pain treatment for older adults with dementia in Norway, [3] and one of the noted benefits includes the ease of administration via a

weekly transdermal patch. A double-blind trial with buprenorphine showed an increased risk of adverse effects similar to behavioral and psychological symptoms of dementia (BPSD) [3]. Thorough and recurrent assessment is necessary to adequately treat pain in complex chronic conditions while decreasing the opportunity for patients to become tolerant of and reliant on potentially dangerous medications [3]. 19.3% of these patients with dementia and behavioral disturbances were prescribed opioids, and 79.4% of these patients reported being in pain despite pharmacological interventions [3].

The side effect profile of opioids can increase the already highly prevalent symptoms in older adults such as constipation, delirium, and falls, making opioids an unfavourable treatment modality [12]. A study reported patients with MND who use analgesics and/or non-opioid analgesics having a marked improvement in activities in daily living (ADL); however, the relationship between opioid use and ADL improvement was not significant in patients with MND [12]. Opioids may be used as a last resort for severe chronic pain conditions, especially if the pain condition is mixed in nature [30]. Non-pharmacological treatments are worth considering for CIOA patients, given the limited pharmacological treatment options outlined by Beer's criteria. Additionally, these treatment options often have fewer risks for side effects compared to pharmacological modalities.

### **Non-Pharmacological Interventions**

One non-pharmacological method includes hypnosis. In a small pilot study, [31] hypnosis was positively associated with quality of life in patients with dementia. Hypnosis lowered pain, measured by self-assessment and the operator's judgment, by changing the state of consciousness [32]. Hypnosis was also found to be an effective non-pharmacological pain treatment option for medical procedures (e.g., lumbar punctures) [32] and chronic pain management (e.g., osteoarthritis) [33]. Hypnosis has been found to have no noteworthy adverse effects, which is a significant advantage for patients who are susceptible to treatment-induced complications, like CIOA patients [32]. The limitations of using hypnosis as a non-pharmacological pain treatment modality include the availability of hypnotherapists. In this study, nurses and psychologists were trained for 2 years in a medical hypnosis course at a university in France. Having medical professionals undergo additional training in hypnosis is not likely feasible due to the lack of research on the effectiveness of hypnosis in general populations.

Multiple studies have shown the benefits of physical and occupational therapy in the older adult population, especially for chronic back and joint pain [35-37]. One study evaluated the barriers to physical therapy in treating knee pain in older adults and found that despite therapeutic alliance among members of the healthcare team, barriers continued to persist in older adults'

adherence to physical therapy, including changes in or retained knowledge of treatment [39]. This particular barrier may pose difficulty for the CIOA population, as this barrier is directly affected by CIOA patients' disease.

Despite the numerous studies published on the benefits of PT/OT in older adults, few studies have conducted physical and occupational therapies for pain management in CIOAs [34,35]. One study reported that nonpharmacological treatments like mobility/positioning, nutrition/intake, massage/touch, pacing, therapeutic communication, and spiritual care had no statistically significant difference in pain management in older adults with cognitive impairment in nursing homes ( $p = 0.296$ ) [38]. Additionally, the type of nonpharmacological treatment used was determined by the nurses and care providers and was highly individualized based on the provider's assessment of the patient [38].

One small cross-sectional study found cognitive behavioral therapy (CBT) to be beneficial in older adults with chronic pain, [39] however, CBT has yet to be studied in CIOA patients. More non-pharmacological pain management treatment modalities (e.g., massage, aromatherapy, heat treatment, physical and occupational therapy and cognitive behavioral therapy) should be explored in this patient population.

### Implications for Nurses

Nurses hold a critical role in the care team for pain management. They are in a position to utilize evidence-based practices such as assessment tools to work in collaboration with other health care team members, patients, and families/caregivers, in order to effectively identify and treat pain appropriately, especially for CIOA. Nurses can also train and support other nurses to use these assessment tools and develop their critical assessment skills to quickly identify pain and evaluate pain management interventions. Education should also be extended to patients' families and caregivers to help with effective pain management in the inpatient setting but also continue to improve the care for these patients after discharge.

### Conclusion

The older adult population is dramatically growing along with the prevalence of cognitive impairment. Unfortunately, the current literature highlights many disparities in healthcare experienced by this population, specifically in their needs for pain being inappropriately addressed and poorly managed. Nurses play an essential role in caring and advocating for the needs of these patients; however, more training and education are needed to better serve their unique circumstances. This paper is intended to address these issues in the hope to help improve the quality of life of CIOA with pain and positively impact the services and care being received by these vulnerable populations.

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### Conflict of Interest

Nothing to disclose

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