Failure to Identify Behavioral Symptoms of People with Dementia and the Need for Follow-Up Physical Assessment

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ABSTRACT

This descriptively designed study examined the sensitivity and specificity of staff nurses' identification of behavior change in nursing home residents with dementia. Behavior changes and whether further physical assessment was indicated were described and compared with judgments made by one expert advanced practice nurse. The convenience sample included 155 residents and 38 staff nurses from 11 nursing homes. Verbal symptoms and body part cues were the most prevalent behaviors, regardless of the assessor. Sensitivity, or probability of identifying a real behavior change, was generally low for the staff nurses, ranging from 35% to 65% for the different types of behaviors, while specificity was high at more than 95%. Additional assessment was believed to be needed for 51% of residents by the staff nurse and for 73% of residents by the expert. This study found that staff nurses are under-identifying behavior changes and the need for additional physical assessment.

Publication of the Need-Driven Dementia-Compromised Behavior (NDB) model in 1996 shifted the perception that dementia behaviors were problems to be controlled to an acknowledgement that changes in behavior may signal a physical problem or other unmet need (Algase et al., 1996). The NDB model states that both background factors (e.g., neurological, cognitive, psychosocial) and proximal factors (e.g., personal, physical, social) may precipitate and contribute to dementia behaviors. Kovach, Noonan, Schlidt, and Wells (2005) extended the NDB model by explaining that when behaviors that are caused by unmet needs go unnoticed, are dismissed, or are not understood as symptoms of unmet needs, critical needs of the person with dementia are left untreated and unresolved. The purpose of this study was to describe and compare the identification of changes in behaviors and decisions regarding the need for follow-up physical assessment by staff nurses versus an expert advanced practice nurse. The research questions were:
What is the sensitivity and specificity of staff nurses’ identification of verbal symptoms, nonspecific vocalizations, motor agitation, and body part cues in nursing home residents with dementia?

What is the sensitivity and specificity of staff nurses’ judgment regarding the need for follow-up physical assessment when behavior change occurs in nursing home residents with dementia?

Do certain types of behaviors of residents with dementia co-occur?

For people with dementia who lack the ability to interpret and verbally report physical symptoms, changes in behavior may be an indicator of an emerging physical problem. Researchers have been able to show clear relationships between pain and behaviors such as aggressiveness and resistiveness to care (Beck, Baldwin, Moldin, & Lewis, 1990; Feldt, Warne, & Ryden, 1998; Maloney et al., 1998; Ryden, Bossema, & McLachlan, 1999). Nonspecific vocalizations, such as repetitive calling out and moaning, have been associated with an acute state of unmet need (Beck & Vogelpohl, 1999).

In two studies, behavior change was a symptom of pneumonia, urinary tract infection, musculoskeletal pain, and neuropathic pain (Kovach, Logan, et al., 2006; Kovach, Logan, Simpson, & Reynolds, 2010). The most common dementia behaviors reported were vocal complaints, restless body movement, facial grimacing, resisting care, aggression, nonverbal vocalizations, environmental changes, and a need for follow-up physical assessment of the resident. This study was designed to test the hypothesis that behaviors are meaningful and that dementia behaviors may be symptoms of unmet physical needs (Beck & Vogelpohl, 1999). Researchers have been able to show clear relationships between pain and behaviors such as aggressiveness and resistiveness to care (Beck, Baldwin, Moldin, & Lewis, 1990; Feldt, Warne, & Ryden, 1998; Maloney et al., 1998; Ryden, Bossema, & McLachlan, 1999). Nonspecific vocalizations, such as repetitive calling out and moaning, have been associated with an acute state of unmet need (Beck & Vogelpohl, 1999).

In this article, we report a secondary study conducted within a randomized experiment studying the efficacy of an assessment and treatment protocol for people with moderate to severe dementia who have a behavior change (Kovach et al., 2011). The current study is descriptive, and the sampling of residents and nurses was by convenience. The analysis was primarily descriptive and included frequencies, percentages, sensitivity, specificity and Fisher’s exact test. Resident participants were from 11 nursing homes in the Midwest, and a total of 155 people with dementia participated. Written consent was obtained from the durable power of attorney and verbal consent was obtained from the resident. Residents’ average age was 87.21 (SD = 7.08 years) and length of stay in the nursing home was 33.06 months (SD = 30.11 months). The sample had severe cognitive impairment, with an average Mini-Mental State Examination score of 6.64 (SD = 5.90) (Folstein, Folstein, & McHugh, 1975). Most participants were Caucasian (n = 151), 125 were women, and 30 were men. Number of years of formal education ranged from 0 to 22 years (mean = 12, SD = 3.11). Excluded from the study were people with chronic psychiatric illnesses other than the condition identified as causing dementia and those who had been admitted to the nursing home within 4 weeks.

Thirty-eight nurses (26 licensed practical nurses [LPNs], 12 registered nurses [RNs]) were asked to participate based on their full-time position in one of the units that housed resident participants. All 38 provided written informed consent. The majority were women (n = 37), Caucasian (n = 28), and older than 45 (n = 24). Only 8% (n = 3) had been nurses for less than 5 years, but 34% (n = 13) had been employed in a setting providing care to people with dementia for less than 5 years. All nurses participating in this secondary study received enhanced education on behavior change and the assessment and treatment protocol being tested in the larger efficacy study (Kovach et al., 2011). Nurses were taught that dementia behaviors may be symptoms of unmet needs and were taught about various kinds of dementia behaviors, such as nonspecific vocalizations, motor agitation, passive behavior, and body part cues. In addition, nurses were taught that descriptions of verbal symptoms and dementia behaviors may be important clues for physical problems, such as pain, infection, or exacerbations of chronic conditions. The need for behavior change or verbal symptoms to be followed by physical assessment was emphasized.

Within 1 week of attending the 8-hour training program, an advanced practice nurse with extensive experience working with residents with dementia (PE.N.) met with the consenting staff nurse. The staff nurse provided a written description of the baseline behaviors of each resident participant on the unit. For example, a resident’s baseline behavior may have been described as “frequent calling out in the morning,” “frequently restless,” or “resistive during baths and transfers.” The expert nurse then shadowed the staff nurse, following him or her as the person performed his or her nursing roles. This shadowing of the staff nurse occurred on one day for approximately 2 hours during the midmorning time period after breakfast and before lunch was served. Both the staff nurse and expert nurse independently recorded a description of any behavior demonstrated by the resident enrolled in the study that was perceived to be a change from the baseline information provided by the staff nurse. The staff nurse and expert nurse independently determined whether the behavior change specifically indicated a need for further physical assessment of the resident.

METHOD

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Coding and Analysis of Shadowing Data

The staff nurse’s and expert nurse’s descriptions of behavior change were coded by a research assistant into SPSS version 16.0 as present or absent for each resident participant using the following a priori categories: nonspecific vocalization, verbal symptoms, motor agitation, passive behavior, and body part cues. Nonspecific vocalizations were defined as movements or tension in specific muscles (e.g., tightening of jaw, clenched jaw, rubbing or holding body parts) (Kovach, Cashin, & Sauer, 2006). Passive behaviors were defined as a decrease in movement, response to human emotions, and/or interaction with people or the environment (e.g., withdrawal) (Colling, 2000). Body part cues were defined as movements or tension in specific muscles that did not appear connected to current events (e.g., facial grimacing, clenched jaw, rubbing or holding body parts) (Kovach, Cashin, & Sauer, 2006). Interrater reliability of coding was 0.80 for nonspecific vocalizations and motor agitation, 0.90 for body part cues, and 1.0 for passive behavior, verbal symptoms, and decisions regarding implementation of the serial trial intervention.

As assessments done by the expert were used to describe prevalence of behaviors and whether behaviors co-occurred. Prevalence of each category of behavior was described using frequencies and percentages. The association between different types of behavior was tested for each pair of types of behavior by first constructing a two-by-two contingency table, and then applying Fisher’s exact test to determine pairwise associations. The relationship between the staff nurse’s assessment and the expert advanced practice nurse’s identifications are presented in Table 1.

TABLE 1 Prevalence of Behavior Changes Identified by Staff Nurse and Expert Advanced Practice Nurse

<table>
<thead>
<tr>
<th>Behavior Change</th>
<th>Number of Residents</th>
<th>Staff Nurse</th>
<th>Expert Nurse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal symptoms</td>
<td>155</td>
<td>31 (20)</td>
<td>44 (28.4)</td>
</tr>
<tr>
<td>Motor agitation</td>
<td>155</td>
<td>10 (6.4)</td>
<td>17 (11)</td>
</tr>
<tr>
<td>Passive behavior</td>
<td>155</td>
<td>10 (6.4)</td>
<td>8 (5.2)</td>
</tr>
</tbody>
</table>

FIGURE 1 Prevalence of Behavior Changes Identified by Staff Nurse and Expert Advanced Practice Nurse

![Figure 1](image-url)
identify behavior change and to have that behavior change trigger additional physical assessment may lead to delays in diagnosis. Delayed treatment of physical problems is associated with substantially higher costs of care, increased hospitalization, and poorer health outcomes (Carter & Porell, 2003; Kuo, Zhao, Weir, Kramer, & Ash, 2008; Loeb et al., 2006).

Limitations of this study include a relatively small convenience sample, which decreases generalizability of the findings. The fact that observations by the staff nurses occurred while they were providing care and the expert was only charged with the task of observing residents may have accounted for some of the differences in observed behavior. In addition, while the time the expert shadowed the staff nurse was 2 hours, the time each resident was observed was not measured or controlled and could have influenced results. More explicitly stated, the lack of control of timing of measures included timing of assessments based on convenience, no consideration for individual peak periods of activity, and no randomization of observational periods.

CONCLUSION

This study suggests that a key problem that people with later stages of dementia face in getting their needs met may begin as a communication problem. When behavior change is unnoticed, dismissed, or not understood as a possible symptom of unmet need, critical needs of the older adult with dementia may be missed. When needs are not identified, the need is likely to be untreated and unresolved. This disconnect between identifying behavior change and the need for further physical assessment may place people with dementia at increased risk for having their needs unmet and for delayed identification of emerging physical problems.

REFERENCES


Behavioral Symptoms of People with Dementia

Kovach et al.