Effectiveness of a Behavior Assessment Tool to Identify Pain in Patients with Dementia

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Abstract

Assessing pain in a person with dementia can be a difficult task and pain can be left untreated when a person with dementia is unable to verbalize their level of pain. This problem has become a growing concern because untreated pain affects an individual’s quality of life. “Pain can be prevalent in 26-83% of nursing home patients and patients with dementia can be under-treated secondary to their inability to self-report pain” (Warden, Hurley & Volicer, 2003, p. 9). When assessing pain in a person with dementia, are behavioral indicators more reliable than a number rating scale? The aim of this literature review paper is to explore what pain assessment tools are available and what literature reveals about the accuracy of pain assessments in the patient with dementia and are patients with dementia inadequately assessed for pain due to inconsistent or inappropriate pain assessments.
Literature Review

Several articles were reviewed to choose the best research to determine if patients with dementia are inaccurately or inconsistently assessed for pain and if behavioral assessment would lend valuable information to determine pain presence. The first article reviewed was *Pain Assessment in Nursing Home Resident with Dementia: Psychometric Properties and Clinical Utility of the CNA Pain Assessment Tool (CPAT)* (2009). Although this article revealed valuable and current information on the usefulness of a pain assessment tool for nursing assistants, it did not meet the needs to identify validity of the tool. The articles: *Try This: Best Practice in Nursing Care to Older Adults. Assessing Pain in Older Adults with Dementia* (2010), *Implementing a Pain Management Program in a Long-Term care Facility Using a Quality Improvement Approach* (2009), *A Pain Assessment Tool for People with Advanced Alzheimer’s and Other Progressive Dementias* (2003) and *Pain Assessment in People with Dementia* (2008) all provided current information on assessment of pain in persons with dementia but were rejected due to lack of relevant research. *Pain Assessment in Nonverbal Adults with Advanced Dementia* (2005) was a valid study presenting useful information to determine if behavioral indicators would provide valid insight to pain presence in persons with dementia. This study was omitted based on a group determination. The following articles: *Pain Assessment in Persons with Dementia: Relationship between Self Report of Pain and Behavioral Observation* (2009), *Pain in Older Persons with Severe Dementia. Psychometric Properties of the Mobilization-Observation-Behavior-Intensity-Dementia (MOBID-2) Pain Scale in the Clinical Setting* (2010), *Evaluation of a Behavioral Assessment Tool for the Individual Unable to Self-report Pain* (2006) and *Development and Psychometric Evaluation of the Pain Assessment in Advanced Dementia*
(2003) were selected for research review. The above research studies are recent studies, have
been peer-reviewed and represent information relevant to the question.

Summary of Selected Literature

Assessment Tool for the Individual Unable to Report Self Pain utilizing the PAINAD tool. The
purpose of the study was to evaluate this pain tool in practice (Hutchinson et al. The control
group consisted of physicians and nurses utilizing a standard numerical scale and the variable
group consisting of nurses and physicians trained to utilize a behavioral assessment tool known
as the PAINAD assessment. The study was conducted on a post-operative unit and data
collection included the amount of parenteral morphine equivalent (PME) that a patient received
and the incidence of unknown pain intensity reports (Hutchinson et al.). The results of this study
showed that patients were treated more often when assessed using the tool and had less
documentation of unknown pain (Hutchinson et al.). Hutchinson et al. (2006) conclude that the
PAINAD scale is easy to use and provides a helpful tool to assess for pain in persons with
cognitive impairment. It is noted in this study that although the PAINAD scale has a numerical
value of 0-10, this does not necessarily equal the same intensity as the numerical rating scale and
should not be treated as such (Hutchinson et al.).

Pain in Older Persons with Severe Dementia: Psychometric Properties or the
Mobilization-Observation-Behavior-Intensity-Dementia (MOBID-2) Pain Scale in a Clinical
Setting is a study “evaluating the psychometric properties of the MOBID-2 Pain Scale, like
inter-rater and test re-test reliability, internal consistency as well as face to face, construct and
concurrent validity” (Husebo, Strand, Moe-Nilssen, Husebo & Ljunggren, 2009, p. 380). The
study was completed in a nursing home setting and included participants with severe dementia.
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(Husebo et al.). “Key indicators of pain were identified such as verbal statements, defense motions and facial expressions and then included into the MOBID-2 assessment (Husebo et al.). Nurses were trained to use this tool and determine where the pain was occurring. “They were instructed to pay close attention to pain which may originate from internal organs, head and skin” (Husebo et al.). “To examine inter-rater reliability, patients were rated concurrently and independently by two groups of nurses” (Husebo et al., p. 382). “This study provides evidence of inter-rater and test-retest reliability of behavior indicators, pain intensity score of test items, pain drawings and the overall pain score of the MOBID-2 as well as face, construct and concurrent validity” (Husebo et al., p. 382).

Development and Psychometric Evaluation of the Pain Assessment in Advanced Dementia (PAINAD) Scale, is a study completed to “develop a clinically relevant and easy to use tool for patients with advanced dementia” (Warden, Hurley, & Volicer, 2003, p. 9). This study identified that pain in persons with advanced dementia is frequently under-reported and hence under-treated, potentially leading to conditions such as insomnia, weight loss, agitation and decreased mobility (Warden et al.). The study was conducted in a nursing home dementia unit setting with nurses utilizing the PAINAD scale to evaluate pain in persons with dementia (Warden et al.). The PAINAD scale was administered to the participants at rest, during a pleasurable activity and during the process of activities of daily living (Warden et al.). “This study reports that the PAINAD scale is effective to measure pain intensity in patients who are unable to self-report pain and also recognizes good construct validity and reliability” (Warden et al., p. 12). It recognizes that “PAINAD scores are not normally distributed and cluster around 0 during rest or pleasurable activity” (Warden et al., p. 11).
Pain Assessments in Persons with dementia: Relationship between Self-Report and Behavioral Observation is a study that was conducted to “determine if behavioral indicators correlate with the pain rating self report from the individual” (Horgas, Elliott & Marsiske, 2009, p. 126). Horgas, Elliot & Marsiske (2009) hypothesize that pain is under-reported by cognitively impaired participants (p. 126). Participants for the study included both cognitively impaired and cognitively intact elderly people. Participants were chosen from a variety of living situations, but needed to meet criteria of being “English speaking, 65 years of age and older, able to stand up from a chair and have a diagnosis of osteoarthritis in their lower body” (Horgas et al., 2009, p. 127). Participants were put through a series of mobility exercises that simulated normal everyday living mobility. “The mobility exercises were conducted for one minute intervals and the type of activity had shown to induce pain in previous studies with people who had diagnosis of osteoarthritis or chronic lower back pain” (Horgas et al., p. 128). The result of the study showed that people who had dementia experienced the same amount of pain related behaviors during the pain exercise, but were less likely to verbalize pain (Horgas et al.). Several concepts were gained from this study.

The first concept noted that self reported pain may not be a reliable indicator of pain in people with moderate to mild dementia and behavioral observation should be incorporated into the assessment. Second, assessment of pain during mobility is supported, as both groups exhibited an increase in pain during the exercise protocol. Third, the total number of pain behaviors appears to be linked to the intensity of the pain and further studies are warranted. Fourth, the amount of analgesic medication needs to be considered when evaluating people with pain since cognitively
impaired people appear to be medicated differently than cognitively intact
people. (Horgas et al., p. 131)

**Analysis of the Evidence**

Hutchinson and colleagues (2006) study was a quantitative analysis of a behavioral
assessment tool, evaluated with individuals who were unable to self report their pain. The
research is a propositional study, using quantitative research to look at pain, which is subjective
in nature, utilizing a methodological approach. The results do show a cause and effect; because
the PAINAD was used, the patients received more analgesia and there was less documentation of
unknown pain. According to the authors, the “samples were identified through mini mental state
examination (MMSE) and diagnoses of dementia using quota sampling on an acute post-
operative unit” (p. 330). The samples used were small, 57 control samples and 27 variable
samples (p. 330). The PAINAD had been validated previously on a small sample. Data was
collected through structured observation, assessment by physicians and nurses. Descriptive
statistics included PME and unknown pain. The average PME was higher in the variable group,
meaning more pain was assessed and treated and fewer patients were assessed as having
unknown pain in comparison to the standard numerical scale (p. 330). Although there was no
presentation of evidence that did not support use of the PAINAD, the evidence is presented in an
objective manner. The level of evidence is a VI.

The study aim in “Pain Assessments in Persons with Dementia: Relationship between
Self-Report and Behavioral Observation” is to determine if behavioral indicators correlate with
self reported pain (Horgas, Elliott & Marsiske, 2009). Participants included cognitively impaired
and cognitively intact persons. The cognitively intact patients were able to rate their own pain,
which allowed the researcher to compare this with behavioral indicators. The study questions
are clear in ensuring that pain can be assessed accurately with behavioral indicators. The clearly stated hypothesis was that pain would be underreported by cognitively impaired participants, while behavioral indicators would be similar for both groups despite amount of pain reported (p.127). The research used a quasi-experimental, correlational design, which is appropriate to answer the research questions and draw conclusions (p.127). The target population, cognitively impaired adults, has been clearly identified in the study. Cognitively intact older adults are used for comparison. Quota sampling was used to choose research subjects. Subjects were chosen from 17 facilities within central Florida and were interviewed for eligibility and cognitive status (p.127). The sample size is small and is not representative of the population. The principal researcher or a trained assistant interviewed each participant in privacy about pain (p.128). The pain interview was conducted using a standardized tool prior to the study (p.128). Activities were completed and the participant was questioned about pain before and after the activity (p.128). Independent Registered Nurses were used to observe the participants on video and rate pain prior to and after activities (p.128). Descriptive statistics that were used in the study included pain rating and number of behavioral pain indicators observed, as well as demographics, which were clearly presented using graphs and tables (pp. 129-130). Variability of the statistics was discussed. The evidence was used to infer that cognitively impaired adults report less pain than cognitively intact participants, but experience similar amounts of pain (p.130). The findings of the study are compared to findings from previous studies, but the article acknowledges that the demographics are not representative of the population. The clinical significance of the study is discussed, although it is stated that further research is recommended. The level of evidence is low, at a level VI.
Husebo, Strand, Moe-Nilssen, Husebo & Ljunggren (2010) present a study “approved by the Regional Committee for Medical Research Ethics, Western Norway and the Data Inspectorate.” The study was fully explained and informed consent was obtained from legal guardians of the study participants (p. 382). The problem statement is clear and addresses the population of interest, although it uses technical language and requires a background paragraph to set the context. The article briefly touched on a literature review and identified shortcomings from studies of other pain assessment tools. The study’s aim is to “validate the reliability of the MOBID-2 pain assessment tool…from previous studies” (p. 380). Since the article is concerned with testing the reliability of an instrument, the design appears to be a methodological study, which is appropriate for the research questions. The experimenters used two independent nurses to assess pain to ensure that the results were valid and not dependent upon the assessor and participants were identified based on age and severe dementia as defined by the MMSE (p. 381). Purposive sampling was chosen, as the participants were all tested and there was not a control group. The participants were chosen based on inclusion criteria; exclusion criteria were also in place to avoid participants whose cognitive abilities could be related to a short term condition. A cross sectional study was used (p. 381). A table described average characteristics of the participants, but demographics were not available making it difficult to determine if sample size is representative of the population. The sample size is small, which limits the results. The participants were also assessed by a physician for pain indicators, which were compared with the assessments by the two independent nurses (p. 383). The collection tool was developed by a team consisting of nurses and physicians and was tested for reliability before use. The instrument was clearly discussed and scoring was covered, although not in great detail, and it remains unclear how well the tool would assess pain in a patient that was unable to assist verbally
The descriptive statistics in the article relate to reliability and validity of results obtained. Results were evaluated to determine if any items were inappropriate within the tool. Measures of central tendency were included in characteristics of the participants as well as pain prevalence. The statistics are clearly presented in text and tables correlate appropriately. Inferential statistics determined that inter-rater and test-retest reliability was high, meaning results would be expected with further use of the tool. The information in the article relies heavily on statistical data and uses highly technical language to describe the results. The article states that the assessment tool could be used to assess behavioral concerns, but it fails to address patients that may have short term conditions. This article does not provide enough evidence to verify that the information could be used in clinical practice. The past studies are not presented and it is unclear if the tool had been determined to be valid before this study. Further research would be required to determine clinical feasibility. The level of evidence is low at a VI.

Warden, Hurley & Volicer (2003) conducted a study taking place on a dementia unit of a hospital. It was approved by the hospital’s IRB and after the research investigator held an informal meeting for staff and families to answer questions, informed consent was obtained from the responsible party of the participants (Warden et al.). The problem statement is clear and concise noting that researchers wanted a time efficient and easy to understand tool to assess pain in patients that were unable to self report pain (Warden et al.). The PAINAD tool was chosen for evaluation. An extensive literature review was completed and other assessment tools were researched. The article is based on a methodological study to evaluate the effectiveness, accuracy and ease of use of the PAINAD tool. Different nurses were used to assess the patients for pain, and through the study, it was determined that the tools were successfully used by the nurses and results were reliable (Warden et al.). The target population was identified as patients
who were aphasiac or unable to report pain, had a diagnosis of dementia and someone responsible for decision making was in place (Warden et al.). The sample size was small, and two participants died before the study was complete (Warden et al.). The nurses assessing the participants for pain were given instruction on use of the PAINAD tool and assessments were completed with the patient at rest, during pleasurable activities and during activities that were more likely to cause pain (Warden et al.). The article accurately describes the tool and scoring, and includes a copy of the tool for reference. This study was an early trial of the PAINAD tool and validity was being researched. Descriptive statistics were difficult to understand and the tables did not assist in understanding statistical data that was included in the text. Demographics were briefly discussed, did not represent the population, and were not included in the table. Information is presented in an objective manner, acknowledges study limitations and suggests further testing that can be completed to validate the reliability of the PAINAD. Although the study was small, the findings appear reliable in this group. Level of evidence is a VI.

**Application of Evidence**

Use of the PAINAD could be easily incorporated into clinical practice in any setting. For those patients unable to self report pain the “PAINAD offers simple, valid assessments for pain” (Warden, Hurley & Volicer, 2003). This tool may help ensure patients receive adequate pain management and could determine behavioral changes that can be associated to pain. This tool would benefit patients in offering a more consistent approach to pain assessment for those unable to self report pain, which has been a problem seen in many settings.

Horgas, Elliot & Marsiske (2009) present research suggesting that a behavioral observation assessment tool would be beneficial in clinical practice. In the study it shows that behavioral indicators can be predictive of pain and assessment could ensure adequate pain
management (Horgas, et al.). Facilities would need to ensure that nurses are using standard tools for assessing pain to ensure consistent monitoring and treatment.

**Conclusion**

The above studies indicate a definite and concrete need to develop a tool to assess pain in the cognitively impaired person who is unable to self report pain. Each study reflects that the “gold standard” for pain assessment remains the patients self-report of pain; but recognizes that the cognitively impaired individual may not be able to self report effectively. While the above studies do not necessarily support that behavioral indicators are more accurate than a numerical rating scale, they do support that behavioral indicators can be used as a valid and useful assessment tool to assess pain when a person is unable to use the numerical rating scale. It is noted that pain may be underreported and lead to poor quality of life. After review of the above studies, it is clear that pain in cognitively impaired individuals may need to be addressed using behavioral indicators to ensure adequate pain management. The PAINAD tool is cited in many research studies and is consistently referred to as easy to use, requiring minimal education time and citing valid results. As with any patient care, it is essential to assess the person in a holistic manner. The pain assessment is not exempt. The best approach to pain management may very well be a combination of the patient’s self report or pain, behavioral indicators and a comprehensive review of the diagnosis list.
References


