

# Prevalence and Management of Pain, by Race and Dementia Among Nursing Home Residents: United States, 2004

Manisha Sengupta, Ph.D.; Anita Bercovitz, M.P.H., Ph.D.; and Lauren D. Harris-Kojetin, Ph.D.

## Key findings

### Data from the National Nursing Home Survey, 2004

- About one-quarter of all nursing home residents reported or showed signs of pain.
- Nonwhite residents and residents with dementia were less likely to report or show signs of pain compared with white residents and residents without dementia.
- Nonwhite residents with dementia were least likely, and white residents without dementia were most likely to report or show signs of pain.
- Forty-four percent of nursing home residents with pain received neither standing orders for pain medication nor special services for pain management (i.e., appropriate pain management).
- Among residents with dementia and pain, nonwhite residents were more likely than white residents to lack appropriate pain management.

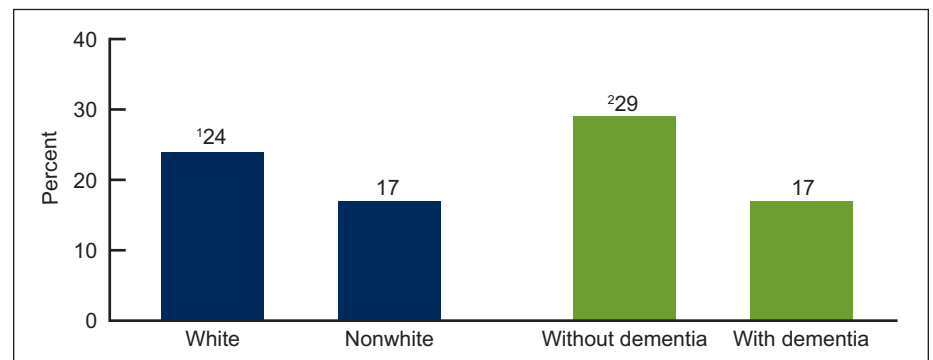
Pain is common among nursing home residents, and effective pain management has an impact on improving quality of life (1,2). Previous research has shown race differences in pain reporting and management in various settings, with racial and ethnic minority groups less likely than white residents to report pain and receive adequate treatment (3–9). Other studies have documented cognitive impairment as a barrier in the detection and self-report of pain, with the underreporting likely resulting in undertreatment (10–15). However, the relationships among race, dementia, and pain reporting and management remain understudied. This report explores the combined impact of race and a diagnosis of dementia on reporting or showing signs of pain and pain management among nursing home residents.

*Keywords: Appropriate pain management • pain underreporting • special pain management services • National Nursing Home Survey*

## Does pain vary by race? Does pain vary by a diagnosis of dementia?

Overall among nursing home residents, 23% reported or showed signs of pain in the 7 days prior to the interview.

Figure 1. Adjusted percentages of nursing home residents with pain, by race and dementia diagnosis: United States, 2004



<sup>1</sup>Significantly different from nonwhite residents ( $p < .05$ ).

<sup>2</sup>Significantly different from residents with dementia ( $p < .05$ ).

NOTES: Dementia included the following *International Classification of Diseases, Ninth Revision* codes: 290.0, 294.1, 294.0, 294.11, 294.8, 310, 331.0, 331, and 797. Data were adjusted for any current diagnosis of arthritis, cancer, pressure ulcers at stage II or higher, age, and sex.

SOURCE: CDC/NCHS, National Nursing Home Survey, 2004.



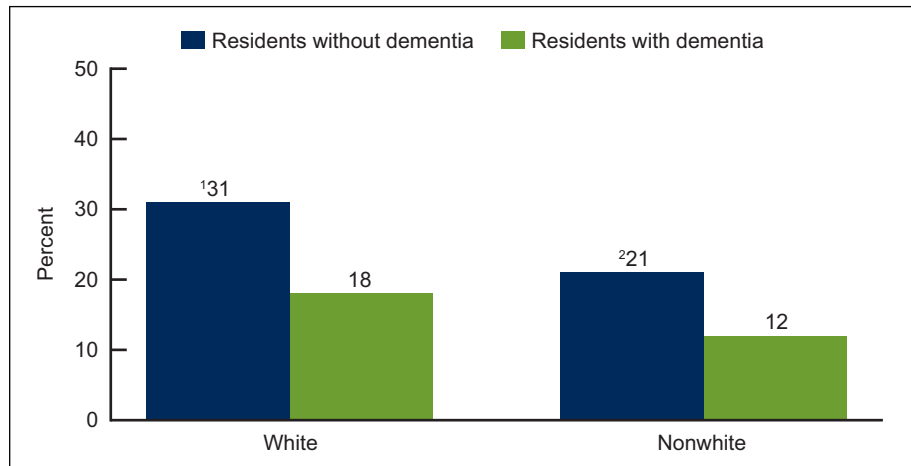
Nonwhite residents were less likely to report or show signs of pain than white residents. Nursing home residents with dementia were also less likely to report or show signs of pain compared with residents who did not have dementia.

Among all residents, 17% of nonwhite residents compared with 24% of white residents reported or showed signs of pain.

Seventeen percent of those with dementia reported or showed signs of pain in the 7 days prior to the interview compared with 29% of those without dementia (Figure 1).

A similar association between dementia status and reporting of pain existed among both white and nonwhite residents, with a significantly greater proportion of residents without dementia reporting or showing signs of pain compared with residents with dementia. Nonwhite residents with dementia (12%) were least likely to report or show signs of pain, and white residents without dementia (31%) were most likely to report or show signs of pain (Figure 2).

Figure 2. Adjusted percentages of nursing home residents with pain among white and nonwhite residents, by dementia diagnosis: United States, 2004



<sup>1</sup>Significantly different from white residents with dementia ( $p < .05$ ).

<sup>2</sup>Significantly different from nonwhite residents with dementia ( $p < .05$ ).

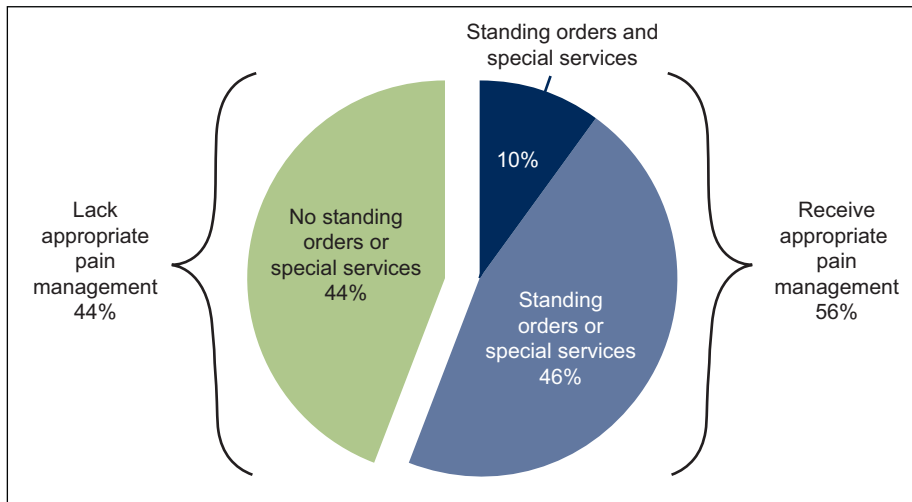
NOTES: Dementia included the following *International Classification of Diseases, Ninth Revision* codes: 290.0, 294.1, 294.0, 294.11, 294.8, 310, 331.0, 331, and 797. Data were adjusted for any current diagnosis of arthritis, cancer, pressure ulcers at stage II or higher, age, and sex.

SOURCE: CDC/NCHS, National Nursing Home Survey, 2004.

## Did residents with pain receive appropriate pain management?

Although the use of medications for pain management may vary by age, sex, and clinical condition, appropriate care for pain is either standing orders for pain medication or receipt of services from a special program for pain management, particularly among nursing home residents with moderate to severe pain (16). Figure 3 gives the overall distribution of pain management strategies used for nursing home residents with pain, without adjusting for age, sex, or clinical diagnosis. Among nursing home residents with pain, 44% neither had standing orders nor received special services for pain management, 46% either had standing orders or received special services, and another 10% had both standing orders and received special services for pain management (Figure 3).

Figure 3. Percentage of nursing home residents with pain, by pain management strategy, 2004



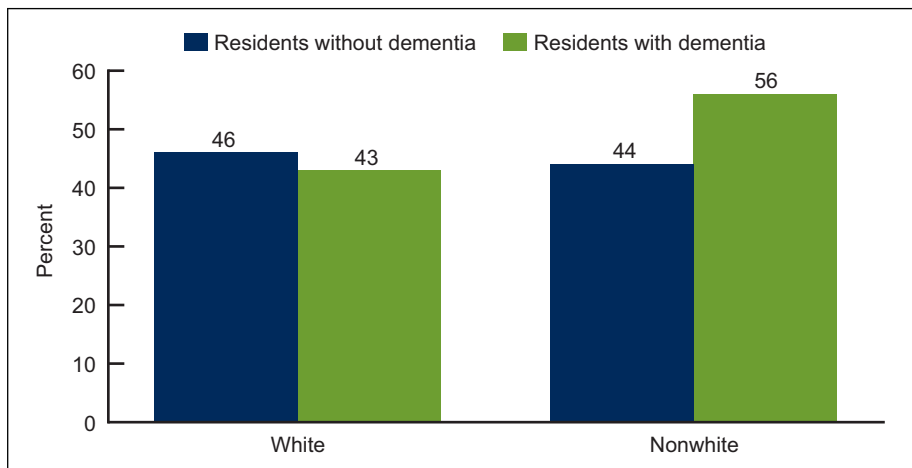
NOTES: Special services refer to special programs for pain management. Appropriate pain management is receiving standing orders for pain medication or special services from a special program for pain management.  
SOURCE: CDC/NCHS, National Nursing Home Survey, 2004.

### Among residents with pain, does appropriate pain management vary by race or diagnosis of dementia?

There were no statistically significant differences in lack of appropriate pain management by dementia diagnosis (44% of those with dementia and 45% of those without dementia) or race (45% of white residents and 48% of nonwhite residents) (not shown).

If one considers race and dementia diagnosis simultaneously, a similar percentage of white residents with or without dementia and nonwhite residents without dementia lacked appropriate pain management (43%, 46%, and 44%, respectively) (Figure 4). However, lack of appropriate

Figure 4. Adjusted percentages of nursing home residents with pain who lack appropriate pain management among the white and nonwhite residents, by dementia diagnosis, 2004



NOTES: Dementia included the following *International Classification of Diseases, Ninth Revision* codes: 290.0, 294.1, 294.0, 294.11, 294.8, 310, 331.0, 331, and 797. Data were adjusted for any current diagnosis of arthritis, cancer, pressure ulcers at stage II or higher, age, and sex. Appropriate pain management is receiving standing orders for pain medication or services from a special program for pain management.  
SOURCE: CDC/NCHS, National Nursing Home Survey, 2004.

pain management differed between nonwhite residents with dementia and white residents with dementia; 56% of nonwhite residents with dementia lacked appropriate pain management compared with 43% of white residents with dementia ( $p<.05$ ).

## Summary

About one-quarter of nursing home residents reported or showed signs of pain. Prevalence of pain among residents varied by race and dementia diagnosis. Consistent with previous research, these nationally representative results suggest that nonwhite residents were less likely to report or show signs of pain than white residents, and residents with dementia were less likely to report or show signs of pain than residents without dementia. As a group, white residents without dementia appear at one end of the spectrum with the highest likelihood of reporting or showing signs of pain. At the other end of the spectrum are nonwhite residents with dementia, who are least likely to report or show signs of pain.

Over 40% of all nursing home residents with pain received neither standing orders for pain medication nor special services for pain management. Among residents with dementia and pain, there were differences in appropriate pain management between nonwhite and white residents, with nonwhite residents being more likely than white residents to lack appropriate pain management. Because questions about pain management were asked only if a resident reported or showed signs of pain, residents whose pain was controlled were not included in this analysis. Therefore, residents without reported or noted pain because it was controlled, may have received pain management, and the estimates of receipt of pain management approaches presented in this report may be underestimated.

In light of national goals to reduce racial disparities in health care quality, these findings contribute to the literature by exploring the complex associations among race, dementia, and pain management.

## Definitions

**Dementia:** Nursing home providers were asked if the sampled resident had any diagnosis of dementia that included the following *International Classification of Diseases, Ninth Revision* codes: 290.0, 294.1, 294.0, 294.11, 294.8, 310, 331.0, 331, and 797, in any of 16 current diagnoses.

**Pain:** Nursing home providers were asked if the sampled resident had reported or showed any signs of pain in the past 7 days prior to the interview. The question read, “Since admission/ In the past 7 days, that is, since {PAST 7 DAYS}, has sampled person/resident {SP} reported or shown evidence of pain? Please include grimacing or other non-verbal signs that suggest pain.” Throughout this report, “reported or showed signs of pain” and “with pain” are used interchangeably.

**PRN:** A medication ordered by a medical practitioner to be administered on an “as needed” basis. Only nursing home residents who reported or showed signs of pain were asked if they received PRN pain medication.

Standing order: A protocol of medication administration allowing a registered nurse to administer medication without a prior prescription. Only nursing home residents who reported or showed signs of pain were asked if they received standing orders for pain medication.

Special services for pain management: Nursing home providers were asked if the sampled resident was currently receiving services from a special program for pain management. Responses were categorized to indicate whether the resident was using special services, the resident was not using special services, or the nursing home did not have any specialty programs for pain management.

## Data source and methods

The data used for this analysis come from the resident module of the 2004 National Nursing Home Survey (NNHS). NNHS is a periodic nationally representative cross-sectional survey of nursing homes in the United States. The survey provides a plethora of information on nursing home characteristics, the services they provide, the staffs they employ, and the residents they serve.

The 2004 survey used a stratified, multistage probability sample from a frame of nursing homes based on strata defined by bed size and metropolitan statistical area status. The first stage involved the selection of facilities followed by the selection of residents in the second stage. Using systematic sampling with probability proportional to bed size, 1,545 nursing homes were sampled. In the second stage, residents were randomly selected from a list provided at the time of the interview of residents as of midnight the day before the survey. A selection of up to 12 residents per facility resulted in a total sample of 14,017 current residents. The survey was administered using a computer-assisted personal interview (CAPI) system. Data for the survey were obtained through personal interviews with facility administrators and designated staff who used administrative records to answer questions about the facilities, staff, services and programs, and medical records to answer questions about the residents.

Although residents with characteristics associated with pain may well vary across nursing homes, estimates of pain reporting and appropriate pain management by race and dementia status in Figures 1, 2, and 4 were adjusted for age, sex, and a set of conditions that are associated with pain. The adjusted percentages reported in Figures 1, 2, and 4 are the predicted marginal probabilities estimated for the average person in a given dementia status and racial group after adjusting for all other variables noted in the figure. Adjusted and unadjusted results were similar. The marginal probabilities, their associated contrasts, and tests for statistical significance were estimated using general estimating equations to construct logistic regression models in SAS-callable SUDAAN. Figure 3 shows the overall distribution of pain management strategies used for nursing home residents in pain, irrespective of age, sex, or clinical diagnosis, and therefore does not control for these factors. Severity of pain, duration of pain, and the resident's ability to ask for medication are not addressed in this report, and may affect the observed relationships among race, dementia, and pain reporting and management.

The analysis of differences in pain management strategies (standing order, special services) was limited to nursing home residents who reported or showed signs of pain. A resulting caveat is that

there may be some underestimation of residents receiving standing orders or using services from special pain management programs, if these residents did not report or show any residual pain after receiving appropriate pain management.

### About the authors

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