


# The Relationship Between Rejection of Care Behaviors and Pain and Delirium Severity in Hospital Dementia Care

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## Abstract

**Background and Objectives:** Rejection of care is common in hospitalized persons living with dementia. However, distinguishing between rejection of care behaviors related to care practices or other causes, such as pain or delirium, is challenging. The purpose of this study is to further understand the relationship between rejection of care and pain and delirium in hospitalized patients with dementia by identifying which rejection of care behaviors are associated with pain and delirium.

**Research Design and Methods:** Care encounters between hospitalized patients with dementia ( $n = 16$ ) and nursing staff ( $n = 53$ ) were observed on 88 separate occasions across 35 days. Rejection of care was measured using the 13 behaviors from the Resistiveness to Care Scale. Pain and delirium severity were measured using a variety of scales including the Pain Assessment in Advanced Dementia Scale, Checklist of Nonverbal Pain Indicators, and numeric rating scale for pain severity and the Confusion Assessment Method—Severity short form and Delirium Observation Screening Scale for delirium severity. Linear mixed modeling was used to determine the relationship between rejection of care behaviors and pain and delirium severity for each measure.

**Results:** About 48.9% of the observations included rejection of care, 49.9% included a patient in pain, and 12.5% included a patient with delirium. Cry, push away, scream/yell, and turn away indicated a higher pain severity across pain measures. No rejection of care behaviors were found to indicate delirium severity.

**Discussion and Implications:** Certain rejection of care behaviors may be helpful in identifying pain in hospitalized patients with dementia, suggesting that caregivers should be cognizant of pain when these rejection of care behaviors are present. However, in this sample rejection of care behaviors was not found to be useful for identifying delirium severity in hospital dementia care.

**Translational Significance:** Deciphering between pain, delirium, and other causes of rejection of care is challenging in hospital dementia care. It is difficult for care staff to determine whether a patient is rejecting care because of pain, delirium, or another underlying need. This study identified that the rejection of care behaviors of cry, push away, scream/yell, and turn away are associated with pain. Care staff should be mindful of pain as an underlying cause when these behaviors occur. Similar results were not identified in delirium, indicating further research is needed in this area.

**Keywords:** Acute care, Alzheimer's disease and related dementias, Delirium assessment, Pain assessment, Resistiveness to care

Detecting pain and delirium in hospitalized persons living with dementia brings many challenges. Barriers at the patient, nurse, environmental, and policy level are present in identifying pain during hospital dementia care (Liao et al., 2023). Although self-report is the gold standard of pain assessment, communication declines seen in individuals with cognitive impairment often necessitate other methods of pain assessment. However, adequate assessment and treatment are often limited by the nurse's knowledge of the patient and proper pain assessment and management. These challenges are exacerbated by competing demands in the care environment. Similar barriers exist in recognizing delirium superimposed

on dementia during hospitalization. Delirium is found in nearly half of hospitalized persons living with dementia and leads to negative outcomes such as increased length of stay, worsening cognition and function, and increased mortality (Han et al., 2022). Even with high rates of diagnosed delirium, subsyndromal delirium is still common, with dementia being the greatest risk factor for missed diagnosis (Gao et al., 2022).

A challenge for nurses to classify a hospitalized patient with dementia as having pain or delirium is distinguishing between the pain or delirium-related behaviors and other behavioral and psychological symptoms of dementia. Patients

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with dementia may have difficulty verbalizing their needs and therefore rely on nurses to identify and manage their pain. However, pain often remains poorly detected and managed and behavioral changes are commonly misinterpreted as unmodifiable behavioral problems, leading to treatment of the behavior rather than the underlying cause (Jonsdottir & Gunnarsson, 2021; Lichtner et al., 2016). Differentiating the underlying cause of behaviors is immensely complex because the behaviors themselves can be identical between causes. For example, in a virtual simulation of agitation due to pain in hospitalized persons living with dementia, nursing staff rarely identified and treated pain as the underlying cause for agitation and instead elected to focus on treating the agitated behaviors with antipsychotic medications (Graham et al., 2022). Another study found that antipsychotic medication use is more prevalent during hospitalization than before hospitalization, and almost 25% of patients who were prescribed antipsychotics for behavioral symptoms had no assessment of their presence of pain in acute care settings (Gallagher et al., 2016).

Rejection of care is a unique behavioral and psychological symptom of dementia because it requires a nurse and patient dyad to participate in a care encounter and the aggression exhibited by the patient is in direct response to the care being provided. Rejection of care is thus defined as a person living with dementia withstanding or opposing the efforts of their caregiver (i.e., reactive aggression). It is theorized that rejection of care is exhibited by persons living with dementia in response to a lower stress threshold. The stressors are categorized into modifiable and nonmodifiable patient, caregiver, and environmental factors (Kales et al., 2015). Pain and delirium represent factors contributing to stress, which leads to rejection of care and the reverse of this relationship can be evaluated to determine if certain rejection of care behaviors indicate pain and delirium. Interpreting rejection of care behaviors as a sign especially useful in hospital dementia care because the assessments can then take place during the existing care encounters where rejection of care occurs. This form of assessment may help the nurse overcome the focus on treating the behavior by moving beyond the behavior to identifying its underlying cause.

Our recent research on rejection of care in the hospital setting identified that pain contributes to both the presence and severity of rejection of care and that delirium contributes to the severity of rejection of care (Shaw et al., 2022a). However, the specific rejection of care behaviors presenting when patients are experiencing more severe pain and delirium was not explored in the primary analysis. Therefore, the purpose of this secondary analysis is to explore if rejection of care behaviors are signs of pain and delirium severity.

## Method

This study is a secondary analysis of observational data from the Nurse Talk study. The purpose of the Nurse Talk study was to determine the impact of elderspeak communication (i.e., infantilization or speech that sounds like baby talk) on rejection of care by hospitalized patients with dementia (Shaw et al., 2022a, 2022b). A secondary analysis of the data was completed to explore the relationship between pain severity, delirium severity, and specific rejection of care behaviors. This secondary analysis uses the complete sample from the parent study and adds additional measures gathered from the

electronic health record. All study procedures were approved by the institutional review board.

## Participants

Nursing staff and patients with dementia were scored for rejection of care in one academic medical center from August 2019 to March 2020. Both staff nurses and nursing assistants were included if they were providing direct care to hospitalized patients with dementia. The patients with dementia were included if they were previously diagnosed with dementia, had a report of challenging behavior by nursing staff during hospitalization, were staged as having at least mild dementia on the Functional Assessment Staging (FAST) instrument, were English speaking, and did not have other neurocognitive or psychiatric diagnoses.

## Measures

### Rejection of care

Rejection of care was captured through direct observation of the 13 rejection of care behaviors defined by the Resistiveness to Care Scale (RTC-DAT) during care encounters between nursing staff and hospitalized patients with dementia (Mahoney et al., 1999). Behaviors in the RTC-DAT scale include adduct, clench mouth, cry, grab object, grab person, hit/kick, pull away, push away, push/pull, say no, scream/yell, threaten, and turn away. Each of the 13 behaviors has strict criteria on what constitutes the intensity rating (Mahoney, 2015). Observations were considered to be care encounters if they included hands-on care, such as assistance with activities of daily living (ADL), medication administration, assessment, and procedural care, but not activities such as care updates or care planning. In this analysis, the 13 rejection of care behaviors are represented as present or absent during each care encounter. The behavior was considered present if it occurred during the care encounter regardless of duration or intensity. All observations using the RTC-DAT were collected by a single research team member.

The RTC-DAT has demonstrated an internal consistency ranging from 0.82 to 0.87 with item-total correlations ranging from 0.15 to 0.77 in numerous nursing home populations (Galik et al., 2017; Mahoney et al., 1999). Concurrent validity has been established with a visual analog scale measuring resistiveness and convergent validity has been established with discomfort using the Discomfort Scale and with agitation using the Cohen–Mansfield Agitation Inventory. The RTC-DAT measures reliably across genders and is considered a unitary concept based on factor analysis.

### Pain severity

Pain severity was measured using the Pain Assessment in Advanced Dementia Scale (PAINAD) instrument for the Nurse Talk study. Additionally, the numeric rating scale (NRS) and the Checklist of Nonverbal Pain Indicators (CNPI) were extracted from the electronic health record.

The PAINAD instrument is a five-item scale in which each item is scored from 0 to 2 for breathing, vocalization, facial expression, body language, and consolability. All categories are summed for a pain severity rating of 0–10 in which 0 represents no pain and 10 represents severe pain with a score of 2 or greater indicating that pain is present. The PAINAD has been previously demonstrated to be valid and reliable method for detecting pain in persons living with dementia (DeWaters

et al., 2008; Mosele et al., 2012; Warden et al., 2003). The PAINAD was collected at the time of each observation by a single research team member during the Nurse Talk study.

The NRS and CNPI were extracted post hoc from the electronic health record using the two-person double-entry method. The NRS and modified CNPI were charted at the discretion of the patient's primary nurse. The NRS is the standard 11-point pain scale scored from 0 to 10 in which patients verbally report their level of pain with 0 being no pain and 10 being the worst pain imaginable and is valid and reliable in older adults with and without cognitive impairment (Dworkin et al., 2005; Hadjistavropoulos et al., 2007). The CNPI contains six nonverbal pain indicators of vocal complaints, facial grimaces and winces, bracing, restlessness, rubbing, and vocal complaints and is scored as 0 if absent and 1 if present and summed for a total score of 0 representing no pain behaviors to 6 representing severe pain behaviors (Feldt, 2000). The CNPI has demonstrated inconsistent reliability and validity across samples of persons living with dementia (Ersek et al., 2010; Neville & Ostini, 2014; Zwakhalen et al., 2006), but was the nonverbal pain scale already embedded in the patient's electronic health record. Internal consistency for the PAINAD and CNPI in our sample was calculated with Cronbach's alpha.

#### Delirium severity

Delirium severity was measured using the Confusion Assessment Method—Severity (CAM-S) short form for the Nurse Talk study. Delirium severity measured with the Delirium Observation Screening Scale (DOS) was also extracted from the electronic health record.

The CAM-S short form, based on the original CAM, includes four categories: acute onset and fluctuation course, inattention, disorganized thinking, and altered level of consciousness (Inouye, 2014; Inouye et al., 2014; Wei et al., 2008). The acute onset and fluctuating course category is rated as absent = 0 or present = 1. The inattention and disorganized thinking categories are both rated as absent = 0, mild = 1, or marked = 2. The altered level of consciousness category is rated as normal = 0, vigilant or lethargic = 1, or stupor or coma = 2. The categories are summed for a delirium severity score of 0–7 in which 0 represents no delirium and 7 represents severe delirium. The CAM-S short form has demonstrated 94% sensitivity and 89% specificity for diagnosing delirium (Wei et al., 2008). The CAM-S has been previously demonstrated to be valid and reliable method for detecting delirium in hospitalized older adults (Jones et al., 2019). The CAM-S was collected at the time of each observation by a single research team member during the Nurse Talk study.

The DOS is a 13-item delirium screening tool with items assessing consciousness, attention, thinking, memory, psychomotor activity, mood, and perception (Park et al., 2021). Items are rated as absent = 0 or present = 1 and summed. A score of 3 or greater indicates the patient screened positive for delirium with 0 indicating no delirium symptoms and 13 indicating severe delirium symptoms. The DOS has a pooled sensitivity of 90% and specificity of 92% for identifying delirium in older adults (Park et al., 2021). The DOS was extracted post hoc from the electronic health record using the two-person double-entry method. The DOS was charted daily in early afternoon by the patient's primary nurse. Internal consistency for the CAM-S short form and DOS in our sample was calculated with Cronbach's alpha.

#### Data Analysis

Descriptive statistics were used to summarize the distribution of pain and delirium severity scores for observations where the rejection of care behavior was present and absent. Linear mixed modeling was used to test for significant differences in pain and delirium severity by the presence of each rejection of care behavior, while controlling for the within-subject correlation arising from repeated measures on the persons living with dementia. Separate models were used for each behavior, with either pain or delirium severity as the dependent variable and the rejection of care behavior as the independent variable. The models for the PAINAD and CAM-S were completed for each of the 88 observations of rejection of care behaviors. The models for the DOS, CNPI, and NRS were completed using the electronic health record data for each day shift ( $n = 35$ ) using the rejection of care behaviors as present or absent during the shift and the highest pain or delirium severity score during the shift.

## Results

### Sample

Eighty-eight observations between 53 nursing staff and 16 patients with dementia totaling 10 hr and 47 min were observed for rejection of care. The 88 observations occurred across 35 shift days. The sample included 27 staff nurses and 26 nursing assistants who were mostly female (84.9%), White (81.1%), and not Hispanic or Latinx (92.5%). The sample of 16 patients with dementia was mostly rated as having moderately severe dementia (75%) per the FAST from etiology of Alzheimer's disease (31.3%), unspecified (37.5%), and other dementias (31.3%). Nine males and seven female patients with dementia were included who were primarily non-Hispanic White (93.8%). The care encounters occurred primarily in the morning (64.8%) and were focused on ADL care (57.9%). See [Supplementary Tables S1 and S2](#) for sample demographics and the parent study for additional details on study design and measures (Shaw et al., 2022a, 2022b).

### Pain Severity and Rejection of Care Behaviors

The average PAINAD score across the 88 observations was 2.6 (standard deviation [ $SD$ ] = 2.9) and pain (PAINAD  $\geq$  2) was present in nearly half of the observations (49.9%). The internal consistency for the PAINAD was good at 0.887. The average PAINAD score was significantly higher when 9 of the 13 rejection of care behaviors were present (Table 1). These behaviors included adduct ( $p < .001$ ), cry ( $p < .001$ ), grab object ( $p = .002$ ), hit ( $p = .048$ ), pull away ( $p < .001$ ), push away ( $p < .001$ ), push/pull ( $p < .001$ ), scream/yell ( $p < .001$ ), and turn away ( $p < .001$ ). The PAINAD scores were also higher in the remaining four behaviors of clench mouth, grab person, say no, and threaten, but not at a statistically significant level. Mean PAINAD scores were highest with the hit and push/pull behaviors.

The CNPI was charted on 16 shift days and NRS on 22 shift days. Seven shifts had no pain assessment charted and nine shifts had both the CNPI and NRS charted. The average CNPI score was 1.8 ( $SD = 1.9$ ) and NRS score was 3.0 ( $SD = 3.9$ ). The internal consistency for the CNPI was poor at 0.581 and due to low counts of charting the linear mixed modeling could not be estimated for these models. Descriptively, the results from the CNPI and NRS were somewhat discordant

**Table 1.** Pain Severity by PAINAD Score ( $n = 88$ ) and Rejection of Care

Rejection of care behavior	PAINAD score								<i>p</i>
	Behavior absent				Behavior present				
	<i>n</i>	Mean	<i>SD</i>	Range	<i>n</i>	Mean	<i>SD</i>	Range	
Adduct	78	2.1	2.7	0–9	10	6.4	1.4	4–8	<.001
Clench mouth	83	2.6	2.9	0–9	5	3.0	3.3	0–7	.092
Cry	70	1.6	2.4	0–7	18	6.2	1.6	2–9	<.001
Grab object	71	2.0	2.6	0–8	17	5.1	2.8	0–9	.002
Grab person	84	2.4	2.9	0–9	4	6.3	1.5	4–7	.913
Hit	83	2.3	2.8	0–9	5	6.8	1.1	5–8	.048
Pull away	69	1.7	2.4	0–7	19	5.8	2.1	1–9	<.001
Push away	75	2.2	2.7	0–9	13	5.0	2.7	0–8	<.001
Push/pull	80	2.2	2.7	0–9	8	6.8	1.3	4–8	<.001
Say no	78	2.2	2.8	0–9	10	5.2	2.7	0–7	.567
Scream/yell	74	1.9	2.6	0–8	14	6.1	2.0	2–9	<.001
Threaten	86	2.6	2.9	0–9	2	3.5	2.1	2–5	.636
Turn away	73	2.0	2.6	0–9	15	5.6	2.4	0–8	<.001

Notes: Analysis used linear mixed model. The sample includes 88 observations from 16 patients with dementia and 53 nursing staff. PAINAD = Pain Assessment in Advanced Dementia Scale; *SD* = standard deviation.

from the results of the PAINAD (Supplementary Tables S3 and S4). Pain severity was higher in both the CNPI and NRS when the patient exhibited cry, push away, say no, scream/yell, threaten, and turn away. Pain scores were also higher with clench mouth as rated by the NRS and with grab object, grab person, and hit as rated by the CNPI. The four behaviors of cry, push away, scream/yell, and turn away indicated a higher pain severity across all three measures (significantly with the PAINAD and descriptively with the NRS and CNPI).

### Delirium Severity and Rejection of Care Behaviors

The average CAM-S short form score across the 88 observations was 1.8 (*SD* = 1.5) and delirium was identified in 11 (12.5%) of the observations. The internal consistency for the CAM-S short form was poor at 0.510. No rejection of care behaviors had significantly higher CAM-S scores and cry had a significantly lower CAM-S score ( $p = .037$ ). Delirium severity was descriptively scored higher in all other behaviors except clench mouth (Table 2).

The DOS was charted in 27 of the 35 shifts with an average score of 8.0 (*SD* = 2.6). The internal consistency for the DOS was acceptable at 0.746. There were no significant differences in delirium severity scores between any of the behaviors as the mean DOS scores were relatively high when behaviors were absent (range: 7.1–8.3) and when behaviors were present (range: 5.7–11.0). Using the DOS, the patients screened positive for delirium ( $DOS \geq 3$ ) in 25 of the 27 shifts. Clench mouth was the only behavior in which the DOS score was lower when the behavior was present, although this was not statistically significant (Table 3).

## Discussion

Providing nursing staff with feasible and effective assessments for pain and delirium is essential to identifying and treating these conditions in hospital dementia care. The Nurse Talk study identified that pain and delirium are associated with rejection of care in our sample of hospitalized patients with

dementia. However, our prior analysis did not determine which rejection of care behaviors were most common for patients exhibiting pain or delirium. This secondary analysis evaluated the association between rejection of care behaviors and the severity of pain and delirium by hospitalized persons living with dementia using a variety of measures. Unfortunately, these measures did not yield explicitly consistent results to draw conclusions about the sample.

The three measures for pain severity included the PAINAD by the research team and the NRS and CNPI extracted from the electronic health record. Across these measures, the four behaviors of cry, push away, scream/yell, and turn away indicated a higher average pain severity (significantly with the PAINAD and descriptively with the NRS and CNPI), which may suggest that pain is likely an underlying factor when these behaviors occur during care encounters. Mean PAINAD scores were also highest when hit and push/pull occurred; however, these relationships could not be supported with the NRS and CNPI. For hit, the NRS was never charted and the CNPI yielded a slightly higher average pain score of 2.0 when present compared to 1.8 when absent. For push/pull, both the NRS and CNPI demonstrated lower average pain levels when the behavior was present.

Other well-regarded pain scales for nonverbal or cognitively impaired older adults use some rejection of care behaviors (Lichtner et al., 2014). The Abbey Pain Scale, Doloplus-2, Discomfort Scale for Dementia of the Alzheimer's Type, Mobilization-Observation-Behavior-Intensity-Dementia, Non-Communicative Patient's Pain Assessment Instrument, Pain Assessment Checklist for Seniors with Limited Ability to Communicate, Pain Assessment for the Dementia Elderly, Pain Assessment in Impaired Cognition, and Pain Intensity Measure for Person with Dementia all include some description of an adduct behavior such as clenched, bracing, tense, or guarding, while half describe crying, screaming or yelling, and a third or less describe pulling away, clenching mouth, hitting, pushing away, and saying no. Interestingly, although adduct is the only behavior consistent across these scales, pain scores

**Table 2.** Delirium Severity by CAM-S Score (*n* = 88) and Rejection of Care

Rejection of care behavior	CAM-S Score								<i>p</i>
	Behavior absent				Behavior present				
	<i>n</i>	Mean	<i>SD</i>	Range	<i>n</i>	Mean	<i>SD</i>	Range	
Adduct	78	1.6	1.3	0–6	10	3.5	2.1	0–6	.619
Clench mouth	83	1.8	1.6	0–6	5	1.4	0.9	0–2	.889
Cry	70	1.8	1.6	0–6	18	1.6	1.2	0–5	.037
Grab object	71	1.5	1.2	0–6	17	3.0	2.1	0–6	.580
Grab person	84	1.6	1.3	0–6	4	5.8	0.5	5–6	.447
Hit	83	1.6	1.3	0–6	5	4.6	2.0	2–6	.564
Pull away	69	1.4	1.1	0–4	19	3.2	2.0	0–6	.731
Push away	75	1.6	1.3	0–6	13	3.1	2.1	0–6	.371
Push/pull	80	1.5	1.2	0–6	8	4.4	1.8	2–6	.062
Say no	78	1.6	1.3	0–6	10	2.9	2.6	0–6	.713
Scream/yell	74	1.7	1.4	0–6	14	2.2	1.9	0–6	.956
Threaten	86	1.8	1.5	0–6	2	3.0	1.4	2–4	.058
Turn away	73	1.5	1.2	0–5	15	3.1	2.2	0–6	.421

Notes: Analysis used linear mixed model. The sample includes 88 observations from 16 patients with dementia and 53 nursing staff. CAM-S = Confusion Assessment Method—Severity; *SD* = standard deviation.

**Table 3.** Delirium Severity by DOS Score (*n* = 27) and Rejection of Care

Rejection of care behavior	DOS score								<i>p</i>
	Behavior absent				Behavior present				
	<i>n</i>	Mean	<i>SD</i>	Range	<i>n</i>	Mean	<i>SD</i>	Range	
Adduct	20	7.3	2.6	0–11	7	10.1	1.4	8–12	.079
Clench mouth	24	8.3	2.6	0–12	3	5.7	2.3	3–7	.209
Cry	19	7.6	2.9	0–11	8	9.0	1.9	6–12	.638
Grab object	17	7.5	2.5	0–11	10	8.9	2.8	3–12	.231
Grab person	25	7.8	2.6	0–12	2	11.0	0.0	11	.280
Hit	23	7.5	2.5	0–11	4	11.0	0.8	10–12	.300
Pull away	15	7.1	2.6	0–11	12	9.2	2.3	3–12	.262
Push away	18	7.7	2.7	0–12	9	8.6	2.6	3–11	.819
Push/pull	22	7.4	2.5	0–11	5	10.6	1.1	9–12	.467
Say no	21	7.9	2.9	0–12	6	8.3	1.5	7–11	.622
Scream/yell	18	7.5	2.9	0–12	9	9.0	1.7	6–11	.553
Threaten	26	8.0	2.7	0–12	1	9.0	—	—	.664
Turn away	18	7.8	2.8	0–12	9	8.3	2.5	3–11	.893

Notes: Analysis used linear mixed model. DOS = Delirium Observation Screening Scale; *SD* = standard deviation.

were descriptively higher in our sample when adduct was absent using the CNPI and NRS and significantly higher when present using the PAINAD. The only behavior not described in any of these pain scales is push/pull, which is a behavior inherently unique to a dyadic care encounter in that it also requires the caregiver to push/pull against the patient. Despite some rejection of care noted in all these pain scales, a variety of behaviors are suggested indicating a lack of consistency of what rejection of care looks like for a patient in pain.

In this analysis, the NRS is the only tool that does not have a confounding overlap with the rejection of care behaviors. Because the NRS is self-reported pain, it is the only true marker of underlying pain. Both the PAINAD and CNPI also have rejection of care behaviors embedded in the tools. The

PAINAD includes descriptors of adduct (i.e., knees pulled in, rigid, fists clenched), cry, hit (i.e., striking out), pulling away, pushing away, saying no (i.e., disapproving speech), and screaming/yelling (i.e., repeated calling out). The CNPI includes descriptors of adduct (i.e., bracing), clenched mouth, crying, grab object, grab person, and say no. This provides a reminder that although these rejection of care behaviors may provide useful signs of pain for nurse assessment; the first-line assessment should always be patient report of pain to avoid any confounding factors.

The two measures for delirium severity included the CAM-S short form by the research team and the DOS extracted from the electronic health record. Both measures elicited higher delirium severity scores in all behaviors but cry and clench

mouth when the behaviors were present, although differences were not statistically significant. This suggests that specific rejection of care behaviors are not good at identifying delirium severity. Future research should explore if rejection of care behaviors are more useful in identifying specific subtypes of delirium. Neither the CAM-S or the DOS differentiate between hypoactive and hyperactive delirium. Patients with hypoactive delirium may not exhibit rejection of care at similar levels as those with hyperactive delirium, so future studies should explore the relationship between rejection of care and subtypes of delirium.

This analysis also highlights the continued weaknesses in nurse documentation of pain and delirium. Fragmented documentation of pain (Tsai et al., 2022) and delirium reporting (Sillner et al., 2023) is known. In our analyses of electronic health record data, pain was not documented in seven shifts and delirium in eight shifts. It is unknown if the nurses did not perform these important assessments during their shifts or if they were performed but not documented.

This study is limited by the small sample size from a single health care setting. Larger studies with more diverse samples should explore these relationships to further investigate if rejection of care behaviors can be useful in identifying pain and delirium severity. Larger samples would also allow for exploration of other patient or nurse characteristics that may modify the association between rejection of care behaviors and pain and delirium severity and allow for additional analyses on the measures themselves. The correlational nature of this analysis also warrants cautious interpretation because of the confounding overlap of not knowing if rejection of care behaviors are due to pain or due to other underlying causes.

## Conclusion

Rejection of care is frequent in hospital dementia care, but the underlying cause is often overlooked leading to treatment for the behavior rather than the origin of the behavior. Identifying which rejection of care behaviors are most associated with severe pain and delirium may be a useful tool for nursing staff to identify and manage these underlying causes. There are many evidence-based nonpharmacologic and pharmacologic approaches to managing pain in patients with dementia and a critical first step is aiding the nurse in identifying that these interventions are needed. This secondary analysis indicated that cry, push away, scream/yell, and turn away may consistently indicate a higher pain severity across pain measures. No rejection of care behaviors were found to indicate delirium severity. Future research should continue to explore these relationships in order to aid nursing staff in identifying underlying causes of rejection of care and manage important patient outcomes of pain and delirium.

## Supplementary Material

Supplementary data are available at *Innovation in Aging* online.

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## Conflict of Interest

None.

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