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## Racial Disparities in Care Interactions and Clinical Outcomes in Black versus White Nursing Home Residents with Dementia

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### Abstract

**Background:** With the increase in Black nursing home residents, racial and ethnic disparities in quality of care have been raised.

**Purpose:** The purpose of this study was to evaluate racial disparities in care and outcomes over 12 months.

**Methods:** This was a secondary data analysis using data from the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia study. A total of 553 residents, 24% Black residents and 76% White residents, from 55 nursing homes were included.

**Results:** Differences favoring Black resident were noted in agitation, quality of life, inclusion of person centered care approaches in care plans, and fewer falls and hospitalizations. Differences in quality of care interactions favored White residents. There were no differences in depression, resistiveness to care, function, pain, or transfers to the emergency room.

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The authors declare no conflicts of interest.

**Conclusions:** Disparities in clinical outcomes were small and generally favored Black versus White residents except for quality of care interactions.

### Keywords

aging; dementia; nursing homes; quality of care; race

Historically, Black older adults have been less likely to live in nursing homes compared to White older individuals.<sup>1</sup> This is no longer the case as currently Black residents make up 14% of all nursing home residents,<sup>2</sup> which is higher than the average percentage of Black older individuals living in the community. Compared to White residents, Black residents tend to be younger, more likely to have mental illness, and less dependent in activities of daily living.<sup>3</sup> Black residents are more likely to be in facilities that are more reliant on Medicaid funding, have lower staffing levels, and more regulatory deficiencies in care.<sup>4</sup> Black older adults transition to nursing homes for long term care rather than choosing to transition into assisted living facilities as assisted living is mainly private pay while much of nursing home care is covered by government reimbursement.<sup>5</sup>

With the increase in numbers of Black older adults living in nursing homes, there has been a heightened concern about racial and ethnic disparities in the quality of care individuals receive.<sup>4,6</sup> Specifically, there are concerns that facilities with a larger percentage of Black residents versus White residents provide lower quality of care based on cumulatively collected data on these settings such as staffing, star ratings, and inspection deficiencies.<sup>3,4,7</sup> The geographic location of nursing homes (inner city vs. rural) may explain why many facilities are not well integrated.<sup>6</sup>

In addition to evidence that nursing homes with a high percentage of Black residents are exposed to poorer quality of care, there is evidence based on cross sectional research to suggest that Black residents experienced lower quality of life, more pain and less treatment for pain, less treatment of depression, more use of restraints, more weight loss, more episodes of urinary tract infections, and were more likely to be transferred to the emergency room and for inpatient hospital stays than their White counterparts.<sup>4,8</sup>

Currently, due to an increased focus on quality improvement requirements, state oversight, higher reimbursement rates for long term care services, and increased competition to fill nursing home beds there has been a shift such that the quality of care for all older residents has improved. For example, in some recent studies<sup>9,10</sup> Black residents had lower quality of life, greater weight loss, and more urinary tract infections, and were more likely to be exposed to restraints, but these differences were small, less than 2 percent.<sup>9,10</sup> Further, there was no difference between Black residents and White residents with regard to worsening of function,<sup>10</sup> and there were fewer falls, less risk of pressure ulcers, less urinary incontinence, and less worsening of depression among Black versus White residents.<sup>10,11</sup>

Given the discrepancies in terms of whether there are disparities in care between Black versus White residents, the purpose of this study was to evaluate staff resident interactions and clinical outcomes (function, depression, agitation, quality of life, resistiveness to care, pain, falls, and emergency room and hospital transfers) between Black versus White

residents over a 12- month period. Specifically, it was hypothesized that Black residents would receive lower quality of care interactions; have less functional decline; have less depression; have more resistiveness to care, agitation, and pain; have lower quality of life; less evidence of person centered care planning; fewer falls; and more emergency room transfers and hospitalizations.

## METHODS

This was a secondary data analysis using data from the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Distress in Dementia (EIT-4-BPSD) implementation study. The study was approved by a University based Institutional Review Board. The parent study involved testing the use of the Evidence Integration Triangle (EIT) to help staff in nursing homes provide person centered behavioral management of BPSD while optimizing function and physical activity of the residents. A description of the parent study is provided elsewhere.<sup>12</sup> There was no time by treatment effect for any of the resident outcomes.<sup>12</sup>

## SAMPLE AND SETTINGS

The full baseline sample included residents from 55 nursing homes in 2 states. To participate in the study the nursing homes had to: (1) agree to actively partner with the research team on an initiative to change practice; (2) have at least 100 beds or at least 50 beds if the facility had a dedicated dementia care unit; (3) identify a staff member to be an internal champion and work with the research team in the implementation process; and (4) be able to access email and websites via a phone, tablet, or computer. Residents were eligible to participate if they: (1) lived in a participating nursing home at the time of recruitment; (2) were 55 years of age or older; (3) had cognitive impairment based on a score of 0–12 on the Brief Interview of Mental Status (BIMS);<sup>13</sup> (4) were not enrolled in Hospice; or (5) were not admitted for short-stay rehabilitation care. Eligible residents were given the Evaluation to Sign Consent<sup>14</sup> to determine if they were able to self-consent. If the resident could not correctly respond to all items, verbal or written assent was obtained from the resident and the legally authorized representative was approached to complete the consent process.

A total of 1095 residents were approached, and 590 (54%) were consented. Thirty-eight (3%) were non-communicative, did not understand English, or died before they could be consented; 156 (14%) residents refused to participate; 221 (20%) legally authorized representatives were unavailable; and 90 (8%) legally authorized representatives refused to consent. Of those residents who consented, 37 (6%) were not eligible due to a high BIMS score, 7 were too young, and 11 were on Hospice services. Of the 590 who consented, 553 (94%) were enrolled into the study.

## Procedure

Data collection was done by research evaluators who were blind to setting allocation and details of the intervention. Data collection was based on medication records, resident observations (e.g., pain), and input from nursing assistants.

## Measures

Descriptive resident information included age, race, gender, and comorbidities. Comorbidities were derived by summing the total number of comorbidities based on the 14 categories identified in the Cumulative Illness Rating Scale.<sup>15</sup> Descriptive measures of the facility included number of beds, profit status, location (urban or rural), percentage of recruited Black residents in each facility, health citations, star ratings based on publicly reported information (health inspections, staffing level),<sup>16</sup> setting related policies, and environment assessments with regard to optimizing physical activity among residents.

**Resident Outcomes**—Pain was evaluated using the Pain in Advanced Dementia Scale (PAINAD),<sup>17</sup> which includes 5 behaviors (breathing independent of vocalization, negative vocalization, facial expression, body language, and consolability) observed in individuals with dementia who have pain. There is prior support for the reliability and validity of this measure.<sup>18</sup> Resident function was evaluated using the Barthel Index,<sup>19</sup> which addresses 10 basic activities of daily living (eg, bathing, dressing). Items are weighted to account for the amount of assistance required. Assessments were completed by obtaining input from the nursing assistant providing care to the resident on the day of testing. Prior testing of the Barthel Index supported the psychometric properties of the scale.<sup>19</sup>

The Cornell Scale for Depression in Dementia (CSDD)<sup>20</sup> was used to evaluate residents for evidence of 19 depressive symptoms. Prior testing supported evidence of reliability and validity.<sup>20</sup> The 14-item Cohen-Mansfield Agitation Inventory (CMAI)<sup>21,22</sup> was used to measure the frequency of 14 common symptoms associated with agitation. Prior testing of the CMAI provided psychometric support for this measure.<sup>22</sup> The Resistiveness to Care Scale<sup>23</sup> was used to evaluate residents for evidence of resisting care during routine care interactions. A total of 13 behaviors indicative of resistiveness to care such as hitting, kicking, biting, or refusing care are included and prior testing provided support for the reliability and validity.<sup>23,24</sup> Quality of life of residents was evaluated using the Quality of Life in Late-stage Dementia Scale (QUALID)<sup>25</sup> which includes 11 behaviors associated with quality of life among individuals with dementia. Examples of these behaviors include whether or not the individual smiles, appears sad, cries, has facial expressions of discomfort, appears emotionally calm and comfortable, or is irritable or aggressive. Prior testing supported the reliability and validity of this scale.<sup>25</sup>

Resident care plans were evaluated to determine the number of items that reflected person centered care. The Checklist for Evidence of Person-Centered Approaches for BPSD in Care Plans<sup>26</sup> was used to evaluate care plans for evidence of person centered approaches to management of apathy, agitation, inappropriate/disruptive vocalizations, aggression, wandering, repetitive behaviors, resistance to care, and sexually inappropriate behaviors. Prior testing supported the reliability and validity.<sup>26</sup> The quality of care interactions with staff that residents experienced was evaluated using the Quality of Interactions Schedule (QuIS).<sup>27</sup> The measure includes 5 interactions: Positive Social, Positive Care, Neutral, Negative Protective and Negative Restrictive and prior testing supported the psychometric properties of the quantified scale.<sup>28</sup> Lastly resident falls, emergency room transfers and

hospitalizations were gathered from designated facility staff. Data were collected at baseline, 4 and 12 months.

### Data analysis

Descriptive data were used to describe the sample and the facilities participating in the study. An analysis of variance or a crosstabs analysis was done to determine if there were differences between facilities with and without Black residents. Clinical outcomes between Black and White residents were evaluated using generalized estimating equations to assess the racial differences over time between baseline and four months and baseline and twelve months controlling for the facility and resident factors noted above. Treatment status and facility and resident factors that were significantly different based on race at baseline and associated with outcomes were controlled for including the percentage of Black residents in each facility, profit status, health citations, setting related policies and environment assessments, and resident gender, age and comorbidities. A  $p < .05$  was used for all analyses.

## RESULTS

As shown in Table 1, across the 55 facilities, 27 (49%) had no Black residents involved in the study and the remaining 28 facilities (51%) had anywhere from 7 to 100% of the participating residents being Black residents. The mean percentage of Black residents participating in the study was 24% which is higher than the percentage of blacks in the population overall. As shown in Table 1, there were no differences in the number of certified beds in the settings with Black versus only White residents, star levels with regard to staffing, health inspections or star ratings overall. There was a difference in the sites with Black residents versus those with only White residents such that Black residents were in settings that had more health citations (mean of 12.67 [SD=8.57] in settings with Black residents versus 8.42 [SD=5.43] in settings with White residents only) and were more likely to be in not for profit settings (63% of settings with Black participants were not for profit settings versus 14% of settings being not for profit for facilities with White residents only).

As shown in Table 2, the Black participants were younger than the White participants with a mean age of 78 (SD=11) versus 86 (SD=9), had fewer comorbidities (White participants 7.26 [SD=2.18] and Black participants 6.60 [SD=2.02]), and were more likely to be male (43% Black versus 23% White male participants). There was no difference in the BIMS score between Black and White participants, with an overall mean of 4.29 (SD=3.45).

The Supplemental Digital Content Table provides the changes in participant outcomes over time by race. There was a significant difference in agitation such that Black participants had a slightly larger decrease in agitation at 4 months ( $p=.001$ ) and 12 months ( $p=.014$ ) compared to White participants, a greater improvement in quality of life at 12 months ( $p=.04$ ), an increase in having person centered care approaches noted in care plans for Black participants versus White participants at 4 months ( $p=.02$ ), a decrease in quality of care interactions between staff and Black participants and an increase in quality of care between staff and White participants at 4 months ( $p=.014$ ), a decrease in number of Black participants with falls at 12 months while the White participants had an increase at 12 months ( $p=.001$ ), and a decrease in hospital transfers at 12 months for Black participants

while the White participants had an increase in these transfers at 12 months ( $p=.02$ ). There were no differences between Black participants versus White participants at 4 or 12 months with regard to depressive symptoms, resistiveness to care, function, pain, or transfers to the emergency room.

## DISCUSSION

The hypothesis proposed was partially supported in this study. Specifically, there was a significant decrease in the quality of care interactions between staff and Black residents with an increase among White residents at 4 months, and a decrease in falls in Black residents at 12 months and an increase in White residents. A prior study noted that Black residents were less socially engaged than White residents regardless of the facility.<sup>29</sup> It is not clear if this is due to how staff interact with residents or if it is more intrapersonal on the part of the resident. Conversely, there is some research suggesting that Black adults are more extroverted than White adults.<sup>30</sup> Research is needed to evaluate care interactions and assure that more positive and fewer negative or neutral care interactions are provided to Black residents and to determine if social engagement among Black residents is based on the individual's preferences or due to opportunities within the setting. Further we need to consider if there are differences in interactions when staff and residents are from different racial or ethnic groups.

With regard to falls, prior studies have also noted fewer falls or implementation of interventions to decrease falls between Black versus White residents.<sup>11,31</sup> It is possible that these differences are due to Black residents being younger and having fewer comorbidities and thus anticipated to be at less risk of falls.

The hypothesized relationships with regard to agitation, quality of life, use of person centered care approaches, and hospital transfers were all significantly different between Black versus White residents but in the opposite direction of what was hypothesized. Black residents had less agitation, better quality of life, more person centered care interventions recommended in their care plans, and fewer hospitalizations over a 12 month period than what has been reported in prior studies.<sup>3,32–35</sup> In those studies there was better quality of life, and more emergency room visits and hospitalizations in Black versus White residents.<sup>3,32–35</sup> Differences in outcomes may reflect facility related characteristics such as staffing, access to health care providers within the setting, access to acute care, or individual preferences for hospital transfers or not to go out to the hospital. It is important to recognize racial differences and focus research on determining the reasons for these differences.

There has been some indication that care preferences may be different between Black residents versus White residents.<sup>36</sup> Black residents were more likely than White residents to rate all preferences to care as important and were the least likely to rate having animals around as a care preference. Continued research is needed to explore differences in the importance of addressing care preferences and determining care preferences so that person centered care can be provided to Black and White residents with moderate to severe dementia.

There were no differences between Black versus White residents at 4 or 12 months with regard to depressive symptoms or resistiveness to care. In contrast to our findings, multiple prior studies have repeatedly noted that Black residents had fewer depressive symptoms and fewer behavioral symptoms than White residents.<sup>4,10,35</sup> These differences may be related to differences in measures used. In addition, psychosocial outcome measures need to be evaluated to clarify if the items included in these measures are appropriate for Black and White residents<sup>37</sup>. It is currently not clear if depressive symptoms, agitation, or resistiveness to care are exhibited in the same way for Black versus White residents.

Consistent with prior research,<sup>10,38</sup> there was no difference in Black and White residents with regard to function. The mean Barthel Index among all of the residents was less than 40 across all time points indicating dependent function.<sup>19</sup> As noted in the eligibility criteria the participants all had moderate to severe cognitive impairment which is related to the low level of function. It is not clear, however, if function was optimized by engaging these individuals in bathing, dressing, and encouraging ambulation versus using a more task focused approach and making sure that care tasks were provided (eg, that the resident was bathed and dressed). Although caregivers are concerned that encouraging function may exacerbate behavioral symptoms in this population, findings actually support the opposite.<sup>39</sup> Interventions should continue to implement approaches to care that help optimize function in all individuals with moderate to severe dementia.

### **Study limitations and conclusions**

This study was limited in that it included only 2 states and residents with moderate to severe dementia. Some facilities that had no Black residents and had a large percentage of residents lost to follow due to death. The findings overall noted some disparities in care, which were small, and generally there were better outcomes for Black versus White participants. Although some facility factors were controlled for there may be other factors that were not included such as the ethnicity of the staff that could influence outcomes. The discrepancies in this study versus other studies suggest that differences may be due to measurement of outcomes. Future research should determine if measures used to evaluate behavioral symptoms, quality of life and pain are invariant across racial groups.

Despite limitations, this study provided some current information related to clinical outcomes over a 12-month period between Black versus White residents with dementia in nursing homes. Overall there were no disparities in clinical outcomes over 12 months in which Whites had better outcomes over Blacks with the exception of the quality of care interventions. There is a need to remind staff to provide positive versus negative and neutral care interactions when work working with Black residents as well as White residents.

### **Supplementary Material**

Refer to Web version on PubMed Central for supplementary material.

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**Table 1.**

Differences in Facility Descriptives Between Facilities with White Residents Only Versus Facilities with White and Black Residents

Facility Variables	Race		Significance
	Facilities With White residents Only N = 27	Facilities with White and Black Residents N = 28	
	M (SD)	M (SD)	F (p)
Facility number of certified beds	157.71 (86.82)	150.36 (66.08)	.91 (.34)
Facility total number of health citations	8.42 (5.43)	12.67 (8.57)	42.09 (.001)
Staffing star level	3.27 (1.07)	3.07 (.96)	3.06 (.08)
Health inspections star level	2.71 (1.12)	2.62 (.92)	.37 (.55)
Overall rating Star level	3.47 (1.29)	3.46 (1.21)	.03 (.87)
	N (%)	N (%)	$\chi^2$ (p)
Profit Status			13.80 (.001)
Not for Profit	24 (86%)	10 (37%)	
For Profit	4 (14%)	17 (63%)	
Location			1.52 (.22)
Urban	13 (46%)	17 (63%)	
Rural	15 (54%)	10 (37%)	

**Table 2.**

Comparison of Residents by Race at Baseline

Variable	White Residents Mean (SD)	Black Residents Mean (SD)	F (p)
Age	85.99(9.05)	77.54(11.81)	74.39 (.001)
Comorbidities	7.26(2.18)	6.60(2.02)	9.56 (.002)
Brief Interview for Mental Status	4.21(3.38)	4.52(3.66)	.80 (.37)
	<b>N(%)</b>	<b>N(%)</b>	<b><math>\chi^2</math> (p)</b>
Gender			18.45 (.001)
Males	98(23%)	321(77%)	
Females	57(43%)	77(57%)	

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