The Pain Assessment in Advanced Dementia Scale (PAINAD) Brief

The Pain Assessment in Advanced Dementia (PAINAD) Scale was developed to provide a clinically relevant and easy to use pain assessment tool for individuals with advanced dementia. The tool is an adaptation of the DS-DAT and the FLACC and includes five items: Breathing, Negative vocalization, Facial expression, Body language, and Consolability. Each item is leveled on a three point scale (0-2) for severity.

The tool covers only 3 of 6 categories of non-verbal pain behaviors in the AGS Persistent Pain Guidelines: facial expression, verbalizations/vocalizations and body language. Although these are the most common pain indicators, the more subtle pain indicators such as changes in activity patterns or routines, mental status changes and changes in interpersonal interactions are not included. The tool is based on the assumption that caregivers can reliably rate the intensity of elders' pain, an assumption for which there is conflicting evidence in current literature. *Subsequent studies have demonstrated that the tool can detect presence of pain and appears to identify higher and lower levels of pain in an individual. It may not detect pain in patients that demonstrate pain with behaviors other than those included in the tool.*

Method of administration is described and a guide with definitions of items is provided. Scoring procedures are clearly described, although no guide to interpretation of the tool score is provided. Subjects in the pilot study were observed for 5 minutes, but a clear recommendation for length of observation is not provided. The tool appears simple to understand and appears to be easy to use with limited training. *Subsequent studies have demonstrated strong clinical utility with administration possible within 1-3 minutes, limited training required (minimum of 15 minutes to 2 hours), and reported ease of use by raters.*

Initial testing of the PAINAD was conducted in two studies both conducted in long term care VA Dementia special care units. Study 1 sample involved 19 severely demented veterans, all male Caucasians, with an average age of 78.1 years (±5), range 66-85 years. Study 2 was a QI study which involved charts of 25 patients. However, no demographic data or disease characteristics were available. Thus, limited sample size and demographic details of subjects limit generalizability of study results.

The PAINAD has received considerable attention internationally and 7 additional studies have been conducted that provide additional psychometric data on this tool. The PAINAD was translated and tested in Singapore, Belgium, Italy, Netherlands, and Germany, as well as two studies in the US. The majority of additional study has been conducted in NHs, however testing has also occurred in an acute care hospital and geriatric rehabilitation center. These studies have added data with female subjects, a gap in the development studies. There is still limited data on individuals from different races, although cultural variation has been tested across countries. All studies have included individuals with dementia. Age of subjects across studies is appropriate with mean age of samples ranging from 78 to 88 years.

Reliability.
- Internal consistency was evaluated based on a pooled sample of study 1 and study 2. Cronbachs alpha from three situations ranged from .50 to .65, which is moderate

given a new tool with only 5 items. Moreover, the approach of combining research and QI data to establish reliability is not methodologically sound. *Follow-up studies have demonstrated good internal consistency with correlations ranging from 0.69 to 0.85. However, the item of breathing is low.*

- Interrater reliability is reported for 19 subjects with pairs of simultaneous observations by two independent raters. Pearson's correlation coefficient: during pleasant activity: r=.97 and during unpleasant activity: r=.82. *Interrater reliability reports across 5 studies indicate strong reliability. Pearson's r ranges from 0.75 to 0.97 with most reports over 0.80.*
- *Test-retest reliability in three follow-up studies is strong with r's ranging from 0.88 to 0.90.*

Validity

- Factor structure analysis for combined PAINAD data: 1 factor=50.1% variance (eigenvalue 2.51), 1 minor factor explained 20.6% (eigenvalue 1.03). *Further study of the PAINAD provides support for construct validity. A single factor was again isolated with greater distribution of pain. However, the number of patients with behaviors reflecting the high end of the scale scoring is still small.*
- PAINAD was compared to the Pain VAS, DS-DAT, Discomfort VAS. Correlation coefficients at rest were r=.75, r=.76, r=.76, respectively. PAINAD was compared to the Pain-VAS during presumed pleasant conditions: r=.87-.95 and during presumed unpleasant conditions: r=.82-.91. *Further study of the PAINAD provides support for good concurrent validity with across tool correlations ranging from 0.65 to 095 with the exception of comparison of the PAINAD to self report of pain (0.30).*
- Discriminant validity of the PAINAD was established in study 1 with subjects (n=19) observed during a pleasant activity, during rest or time of no activity, during caregiving that might be unpleasant with mean scores: 1.0±1.3, 1.3±1.3 and 3.1±1.7 respectively.
- Using QI data it was demonstrated that the PAINAD was able to capture pain and change in pain. Average PAINAD scores prior to prn medication (6.7±1.8) and 30 minutes after pain medication (1.8±2.2) were significant (t_{24}=9.6, p<.001).
- *Further study of the PAINAD provides some support for construct, predictive, concurrent and discriminant validity. The most recent study that examines tool sensitivity in detecting change from treatment raises questions regarding the tools ability to do so with persons with severe dementia. Further study is needed.*
- *Although studies have raised concern regarding the items of breathing and consolability, authors urge maintaining the current items structure to allow international comparisons. Because removal of items did not demonstrate improved internal consistency, this recommendation seems supportable.*

Summary

The PAINAD was developed as a shorter, easier observation tool for assessing pain in nonverbal elders. The tool items included are not comprehensive, *but subsequent studies have provided data suggesting the tool does detect pain and changing levels of behavior (not pain) intensity. Because of the small number of items that are used to detect pain*, the ability of the PAINAD to detect pain *in those with less obvious changes*

in behavior (e.g. mental status changes, aggressive behavior, changes in activities) may still be compromised.

Although clinicians desire to have a tool that provides a 1-10 score similar to the 1-10 NRS commonly used as the gold standard in verbal patients, the soundness of establishing a rating scale with pain severity scoring of behaviors has not been substantiated in the literature. *Completed studies suggest the tool could be used to show higher and lower levels of pain, but there is no data to attach level of pain severity to the number obtained with the tool.*

Tool reliability is good for interrater reliability, but internal consistency is only moderate and stability has not been demonstrated. *Tool has good reliability in all areas.*

Some conceptual and methodological issues have been identified with the development and testing of the PAINAD. However, the positive findings in detection of changes in pain behavior following intervention in the QI study reported suggests additional study in controlled circumstances is warranted. *Follow-up studies have continued to document ability to detect pain and differentiate pain and no pain groups. However, further study of tool sensitivity to detect change in behavior in response to treatment is needed.*

Source of evidence

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