

Curriculum Vitae
Rachel McPherson

Education

PhD, Gerontology

2019 - present

Degree conferral date: Fall 2022

University of Maryland, Baltimore

Baltimore, MD

University of Maryland, Baltimore County

Baltimore County, MD

Dual-Institution Degree Program

Track: Social, Cultural, Behavioral

Dissertation: Care Interactions Between Staff and Nursing Home Residents with Dementia

M.A., Applied Sociology

2019 - 2022

University of Maryland, Baltimore County

Baltimore County, MD

Master's Paper: Differences in Staff-Resident Interactions by Facility Racial Composition

B.S., Psychology

2016 - 2018

University of Central Florida

Orlando, FL

Honors Thesis: Variables Influencing Misogyny

A.A.

2014 – 2016

Eastern Florida State College

Cocoa, FL

Experience

University of Maryland, Baltimore

2019 - present

Graduate Research Assistant

Baltimore, MD

PI: Barbara Resnick, PhD, CRNP

- Responsible for data collection, data management, and project management for NIA-funded research study
- Onboard and train new research staff on primary data collection and study protocols
- Arrange intervention education meetings with participating assisted living facilities

- Design cost database for 13 assisted living facilities from intervention study

Research Project Investigator

- Analyze and interpret results pertaining to care outcomes and disparities for long-term care residents with dementia
- Present research findings at 6 national conferences and 5 regional conferences
- Co-author a literature review report for an assisted living facility client
- Centralize data from cross-department research project on patient mobility in acute care

University of Maryland, Baltimore County

2021 - 2022

Research Project Investigator

Baltimore County, MD

PIs: Brandy Harris-Wallace, PhD and Christine Mair, PhD

- Assembled a literature review on care disparities by nursing home facility racial composition
- Conducted analyses and interpreted findings pertaining to differences in care by nursing home facilities with varying racial compositions

Applied Cognition and Aging Laboratory

2017 - 2019

University of Central Florida, Psychology Department

Orlando, FL

Lab Manager

PI: Mark Neider, PhD

- Designed and developed research experiment alongside doctoral students and lab faculty director
- Provided administrative support in corresponding with research assistants
- Trained new research assistants on lab procedures, protocols, and software

University of Central Florida

2017 - 2018

Research Project Investigator

Orlando, FL

PI: Doan Modianos, PhD

- Designed survey structure for research project using Qualtrics
- Analyzed and interpreted experiment results pertaining to factors associated with misogyny
- Presented research findings at regional conference

Teaching Assistant, Physiological Psychology

- Composed exam questions focusing on lecture and textbook content
- Prepared comprehensive presentation for student exam review session

Skills

Quantitative Data Analysis Using SPSS & R • Manuscript Writing • Data Management •
Research Presentations

Honors and Awards

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University of Maryland Baltimore County Applied Sociology Program

Leadership and Volunteer Service

Ad-Hoc Reviewer

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Geriatric Nursing

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BMC Geriatrics

Abstract Reviewer

2022

The Gerontological Society of America 2022 Annual Scientific Meeting

Aging Forum Senior Representative

2020 - 2022

UMB/UMBC Doctoral Program in Gerontology

Student Delegate on Department Promotion and Tenure Committee for Faculty Candidate

2021

University of Maryland, Baltimore County

Secretary and Executive Officer

2017 - 2018

The Psychological Society, University of Central Florida

Peer Mentor

2017 - 2018

The Psychological Society, University of Central Florida

Secretary and Treasurer

2015 - 2016

Psi Beta Honor Society, Eastern Florida State College

Peer-Reviewed Publications

1. **McPherson, R.**, Resnick, B., Galik, E., Gruber-Baldini, A., Holmes, S., & Kusmaul, N. (2022). The Association Between Engagement in Activities of Daily Living and Care Interactions for Residents Living with Dementia. *Journal of Nursing Care Quality*, 1-7. <https://doi.org/10.1097/NCQ.0000000000000675>
2. Resnick, B., Galik, E., **McPherson, R.**, Vigne, E., & Holmes, S. (2022). The impact of FFC-AL-EIT-D in assisted living during the COVID-19 pandemic. *Activities, Adaptation & Aging*, 1-12.

3. Sarno, D. M., **McPherson, R.**, & Neider, M. B. (2022). Is the key to phishing training persistence?: Developing a novel persistent intervention. *Journal of Experimental Psychology: Applied*. <https://doi.org/10.1037/xap0000410>
4. **McPherson, R.**, Resnick, B., Galik, E., Kolanowski, A., Boltz, M., & Van Haitsma, K. (2021). Differences in Staff–Resident Interactions Between Male and Female Residents in Nursing Homes. *Journal of Gerontological Nursing*, 47(5), 19-25. <https://doi-org.proxy-hs.researchport.umd.edu/10.3928/00989134-20210407-04>
5. Resnick, B., Galik, E., Holmes, S., & **McPherson, R.** (2021). The impact of COVID-19 in an assisted living community. *Geriatric Nursing*, 42(5), 1151–1155. <https://doi.org/10.1016/j.gerinurse.2021.08.005>
6. Resnick, B., Galik, E., **McPherson, R.**, Boltz, M., Van Haitsma, K., & Kolanowski, A. (2021). Gender Differences in Disease, Function, and Behavioral Symptoms in Residents with Dementia. *Western Journal of Nursing Research*. <https://doi.org/10.1177/01939459211018822>
7. Resnick, B., Galik, E., Paudel, A., **McPherson, R.**, Van Haitsma, K., Boltz, M., Ellis, J., Eshraghi, K., Behrens, L., Zhu, S., & Breman, R. B. (2021). Reliability and Validity Testing of the Quantified Quality of Interaction Scale (QuIS). *Journal of Nursing Measurement* (29)2, 1-15. <https://doi.org/10.1891/JNM-D-19-00101>
8. **McPherson, R.** & Modianos, D. T. (2019). The Influence of Spirituality, Moral Reasoning, and Personality Factors on Misogyny. *The Pegasus Review: UCF Undergraduate Research Journal*.

Non-Peer-Reviewed Publications

1. Kirk, J., **McPherson, R.**, Bajracharya, R., & Anderson, L. (2021). *Identifying and Preventing Delirium in Assisted Living and Memory Care Settings*. Report written for Brightview Senior Living.

Research Presentations

1. **McPherson, R.** & Resnick, B. (2022, November). *Factor Analysis of Cornell Scale for Depression in Dementia Among Assisted Living Residents* [Poster presentation]. Gerontological Society of America annual meeting, virtual
2. **McPherson, R.**, Resnick, B., Galik, E., Gruber-Baldini, A., Kusmaul, N., & Holmes, S. (2022, October). *Model Testing of the Factors Associated with Care Interactions Among Nursing Home Residents with Dementia* [Poster presentation]. New Frontiers in Healthcare Management Seminar at University of Maryland, Baltimore County, MD, United States.
3. Drazich, B. F., Resnick, B., Boltz, M. P., Galik, E., Kim, N., **McPherson, R.**, Ellis, J., Phun, J., & Kuzmik, A. (2022, May 12-14). *Factors associated with physical activity in hospitalized patients with dementia* [Poster presentation]. American Geriatrics Society, Orlando, FL, United States.
4. **McPherson, R.** & Resnick, B. (2022, May). *Differences in Staff-Resident Care Interactions by Facility Racial Composition* [Poster presentation]. 3rd Annual Aging Research Symposium at University of Maryland, Baltimore, MD, United States.
5. Holmes, S. D., Resnick, B., Galik, E., & **McPherson, R.** (2022, April). *The Impact of COVID-19 Restrictions on Residents' Cognition, Function, and Behavioral Symptoms in an Assisted Living Community* [Poster presentation]. 43rd Annual

- Meeting & Scientific Sessions of the Society of Behavioral Medicine, Baltimore, MD, United States.
6. **McPherson, R.** & Resnick, B. (2022, March). *Factor Analysis of Cornell Scale for Depression in Dementia Among Assisted Living Residents* [Poster presentation]. Graduate Research Conference, University of Maryland, Baltimore, MD, United States.
 7. Galik, E., Resnick, B., **McPherson, R.**, & Vigne, E. (2021, November). *The Impact of Function Focused Care in Assisted Living Communities in the United States during the COVID-19 Pandemic* [Conference symposium]. 2021 International Psychogeriatric Association Congress, virtual.
 8. **McPherson, R.**, Resnick, B., & Galik, E. (2021, November). *The Influence of Staff-Resident Interactions on Resistiveness to Care Behavior in Assisted Living* [Poster presentation]. Gerontological Society of America annual meeting, virtual.
 9. Resnick, B., **McPherson, R.**, & Galik, E. (2020, November). *The Impact of COVID-19 and Associated Restrictions on Physical Activity Among Assisted Living Residents* [Conference symposium]. Gerontological Society of America annual meeting, virtual.
 10. **McPherson, R.**, Resnick, B., & Galik, E. (2020, November). *The Influence of Race and Gender on Staff-Resident Interactions in Nursing Homes* [Poster presentation]. Gerontological Society of America annual meeting, virtual.
 11. **McPherson, R.**, Resnick, B., & Galik, E. (2020, April). *Differences in Staff-Resident Interactions Between Male and Female Residents in Nursing Homes* [Poster presentation]. 2nd Annual Aging Research Symposium, University of Maryland, Baltimore, United States (Conference cancelled).
 12. **McPherson, R.**, Resnick, B., & Galik, E. (2020, March). *Differences in Staff-Resident Interactions Between Male and Female Residents in Nursing Homes* [Oral presentation]. Graduate Research Conference, University of Maryland, Baltimore, MD, United States.
 13. **McPherson, R.**, Sarno, D. M., & Neider, M. B. (2019, March). *Misattributed Confidence in Cybersecurity Performance: Suggestions for Design Intervention* [Poster presentation]. Southeastern Psychological Association, Jacksonville, FL, United States.
 14. **McPherson, R.**, Sarno, D. M., & Neider, M. B. (2019, January.). *Designing Resilient Cyber-Systems and Effective Training Interventions for an Aging Population* [Poster presentation]. Human Factors and Psychology Conference, Orlando, FL, United States.
 15. **McPherson, R.** & Modianos, D. T. (2018, March). *Variables Influencing Misogyny* [Poster presentation]. Southeastern Psychological Association, Charleston, SC, United States.

Peer-Reviewed Abstracts

1. Holmes, S. D., Resnick, B., Galik, E., & **McPherson, R.** (2022). The Impact of COVID-19 Restrictions on Residents' Cognition, Function, and Behavioral Symptoms in an Assisted Living Community. *Annals of Behavioral Medicine*, 56(Supp 1), 633-633.

2. Resnick, B., **McPherson, R.**, & Galik, E. (2021). The Impact of COVID-19 and Associated Restrictions on Physical Activity Among Assisted Living Residents. *Innovation in Aging*, 5(Suppl 1), 419-419.
3. Galik, E., Resnick, B., **McPherson, R.**, & Vigne, E. (2021). The Impact of Function Focused Care in Assisted Living Communities in the United States during the COVID-19 Pandemic. *International Psychogeriatrics*, 33(S1), 12-12.
4. **McPherson, R.**, Resnick, B., & Galik, E. (2021). The Influence of Staff-Resident Interactions on Resistiveness to Care Behavior in Assisted Living. *Innovation in Aging*, 5(Suppl 1), 856-856.
5. **McPherson, R.**, Resnick, B., & Galik, E. (2020). Differences in Staff-Resident Interactions Between Male and Female Residents in Nursing Homes. *University of Maryland School of Medicine Center for Researching on Aging*, 50-51. <https://www.medschool.umaryland.edu/media/SOM/Research-Centers/Center-for-Research-on-Aging/Documents/aging-research-symposium-poster-abstract-booklet.pdf>
6. **McPherson, R.**, Resnick, B., & Galik, E. (2020). The Influence of Race and Gender on Staff-Resident Interactions in Nursing Homes. *Innovation in Aging*, 4(Supplement_1), 185. <https://doi.org/10.1093/GERONI/IGAA057.599>

Abstract

Title: Care Interactions Between Staff and Nursing Home Residents Living with Dementia

Rachel McPherson, 2022

Dissertation Directed by: Barbara Resnick, PhD, CRNP, FAAN, FAANP, Professor, School of Nursing

Background: The quality of staff-resident care interactions is critical to residents living with dementia. Limited work has focused on understanding the quality of care interactions among nursing home (NH) residents and examining what factors are associated with the quality of staff-resident care interactions.

Purpose: The purpose of this dissertation was to: (1) comprehensively describe staff-resident care interactions; (2) assess racial and gender differences in the quality of care interactions between staff and residents living with dementia; and (3) test the resident and community factors that are associated with the quality of care interactions between NH residents living with dementia and staff.

Methods: Utilizing baseline data from a randomized pragmatic trial that included 553 residents from 55 NH facilities, Aim 1 used descriptive statistics to describe the characteristics of care interactions in NHs and a multiple linear regression to determine differences in the quality of care interactions between actively engaged and passively engaged residents, Aim 2 used analyses of covariance to examine racial and gender differences in the quality of care interactions, and Aim 3 used structural equation modeling to test the resident and community factors that were associated with quality of

care interactions and test for invariance between model fit based on resident race and gender.

Results: Although the majority of care interactions were positive, 21% of the interactions were negative and neutral. Active engagement was significantly associated with more positive care interactions than passive engagement. There was a racial difference in the quality of care interactions such that Black residents received significantly more positive care interactions than White residents. Increased pain and comorbidities were associated with more negative care interactions, while higher community star rating and for-profit communities were associated with more positive care interactions.

Conclusions: Understanding the quality of staff-resident care interactions in NHs and the factors that are related to the quality of care is important to guide future interventions and training curricula for NH care staff. Using this information to improve care interactions is important so that all NH residents living with dementia experience positive interactions regardless of pain, comorbidities, race, or community characteristics.

Care Interactions Between Staff and Nursing Home Residents Living with Dementia

by
Rachel McPherson

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, Baltimore in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2022

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Dedication

This work is dedicated to my great-grandmother, Helen Marie Dickinson. Thank you for your love and being the catalyst for my gerontology passion.

Acknowledgments

I owe my deepest appreciation to my chair and mentors, Dr. Barbara Resnick and Dr. Elizabeth Galik. Since my first day in the program, you both have whole-heartedly supported me and believed in me. You were consistently there for me every day throughout this journey, and I cannot even begin to imagine the number of hours you invested in me. I will always be grateful that you taught me the importance of teamwork and perseverance. Thank you for all opportunities you have provided me and for allowing me to continue on your team.

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To my family, thank you for your constant and unconditional love. Josh, you were there to encourage me on the toughest days and celebrate with me on the best days. You always know how to lift me up. To my parents, Keith and Karen, you have always been my #1 advocates and always encouraged me to achieve my dreams. Sarah and Jacob, thank you for being a constant source of enthusiasm and positive energy. Thank you to everyone in my extended family for your unwavering love and always being just a phone call away.

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List of Abbreviations

Abbreviation	Terms
ADL	Activities of daily living
BIMS	Brief Interview for Mental Status Examination
CFI	Comparative fit index
CIRS	Cumulative Illness Rating Scale
CR	Critical ratio
EIT-4-BPSD	Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia study
M	Mean
MS	Mean square
NH	Nursing home
SD	Standard deviation
SS	Sum of squares
TLI	Tucker-Lewis index
QuIS	Quality of Interactions Schedule

CHAPTER 1: Introduction and Background

Currently, NHs serve over one million older adults (Sengupta et al., 2022) and 49% of NH residents have dementia diagnoses (Sengupta et al., 2022), and an estimated 61% of NH residents having moderate to severe cognitive impairment (Centers for Medicare & Medicaid Services, 2016). Staff-resident care interactions, defined as verbal or nonverbal exchanges between staff and residents (Machiels et al., 2017), are critical in promoting psychological well-being, promoting quality of life, and influencing behavior and mood (i.e., resistiveness to care, anxiety, depression, and apathy) among nursing home (NH) residents living with dementia (Herman & Williams, 2009; Jao et al., 2018; Willemse et al., 2015; Zhang et al., 2020). The quality of staff-resident interactions, also referred to as the quality of care interactions, are critical to the quality of life of NH residents (McCabe et al., 2021). Therefore there is a need to evaluate the quality of care interactions within nursing homes.

Operationalization of Care Interaction Quality

Staff-resident care interactions vary regarding length, tone, speech, body language, and quality (Dean et al., 1993; Machiels et al., 2017). Care interactions between staff and residents are typically distinguished between positive, neutral, and negative care interactions (Dean et al., 1993). Positive interactions are differentiated to be either primarily social and reflective of good, constructive, beneficial conversation and companionship or related to physical care and reflective of the appropriate delivery of physical care. For example, a positive social interaction may consist of a staff chatting with a resident about their day, while a positive care interaction may consist of a staff giving a brief verbal explanation during a care task. Neutral interactions are interactions

that are brief and indifferent, such as handing the resident a hairbrush without any verbal communication. Negative care interactions are differentiated between those that are protective of residents in a restrictive manner due to concern, and those that are restrictive for no justified reason and carried out to make the work of the staff easier. For example, a negative protective interaction may consist of a staff demanding a resident to sit down out of fear of falling, while a negative restrictive interaction may consist of a staff refusing a resident's request without explanation. While the majority of staff-resident interactions for residents living with dementia are strictly task-focused and neutral (Adlbrecht et al., 2021; Fauth et al., 2020), it is important for residents to receive positive social care interactions to promote quality of life, well-being, and autonomy (Hoek et al., 2020; Lung & Liu, 2016).

Measurement of Quality of Care and Relation to Quality of Care Issues

Most quality of care measurements are based on observations in which a research evaluator observes the quality and quantity of the interaction between the staff and the resident. The measurements vary in terms of the behaviors recorded (e.g., engagement of resident, type of language used by staff, tone of staff, exhibiting personhood of resident). These observations are typically informed by the concept of person-centered care, which is care that takes into account the resident's characteristics (e.g., culture, gender, race, marriage), preferences, and abilities (e.g., functional, emotional, and cognitive) (Kitwood, 1997; Lanzi et al., 2017).

There are several challenges related to measuring quality of care and quality of care interactions. First, as most quality of care interaction measurements are observational, these measures are subject to observer reactivity or social desirability

(Girard & Cohn, 2016). An example of social desirability as a measurement issue would be staff interacting differently with a resident due to the presence of a research evaluator in the room. Although reactivity should be addressed as a possible measurement issue, prior work assessing NH care between staff and residents found that the direct observations were consistent over time and that the observations did not change nursing staff behavior (Schnelle et al., 2006). Secondly, quality of care measurements typically lack content related to resident or family satisfaction. Prior studies have suggested that resident and family satisfaction or complaints are an integral component of quality of care (Castle & Ferguson, 2010; Davila et al., 2021) and should be added to quality of care measurements, including Nursing Home Compare quality measures. Quality of care interactions measurements also typically do not include resident input on satisfaction or meaning related to care interactions. All quality of care interaction measurements should carefully be reviewed for issues related to social desirability, reliability and validity, and missing indicators (e.g., resident satisfaction/input).

Every interaction has the potential to be a positive, person-centered interaction that provides meaningful engagement to the resident recipient (Fazio et al., 2018). Good, positive staff-resident care interactions are associated with decreased depression among nursing home residents. (Haugan et al., 2013). Social interactions that meet the needs of residents with dementia (e.g., positive social interactions, positive care interactions) are positively associated with enhanced well-being, while interactions that undermine a resident's needs do not contribute to well-being (Willemse et al., 2015).

Theoretical Framework

The communication accommodation theory (Gallois et al., 2005), communication predicament of aging model (Ryan et al., 1995), and social ecological model (Bronfenbrenner, 1979) can be used to comprehensively understand the factors associated with the quality of care interactions.

Communication Accommodation Theory

The communication accommodation posits how interpersonal and intergroup factors can influence communication (Giles, 1979). According to the communication accommodation theory, assumptions based on age, gender, ethnicity, and culture can influence communication (e.g., use of different vocabulary, speech style, etc.) (Barker et al., 2004; Gallois et al., 2005; Giles, 1979). Staff may interact differently with residents due to assumptions related to these social characteristics of race, gender, age, etc. Specifically for residents living with dementia, the communication accommodation theory explains that caregivers may overaccommodate during care interactions (e.g., compensating speech too much) or underaccommodate (e.g., conversation is too insensitive to the conversational needs of the older adult recipient). (Barker et al., 2004).

Communication Predicament of Aging Model

The communication predicament of aging model is based on intergenerational communication theory, and this model focuses on how caregivers adjust their communication style with older adults as a result of age-related biases (Ryan, 2009; Ryan et al., 1995). This model posits that functional impairments or comorbidities can bias staff-resident communication in that the caregivers assume stereotypical views (e.g., dependence and limited competence) of older adults, and that these stereotypical views

create communication predicaments (e.g., elderspeak, negative communication). As a result of receiving biased communication, older adults in the interaction may face negative consequences such as social withdrawal, helplessness, and poor self-esteem (Ryan, 2009). Caregivers are more likely to utilize negative communication styles (e.g., elderspeak) upon the presence of functional impairments or comorbidities, as such characteristics indicate as a disability cue to caregivers (Ryan, 2009). Both the communication accommodation theory and communication predicament of aging model depict how descriptive characteristics (e.g., race, gender, comorbidities, presence of functional impairments) can negatively influence staff-resident care interactions due to biases.

Social Ecological Model

In addition, the social ecological model (Bronfenbrenner, 1979) was used to provide an even broader framework for the many resident and community factors that may influence care interactions. The social ecological model includes intrapersonal factors, interpersonal factors, environmental factors, and policy factors that influence staff-resident interactions. As noted above, intrapersonal factors such as residents' age, function, depressive symptoms, resistiveness to care, comorbidities, level of cognitive impairment have been associated with care interactions in previous research. (Herman & Williams, 2009; van Manen et al., 2021). Interpersonal interactions such as how the resident is addressed can also influence whether the interactions that occur are positively or negatively experienced. Likewise, environmental factors such as community size, profit status, community star rating, and interaction location may be associated with the quality of the care interactions. (Bliss et al., 2017; Hillmer et al., 2005; Paudel et al.,

2019; van Manen et al., 2021). Discovering what resident and community factors influence the quality of staff-resident interactions can help inform future strategies and interventions to optimize staff-resident interactions and promote quality care.

Purpose And Overview Of The Manuscripts

The primary aims of this dissertation were to comprehensively describe staff-resident care interactions, to assess demographic differences in the quality of care interactions, and investigate the relationship between resident and community factors and the quality of care interactions among NH residents living with dementia.

The Association Between Engagement in Activities of Daily Living and Care Interactions for Residents Living with Dementia: Manuscript 1

Manuscript #1 describes the care interactions among NH residents living with dementia in terms of the interaction quality, interaction location, type of staffing in interaction, and interpersonal distance during interaction. This study utilized the Quality of Interactions Schedule (QuIS) (Dean et al., 1993) to measure care interactions. The majority of the work to date on the QuIS measurement has been with all facility residents regardless of cognitive status (Dean et al., 1993; Lindsay & Skea, 1997) or acute care patients regardless of cognitive status, (Bridges, Gould, et al., 2019; Bridges, Griffiths, et al., 2019; Gould et al., 2018; McLean et al., 2017; Mesa-Eguiagaray et al., 2016) while only limited research has utilized the QuIS among patients or residents with dementia (Lee et al., 2021; Paudel, Resnick, et al., 2021). This present study is innovative in that it will be focusing on the QuIS and care interactions among nursing home residents with dementia (Aim 1a).

This manuscript also assesses the association between resident engagement in care interaction and care interaction quality (Aim 1b). The communication accommodation theory suggests that residents may become passively engaged when exposed to negative care interactions (Ryan, 2009), and prior research has found that NH residents are primarily passively engaged in care interactions with staff (Saldert et al., 2018). This study contributes to the literature by describing the characteristics of care interactions among NH residents living with dementia and examining the relationship between resident engagement and quality of care interaction.

Baseline data from the Testing the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia (EIT-4-BPSD) was utilized in this study. Using a sample of 532 residents with dementia from 55 NHs, descriptive statistics and multiple linear regression were used to address the proposed aims. Having knowledge about care interaction characteristics and associations will help inform future interventions to assure positive care interactions for NH residents living with dementia.

Racial and Gender Differences in the Quality of Care Interactions Among Nursing Home Residents Living with Dementia: Manuscript 2

Manuscript #2 determines racial and gender differences in the quality of care interactions among NH residents living with dementia, and assesses the interaction between resident race and gender on the quality of care interactions. There are known racial disparities in nursing home overall quality of care and quality of life among residents of color (Bowblis et al., 2020; L. J. Campbell et al., 2016; Harrington et al., 2017; Luo et al., 2014; Rivera-Hernandez et al., 2019; Shippee et al., 2020), however

limited research has assessed racial and gender disparities in quality of staff-resident interactions among NH resident with dementia (McPherson et al., 2020).

The present study capitalizes on race and gender data from the EIT-4-BPSD study to address this gap in the literature. The aims of this study were determining differences in the quality of care interactions between staff and residents across genders (Aim 2a) and race (Black versus White, Aim 2b) of the residents, and to consider if there was an interaction between resident race and resident gender and difference in quality of care interactions (Aim 2c) It was specifically hypothesized that a) Black residents with dementia will be exposed to lower quality of care interactions than White residents with dementia; b) Female residents with dementia will be exposed to higher quality of care interactions than male residents with dementia; c) There will be an interaction between race and gender such that Black males will be exposed to lower quality of care interactions than Black females, White males, and White females. Understanding racial and gender differences in care interactions will be crucial to inform interventions and training for staff on how to reduce negative and neutral interactions and increase positive interactions regardless of resident characteristics/demographics.

Resident and Community Factors Associated with Care Interactions: Manuscript 3

Guided by the social ecological model, the purpose of this study was to a) test the resident and community factors that are associated with the quality of care interactions among NH residents with dementia; and b) test for invariance between model fit when tested with the Black residents versus White residents with dementia, and male versus female residents with dementia. For Aim 3a, it was hypothesized that resident age, gender, race, pain, comorbidities, quality of life, resistiveness to care, function, cognition,

community profit status, overall community star rating, community size, and staffing star rating would be directly and/or indirectly associated with quality of care interactions

For Aim 3b, it was hypothesized that the model fit would be invariant by resident race and gender. This study used baseline data from the EIT-4-BPSD study for model testing, with a sample of 553 residents. Model testing was performed using path analyses.

Findings from this study will help to inform interventions to support interventions and continued staff training to raise awareness about residents who may be at risk for poorer quality care interactions.

Definition of Terms

The conceptual and operational definitions of terms used in this study are as follows:

1. Nursing home: Nursing homes are defined as residential care settings for older adults and other individuals that provide medical services, activities of daily living (ADL) care, and 24-hour supervision (National Institute on Aging, 2017).
2. Staff-resident care interaction: Staff-resident care interactions are conceptually defined as a verbal or nonverbal interactions between staff and resident (Machiels et al., 2017), and vary regarding length, tone, and quality. Care interactions are operationally defined as the total score on the quantified QuIS (Resnick, Galik, Paudel, McPherson, van Haitsma, Boltz, et al., 2021), based on the dichotomous response (present/not present) on five categories of interactions – positive social, positive care, neutral, negative protective, and negative restrictive (Dean et al., 1993).
3. Cognition: Cognition is conceptually defined as mental functioning including the ability to think, understand, remember, and make decisions (Centers for Disease

- Control and Prevention & Alzheimer's Association, 2018). It is operationally defined as the total score on the Brief Interview for Mental Status Examination (BIMS), whereas higher scores indicate more intact cognition (Chodosh et al., 2008).
4. Comorbidities: Comorbidities are the presence of multiple, concurrent health conditions or diseases. Comorbidities are operationalized by summing the health conditions obtained from the resident's chart according to the Cumulative Illness Rating Scale (CIRS) (Linn et al., 1968). Higher scores reflect a greater number of comorbidities.
 5. Function: Function is conceptually defined as the ability complete ADLs, such as walking, bathing, dressing, and feeding. Function is operationally defined as the total score on the Barthel Index (F. Mahoney & Barthel, 1965), whereas higher scores indicating greater functional independence.
 6. Agitation: Agitation is conceptually defined as inappropriate vocalizations or behaviors, including verbal or physical abuse (Cohen & Mansfield, 1986). It is operationally defined as the total score on the Cohen-Mansfield Agitation Inventory (CMAI), in which higher scores indicate more evidence of agitation.
 7. Depressive symptoms: Depressive symptoms are conceptually defined as mood or behavior symptoms indicative of depression, such as exhibiting anxiety or sadness. It is operationally defined as the total score on the Cornell Scale for Depression in Dementia (Alexopoulos et al., 1988), in which higher scores indicate more depressive symptoms.

8. Resistiveness to care: This is conceptually defined as a resistive or disruptive behaviors displayed toward caregivers during personal care. Resistiveness to care is operationally defined as the total score on the Resistiveness to Care Scale (E. K. Mahoney et al., 1999), where higher scores indicate more resistive behaviors.
9. Community size: The size of the nursing home facility; operationalized by the number of beds in the community.
10. Profit-status: The tax-exempt status of the nursing home facility; operationalized dichotomously as “for-profit” or “not-for-profit”.
11. Community star rating: Facility star rating is obtained from Nursing Home Compare data and based on a composite measure, where higher numbers indicate better facility quality.
12. Staffing star rating: Staffing star rating is obtained from Nursing Home Compare data, where higher numbers indicate better staffing levels.

Assumptions of the Study

The following assumptions underlined the aims of this study:

1. The quality of care interactions can be appropriately evaluated using the selected instrument and that the observations accurately represent the way in which staff interact with NH residents living with dementia.
2. That resident characteristics and community characteristics could be measured by the selected instruments and accurately reflect the nursing home population.
3. The quality of care interactions can be influenced by resident characteristics and community characteristics.

Summary

This chapter described the purpose of this dissertation work, provided a background based on evidence in the empirical literature, and addressed the significance of this work. The communication accommodation theory, communication predicament of aging model, and social ecological model of aging were explained as the theoretical frameworks that guided this work. The research aims and hypotheses were also addressed.

CHAPTER 2: Overview of Methods

Specific Aims and Hypotheses

The purpose of the current work was to comprehensively describe staff-resident care interactions in nursing homes, to assess demographic differences in the quality of care interactions, and to investigate the relationship between resident and facility factors and the quality of care interactions. The specific aims of the study were to:

Aim 1a: Describe the quality of care interactions among nursing home residents with dementia in terms of the quality of interaction, interaction location, type of staff in interaction, and interpersonal distance during interaction.

Aim 1b: Assess the relationship between resident engagement in care interaction and care interaction quality.

Aim 2a: Test for resident racial differences (differences in how staff interact with Black versus White Residents) with regard to the quality of care interactions observed.

Aim 2b: Test for resident gender differences (differences in how staff interact with male versus female residents) with regard to the quality of care interactions observed.

Aim 2c: Assess for an interaction between resident race and gender and difference in quality of care interactions.

Aim 3a: Test the resident and facility factors that are associated with the quality of care interactions among nursing home residents with dementia.

Aim 3b: Test for invariance of factors associated with the quality of care interactions when used with Black residents versus White residents with dementia, and male versus female residents with dementia.

Hypotheses were addressed for Aim 1b, Aim 2a, Aim 2b, Aim 2c, Aim 3a, and Aim 3b:

Hypothesis for Aim 1b: Controlling for age, gender, comorbidities, cognition, and function, residents with active engagement in their care would have more positive care interactions and fewer neutral and negative care interactions with staff compared to residents with passive engagement.

Hypothesis for Aim 2a: Black residents with dementia will be exposed to lower quality of care interactions than White residents with dementia.

Hypothesis for Aim 2b: Female residents with dementia will be exposed to higher quality of care interactions than male residents with dementia.

Hypothesis for Aim 2c: There will be an interaction between race and gender such that Black males will be exposed to lower quality of care interactions than Black females, White males, and White females.

Hypothesis for Aim 3a: Resident age, gender, race, pain, comorbidities, quality of life, resistiveness to care, function, cognition, community profit status, overall community star rating, community size, and staffing star rating would be directly and/or indirectly associated with quality of care interactions (Figure 1).

Hypothesis for Aim 3b: Model fit would be invariant by resident race and gender.

Methods

Design

The current studies utilized baseline data from the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia (EIT-4-BPSD) study that was

collected prior to implementation of the intervention. The EIT-4-BPSD study was a randomized controlled pragmatic trial focused on reducing BPSD among nursing home residents by helping staff use non-pharmacologic and person-centered approaches to care (Resnick et al., 2018). In addition to testing the implementation approach in the parent study, the goal of the intervention was to reduce BPSD through staff behavioral approaches while also optimizing function, improving quality of life, and preventing adverse events among residents.

Sample

The EIT-4-BPSD study included a sample of 553 residents living with dementia from 55 NH communities in Maryland and Pennsylvania (Resnick et al., 2018). In the parent study sample, 134 were Black (24%), 419 were White (76%), 155 were male (28%), and 398 were female (72%). NHs were invited to participate in the research study if they: (1) agreed to actively partner with the research team to change practice; (2) had at least 100 beds or at least 50 beds if there was a dedicated dementia care unit; (3) identified a staff member to be an Internal Champion who worked with the research team in the implementation process; and (4) were able to access email. Residents were eligible for participation if they were: (1) living in a participating nursing home; (2) were 55 years of age or older; (3) had cognitive impairment as indicated by having a score of 0-12 on the Brief Interview for Mental Status Examination (BIMS) (Mansbach et al., 2014); and (4) demonstrated at least one BPSD over the past month. Residents were excluded from participation if they were enrolled in hospice or admitted for short-stay rehabilitation.

Sample for Current Studies

The sample sizes used in the current studies were dependent on complete data for the variables of interest. For Manuscript #1 (Chapter 3), listwise deletion was used in the analysis and 532 residents had complete data on the variables of interest. For Manuscript #2 (Chapter 4), listwise deletion was used in the analysis and 531 residents had complete data on the variables of interest. For Manuscript #3 (Chapter 5), the full sample size was used (N = 553) and maximum likelihood estimation was used to address missing data.

Measures

Resident Measures

Resident demographic and descriptive information were obtained from facility charts and included age, race, gender, and marital status. Cognitive impairment was measured using the BIMS (Chodosh et al., 2008), comorbidities were measured using the CIRS (Linn et al., 1968), function was measured using the Barthel Index (F. Mahoney & Barthel, 1965), quality of life was measured using the Quality of Life in Alzheimer's Disease measure (Logsdon et al., 1999), pain was measured using the Pain Assessment in Advanced Dementia Scale (Warden et al., 2003), and agitation was measured using Cohen-Mansfield Agitation Inventory (Cohen & Mansfield, 1986), depressive symptoms were measured using the Cornell Scale for Depression in Dementia (Alexopoulos et al., 1988), and resistiveness to care was measured using Resistiveness to Care Scale (E. K. Mahoney et al., 1999). The Resistiveness to Care Scale and Pain Assessment in Advanced Dementia Scale were observation measures completed by trained research evaluators. The BIMS was administered to the resident by the research evaluator. The Barthel Index, Cohen-Mansfield Agitation Inventory, Cornell Scale for Depression in Dementia, and Quality of Life in Alzheimer's Disease Measure were completed by care

staff. Cumulative Illness Rating Scale was completed using information from facility charts.

Facility Characteristics

Facility characteristics measured were collected at baseline and include: facility state, facility size (number of beds), profit status, facility star rating, and staffing star rating.

Quality of Care Interactions: Outcome Measure

The parent study measured quality of care interactions using the Quality of Interactions Schedule (QuIS) and quantified QuIS (Dean et al., 1993; Resnick et al., 2021). The quality of care interactions is determined by the dichotomous response (present/not present) for five interaction categories, including positive social interactions, positive care interactions, neutral interactions, negative protective interactions, and negative restrictive interactions (Dean et al., 1993). Examples of these interactions are provided in Table 1. The QuIS also records other interaction characteristics, including interaction location, role of staff interacting with the resident, interpersonal distance, resident level of engagement, and type of interaction situation. The quantified QuIS is based on a psychometrically sound scoring approach rather than using the measure as an ordinal scale (Resnick et al., 2021). The scoring is presented in Table 1. Points are allocated such that higher scores are indicative of better (i.e., more positive) quality of care interactions, and the final score ranges from 0 to 7. Both the original QuIS and quantified QuIS have evidence of reliability and validity (Bridges et al., 2019; Lee et al., 2021; McLean et al., 2017; Mesa-Eguiagaray et al., 2016; Resnick et al., 2021).

To complete the QUIS, staff and residents were observed by trained research evaluators for approximately 20 minutes. Any verbal or nonverbal exchange between the staff and resident were evaluated and multiple types of interactions could be recorded per observation. For example, a staff could provide a “positive social” and “positive care” interaction during the same 20-minute observation period.

The evaluators were encouraged to utilize different time periods over the course of a day to observe staff to resident interactions. For example, some residents were observed during lunch while other residents were observed during morning care or afternoon activities. Research evaluators obtained permission from staff and residents to observe interactions in private areas such as resident rooms.

Data Analysis

The current studies were conducted as secondary data analyses. For Aim 1a, descriptive statistics (means, standard deviations, frequencies, and percentages) were conducted to describe characteristics and quality of staff-resident care interactions with regard to such things as location of the interaction, type of staff involved, timing, distancing, activity at the time of the assessment, and the type of interaction that occurred. For Aim 1b, a multiple linear regression using listwise deletion was conducted to examine the relationship between resident engagement and quality of care interaction while controlling for age, gender, comorbidities, cognition, and function.

For Aim 2a, Aim 2b, and Aim 2c, testing was done using analyses of covariance (ANCOVAs) to assess racial and gender differences in the quality of care interactions, and to examine the interaction between race and gender on the quality of staff-resident care interactions while controlling for age, cognition, comorbidities, and function.

For Aim 3a, testing was done using structural equation modeling (SEM) using the AMOS statistical software program. Figure 1 depicts the proposed model. The sample covariance matrix was used as input and a maximum likelihood solution sought. The chi-square statistic divided by the degrees of freedom, the normed fit index (NFI), and Steigers Root Mean Square Error of Approximation (RMSEA) will be used to estimate model fit (Bollen, 1989). A chi-square statistic divided by the degrees of freedom of 5 or less is indicative of a good model fit (Hu & Bentler, 1999). Ideally, the NFI should be 1.0 and a RMSEA of $< .10$ indicates a good fit and $< .05$ indicates a very good fit (Bollen, 1989). Path significance was based on a Critical Ratio (CR) > 2 . The CR is the parameter estimate divided by an estimate of the standard error (Bollen, 1989). A $p \leq .05$ level of significance was used for all analyses. Missing data was addressed using maximum likelihood estimation.

For Aim 3b, testing was done using multi-group SEM as shown in Figure 1. The sample was divided first by race and then by gender. To consider if there is invariance between the fit of the items to the data when tested with the Black vs. White residents and female vs. male residents, the models were compared for significant changes in the chi-square statistic divided by the degrees of freedom, and improvements in the comparative fit index (CFI), NFI, and RMSEA. Missing data was addressed using maximum likelihood estimation.

Power Analyses

To address Aim 1b, a post-hoc power analysis was conducted using G*Power to determine statistical power given sample size, alpha, and effect size. Given an alpha of .05 and a medium effect size ($f^2 = .15$), the sample size of 532 achieves a power of .90.

To address Aim 2a, a post-hoc statistical power analysis was conducted using G*Power to determine statistical power given the sample size, alpha, and effect size. Given an alpha of 0.05 and medium effect size ($f = 0.25$), the sample size of $n = 134$ Black residents achieves a power of 0.82. Given an alpha of 0.05 and medium effect size ($f = 0.25$), the sample size of $n = 419$ White residents achieves a power of 0.99.

Likewise to address Aim 2b, a post-hoc statistical power analysis was conducted using G*Power to determine statistical power given the sample size, alpha, and effect size. Given an alpha of 0.05 and medium effect size ($f = 0.25$), the sample size of $n = 155$ male residents achieves a power of 0.87. Given an alpha of 0.05 and medium effect size ($f = 0.25$), the sample size of $n = 398$ female residents achieves a power of 0.99.

To address Aim 2c, a post-hoc statistical power analysis was conducted using G*Power to determine statistical power given the sample size, alpha, and effect size. Given an alpha of 0.05 and large effect size ($f = 0.4$), the sample size of $n = 55$ Black male residents achieves a power of 0.83. Given an alpha of 0.05 and large effect size ($f = 0.4$), the sample size of $n = 75$ Black female residents achieves a power of 0.93. Given an alpha of 0.05 and large effect size ($f = 0.4$), the sample size of $n = 94$ White male residents achieves a power of 0.97. Given an alpha of 0.05 and large effect size ($f = 0.4$), the sample size of $n = 307$ White female residents achieves a power of 0.99.

In consideration of Aim 3a, it is recommended that models including 200 participants or more will be sufficient for the use of structural equation modeling (Bollen, 1989). Therefore, the present sample ($N = 553$) was large enough to assure a reliable model.

With regard to Aim 3b, it is recommended that multi-group SEM models have 100 participants per group to provide a reliable model (Kline, 2005). Replication of findings will be needed in future research. The findings will be evaluated cautiously and used to guide future research in this area.

CHAPTER 3: The Association Between Engagement in Activities of Daily Living and Care Interactions for Residents Living with Dementia

Abstract

Care interactions are essential to residents living with dementia. Limited research has described the characteristics and quality of care interactions among NH residents living with dementia. Prior studies and the communication predicament of aging model have suggested the residents who are passively engaged may be risk of receiving negative care interactions. The purpose of this study was to describe the characteristics and quality of staff-resident care interactions among NH residents living with dementia and to test whether the quality of staff-resident care interactions varied by resident level of engagement in the interaction. Specifically, it was hypothesized that controlling for age, gender, comorbidities, cognition, and function, actively engaged residents would have more positive care interactions with staff compared to passively engaged residents. Secondary data analysis was conducted using baseline data from the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia (EIT-4-BPSD) intervention study. A total of 532 residents were included. The majority of interactions that occurred were positive, care-related, and occurred with nursing staff. Actively engaged residents had significantly more positive interactions compared to passively engaged residents. In conclusion, passively engaged residents may be at risk to receive poor quality care interactions. Strategies and interventions to optimize care interactions for these individuals are needed.

Background

Currently there are over one million older adults (65 and older) living in U.S. NHs. (Harris-Kojetin et al., 2019) In terms of functional ability of residents, NH residents have consistently had many ADL impairments (i.e., difficulty in engaging in activities such as bathing, dressing, or walking), (Fashaw et al., 2020; Harris-Kojetin et al., 2019) and currently 69% of NH residents have difficulty with three or more ADLs (Centers for Medicare & Medicaid Services, 2016). During the past three decades, the percentage of NH residents requiring ADL assistance has increased (Centers for Medicare & Medicaid Services, 2016; Fashaw et al., 2020). Due to this significant increase in functional impairments, NH residents are dependent on staff to get care needs met. Dependence on staff requires intimate and frequent care interactions between caregivers and residents. Thus, the quality of these care interactions and staff-resident relationships are critically important to promoting quality of life and psychological well-being among residents (Adlbrecht et al., 2021; Fauth et al., 2020; Haunch et al., 2021; Lee et al., 2017; McCabe et al., 2021; Willemse et al., 2015).

Staff-resident care interactions are defined as verbal and nonverbal exchanges between staff and residents, and can vary in length, tone, speech, body language, and quality (Dean et al., 1993; Machiels et al., 2017). In addition to the high percentage of ADL impairments in NH settings, 47% of NH residents are living with dementia (Harris-Kojetin et al., 2019), and an estimated 61% of NH residents have moderate or severe dementia (Centers for Medicare & Medicaid Services, 2016). Behavioral and psychological symptoms of dementia (BPSD) (e.g., agitation, depression, aggression, sexually inappropriate behavior) among NH residents living with dementia may create

complications in providing care to these residents (e.g., a staff not positively engaging with a resident because the resident is displaying agitation). These cognitive changes further impact staff-resident care interactions due to communication challenges as well as other factors (van Manen et al., 2021).

Overview of Staff-Resident Care Interactions

Regarding the quality of staff-resident interactions, there can be positive, neutral, or negative care interactions (Clark & Bowling, 1989; Dean et al., 1993). As delineated in Table 1, positive interactions provide beneficial companionship or appropriate conversation during care tasks. In contrast, neutral interactions are brief and do not contain of pleasant verbal and nonverbal communication, and negative care interactions are restrictive to residents' freedoms or inappropriately controlling due to resident safety concerns (Dean et al., 1993).

Receiving neutral or negative care interaction is associated with increased resistiveness to care (Herman & Williams, 2009; Song et al., 2021; Williams & Herman, 2011; Zhang et al., 2020), anxiety (Haugan et al., 2013; Jao et al., 2018), depression (Haugan et al., 2013; Jao et al., 2018), lower psychological well-being (Willemse et al., 2015), and apathy (Jao et al., 2018) among residents living with dementia. Prior research has shown that residents living with dementia receive limited care interactions overall, and the interactions that do occur are neutral, task-oriented, and rushed (Adlbrecht et al., 2021; Fauth et al., 2020; Song et al., 2021). In contrast, there are several beneficial outcomes for residents receiving positive care interactions. Positive staff-resident interactions contribute to psychological well-being (Lee et al., 2017) and decreased depression among residents living with dementia (Haugan et al., 2013). Specifically,

positive social interactions contribute to thriving (Björk et al., 2017), meaning in life (Haugan, 2014a, 2014b), decreased resistiveness to care (Williams et al., 2017), and decreased loneliness (Drageset & Haugan, 2021) among NH residents.

Table 1

Quality of Interaction Schedule Items and Descriptions

Item	Description and Examples	Score
Positive Social	Interactions that involve good, beneficial conversation and companionship for the resident. Examples include giving encouragement or comfort during care tasks; recognizing preferences; smiling and laughing with resident; showing enthusiasm; offering choices for activities.	2 if present 0 if not present
Positive Care	Interactions that result in providing appropriate care and are generally task focused. Examples include verbal brief explanations and communication necessary to complete a care specific task; no general conversation during care, but caregiver is not rude; telling the resident what will happen without offering choices; prioritizing resident safety and giving explanation when doing so.	1 if present 0 if not present
Neutral	Interactions which include those that are brief and indifferent. Examples include placing a drink down without verbal or nonverbal contact; not greeting the resident by name.	0 if present 1 if not present
Negative Protective	Interactions that focus on keeping the resident safe or removing dangers but in a restrictive way. Examples include providing care to the individual via protection but in a negative way such as telling someone to wait for something without any explanation; treating the resident like a child and using "elderspeak"; ignoring resident's preferences; scolding a resident for behaviors that engaging in risky behaviors; feeding a resident in a rushed manner.	0 if present 1 if not present
Negative Restrictive	Interactions which are those that oppose or resist residents' freedom of action without a good reason. Examples include moving a resident without warning or explanation; telling them they can't have something without providing a reason; giving commands to residents without explanation or help.	0 if present 2 if not present

Factors Associated with Care Interactions

Residents' Function, Comorbidities, Cognition, and Gender. Prior literature has identified multiple resident characteristics that are related to care interactions. Residents with poor functional status experience significantly less social touch from caregivers (Burgener & Shimer, 1993) and negative care interactions (van Manen et al., 2021). This may be due to the increased amount of time that is required to care for residents with ADL impairments, which creates staff distress and results in negative, rushed care interactions. Similarly, residents with a greater number of chronic conditions or comorbidities typically experience more negative care interactions (Burgener & Shimer, 1993; van Manen et al., 2021; Zulman et al., 2014). Comorbidities create complexity in care needs and can in turn influence quality of care (Zulman et al., 2014). Prior research has also found that residents with greater cognitive impairment are more likely to experience more negative care interactions (Fleischer et al., 2009; van Manen et al., 2021), such as interactions that are task-focused (Adlbrecht et al., 2021), lack social touch (van Manen et al., 2021), and lack staff-resident social banter (van Manen et al., 2021). Resident gender can also influence caregiver behavior during interactions, as female caregivers tend to avoid physical touch when interacting with male residents (Burgener & Shimer, 1993) and older men with dementia tend to verbally interact more with staff compared to older women with dementia (Dean et al., 1993).

Residents' Engagement in Care. Residents can engage actively or passively during care interactions with staff. Active engagement occurs when the resident has an attentive attitude toward the interaction, while passive engagement occurs when the resident does not display interest in the interaction or displays detached demeanor (e.g.,

avoids eye contact, has a distant gaze). Prior research has found that most NH residents are passively engaged in care interactions with staff rather than actively engaged (Saldert et al., 2018). NH residents living with dementia may be particularly less likely to be actively engaged in interactions due to their inability to understand commands, or the aphasia (impaired language ability) or agnosia (impaired perception of people or objects) that can be associated with dementia (Reilly et al., 2010; Saldert et al., 2018). Prior research has suggested that residents may become passive during negative care interactions (Ryan, 2009; Ryan et al., 1995).

Study Purpose

Limited research has described characteristics of staff-resident care interactions among NH residents with dementia, as the majority of the work to date on care interactions has been with all facility residents regardless of cognitive status, (Dean et al., 1993; Lindsay & Skea, 1997) or acute care patients regardless of cognitive status (Bridges, Gould, et al., 2019; Bridges, Griffiths, et al., 2019; Gould et al., 2018; McLean et al., 2017; Mesa-Eguiagaray et al., 2016). Additionally, limited research has examined the relationship between resident engagement and quality of care interaction among nursing home residents with dementia. This knowledge can help inform future interventions to assure that staff provide more positive interactions while reducing negative and neutral interactions with residents, particularly those living with dementia in nursing homes.

Building off prior research, the purpose of the present study was to: (1) describe the characteristics and quality of staff-resident care interactions among NH residents living with dementia in terms of the quality of the interaction, interaction location, role of

staff in interaction, and interpersonal distance during interaction; and (2) to test whether the quality of staff-resident care interactions varied by resident level of engagement in the interaction. Specifically, it was hypothesized that after controlling for age, gender, comorbidities, cognition, and function, residents with active engagement in their care would have more positive care interactions and fewer neutral and negative care interactions with staff compared to residents with passive engagement.

Methods

Design

This study was a secondary data analysis utilizing baseline data from all three cohorts of the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia (EIT-4-BPSD) implementation study (Resnick et al., 2018). The EIT-4-BPSD study was a pragmatic trial focused on incorporating person-centered care and non-pharmacological approaches to manage BPSD among NH residents. This study was approved by a university institutional review board, and the protocol has been published (Resnick et al., 2018). The sample for the parent study was drawn from a convenience sample of 55 NHs in Maryland and Pennsylvania. About 10 to 20 residents were recruited from each participating facility. The participating NHs were randomized to intervention or education only. The eligibility for facilities to participate was as follows: (a) agreed to actively partner with the research team on an initiative to change practice; (b) had at least 100 beds or at least 50 beds if the facility had a dedicated dementia care unit; (c) identified a staff member to be an Internal Champion and work with the research team in the implementation process; and (d) had access to email and websites via smartphone, tablet, or computer.

Sample

Eligibility for resident recruitment was as follows: residing at the facility at the time of recruitment, aged ≥ 55 years, exhibiting at least one BPSD in the past 1 month, and having evidence of cognitive impairment as indicated by the Brief Interview of Mental Status (BIMS). (Chodosh et al., 2008) Residents were excluded from participation if they were enrolled in hospice or residing in the facility for short-term rehabilitation care. A total of 553 residents were enrolled into the parent study. Of the parent study sample, 532 residents had complete data on the variables of interest. Therefore, the sample for the present study was 532 residents.

Measures

Demographics. Resident demographic and descriptive data were obtained from electronic medical records including age, race, gender, and marital status. Age was recorded as years of age. Race was categorized as White, Black, or more than one race. Gender was categorized as male or female. Marital status was recorded as married, never married, widowed, separated, divorced, or refused/do not know.

Cognition. Cognition was measured using the BIMS (Chodosh et al., 2008), which ranges from 0 to 15 points. The range goes from severe cognitive impairment (0 to 7), moderate cognitive impairment (8 to 12), and intact cognition (13 to 15). Previous psychometric testing of the BIMS has indicated this measure has evidence of reliability and validity, such that it has internal consistency with a Cronbach's alpha of 0.77, predictive utility with a sensitivity of 0.66, and specificity of 0.88 based on a correlation with standard measures of cognition (Mansbach et al., 2014).

Comorbidities. The Cumulative Illness Rating Scale for Geriatrics (CIRS) was used to measure residents' comorbidities. The CIRS is a comorbidity index based on research evaluator ratings of the presence of comorbidities across the following organ systems: heart, vascular, hematopoietic, respiratory, ears/nose/throat, upper gastrointestinal, lower gastrointestinal, liver, renal, genitourinary, musculoskeletal, neurologic, endocrine, and psychiatric (Linn et al., 1968). The total number of comorbidities is summed with the final score ranging from 0 to 14, such that higher scores indicate more comorbidities (Linn et al., 1968).

Function. Function was measured using the Barthel Index, which is a 10-item measure that assess ability to complete ADLs such as bathing, dressing, and walking (F. Mahoney & Barthel, 1965). The final score ranges from 0 to 100, indicating either independence (score between 80 to 100), minimal dependence (score between 60 to 79), partial dependence (score between 40 to 59), very dependent (score between 20 to 39), or total dependence (score less than 20).

Quality and Characteristics of Staff-Resident Interactions. The quality of interactions and interaction characteristics were measured using the QuIS (Dean et al., 1993). The QuIS is an observational measure in which research evaluators measure the quality of both verbal and nonverbal interactions. Interactions were categorized as: positive social, positive care, neutral, negative protective, or negative restrictive as shown in Table 1. The interactions were observed by trained research evaluators and lasted approximately 15 minutes. The interaction location, role of staff interacting with the resident, interpersonal distance, and type of interaction situation were likewise recorded.

The QuIS was modified to quantify the quality of the interaction (Resnick, Galik, Paudel, McPherson, van Haitsma, Boltz, et al., 2021). The scoring for the QuIS items are presented in Table 1. The total score for the quality of the care interaction ranges from 0 to 7, with higher scores indicating a better, more positive care interaction for the older adult recipient. Prior testing supports reliability and validity of the QuIS, including interrater reliability based on Cohen's kappa range from 0.53 to 0.96 (Dean et al., 1993; Jenkins & Allen, 1998; McLean et al., 2017; Resnick, Galik, Paudel, McPherson, van Haitsma, Boltz, et al., 2021), concurrent validity based on a significant relationship between QuIS findings and patient experiences (e.g., that positive interactions were associated with a measure of positive patient experiences) (Bridges, Gould, et al., 2019; McLean et al., 2017), and content validity based on an association between QuIS findings and negative patient experiences (Young et al., 2022).

Resident Engagement in Care Interaction. An item from the QuIS was used to measure resident engagement during interactions. The research evaluator determines whether the resident is actively (i.e., the resident is displaying attention or interest during the care interaction) or passively (i.e., a resident does not display attention or interest during staff interaction) engaged in the staff-resident care interaction (Dean et al., 1993).

Data Analysis

Data were analyzed using SPSS version 28.0. Descriptive statistics (i.e., means, standard deviations, frequencies, and percentages) were used to report resident and interaction characteristics. A multiple linear regression analysis using hierarchal entry and listwise deletion was conducted to determine whether there were differences in the quality of interactions between residents who were actively engaged in interactions

versus those who were passively engaged while controlling age, gender, cognition, comorbidities, and function. A $p < .05$ level of significance was used for all analyses.

Results

Description of Sample

Table 2 depicts the descriptive characteristics for the residents (N = 532). The majority the residents were White (n = 404, 75.5%), female (n = 385, 72%), and widowed, divorced, or separated (n = 316, 60%). The mean age of the residents was 83.9 years of age ($SD = 10.4$) and they had an average of 7 comorbidities ($SD = 2.2$). The mean BIMS score was 4.3 ($SD = 3.5$), indicating severe cognitive impairment.

Characteristics and Quality of Staff-Residents Interactions in Nursing Homes

A description of the staff-resident interactions is provided in Table 3. The majority of interactions occurred in the dining room (n = 213, 37%) or resident rooms (n = 202, 35%), and the remaining interactions occurred in the hallway, living room, nurse support station, bathroom, or other areas. The majority of interactions were care-related (n = 286, 72%) and largely occurred with nursing staff (n = 366, 67%). Most interactions were less than 18 inches apart in distance (n = 213, 40%) and the majority of residents were actively engaged in the interactions (n = 412, 77%). The majority of interactions were either positive social (n = 360, 42%) or positive care (n = 312, 37%), while only a limited number of interactions were neutral (n = 123, 14%), negative protective (n = 31, 4%), or negative restrictive (n = 23, 3%).

Table 2*Descriptive Characteristics of Residents (N = 532)*

	n (%)	Range	<i>M</i>	<i>SD</i>
Race				
White	402 (75.5%)			
Black	130 (24.3%)			
Gender				
Male	149 (28%)			
Female	383 (72%)			
Marital Status				
Married	97 (17%)			
Never married	90 (18%)			
Widowed/divorced/separated	316 (59%)			
Refused/do not know	29 (6%)			
Age (in years)		56 – 105	83.94	10.45
BIMS		0 - 12	4.31	3.47
Comorbidities		2 – 12	7.10	2.17

Abbreviations: BIMS = Brief Interview of Mental Status, M = mean, SD = standard deviation

Table 3*Characteristics of Staff-Resident Interactions in Nursing Homes*

	n (%)
Interaction Quality	
Positive Social	360 (42)
Positive Care	312 (37)
Neutral	123 (14)
Negative Protective	31 (4)
Negative Restrictive	23 (3)
Interaction Location	
Dining Room	213 (37)
Resident Room	202 (35)
Hall	54 (9)
Living Room	35 (6)
Nurse Support Station	11 (2)
Bathroom/Tub/Shower Room	13 (2)
Type of Staff in Interaction	
Nursing Staff	366 (67)
Activity Staff	65 (12)
Support Staff	46 (8)
Other Staff	43 (8)
Other Resident	16 (3)
Other Visitor	4 (1)
Family	5 (1)
Interpersonal Distance During Interaction	
4+ feet	99 (18)
30-48 inches	63 (12)
18-30 inches	161 (30)
Less than 18 inches	213 (40)
Interaction Situation	
Care-related	286 (72)
Family visit	3 (1)
One-on-one unstructured	72 (13)
Small structured (2-5 people)	14 (3)
Small structured group	5 (1)
Large unstructured group (6+ people)	26 (5)
Large structured group	29 (5)
Level of Resident Participation	
Active	412 (77)
Passive	124 (23)

Relationship between Resident Engagement and Quality of Staff-Resident

Interactions

Table 4 shows the resident engagement differences in the quality of interactions. Controlling for age, gender, comorbidities, cognition, and function resident engagement was significantly associated with quality of care interactions ($b = 1.46, p < .001$) and explained an additional 12% of the variance in quality of care interactions ($\Delta R^2 = .12, F(6, 525) = 29.83$). Together all of the control variables and quality of care interaction variable explained 25% of the variance in care interactions ($R^2 = .25, p < .001$). The quality of care interactions were higher for residents with active engagement than residents with passive engagement.

Table 4

Summary of Multiple Regression Using Hierarchal Entry: Relationship Between Resident Engagement and Quality of Care Interaction

	<i>b</i>	β	<i>t</i> (<i>p</i>)	<i>R</i> ² Change (<i>p</i>)	<i>F</i> (<i>p</i>)
Step 1				.132 *	16.02*
Age	-.009	-.052	-1.22		
Gender	.018	.005	0.11		
Comorbidities	-.286	-.355	-8.58*		
Cognition	.024	.048	1.12		
Function	-.002	-.041	-0.99		
Step 2				.122 *	29.83*
Age	-.012	-.071	-1.73		
Gender	.024	.006	0.16		
Comorbidities	-.272	-.338	-8.77*		
Cognition	.003	.006	0.15		
Function	-.004	-.064	-1.67		
Resident engagement	1.458	.353	9.27*		
(<i>Ref</i> = passive engagement)					

Note. $N = 532, R^2 = .254, *p < .001, Ref =$ reference category

Discussion

This study examined the quality of staff-resident interactions among NH residents living with dementia and characteristics of the interactions. The staff-resident interactions were generally positive, care-related, and occurred most with nursing staff compared to other support staff. The hypothesis was supported, in that actively engaged residents had significantly more positive interactions compared to passively engaged residents after controlling for age, gender, comorbidities, cognition, and function. In general, when compared to residents without dementia in other studies (Park et al., 2009; van Beek et al., 2011), residents living with dementia (particularly moderate to severe dementia) may have more difficulty in actively participating in interactions with staff (van Manen et al., 2021) and may therefore be at greater risk for negative or neutral care interactions. Those with more cognitive impairment may need specific interventions to help them participate in care interactions to the best of their ability. One potential intervention is Function Focused Care, a philosophy of care that engages residents in care activities rather than the staff performing the activity for the resident (Resnick, Boltz, Galik, Fix, Holmes, Zhu, et al., 2021b, 2021a). Further details about ways for staff to provide function focused care have been published elsewhere (Resnick, Boltz, Galik, Fix, Holmes, Zhu, et al., 2021b) and resources are available at www.functionfocusedcare.org.

As noted in prior research (Paudel et al., 2019), the majority of the interactions in the present study were either positive social (42%) or positive care interactions (37%). The high percentage of positive interactions may be due to social desirability and staff engaging with residents more positively than normal due to the presence of the research evaluator (Girard & Cohn, 2016). Additionally, the type of facility or unit may play a key

role in the quality of interactions. A prior study found that the majority of interactions were neutral among residents with moderate to severe dementia in a memory care unit of a skilled nursing facility (Fauth et al., 2020), in contrast to nursing home facilities in the present study. Future research should consider various facility types and longer observation periods to see if interactions remain consistently positive.

Other Factors That May Influence Care Interactions

Only 25% of the variance was explained by the variables included in this model. Additional factors that may be associated with care interactions include staff burnout, staff stress, and dementia knowledge and beliefs about approaches to care (e.g., the use of elderspeak, the value of engaging residents in functional tasks) (van Manen et al., 2021). Factors such as burnout and stress among staff may be particularly important to consider when working with residents with moderate to severe dementia due to communication difficulties, resistiveness to care and other behaviors associated with dementia (Harrad & Sulla, 2018).

Staff may also alter their communication with residents as a result of age-related biases. The Communication Predicament of Aging Model posits that functional impairments or comorbidities can bias staff-resident communication in that the caregivers assume stereotypical views (e.g., dependence and limited competence) of older adults, and these biases create negative communication patterns (e.g., elderspeak) (Ryan, 2009; Ryan et al., 1995). Thus, future work should also examine if the quality of staff-resident interactions is related to resident factors not included in this study, such as functional impairment, race/ethnicity, and the interaction between staff and resident factors (e.g., race, gender). Lastly, consideration should be given to the association between

community factors such as the size, profit status or star rating of the facility with care interactions.

Task-Focused Interactions

Most interactions were care-related (Table 3), which is also reflected in prior research in that staff primarily engage with residents strictly during care delivery and do not offer additional more informal interactions (Adlbrecht et al., 2021; Paudel et al., 2019; Young et al., 2022). Understaffing is an issue in nursing home settings, and staff would have more time to provide informal or social interactions if there were greater numbers of staff available to assist residents. Assisting in ADLs or other care tasks is a major priority for staff and what is rewarded by administrators. This is in contrast to providing social interactions which can help to maintain the personhood of the residents living with dementia (Björk et al., 2017). Incorporating social interactions during care delivery (e.g., complimenting the resident’s hairstyle, asking “how is your day?”) can help to increase positive social interactions, maintain personhood, and improve quality of life among residents living with dementia (Fauth et al., 2020).

Study Limitations

The current study was limited in that it was only conducted in two states in one region of the country (Maryland and Pennsylvania) and came from facilities willing to be a part of a research trial. Thus, the findings may not be generalizable to all NH residents living with dementia. The sample was relatively homogeneous in that the majority of the participants were White and female residents, and had moderate to severe cognitive impairment. However, these sample characteristics are reflective of the general NH population. This study was conducted prior to COVID-19, therefore future research

should assess the present characteristics of staff-resident interactions (e.g., interpersonal distance) in light of ongoing infection control practices.

Conclusion

Despite these limitations, the current study provides useful information on numerous characteristics of care interactions among NH residents living with dementia. There was a significant relationship between resident engagement and quality of interaction, such that those who actively engaged had better quality care interactions than passively engaged residents. Thus, helping staff to focus on engaging residents in care-related activities may help improve interactions. Although most interactions were positive, several negative and neutral interactions occurred. Continued research and interventions are needed to reduce negative and neutral interactions and optimize the quality of care and quality of life among older adults living with dementia in NHs.

CHAPTER 4: Racial and Gender Differences in the Quality of Care Interactions Among Nursing Home Residents Living with Dementia

Abstract

The resident population in NHs is becoming more diversified with more residents of color and male residents. Although evidence has suggested that there are racial and gender differences in communication, limited research has examined racial and gender differences in the quality of care interactions among NH residents living with dementia. The purpose of this study was to assess racial and gender differences in the quality of care interactions and assess the interaction between race and gender on the quality of care interactions. It was specifically hypothesized that (1) Black residents with dementia would be exposed to lower quality of care interactions than White residents with dementia; (2) Female residents with dementia would be exposed to higher quality of care interactions than male residents with dementia; (3) and that there would be an interaction between race and gender such that Black males would be exposed to lower quality of care interactions than Black females, White males, and White females. Baseline data from the Testing the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia (EIT-4-BPSD) was used. A total of 531 residents were included in the sample. Three analyses of covariances were conducted to address the aims. There was no significant difference in quality of care interactions between male and female residents and no significant difference in quality of care interactions between Black males, Black females, White males, and White females. There was a significant racial difference such that Black residents received better, more positive interactions than White residents. In

conclusion, the findings indicate that care interactions in NHs should be improved such that there are no quality of care disparities.

Background

NHs are becoming increasingly diverse in terms of race and gender, such that the average percentage of nursing home residents of color increased from 8% in 1985 to 21% in 2015 and the average percentage of male nursing home residents increased from 28% in 1985 to 35% in 2015 (Fashaw et al., 2020; Harris-Kojetin et al., 2019). Traditionally, the NH population was primarily White and female (Fashaw et al., 2020), and this demographic shift has placed importance on gender and racial differences in quality of care. Given that NH residents require support from staff to perform activities of daily living and meet their health needs, it is important to assess disparities in the quality of care that residents receive. Staff-resident care interactions are common indicators of quality of care (Machiels et al., 2017; Skea, 2014) and include both verbal or nonverbal exchanges. These exchanges can differ regarding length, tone, speech, body, language, and quality (Dean et al., 1993; Machiels et al., 2017). Measurement of care interactions are typically observational and involve a research evaluator observing the quality and duration of the care interaction (Clark & Bowling, 1989; Dean et al., 1993). Care interactions can be positive, neutral, or negative (Dean et al., 1993). As described in Table 1, positive care interactions either provide beneficial conversation or provide appropriate communication during care. Neutral interactions are brief with no distinct positive or negative components. Negative care interactions are interactions that restrict residents due to resident safety concerns or interactions that are unjustifiably restrictive for convenience of care staff.

The Impact of Care Interactions Among Residents with Dementia

Currently, 49% of U.S. NH residents have dementia diagnoses (Sengupta et al., 2022). Dementia is defined as a severe decline of cognitive functioning marked by memory loss, impaired reasoning, and other numerous cognitive and behavioral symptoms (Alzheimer's Association, 2021). Considering racial differences, Black NH residents are more likely to have cognitive impairment than White NH residents (Rivera-Hernandez et al., 2019). Residents living with dementia experience overall limited interaction frequency with staff, and the majority of care interactions that do occur are neutral or task-orientated (Adlbrecht et al., 2021; Fauth et al., 2020). This could be because residents with dementia have difficulty communicating verbally and nonverbally due to aphasia or use of non-normative behaviors to communicate care needs to staff (e.g., aggressive behaviors, repetitive movements, pacing) (Banovic et al., 2018; Saldert et al., 2018).

Racial Issues Related to Care Interactions

Resident demographics, such as race, can influence the quality of care interactions. While NHs have traditionally been underutilized by older adults of color, the NH workforce has always been dominated by people of color, with 59% of NH direct care workers being people of color (S. Campbell et al., 2021). A prior study with a sample of 535 older adults noted that Black NH residents received more positive care interactions than White NH residents (McPherson et al., 2020). This finding could be explained by the fact that the majority of staff are Black and that NH staff may tend to avoid encounters with White NH residents as due to disinhibition there may be racist and discriminatory comments made by the resident (Allen et al., 2006; Ball et al., 2009;

Dodson & Zinzavage, 2007; Harris Wallace et al., 2016; Walsh & Shutes, 2013).

Additionally, some NH residents express racial preferences in care delivery and inappropriately refuse care from staff of color (Berdes & Eckert, 2001; Gronningsater, 2012; Weinstock & Bennett, 1968).

Conversely, an earlier ethnographic study noted that facilities with more minority residents had poorer quality staff-resident interactions (Ryvicker, 2011). This was explained as a result of racial or ethnic differences in social engagement, as Black, Hispanic, and other minority group NH residents tend to engage less with others socially than White NH residents (Li & Cai, 2014). The conflicting literature on racial differences in care interactions prompts the need for further examination.

Gender Issues Related to Care Interactions

Resident gender can also influence care interactions. Examples include evidence that female caregivers tend to avoid physical touch when interacting with male residents (Burgener & Shimer, 1993) and older men with dementia tend to verbally interact more with staff compared to older women with dementia (Lindesay & Skea, 1997). In terms of interaction frequency, previous research has suggested that male residents with dementia are less likely to be socially engaged compared to female residents with dementia (Guendouzi et al., 2016; Park et al., 2009), while other studies have suggested that male residents with dementia talk more frequently than female residents with dementia (James & Drakich, 1993; Lindesay & Skea, 1997; Tannen, 1993). Staff may engage differently with male versus female residents due to gender preferences on interaction frequency and willingness to engage during care interactions. Additionally, there are gender differences in interactional style, such that female residents with dementia use more positive

compliments and small talk in interactions compared to male residents with dementia who use utterances in care interactions to request actions (Guendouzi et al., 2016). Due to this, staff may engage more positively with female residents. Gender differences in BPSD may also cause staff to engage differently with male residents versus female residents, as male residents with dementia exhibit more sexually inappropriate behaviors and aggressive behaviors than female residents (Resnick, Galik, Kolanowski, et al., 2021; Resnick, Galik, McPherson, Boltz, Haitsma, & Kolanowski, 2021).

Other Resident Characteristics Related to Care Interactions

Aside from resident race and gender, prior research has identified that age, comorbidities, cognition, and function are also related to care interactions. Residents who are older have an increased chance of experiencing negative care interactions (Bridges, Griffiths, et al., 2019; Resnick et al., 2020; van Manen et al., 2021). Similarly, residents with a higher number of chronic diseases or comorbidities are more likely to have negative care encounters with staff (Burgener & Shimer, 1993; van Manen et al., 2021; Zulman et al., 2014). Residents with more severe cognitive impairment are also more likely to experience negative care interactions that are task-focused (Adlbrecht et al., 2021), lack social touch (e.g., pat on shoulder) (van Manen et al., 2021), and lack social banter (van Manen et al., 2021). Functionally dependent residents receive less social touch from caregivers (Burgener & Shimer, 1993) and are more likely to receive negative care interactions (van Manen et al., 2021).

Study Purpose

Due to the limited research done looking at the quality of care interactions between Black versus White residents and male versus female residents, there is a need to explore whether the quality of care interactions among NH residents with dementia differs by resident race or gender. The purpose of the present study was to test if there were racial differences (differences in how staff interact with Black versus White Residents) and gender differences (differences in how staff interact with male versus female residents) with regard to the quality of care interactions observed, and assess the interaction between race and gender on the quality of care interactions (differences in how staff interact with Black males versus Black females versus White males versus White females). Specifically it was hypothesized that: 1) Black residents with dementia would be exposed to lower quality of care interactions than White residents with dementia after controlling for gender, age, comorbidities, cognition, and function; 2) female residents with dementia will be exposed to higher quality of care interactions than male residents with dementia after controlling for race, age, comorbidities, cognition, and function; and 3) there will be an interaction between race and gender such that Black males will be exposed to lower quality of care interactions than Black females, White males, and White females.

Methods

Design

This study used baseline data from EIT-4-BPSD intervention (Resnick et al., 2018). The EIT-4-BPSD study was a randomized controlled pragmatic trial aimed at reducing BPSD among NH residents living with dementia. NHs were invited to

participate in the research study if they: (1) agreed to actively partner with the research team to change practice; (2) had at least 100 beds or at least 50 beds if there was a dedicated dementia care unit; (3) identified a staff member to be an Internal Champion who worked with the research team in the implementation process; and (4) were able to access email.

Sample

The sample used in the parent study included 553 residents from 55 NH settings in Maryland and Pennsylvania. Residents were eligible for participation if they were: (1) living in a participating NH; (2) were 55 years of age or older; (3) had cognitive impairment as indicated by having a score of 0-12 on the Brief Interview of Mental Status (BIMS) (Mansbach et al., 2014); and (4) demonstrated at least one BPSD over the past month. Residents were excluded from participation if they were enrolled in hospice or admitted for short-stay rehabilitation. Of the parent study sample, several residents were missing complete data on several control variables, therefore the present study sample included 531 residents.

Measures

Demographics

Age, race, and gender were obtained from facility medical records. Age was recorded as years of age. Gender was categorized as male or female. Race was categorized as White or Black.

Comorbidities

The Cumulative Illness Rating Scale (CIRS) was used to assess residents' comorbidities (Linn et al., 1968). The CIRS sums the presence of comorbidities across

the following organ systems: heart, vascular, hematopoietic, respiratory, ears/nose/throat, upper gastrointestinal, lower gastrointestinal, liver, renal, genitourinary, musculoskeletal, neurologic, endocrine, and psychiatric. The final score ranges from 0 to 14, with higher scores indicating more comorbidities.

Cognition

Cognition level was assessed using the BIMS (Mansbach et al., 2014). The final score ranges from 0 to 15 and indicates severe cognitive impairment (0 to 7), moderate cognitive impairment (8 to 12), and intact cognition (13 to 15). Prior testing of the BIMS has found evidence of reliability and validity, such that it has internal consistency with a Cronbach's alpha of 0.77, predictive utility with a sensitivity of 0.66, and specificity of 0.88 based on a correlation with standard measures of cognition (Mansbach et al., 2014).

Function

The Barthel Index was used to assess resident function (F. Mahoney & Barthel, 1965). This is a 10-item measure that assesses ability to complete ADLs such as walking, bathing, and dressing. The final score ranges from 0 to 100, indicating either independence (80 to 100), minimal dependence (60 to 79), partial dependence (40 to 59), very dependent (20 to 39), or total dependence (less than 20).

Quality of Staff-Resident Care Interactions

The QuIS was used to measure quality of care interactions (Dean et al., 1993). The QuIS is an observational measure in which the research evaluator distinguishes the care interaction as: positive social, positive care, neutral, negative protective, or negative restrictive as shown in Table 1. The QuIS was modified to quantify the quality of the interaction and the scoring is presented in Table 1 (Resnick, Galik, Paudel, McPherson,

van Haitsma, Boltz, et al., 2021). The total score for the interaction quality ranges from 0 to 7, with higher scores indicating better, positive care interactions. Prior psychometric testing supported reliability and validity of both the original and modified QuIS, including reliability with a Cohen's kappa ranging from 0.53 to 0.96 (Dean et al., 1993; Jenkins & Allen, 1998; McLean et al., 2017; Resnick, Galik, Paudel, McPherson, van Haitsma, Boltz, et al., 2021) and validity based on a significant relationship between QuIS findings and patient experiences (e.g., that positive interactions were related to positive patient experiences) (Bridges, Gould, et al., 2019; McLean et al., 2017).

Data Analysis

Data were analyzed using SPSS version 28.0. Descriptive statistics (i.e., means, standard deviations, frequencies, and percentages) were conducted to report resident characteristics. Analyses of covariance (ANCOVA) were conducted to assess racial and gender differences in the quality of care interactions while controlling for age, comorbidities, cognition, and function, and to assess the interaction between race and gender on the quality of care interactions while controlling for age, comorbidities, cognition, and function. The first ANCOVA model tested for differences between Black versus White residents while controlling for gender, age, comorbidities, cognition, and function. The second ANCOVA model tested for differences in male versus female residents while controlling for race, age, comorbidities, cognition, and function. The third model tested for differences in Black males versus Black females versus White males versus White females while controlling for age, comorbidities, cognition, and function.

Results

Table 5 depicts the resident characteristics ($N = 531$). The majority of the residents were White ($n = 401$, 76%), female ($n = 382$, 72%), functionally dependent (Barthel Index $M = 36.6$, $SD = 30.2$), and the average age of the residents was 83.9 ($SD = 10.5$). On average, the residents had 7 comorbidities ($SD = 2.2$) and had a mean BIMS score of 4.3 ($SD = 3.5$), indicating severe cognitive impairment. The mean QuIS score was 5.5 ($SD = 1.7$), indicating better, more positive interactions between staff and residents. As shown in Table 6, the majority of interactions were positive social ($n = 356$, 42%) or positive care ($n = 309$, 37%), with fewer interactions being neutral ($n = 123$, 15%), negative protective ($n = 31$, 4%), or negative restrictive ($n = 23$, 3%).

As shown in Table 7, there was a significant difference in QuIS scores between Black versus White residents living with dementia, $F(1,524) = 4.13$, $p < .05$. Black residents living with dementia have higher QuIS scores ($M = 5.98$, $SD = 1.66$) than White residents with dementia ($M = 5.40$, $SD = 1.75$). There was not a statistically significant difference in QuIS scores between male and female residents living with dementia, $F(1,524) = .07$, $p = .785$ (Table 8). The third model tested for differences in QuIS scores between Black males, Black females, White males, and White females while controlling for age, comorbidities, cognition, and function. The interaction between race and gender was not significant, $F(1, 523) = 1.05$, $p = .305$ (Table 9).

Table 5*Descriptive Characteristics for Residents (N = 531)*

	n (%)	Range	<i>M</i>	<i>SD</i>
Race				
White	401 (75.5%)			
Black	130 (24.5%)			
Gender				
Male	149 (28.1%)			
Female	382 (71.9%)			
Age		56 – 105	83.93	10.45
BIMS		0 - 12	4.31	3.47
Comorbidities		2 – 12	7.10	2.17
Function		3 - 100	36.48	30.16
Total QuIS Score		0 - 7	5.54	1.74

Note: Abbreviations: BIMS = Brief Interview of Mental Status, QuIS = Quality of Interactions Schedule

Table 6

Quality of Care Interactions Among Sample NH Residents with Dementia

Quality of Interactions	n (%)
Positive Social	356 (42.4)
Positive Care	309 (36.7)
Neutral	123 (14.5)
Negative Protective	31 (3.7)
Negative Restrictive	23 (2.7)

Note. N (sample) = 531; N (interactions) = 842. A total of 842 interactions were evaluated for the residents during interaction observation.

Table 7

ANCOVA Results for Racial Differences in QuIS Score, Controlling for Age, Gender, Cognition, Comorbidities, and Function

Total QuIS Score					
	<i>M</i>	<i>SD</i>	<i>N</i>		
Black	5.98	1.66	130		
White	5.40	1.75	401		
<i>Source</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i> *
Race	10.92	1	10.92	4.13	.043 *
Age	.73	1	.73	.27	.599
Comorbidities	184.76	1	184.76	69.91	<.001 *
BIMS	3.65	1	3.65	1.38	.240
Function	2.15	1	2.15	.81	.368
Gender	.20	1	.20	.07	.785

Note: Abbreviations: BIMS = Brief Interview of Mental Status, QuIS = Quality of Interactions Schedule, SS = sum of squares, MS = mean square.

Table 8

ANCOVA Results for Gender Differences in QuIS Score, Controlling for Age, Race, Cognition, Comorbidities, and Function

Total QuIS Score					
	<i>M</i>	<i>SD</i>	N		
Male	5.62	1.73	149		
Female	5.51	1.75	382		
<i>Source</i>	SS	<i>df</i>	MS	<i>F</i>	<i>p</i> *
Gender	.12	1	.12	.07	.785
Age	.73	1	.73	.27	.599
Comorbidities	184.76	1	184.76	69.91	<.001 *
BIMS	3.65	1	3.65	1.38	.240
Function	2.15	1	2.15	.81	.368
Race	10.92	1	10.92	4.13	.043 *

Note: Abbreviations: BIMS = Brief Interview of Mental Status, QuIS = Quality of Interactions Schedule, SS = sum of squares, MS = mean square.

Table 9

ANCOVA Results for Interaction Between Race and Gender on QuIS Score, Controlling for Age, Gender, Cognition, Comorbidities, and Function

Total QuIS Score					
	<i>M</i>	<i>SD</i>	<i>N</i>		
Black Male	5.91	1.76	55		
Black Female	6.03	1.59	75		
White Male	5.46	1.70	94		
White Female	5.39	1.76	307		
<i>Source</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i> *
Gender *					
Race	2.78	1	2.78	1.05	.305
Age	.96	1	.96	.26	.547
Comorbidities	186.38	1	186.38	70.53	<.001 *
BIMS	3.63	1	3.63	1.37	.242
Function	2.12	1	2.12	.80	.371
Race	7.28	1	7.28	2.76	.10
Gender	1.13	1	1.13	.43	.513

Note: Abbreviations: BIMS = Brief Interview of Mental Status, QuIS = Quality of Interactions Schedule, SS = sum of squares, MS = mean square.

Discussion

The hypotheses proposed in this study were not supported in that there was not an effect of gender or interaction of gender with race (e.g., no significant difference in QuIS scores between male and female residents or, between Black males, Black females, White males, and White females). There was a significant difference in QuIS scores between Black and White residents living with dementia, such that Black residents had significantly more positive care interactions than White residents. The reasons for the difference in care interactions are not clear, but it may be because the majority of NH staff are people of color (S. Campbell et al., 2021). As a result of their similar racial backgrounds to caregivers, Black residents may have better care interactions. This study was only conducted across NHs in Maryland and Pennsylvania. Particularly in the state of Maryland, 76% of NH staff are people of color (Scales, 2018), which is significantly higher than the 59% national percentage of NH staff of color (S. Campbell et al., 2021). In contrast, 44% of NH staff are people of color in the state of Pennsylvania (PHI, 2022). The state of Maryland may have played a role in the occurrence of more positive care interactions for Black residents living with dementia. Future work should continue to examine the quality of care interactions in different regions with different racial makeups.

Communication may also be influenced by intergroup relations (e.g., Black NH staff interacting with Black NH resident, versus White NH staff interacting with Black NH resident) (Gallois et al., 2005). Staff race was not captured in the present study. Future research should assess how the race of the staff influences the quality of care interaction among NH residents. Assessing differences in care interactions based on staff

and resident race would provide a more complete understanding of the factors influencing the quality of staff-resident care interactions.

Promoting Positive Care Interactions in NHs

It is important to note that there were no significant differences in care interactions between male and female residents, and between Black males versus Black females, and versus White males versus White females. The finding that there are no gender differences in the quality of care interactions among NH residents living with dementia has also been found in prior research (McPherson et al., 2020, 2021). The differences in care interactions between Black residents versus White residents were small, and both average scores suggested better, more positive care interactions. This indicates that NH staff are consistent in promoting positive care interactions among all residents living with dementia regardless of demographic characteristics. Staff face multiple caregiving challenges when interacting with residents living with dementia, including being exposed to resident-to-staff abuse or aggression (Dobbs et al., 2022; Lachs et al., 2013). Despite this, NH staff are prevailing in promoting largely positive care interactions for residents living with dementia.

While the findings of the present study indicate that the majority of the observed interactions were positive (79%), this is in contrast to another study using the QuIS which found that the majority of residents with moderate to severe dementia experienced neutral interactions (53%) (Fauth et al., 2020). In the Fauth et al. study (2020) the majority of the participants were noted to demonstrate neutral affect and passive engagement further supporting the relationship between engagement and quality of care interactions. Future research needs to explore the direction of that relationship as it is not clear if the quality

of the interactions impacts the engagement by the resident or the resident not engaging leads the staff to be more neutral or negative during care interactions.

Other studies conducted among NH residents and assisted living residents with moderate to severe dementia have also found that the majority of interactions that occurred were positive (Paudel et al., 2019; Paudel, Galik, et al., 2021a). Findings may be sample specific or related to other characteristics such as the resident factors (e.g., comorbidities, functional status), the type of setting, the type of care task being observed, or staff factors (e.g., burnout, dementia knowledge). Future research is needed to better understand the influence of these factors and to compare quality of care interactions in different long-term care facilities (e.g., assisted living, NH, memory care unit, continuing care retirement communities).

Although the majority of care interactions observed were positive, negative, and neutral interactions still occurred. Educating staff on how to communicate effectively and positively with residents of various racial backgrounds and cognitive levels will help to reduce negative care interactions. Furthermore, the current study's findings can be used to guide training curricula for direct care workers working with dementia residents, such as how to use positive communication and culturally competent communication so that all residents receive positive care interactions regardless of race, ethnicity, or gender.

Study Limitations

The current study was limited in that it was only conducted across two states (Maryland and Pennsylvania), therefore the findings may not be generalizable to all NH residents living with dementia. This was a secondary data analysis and staff characteristics (e.g., race and gender) were not captured, therefore it was not possible to

examine racial differences in care interactions between staff and resident of the same or different racial background. Gender identity of NH residents was not recorded. Future research should address whether the race of staff is related to quality of care interactions among residents with dementia. Another limitation is that there were lower samples of Black residents and male residents, although this demographic composition is reflective of the nursing home population as a whole. Future studies should oversample Black residents and male residents to ensure even groups for assessing racial and gender differences.

Conclusion

Despite limitations, the current study provides useful information about racial and gender differences in the quality of care interactions among NH residents living with dementia. There was no difference in the quality of care interactions between male and female dementia residents, but there was a significant difference between Black and White dementia residents, such that Black residents were exposed to higher quality care interactions than White residents. The overall occurrence of neutral and negative care interactions creates a need for future research to focus on developing interventions to reduce such interactions. Improving the quality care interactions is critical to improve the quality of life among Black and White NH residents living with dementia.

CHAPTER 4: Model Testing of the Factors That are Associated with Care Interactions Among Nursing Home Residents with Dementia

Abstract

The quality of care interactions play a role in resident quality of life and psychological well-being among NH residents living with dementia. Care interactions are influenced by resident demographics, resident characteristics, and community characteristics. Limited research has tested a model of resident characteristics and community characteristics that relate to care interactions. The purpose of this study was to test to test a model of the resident and community factors that are associated with quality of care interactions among NH residents living with dementia and test for invariance between model fit when tested with the Black versus White residents and female versus male residents. It was hypothesized that resident age, gender, race, pain, comorbidities, quality of life, resistiveness to care, function, cognition, community profit status, overall community star rating, community size, and staffing star rating would be directly and/or indirectly associated with quality of care interactions. It was also hypothesized that the model fit would be invariant by resident race and gender. Baseline data from the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia (EIT-4-BPSD) intervention study. The sample included 553 residents from 55 NH facilities. Structural equation modeling was used to test the proposed model. The results showed that the final model with significant paths only had a poor fit to the data ($\chi^2/df = 10.79$, CFI = .57, TLI = .15, NFI = .57, RMSEA = .13). However, the findings indicated that comorbidities, pain, profit-status, and overall community star rating were significantly associated with quality of care interactions.

There was no difference in model fit between Black residents versus White residents, and between male versus female residents. Findings from this study will inform future interventions and training curricula for NH care staff to promoting positive care interactions.

Background

Care interactions, which are verbal or nonverbal exchanges between staff and residents, are critical in promoting quality of life, well-being, and autonomy among NH residents and optimizing overall quality of care (Drageset & Haugan, 2021; Haugan et al., 2013; Hoek et al., 2020; Lung & Liu, 2016; McCabe et al., 2021; Skea, 2014). Care interactions vary regarding quality and are differentiated between positive interactions (e.g., interactions that provide beneficial companionship or appropriate care communication for residents), neutral interactions (e.g., brief, indifferent interactions), or negative interactions (e.g., interactions that restrict residents due to safety concerns or interactions that are restrictive for no justified reason) (Clark & Bowling, 1989; Dean et al., 1993; Skea, 2014). NH residents exposed to negative care interactions, particularly those that are living with dementia, are at risk for negative outcomes such as increased resistiveness to care, anxiety, depression, and apathy (Herman & Williams, 2009; Jao et al., 2018; Song et al., 2021; Willemse et al., 2015; Zhang et al., 2020). Currently over 49% of NH residents have dementia (Sengupta et al., 2022). NH residents living with dementia have a limited amount of interactions with nursing staff (Adlbrecht et al., 2021), and the interactions that do occur are task-oriented and lack good social discussion aspects, particularly among nursing staff (Fauth et al., 2020).

The Relationship Between Resident Factors and Quality of Care Interactions

There are several resident factors and community characteristics that are associated with quality of care interactions including age (Bridges, Griffiths, et al., 2019; van Manen et al., 2021), comorbidities (van Manen et al., 2021; Zulman et al., 2014), function (van Manen et al., 2021), and behavioral symptoms associated with dementia including agitation (Bridges, Griffiths, et al., 2019), mood (van Beek et al., 2011), and resistiveness to care (Williams & Herman, 2011). Residents who are older, demonstrate agitation, have more comorbidities, have poorer function, or display resistiveness to care tend to experience more negative care interactions (Bridges, Griffiths, et al., 2019; Paudel, Galik, et al., 2021b; Shippee et al., 2015; van Manen et al., 2021; Zulman et al., 2014). For example, nurses tend to engage in more negative communication when interacting with residents with functional limitations compared to residents who are able to engage in activities of daily living (van Manen et al., 2021). Awareness of the relationship between functional limitations and care interactions is important as the majority of NH residents living with dementia are functionally dependent and rely on assistance with activities of daily living (Federal Interagency Forum on Aging-Related Statistics, 2020). Consequently the relationship between functional limitations and care interactions is important for NH residents.

With regard to mood, residents with depression are less likely to engage in social interactions (van Beek et al., 2011; Watson et al., 2003), and thus tend to be less likely to experience positive social care interactions with staff (Paudel, Galik, et al., 2021b). Other behavioral symptoms, such as resistiveness to care are also influenced by exposure to negative interactions. Utilizing elderspeak (i.e., patronizing, infantilizing communication)

(Herman & Williams, 2009) and controlling communication (Williams & Herman, 2011) result in increased likelihood of resistiveness to care behaviors. Staff may be using negative care interactions in an attempt to control resident behavior. The presence of resident pain and behavioral symptoms can impede care delivery and place burden on staff workload (Achterberg et al., 2020), therefore staff may inappropriately use negative care interactions in response to resident behavior (Savundranayagam, 2014; van Manen et al., 2021). For example, when a resident living with dementia resists care and attempts to hit staff, the staff may respond by simply quickly completing the care tasks and saying no more to the resident, or tell the resident to stop hitting and that it is not appropriate to do so (Song et al., 2021).

The Relationship Between Community Factors and Quality of Care Interactions

In addition to resident factors, there are several community factors that influence the quality of care interactions among NH residents with dementia. Larger communities tend to have lower social engagement between residents and the staff (Shippee et al., 2015). Larger communities tend to be less familiar with residents compared to smaller communities where the residents are all well known to the staff. Further, prior research has noted that smaller communities contribute to building better staff-resident relationships and positive care interactions, as staff have a smaller number of residents to get to know and care for and have more opportunities to become familiar with residents (Boumans et al., 2019).

Profit status is another important community factor that can influence care interactions. For-profit status is associated with lower quality of life and quality of care (Shippee et al., 2015), while not-for-profit communities are associated with better quality

of life and quality of care (Xu et al., 2013). However, contradicting literature has also noted that for-profit status is associated with positive care interactions in assisted living (Paudel, Galik, et al., 2021b).

NHs receive star ratings, which are based on health inspections, staffing levels, and quality of resident outcomes from the Centers for Medicare and Medicaid Services to indicate the level of care quality (Shaw et al., 2018). The overall star rating ranges from 1 to 5 and is calculated as a composite measure based on three sources: health inspections, staffing, and quality measures (e.g., percentage of residents with influenza vaccination). Higher scores indicate higher quality of care. The staffing star rating ranges from 1 to 5 and is based on the number of registered nurses per resident day and the total staffing hours per resident day. Higher scores indicate better staffing levels (Centers for Medicare & Medicaid Services, 2021a). It is possible that these star ratings would likewise be associated with the quality of care interactions.

Racial and Gender Differences in Quality of Care Interactions

Prior research has indicated that Black NH residents receive significantly more positive care interactions than White NH residents (McPherson et al., 2020). Although no gender differences have been found in quality of care interactions (McPherson et al., 2020), evidence has suggested that staff interact more with male residents living with dementia (Lindesay & Skea, 1997) and that female residents living with dementia use more small talk when interacting with others compared to male residents living with dementia (Guendouzi et al., 2016). Prior work has not tested for invariance across race and gender when model testing quality of care interactions.

Study Purpose

The purpose of this study was to test a model of the resident and community factors that are associated with quality of care interactions among NH residents living with dementia. Understanding these factors and the relationship between the factors via model testing can be used to guide interventions and thereby help to promote positive care interactions among NH residents living with dementia. As shown in Figure 1, it was hypothesized that resident age, gender, race, pain, comorbidities, quality of life, resistiveness to care, function, cognition, community profit status, overall community star rating, community size, and staffing star rating would be directly and/or indirectly associated with quality of care interactions. A second aim of this study was to test for invariance between model fit when tested with the Black versus White residents and female versus male residents. It was hypothesized that the model fit would be invariant by resident race and gender.

Methods

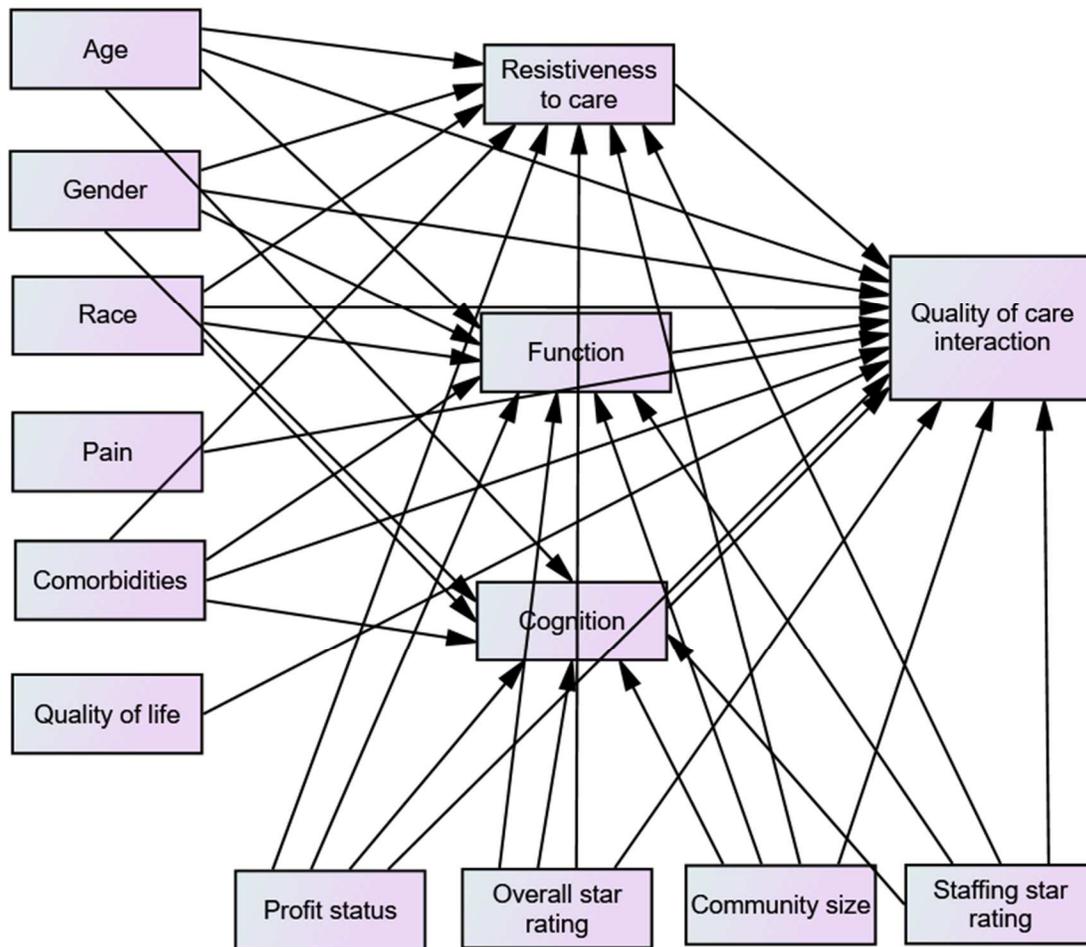
Design

The current study used baseline data from the Testing the Evidence Integration Triangle for Behavioral and Psychological Symptoms of Dementia (EIT-4-BPSD) intervention study (Resnick et al., 2018). The EIT-4-BPSD was a randomized controlled pragmatic trial developed to decrease BPSD among NH residents living with dementia by introducing person-centered and non-pharmacological approaches to care. NHs were invited to participate in the EIT-4-BPSD study if they: (1) agreed to actively partner with the research team to change care practice; (2) had at least 100 beds or at least 50 beds if there was a dedicated dementia care unit; (3) identified a staff member to be an Internal

Champion who worked with the research team in the implementation process; and (4) were able to access email.

Figure 1

Hypothesized Model of Factors That Influence the Quality of Care Interactions



Sample

The sample used in the EIT-4-BPSD included 553 residents from 55 NH settings in Maryland and Pennsylvania. Residents were eligible for participation in the parent study if they: (1) living in a participating NH; (2) were 55 years of age or older; (3) had cognitive impairment as indicated by having a score of 0-12 on the BIMS (Mansbach et

al., 2014); and (4) demonstrated at least one behavioral or psychological symptom associated with dementia over the past month as reported by staff. Residents were excluded from participation if they were enrolled in hospice or admitted for short-stay rehabilitation.

Measures

Resident Demographics

Resident age, gender, race, and comorbidities were obtained from community medical records. Age was recorded as years of age, gender was recorded as male or female, and race was categorized as White, Black/African American, Asian, Native Hawaiian/other Pacific Islander, Native American/Alaskan native, or more than one race. Comorbidities were measured using the Cumulative Illness Rating Scale for Geriatrics which sums the presence of comorbidities across organ systems (Linn et al., 1968). The final score ranges from 0 to 14, with higher scores indicating more comorbidities.

Community Characteristics

Community characteristics obtained include profit status, community size, and star ratings. Community profit status was obtained and recorded as for-profit or not-for-profit. Community size was recorded as number of beds in the community. Community overall star rating and staffing star rating were obtained at baseline from NH Compare data (Centers for Medicare & Medicaid Services, 2021a).

Cognition

The BIMS was used to measure resident cognition (Chodosh et al., 2008). The BIMS is a 5-item tool based on item recall and temporal orientation. The final score ranges from 0 to 15, with lower scores indicating cognitive impairment. In this sample

the maximum BIMS score for eligibility was 12. The BIMS has evidence of reliability and validity based on Cronbach's alpha of 0.77, predictive utility with a sensitivity of 0.66, and specificity of 0.88 based on a correlation with standard measures of cognition (Mansbach et al., 2014).

Function

Resident function was measured using the Barthel Index (F. Mahoney & Barthel, 1965). This is a 10-item measure of a resident's ability to perform activities of daily living. The Barthel was completed based on input from the caregiver working with the resident on the day of data collection. The final score ranges from 0 to 100, with higher score indicating functional independence.

Pain

The Pain Assessment in Advanced Dementia (PAINAD) Scale was used to evaluate pain (Warden et al., 2003). The PAINAD is an observational measure that evaluates five common behavior among older adults experiencing pain. Ratings for each item are obtained on a three-point Likert scale (0 = normal, 1 = mild pain, 2 = more severe pain). The total score ranges from 0 to 10, with higher scores indicating severe pain. Prior psychometric testing has found that the PAINAD has evidence of reliability and validity based on an equivalent alpha coefficient of 0.95 and good infit and outfit statistics (Resnick, van Haitsma, Kolanowski, Galik, Boltz, Ellis, et al., 2021).

Resistiveness to Care

Resistiveness to care was evaluated using the Resistiveness to Care Scale, which is a 13-item observational measure of resistive behaviors exhibited during activities of daily living or care tasks (E. K. Mahoney et al., 1999). The final score ranges from 0 to

13, with higher scores indicating more resistive behaviors. This scale has evidence of reliability and validity among residents with dementia as based on a Cronbach alpha of 0.84 and a significant association with cognition, such that those who were less cognitively impaired exhibited less resistance to care (Galik et al., 2017).

Quality of Life

The Quality of Life in Alzheimer's Disease (QoL-AD) measure was used to measure quality of life (Logsdon et al., 1999). The QoL-AD is a 13-item measure completed with input from care staff on areas such as a resident's mood, relationships, and participation in meaningful activities. Ratings for each item are obtained on a four-point Likert scale and the total score ranges from 13 to 52, with higher numbers indicating better, more positive quality of life.

Agitation

Agitation was measured using the Short Cohen Mansfield Agitation Inventory (CMAI) (Cohen & Mansfield, 1986). This is a 14-item measure was completed based on input from care staff providing care for resident the day of data collection. Ratings for each item are obtained on a five-point Likert scale and the total score ranges from 14 to 70, with higher scores indicating more evidence of agitation. The CMAI has evidence of internal consistency and inter-rater reliability (Cohen & Mansfield, 1986).

Depression

The Cornell Scale for Depression in Dementia (CSDD) was used to measure depressive symptoms (Alexopoulos et al., 1988). The CSDD is a 19-item measure that relies on input from care staff. Ratings for each item are obtained on three-point Likert

scale and the total scores ranges from 0 to 38, with higher scores indicating more depressive symptoms.

Quality of Care Interactions

The Quality of Interactions Schedule (QuIS) was used to evaluate the quality of staff-resident care interactions (Dean et al., 1993). The QuIS is an observational tool which categorizes interactions as positive social, positive care, neutral, negative protective, or negative restrictive. The QuIS has been quantified to have a total score ranging from 0 to 7, with higher scores indicating a better, more positive care interaction between staff and resident. Table 1 depicts the QuIS item descriptions and item scoring. Both the original QuIS and modified QuIS have evidence of reliability and validity (Dean et al., 1993; Resnick, Galik, Paudel, McPherson, van Haitsma, Boltz, et al., 2021). The observations began when the research evaluator observed verbal or nonverbal communication between the staff and resident and lasted approximately 15 minutes. The research evaluators collected observations at varying times throughout the day (e.g., morning, afternoon) and observed interactions in various rooms in the facility such as a bedroom or dining hall.

Data Analysis

Descriptive statistics were conducted to describe the sample using SPSS version 28. Model testing was performed using the AMOS statistical program version 28 to examine the direct and indirect relationships between variables (Arbuckle, 2021). Categorical variables were dummy coded prior to model testing. The sample covariance matrix was used as input and a maximum likelihood solution sought. The chi-square statistic divided by the degrees of freedom (χ^2/df), the normed fit index (NFI),

comparative fit index (CFI), Tucker-Lewis index (TLI), and Steigers Root Mean Square Error of Approximation (RMSEA) were used to estimate model fit (Bollen, 1989). A chi-square statistic divided by the degrees of freedom of 5 or less is indicative of a good model fit (Hu & Bentler, 1999). Ideally, the NFI should be 1.0, CFI and TLI should be $\geq .90$, and a RMSEA of $< .10$ indicates a good fit (Bollen, 1989; Browne & Cudeck, 1993). Path significance was based on a Critical Ratio (CR) >2 . The CR is the parameter estimate divided by an estimate of the standard error (Bollen, 1989). A $p \leq .05$ level of significance was used for all analyses.

For the second aim, testing was done using multi-group path analyses. The sample was divided first by race and then by gender. To consider if there is invariance between model fit when tested with the Black vs. White residents and female vs. male residents, the models were compared for significant changes in the chi-square statistic divided by the degrees of freedom, and improvements in the CFI, NFI, and RMSEA. Missing data was addressed using maximum likelihood estimation.

Results

Description of Sample

As shown in Table 10, the majority of residents were female ($n = 397$, 72%) and White ($n = 419$, 76%). The average age of the residents was 83 years old ($SD = 10.5$), with an average of 7 comorbidities ($SD = 2.2$), few depressive symptoms ($M = 4.3$, $SD = 4.6$), minimal pain ($M = .7$, $SD = 1.5$), minimal evidence of agitation ($M = 21.0$, $SD = 8.4$), minimal resistiveness to care ($M = .6$, $SD = 1.5$), low QOL ($M = 17.2$, $SD = 6.7$), were functionally dependent ($M = 36.6$, $SD = 30.2$), and all had moderate to severe cognitive impairment ($M = 4.3$, $SD = 3.5$)

Table 10*Descriptive Characteristics for Residents (N = 553)*

	n (%)	Range	Mean	Standard Deviation
Race				
White	419 (76%)			
Black	133 (24%)			
Gender				
Male	155 (28%)			
Female	397 (72%)			
Community profit status				
For-profit	312 (57%)			
Not-for-profit	238 (43%)			
Age in years		56 – 105	83.86	10.45
Cognition (BIMS score)		0 - 12	4.29	3.48
Comorbidities		2 – 12	7.10	2.16
Agitation		14 - 54	21.04	8.36
Resistiveness to care		0 - 19	0.60	2.07
Pain		0 - 8	0.68	1.50
Depressive symptoms		0 - 28	4.27	4.55
Function		3 – 100	36.56	30.22
Quality of life		10 - 48	17.17	6.72
QuIS score		0 - 7	5.55	1.74
Community overall star rating		1 - 5	3.46	1.26
Community staffing star level		1 - 5	3.19	1.07
Community size (number of beds)		45 - 412	155.40	81.92

Note: Abbreviations: BIMS = Brief Interview of Mental Status, QuIS = Quality of Interaction Schedule. Numbers may not add up to actual N due to missing values

In terms of community characteristics, the majority of the communities were for-profit ($n = 312, 57\%$). The average overall community star rating was 3.5 ($SD = 1.3$), the average community staffing star rating was 3.2 ($SD = 1.1$), and the average community had 155 beds ($SD = 81.9$, range = 45 to 412).

Path Analysis

The full model of factors associated with quality of care interactions (Figure 1, Table 11) showed a poor fit of data to the model ($\chi^2/df = 15.86$, $CFI = .19$, $TLI = -.58$, $NFI = .22$, $RMSEA = .16$). Only 10 paths out of the 34 hypothesized paths were significant (Table 3). Age and comorbidities were directly associated with cognition and explained 9% of the variance in cognition. Cognition was not associated with quality of care interactions. Comorbidities, pain profit status, and community star rating were all directly associated with quality of care interactions. Together, these variables accounted for 23% of the variance in quality of care interactions. Residents with fewer comorbidities, less pain, those living in communities with higher star ratings, and those living in for-profit communities received better quality staff-resident care interactions.

A revised model with significant paths only was tested (Table 12, Figure 2) The fit indices of the revised model still indicated a poor fit of the model to the data ($\chi^2/df = 10.79$, $CFI = .57$, $TLI = .15$, $NFI = .57$, $RMSEA = .13$). There was no significant improvement in the fit with the nonsignificant paths removed ($\Delta\chi^2/df = 5.07$, $\Delta df = 40$, $p = .001$). Errors were allowed to correlated as it was anticipated that the errors would be the same or correlated in both measures.

Table 11*Standardized Regression Weights for Quality of Care Interactions*

Path		Weight	C.R.	p
Resistiveness to care	← Age	.00	.02	.982
Function	← Age	-.03	-.62	.533
Cognition	← Age	-.27	-6.75	.001
Resistiveness to care	← Gender	.04	1.05	.296
Function	← Gender	.01	.20	.840
Cognition	← Gender	-.03	-.85	.395
Resistiveness to care	← Race	.08	1.82	.069
Function	← Race	-.05	-1.05	.295
Cognition	← Race	-.04	-1.11	.269
Resistiveness to care	← Comorbidities	.04	.87	.387
Function	← Comorbidities	-.05	-1.25	.211
Cognition	← Comorbidities	.14	3.44	.001
Cognition	← Profit status	.01	.13	.896
Function	← Profit status	.02	.51	.609
Resistiveness to care	← Profit status	-.13	-3.14	.002
Cognition	← Community overall star rating	-.07	-1.85	.065
Function	← Community overall star rating	-.10	-2.25	.024
Resistiveness to care	← Community overall star rating	-.04	-0.95	.340
Cognition	← Number of beds	-.09	-2.13	.033
Function	← Number of beds	.02	.41	.685
Resistiveness to care	← Number of beds	-.05	-1.21	.226
Resistiveness to care	← Community staffing star rating	-.08	-1.88	.061
Function	← Community staffing star rating	.05	1.10	.272
Cognition	← Community staffing star rating	.11	2.78	.006
Quality of care interaction	← Age	-.01	-.15	.880
Quality of care interaction	← Gender	.00	-.03	.978
Quality of care interaction	← Race	.00	-.03	.976
Quality of care interaction	← Comorbidities	-.31	-8.03	.001
Quality of care interaction	← Profit status	.28	7.20	.001
Quality of care interaction	← Community overall star rating	.19	5.00	.001
Quality of care interaction	← Number of beds	.00	-0.09	.928
Quality of care interaction	← Cognition	.02	.60	.548
Quality of care interaction	← Function	-.04	-1.12	.262
Quality of care interaction	← Resistiveness to care	-.06	-1.47	.141
Quality of care interaction	← Pain	-.12	-3.05	.002
Quality of care interaction	← Quality of life	-.01	-.26	.794
Quality of care interaction	← Community staffing star rating	-.01	-.35	.730

Note: Abbreviations: C.R. = critical ratio

Table 12

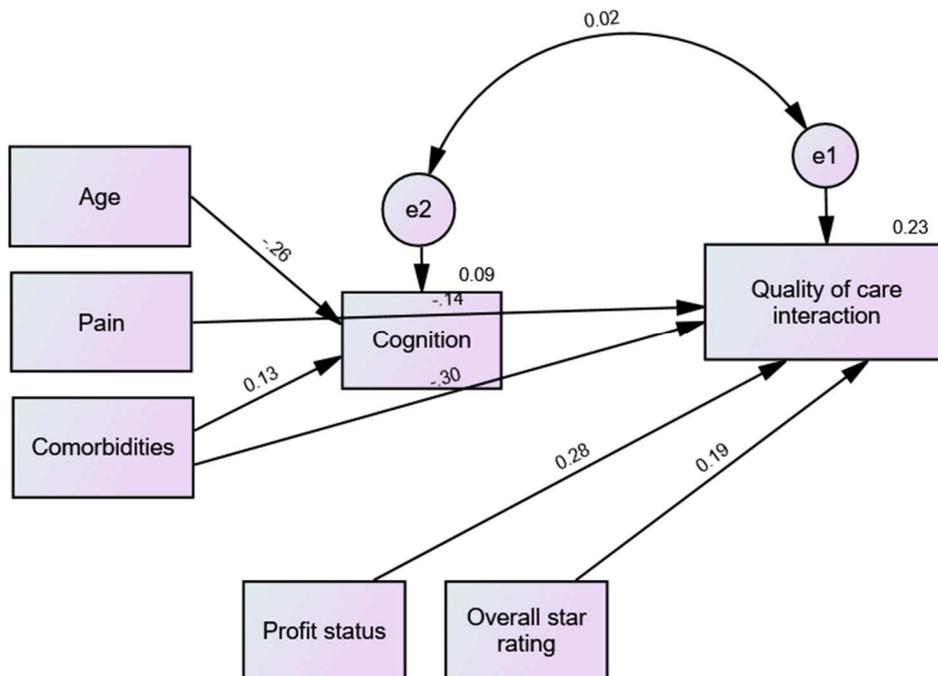
Standardized Regression Weights for Revised Model for Quality of Care Interactions

Path	Weight	C.R.	<i>p</i>
Cognition ← Age	-.26	-6.37	.001
Cognition ← Comorbidities	.13	3.17	.002
Quality of care interaction ← Comorbidities	-.30	-7.98	.001
Quality of care interaction ← Profit status	.28	7.43	.001
Quality of care interaction ← Community overall star level	.19	4.97	.001
Quality of care interaction ← Pain	-.14	-3.78	.001

Note: Abbreviations: C.R. = critical ratio

Figure 2

Revised Model of Factors Associated with Quality of Care Interactions



Model Invariance

The revised model was used to test model invariance by race and gender. As shown in Table 13, there was no difference in model fit between Black residents versus White residents ($\Delta\chi^2/df = 2.84$, $\Delta df = 0$) and between male versus female residents ($\Delta\chi^2/df = 1.16$, $\Delta df = 0$). All paths were significant in the models.

Table 13

Model Comparisons by Race and Gender

	χ^2/df	df	NFI	RMSEA
Total Sample	4.88	15	.49	.16
Black Residents	4.28	15	.44	.16
White Residents	7.12	15	.56	.12
Racial differences	↓ 2.84	15	↓ .12	↑ .04
Male Residents	4.88	15	.49	.16
Female Residents	6.04	15	.57	.11
Gender differences	↓ 1.16	15	↓ .08	↑ .05

Note: Abbreviations: df = degrees of freedom

Discussion

The hypothesized model describing the factors associated with quality of care interactions did not have a good fit with the data, and only 10 out of the 34 paths were significant. The revised model that only included significant paths did not result in an improved model fit. It is anticipated that lack of model fit in this sample was due to the lack of variance in resistiveness to care, pain, star ratings, and quality of care interactions measures. Further the model only explained 23% of the variance in quality of care interactions and there may be other factors to more comprehensively understand quality of care interactions. Other factors to consider include staff knowledge and experience

caring for individuals living with dementia (van Manen et al., 2021), values among the staff related to benefits of positive communication for residents living with dementia (van Manen et al., 2021), demographics of staff such as race and gender of staff (Small et al., 2015), and location of the staff-resident care interaction such as private room or dining hall (Paudel et al., 2019; van Manen et al., 2021).

Model testing did support some of the proposed relationships between the variables. Having more comorbidities was associated with poorer quality of care interaction between the staff and resident. It is possible that the presence of comorbidities creates complexity of care and increased caregiving needs and burnout during care provision (van Manen et al., 2021; Zulman et al., 2014). In response, staff may be less likely to engage residents with comorbidities in positive care interactions. Likewise, pain was directly associated with quality of care interactions such that those experiencing pain have poorer quality care interactions. This may occur because residents with pain frequently exhibit behavioral symptoms such as agitation, verbal abuse, and aggression (Achterberg et al., 2020; Husebo et al., 2014).

Community factors that were directly associated with the quality of care interactions included profit status and overall star rating. Residents in for-profit communities and communities with higher star ratings experienced more positive care interactions. Prior research has noted that not-for-profit communities typically have better quality of care (Paul et al., 2016; Shippee et al., 2015). Similarly, a prior study conducted among assisted living residents found that for-profit community ownership was positively associated with care interactions (Paudel, Galik, et al., 2021b). It is possible however that the philosophies of care in the for-profit communities that

participated in this study were such that they were committed to providing high quality of care and supporting positive quality of care interactions between residents and staff.

The hypotheses testing model invariance were supported in that the model fit did not change significantly when compared across race and gender of residents. Although there are racial differences in quality of care interactions such that Black NH residents with dementia receive better care interactions than White residents with dementia (McPherson et al., 2020), and gender differences such that female residents with dementia communicate more positively and more frequently than male residents with dementia (Guendouzi et al., 2016), there was no evidence of invariance overall in the factors that are associated with quality of care interactions. When implementing interventions focused on addressing the quality of care interactions, therefore, the same types of interventions can be used to improve quality of care when working with both genders and races.

Next Steps: Promoting Positive Care Interactions

To date, the majority of interventions developed to improve care interactions for residents living with dementia have focused on communication with interventions focused on decreasing elderspeak (Williams et al., 2017, 2021), staff training related to person-centered care/culture of care (Ballard et al., 2018; Guzmán et al., 2017), and education of staff using case based approaches to improve care interactions and decrease resistiveness to care (Paudel et al., 2022). The findings from this study support those interventions that include ongoing staff training to raise awareness about the residents that may be particularly at risk for exposure to poorer quality of care interactions such as those with more comorbidities or those who are having pain. More importantly than

education is the use of role models to demonstrate positive care interactions and the difference such interactions can make in terms of resident outcomes (e.g., less resistiveness to care or agitation). As noted, an ongoing focus on managing BPSD is needed to assure that those interactions are more positive than negative.

Study Limitations

This study was limited because it was based on secondary data and was not designed to answer the proposed research questions. Despite the fact that the study included a large sample of NH residents, the sample came from only two states, and the variance in several measures was limited, affecting model fit. The quality of care interactions were only observed during day time when a research evaluator was present at the community. The findings cannot be assumed to be generalized to all NH residents living with dementia or all care interactions. Future research should include more diverse NH settings (e.g., more variation in star ratings) as well as a more heterogenous sample with more behavioral symptoms.

Conclusion

Despite these limitations, the study provides some guidance for potential factors that may influence quality of care interactions. Future research attempting to replicate these findings is needed. Managing comorbidities, managing pain, and supporting community-wide resources to promote better care interactions will likely help increase the frequency of positive care interactions. It is vital to establish a philosophy of care that encourages promotion of positive interactions, regardless of profit status or star rating, to enhance quality of life and care for NH residents living with dementia.

CHAPTER 6: Discussion, Implications, and Recommendations

Introduction

The quality of care interactions measure focuses on the ways in which caregivers interact with residents or patients across all settings of care (Skea, 2014). The QuIS is the most commonly used measure to evaluate these interactions (Dean et al., 1993; Resnick, Galik, Paudel, McPherson, van Haitsma, Boltz, et al., 2021). This observational measure categorizes care interactions as: positive social (interactions that provide social companionship to the resident), positive care (interactions that are appropriate but task-focused), neutral (interactions that are brief and lack positive or negative characteristics), negative protective (interactions that are negative in an effort to keep residents safe), or negative restrictive (interactions that are restrictive for no apparent reason) (Dean et al., 1993). Examples of the QuIS categories are provided in Table 1.

The purpose of this dissertation was to: (1) describe quality of care interactions between staff and residents living with dementia in NHs; (2) assess differences in the quality of care interactions between staff and residents living with dementia of different genders and races; and (3) test the resident and community factors that are associated with the quality of care interactions between NH residents living with dementia and staff and test for invariance between model fit based on resident race and gender. The three manuscripts are provided in Chapters 3, 4, and 5.

The first manuscript, titled “Description of Care Interactions Among Nursing Home Residents Living with Dementia and Association with Care Engagement”, comprehensively described the characteristics of care interactions and evaluated the association between resident engagement and the quality of care interactions between

staff and residents. The second manuscript, titled “Racial and Gender Differences in the Quality of Care Interactions Among Nursing Home Residents Living with Dementia”, assessed racial and gender differences in the quality of care interactions using ANCOVAs. The final manuscript, titled “Resident and Community Factors Associated with Care Interactions”, examined the relationships between resident factors and community factors that are associated with quality of care interactions using structural equation modeling, and examined model invariance using multi-group model testing. This chapter summarizes the major findings in greater detail, highlights implications and considerations for future research, and addresses the strengths and limitations of this work.

Summary of Study Findings

Summary of Paper 1

Using descriptive statistics and multiple linear regression, this study described characteristics of the quality of care interactions among NH residents living with dementia and evaluated the relationship between resident engagement in the interaction and the quality of that interaction. With regard to interaction characteristics, the majority of interactions were positive social (n = 360, 42%) or positive care (n = 312, 37%), occurred in the dining room (n = 213, 37%), occurred with nursing staff (n = 366, 67%), and were care-related (n = 286, 72%). Interactions mostly occurred in which the interpersonal distance between staff and resident was less than 18 inches (n = 213, 40%). Interactions occurring at such close interpersonal distance are likely to conflict with NHs’ current social and physical distancing requirements. Overall, these interaction characteristics are consistent with a prior study describing care interactions among assisted living residents and residents with dementia in special care units (Adlbrecht et

al., 2021; Paudel, Galik, et al., 2021a), in which it was found that most interactions observed were positive, care-related, occurred with nursing staff, and occurred at close interpersonal distance.

Although the majority of interactions occurred with nursing staff, it is essential for all NH staff to understand the significance of promoting positive interactions for those living with dementia. For example, it would be helpful to evaluate interactions with rehabilitation therapists particularly as it can impact motivation to participate in therapy. Likewise interactions with primary health care providers, social workers, activities staff and others should be considered. Increasing the rate of positive interactions can greatly benefit the staff-resident relationship and consequently improve quality of life (Haugan, 2014a; McCabe et al., 2021).

The relationship between resident engagement and quality of care interaction was a key finding in this study. As previously discussed in Chapter 3, active engagement is operationally defined as the resident demonstrating an attentive attitude toward the interaction, while passive engagement is when the resident is uninterested in the interaction or displays a detached demeanor (e.g., avoids eye contact). The findings from this study suggested that the majority of the residents were actively engaged ($n = 412$, 77%) and that actively engaged residents experienced significantly more positive interactions compared to passively engaged residents after controlling for age, gender, comorbidities, cognition, and function ($b = 1.46, p < .001$). Further, other research (Fauth et al., 2020) has reported that 64% residents were passively engaged when exposed to a neutral or negative care interactions with staff, and the majority of these residents displayed active engagement when exposed to positive interactions with staff, with the

percentage of passive engagement decreasing to 19% during positive interactions (Fauth et al., 2020). The direction of the relationship between resident engagement and quality of interaction, however, is unclear. It is possible that the residents' passive engagement influences the behavior of the staff, or that the staff behavior influences resident engagement. Passive engagement of residents, which is commonly seen in residents with moderate to severe cognitive impairment (van Manen et al., 2021), may result in poorer quality care interactions due to their inability to connect and engage with staff during care interactions.

Passive engagement will continue to persist especially among those living with dementia (Fauth et al., 2020). Consequently, it is important that staff tailor their approaches with passively engaged residents. Useful care approaches for staff to utilize to mitigate passive engagement include Function Focused Care (Resnick, Boltz, Galik, Fix, Holmes, Zhu, et al., 2021b; Resnick et al., 2011) and person-centered care (Fazio et al., 2018; Kitwood, 1997). Function Focused Care is a type of care that focuses on engaging residents in care activities as opposed to the staff performing the care activities for the resident for staff convenience or efficiency (Resnick, Boltz, Galik, Fix, Holmes, Zhu, et al., 2021b). Person-centered care is a philosophy of care that focuses on the resident and how care can be optimized for the care recipient based on individual preferences (Kitwood, 1997). Using such approaches can help staff facilitate care interactions to improve quality for those with passive engagement.

Because only 25% of the variance was explained by the variables included in the model, future research should continue to explore other staff characteristics that may be

related to the quality of care interactions. Examples of additional factors might include staff burnout, staffing levels, dementia education.

In summary, there are several recommendations for improving care interactions for NH residents living with dementia. Educating staff on the importance of positive interactions and various care approaches that foster positive interactions is vital to improve care interactions. Other intervention strategies include role modeling positive interactions, understanding resident preferences and using active listening when communicating with residents, assessing the environment for communication barriers (e.g., blaring TV volume, chairs not facing each other, loud intercom system), and motivating staff through coaching and positive reinforcement (McCreeley et al., 2018; Paudel et al., 2022).

Summary of Paper 2

The focus of this study was on assessing if the quality of care interactions among NH residents living with dementia differed by race or gender. The findings indicated that the quality of care interactions were significantly different by race such that Black residents received more positive interactions than White residents ($F(1,524) = 4.13, p < .05$). One possible explanation for this finding is that the majority of NH staff are people of color (S. Campbell et al., 2021). This may impact communication due to cultural differences between the different groups of individuals (Atkinson & Sloan, 2017; Small et al., 2015). As 26% of NH staff are immigrants born outside the U.S. (S. Campbell et al., 2021), there may be language and communication challenges between these staff members and English-speaking NH residents. Additionally, White NH residents may interact with staff of color differently based on personal biases which subsequently

affects the staff-resident care interaction in a negative way (Ball et al., 2009; Harris Wallace et al., 2016). Consequently, as noted in this research, there may be a tendency for staff of color to provide more positive and less negative care interactions to residents who look like them.

Lack of Gender Differences in Care Interaction Quality

Unlike what was noted in prior research (Guendouzi et al., 2016), there were no significant gender differences in the quality of care interactions based on gender of resident/care recipient in this study. The findings related to gender differences in prior research have been inconsistent. In earlier research it was noted that resident gender did not influence how nurses communicated with residents (Caris-Verhallen et al., 1999). However, another study found that nurses tended to provide less touch, a form of communication, when caring for male residents (Burgener & Shimer, 1993). Another earlier study indicated both male and female staff initiated significantly more interactions with male residents with dementia compared to female residents with dementia (Lindesay & Skea, 1997). These findings indicate that staff gender is an important characteristic to consider in future research. Only 8% of NH direct care workers are men (S. Campbell et al., 2021), and little research has been conducted to examine staff gender differences in caregiving and care interactions. This transition to a larger male resident population in NH settings may have an impact on caregiving and should continue to be assessed (Fashaw et al., 2020). Maybe a note about your power to detect these difference in this study?

Lack of Interaction Between Race and Gender in Quality of Care Interactions

When considering the intersection between race and gender, the findings indicated that there was no significant difference in the quality of care interactions between staff with Black male, Black female, White male, and White female residents. The lack of significance in this association may be because of differences in group sizes in that there were 55 Black male residents, 75 Black female residents, 94 White male residents, and 307 White female residents. Future work should continue to explore these issues and include a larger sample of Black residents and male residents to better test for racial and gender differences.

Finally, the intersectionality framework is relevant when examining the intersection between race and gender on the quality of care interactions, as this framework can explain an important interplay of prejudice that can shape care disparities (Crenshaw, 1989). According to the intersectionality framework, an individual possesses multiple characteristics such as gender, ethnicity, race, or age, and that these intersectional characteristics come into play during interactions with others (Crenshaw, 1989). Prior research using an intersectionality framework suggested that power structures within NHs may contribute to resident or staff discrimination (Cuesta & Rämgård, 2016).

In summary, this study assessed important demographic differences in the quality of care interactions that contributed to the knowledge on resident factors related to quality of care and staff-resident communication. Future studies should collect demographic data related to staff as well as residents and examine the association between staff and residents of the same race/genders or different races/genders . It is

important to continue to educate staff on how to interact effectively with residents of varying demographic backgrounds and cognitive levels.

Summary of Paper 3

This study tested resident and facility factors that were associated with the quality of care interactions among NH residents living with dementia. It was specifically hypothesized that resident age, gender, race, pain, comorbidities, quality of life, resistiveness to care, function, cognition, community profit status, overall community star rating, community size, and staffing star rating would be directly and/or indirectly associated with quality of care interactions. This hypothesized model had a poor fit to the data. Pain and comorbidities were the only resident factors significantly associated with quality of care interactions. In particular, residents with more severe pain and more comorbidities experienced poorer quality of care interactions. This is likely because the presence of pain and comorbidities complicated care provision and care interactions (Zulman et al., 2014). For example, residents living with dementia who are in pain may present with behavioral symptoms (e.g., hitting, kicking) which result in staff tending to avoid communicating with the resident and simply complete the care task (e.g., bathing or dressing the resident) as quickly as possible (Achterberg et al., 2020; Song et al., 2021).

In terms of community characteristics, profit status and star ratings were associated with quality of care interactions such that for profit and facilities with higher star ratings were noted to have more positive care interactions. The star rating is a composite measure that determines the overall star rating on a five-star scale. The overall star rating is determined based on the health inspection domain, staffing domain, and

quality measures domain (Centers for Medicare & Medicaid Services, 2021b).

Specifically, scoring starts with the health inspection rating as the base and then stars are added and subtracted based on ratings of the staffing domain and the quality measure domain. The final score is summed and the total is the overall NH star rating (Centers for Medicare & Medicaid Services, 2021b). The relationship between overall star ratings had better quality of care interactions may be reciprocal as quality of care impacts star ratings and star ratings, in turn, influence quality of care (Shippee et al., 2015).

Subsequently, communities with higher overall star ratings may be more likely to foster positive care interactions due to better staffing and better quality of care or vice versa.

The relationship between for-profit communities and more positive quality of care interactions is unclear. For-profit communities are facilities that are investor-owned, with earnings going to shareholders and investors, as opposed to not-for-profit communities which are tax-exempt with profits going back into facility operations. The finding that for-profits were associated with better care interactions was unexpected given that non-for-profit communities typically have better quality of care, better care outcomes, and place a higher value on residents' well-being (Omotowa & Hussey, 2019; Paul et al., 2016; Shippee et al., 2015). There are several possible explanations for this finding. First, it is possible that for-profit communities were committed to providing high quality of care and were customer-focused in order to generate revenue, thereby supporting more positive interactions between staff and residents. A prior study conducted among assisted living residents also found that for-profit communities were positively associated with positive care interactions (Paudel, Galik, et al., 2021b). Second, for-profit NHs offer more in-service training compared to not-for-profit NHs (Trinkoff et al., 2017). In-service

trainings are provided to keep staffs' professional skills and knowledge up to date, as well as to improve best practices for performing various tasks and responsibilities (Chaghari et al., 2017). Because for-profit NHs tend to provide more in-service training, this could explain why staff are more likely to provide more positive quality care interactions to residents. The relationship between community profit status and quality of care interactions should continue to be explored. Particularly, future work should focus on examining if any organizational factors mediate the relationship, such as work culture, frequency of in-service training, and education resources for nursing staff.

Explanation for Lack of Significant Associations

Several factors were not directly associated with quality of care interactions, including demographic factors (race, gender, age), cognition, behavioral symptoms (agitation, resistiveness to care, depressive symptoms), function, quality of life, and community factors (staffing star level and community size).

Demographic Factors. When tested in a full model, there was no association between demographic factors (race, gender, and age) and the quality of care interactions. Conversely prior studies did note that quality of care was worse for White NH residents compared to Black NH residents (Hefele et al., 2017). This racial difference in quality of care could be due to the fact that Black NH residents tend to be less cognitively impaired and exhibit less aggression toward staff compared to White NH residents (Lachs et al., 2013; Rivera-Hernandez et al., 2019).

Facility racial composition may also help explain the relationship between race and quality of care interactions. NH facilities with low concentrations of minority residents typically have more nursing staff hours per resident day (Li et al., 2015), which

may relate to improved quality of care in such facilities with more White residents. Likewise, Black NH residents are more likely to reside in communities that lack dementia care services or a dementia unit (Sengupta et al., 2012). Facilities lacking such services may be ill-equipped to train staff on how to interact positively and effectively with residents, resulting in a racial difference in quality of care interactions. Future research should continue to examine the relationship between resident race, facility racial composition, and facility resources in relation to quality of care interactions.

In contrast to the lack of differences between staff interactions with male and female residents living with dementia, previous studies found that there were gender differences in interaction characteristics and that staff engage more with male residents (Guendouzi et al., 2016; Lindsay & Skea, 1997). The lack of differences could be due to the cognitive status of residents, such that all individuals with dementia are treated the same way during care. Cognitive status of the sample may explain the difference in findings between the current study and the studies conducted by Guendouzi et al. (2016) and Lindsay and Skea (1997). Guendouzi and authors (2016) enrolled participants with higher cognitive function than the current study. Lindsay and Skea (1997) only included residents with dementia diagnoses but did not measure level of cognitive impairment.

In contrast to model testing in this study, a prior study noted that increased age in hospitalized patients was associated with more negative interactions from staff (Bridges, Griffiths, et al., 2019). Differences in samples between Bridges et al.'s (2019) study and the present study may explain the difference in findings. Bridges and colleagues (2019) used data from a parent study that enrolled adult patients aged 30 to 70 years or older

(although the majority of their sample was older adults) (Bridges et al., 2018), while the present study only included older adults aged 65 years or older. Additionally, patients with severe cognitive impairment were excluded from enrollment in Bridges et al.'s (2019) study, while cognitive impairment was an enrollment requirement for the present study. Again, the lack of association between age and quality of care interactions in the present study may be due to the cognitive status of the residents and that residents living with dementia are treated the same way.

Resident Characteristics. Cognition, behavioral symptoms (agitation, resistiveness to care, depressive symptoms), function, quality of life were not associated with quality of care interactions. There may have been a lack of association between cognition and the quality of care interactions in the present study because all residents enrolled in the study were cognitively impaired, thus the cognition variable had limited variance with an average of 4.3 (SD = 3.5).

Prior research has shown that behavioral symptoms (agitation, resistiveness to care, depressive symptoms) are also typically regarded as barriers to positive care interactions (van Manen et al., 2021), and agitation has been associated with more negative care interactions among assisted living residents (Paudel, Galik, et al., 2021b). In the current study, the lack of association between behavioral symptoms and the quality of care interactions may be due to the low evidence of resistiveness to care ($M = .60$, $SD = 2.1$) and depressive symptoms ($M = 4.3$, $SD = 4.6$) among this sample. Future research should include a more heterogeneous sample with more behavioral and mood symptoms to test the association of these factors with quality of care interactions.

Functional dependence has also been linked to more negative care interactions (van Manen et al., 2021). Because functional impairments and functional dependence are very common in NH settings (Federal Interagency Forum on Aging-Related Statistics, 2020), the staff may be better equipped to positively care for these residents. The majority of the residents in the present study were functionally dependent ($M = 36.6$, $SD = 30.2$), and it is a promising finding that functional status did not alter the quality of the care interaction.

In relation to quality of life, prior research has shown that the quality of care interactions typically influences resident quality of life (Haugan, 2014a, 2014b; McCabe et al., 2021). There may not have been a relationship in the present study as there was relatively little evidence of good quality of life among the sample in the current study ($M = 17.2$, $SD = 6.7$, range = 10 to 48) and generally good quality of care interactions ($M = 5.6$, $SD = 1.7$).

Community Factors. Prior studies have identified that smaller facilities can positively contribute to staff-resident relationships (Boumans et al., 2019). Residents in larger communities typically have lower social engagement and quality of life (Shippee et al., 2015). The lack of association between community size and quality of care interaction in the present study may be due to the eligibility requirement that all participating facilities had to have at least 100 beds, thus limiting the variance in community size. Future work should also consider chain-affiliation in relation to quality of care interactions, as chain-affiliated facilities typically have additional resources to support better quality of care, such as corporate quality directors who oversee quality improvement and standardized staff training programs (Davila et al., 2021). As a result

of their efforts in quality improvement and staff training, chain-affiliated facilities may be associated with quality of care interactions.

Although staffing was not associated with care interactions, staffing continues to be an important factor of quality dementia care (Gilster et al., 2018; Roen et al., 2018). There was likely no staffing difference in quality of care interactions in the present study because there was no variance in the staffing levels around the communities ($M = 3.2$, $SD = 1.1$). Prior research has found that adequate staff/patient ratios are associated with higher levels of person-centered care (Roen et al., 2018) which may also reflect better quality of care interactions (Bridges, Griffiths, et al., 2019; Clifford & Doody, 2018). To improve the quality of care, policy work should continue to focus on improving job quality and financial compensation for NH staff (The National Academies of Sciences Engineering and Medicine, 2022). Staffing levels are an important factor related to quality of care interactions and thus should continue to be explored in future research replicating the findings of this study.

Other Factors Related to Care Interactions

It is possible that other resident or staffing factors are also important for understanding quality of care interactions. Including additional factors will help to further understand what is related to care interactions and may help to increase the variance explaining care interaction quality. One additional factor might include the knowledge and experience staff have related to caring for individuals living with dementia, which positively influences staff-resident communication (van Manen et al., 2021).

As noted above, staff demographics such as race and ethnicity are essential to collect in future research to examine if staff race/ethnicity is related to care interaction

quality. Although limited research has examined staff race/ethnicity, a prior study found that staff primarily speak to residents in English even when residents cannot understand English (Small et al., 2015). Recommendations to mitigate staff-resident language barriers include language training for staff, providing interpreters, and technology that facilitates real-time language translation.

Another staff-related factor to consider is staff beliefs related to benefits of positive communication for residents living with dementia (van Manen et al., 2021). It has been found that staff-resident communication and resident quality of life improve when staff recognize the importance of respecting autonomy among residents living with dementia (Egede-Nissen et al., 2017; McCabe et al., 2021; van Manen et al., 2021). Finally, other interaction contexts should be examined, such as interaction location (Paudel et al., 2019), as previous research has found that staff communicate more positively with residents in private areas as opposed to communal areas (van Manen et al., 2021).

In summary, this study provides new information about the relationship between resident and community factors with the quality of care interactions among NH residents living with dementia. Future studies can build upon this work by including additional staff factors (e.g., race, values related to benefits of positive communication, dementia-related experience/training) and using a more diverse sample of NH residents with more heterogeneity in behavioral and mood symptoms to improve the understanding about care interactions in NHs.

Practice Implications

In a recent guideline addressing dementia practices, there is an increased focus to improve care for individuals with dementia by strengthening the training of healthcare professionals (Centers for Disease Control and Prevention & Alzheimer's Association, 2018). While staff-resident care interactions are an important indicator of quality of care, U.S. NHs require very little dementia-related communication training, and the training requirements vary widely by state (Burke & Orlowski, 2015). The findings from this work provide some guidance for NH training regulations. Incorporating education related to the benefits of positive interactions may help in shifting nursing staffs' values related to care interactions and promote positive care interactions.

Additionally, the quality of care interactions is critical given the current emphasis on person-centered care in NHs. As previously discussed, person-centered care is a care philosophy that focuses on recognizing personhood, physical/emotional needs, and individual care preferences (Fazio et al., 2018; Kitwood, 1997; Savundranayagam, 2014). Positive social interactions are consistent with person-centered care in that the interactions consist of friendly conversation, companionship, and comfort to make residents feel valued and cared for as individuals (Dean et al., 1993; Savundranayagam, 2014). Incorporating such social communication into care tasks is likely to promote person-centered care (Savundranayagam, 2014). Thus, it is important to assess the quality of care interactions in NHs and use that data to inform staff education and training to promote person-centered care among NH residents living with dementia.

Finally, there is an increased focus on diversity, equity, and inclusion (DEI) in long-term care given the percentage of direct care workers of color and the increase of

residents of color (S. Campbell et al., 2021; Sengupta et al., 2022). Diversity refers to representation of individuals, equity is defined as ensuring fairness to all, and inclusion refers to ensuring individuals feel a sense of belonging (Oregon Health Care Association, n.d.). It is important for both staff and residents to feel valued and respected in NH settings in order to foster a positive environment. Communities that emphasize the importance of DEI will likely have more positive, meaningful staff-resident care interactions due to the positive workforce environment and emphasis on person-centered care. Additionally, culturally competent care should continue to be adopted to provide residents with care and communication that suites their cultural preference (Kataoka-Yahiro et al., 2017; Mauldin et al., 2020).

Recommendations for Future Research

Measurement Considerations

The findings from this study helped to identify next steps for research related to quality of care interactions between staff and residents living with dementia in NH and improving how staff interact with residents living with dementia. It is recommended that future research should include longer observation periods to evaluate if interactions remain consistently positive. Recommendations include video-recording interactions and visiting the facility at various times to conduct observations, including night shifts.

Future Interventions

Continued interventions are needed to eliminate neutral and negative care interactions, as 21% of the interactions observed were neutral and negative. The following intervention components should be considered for promoting positive interactions: education on effective, positive communication with residents, role

modeling by research interventionist, ongoing feedback and observation of staff-resident interactions, increased focus to manage behavioral symptoms and optimize function rather than staff performing care activities, and creating care plans that address how to manage pain and comorbidities and how to appropriately interact with these individuals. These strategies have been effective in prior interventions that focused on changing staff behavior (Galik et al., 2015; Resnick et al., 2011).

As previously discussed, the findings from the present studies illustrate that there may be a knowledge gap in terms of which staff characteristics are related to care interaction quality. Thus, future interventions should examine how knowledge, training, dementia-related education, and beliefs on the importance of positive interactions relate to quality of care interactions. Examining staff factors that are associated with quality of care interactions will further the understanding of care interactions in NHs. Furthermore, the findings from this work suggested that residents with more comorbidities and pain may be at risk for poorer care interactions. This information can be used to encourage staff to provide positive rather than neutral or negative interactions when interacting with residents.

Limitations and Strengths

These studies were all limited in that the sample only included NH settings from a single region of the country and only from two states. Subsequently, the findings cannot be generalized to all NH residents living with dementia. Additionally, the inclusion criteria for the parent study was such that residents had to display one BPSD during the

past month and have evidence of cognitive impairment according to the BIMS. This inclusion criteria further limited the sample for the present studies.

There was limited variance in several measures which affected model fit. Although the study incorporated numerous resident and community factors hypothesized to be associated with care interaction quality, staff characteristics were not included in this study. Ideally, the gender and race of the staff in the interactions would have been useful. Despite these limitations, this research represents a unique opportunity to examine characteristics of care interactions and identify particular resident and community factors that are associated with quality of care interactions among NH residents living with dementia. Findings from this research can be used to guide interventions, training curricula, and policy about the quality of care interactions among NH residents, particularly those living with dementia.

Summary

This last chapter presented a summary of key findings from this dissertation work, in addition to discussing implications for practice and future research. The strengths and limitations of this work were also addressed. This dissertation adds to the current body of knowledge by expanding our understanding of the quality of care interactions among NH residents living with dementia, which will aid in the development of strategies to optimize care interactions in NHs.

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