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**Paudel A.**, Galik E., Resnick B., Doran K., Boltz M., & Zhu S. (under review). Factors Associated With the Quality of Staff-resident Interactions in Assisted Living. *Journal of Nursing Care Quality*.

**Paudel A.**, Galik E., Resnick B., Doran K., Boltz M., & Zhu S. (under review). Pilot Testing of Promoting Positive Care Interactions (PPCI) Intervention in Assisted Living. *Western Journal of Nursing Research*.

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**Paudel A.**, Resnick B., & Galik E. (2019). The Quality of Interactions Between Staff and Residents with Cognitive Impairment in Nursing Homes. Paper presented at the Gerontological Society of America Annual Scientific Meeting, Online Event.

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**Paudel A., Resnick B., & Galik E. (2019).** The Quality of Interactions Between Staff and Residents with Cognitive Impairment in Nursing Homes. Poster presented at the Southern Nursing Research Society Annual Conference, Orlando, FL.

**Paudel A., Resnick B., & Galik E. (2019).** Factors Influencing Staff-Resident Interactions in Nursing Homes. Poster presented at the University of Maryland Baltimore Annual Aging Research Symposium, Baltimore MD.

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## ABSTRACT

**Title:** Staff-Resident Interactions in Assisted Living: Optimizing the Quality of Daily Care Interactions

**Anju Paudel, Doctor of Philosophy, 2021**

**Dissertation Directed by:**

Elizabeth Galik, PhD, CRNP, FAAN, FAANP, Professor, School of Nursing

Barbara Resnick, PhD, CRNP, FAAN, FAANP, Professor, School of Nursing

**Background:** A considerable amount of research has focused on understanding and improving staff-resident interactions in long-term care. Much of this work has focused on social communications between staff and residents in nursing home settings. Attention to care interactions in assisted living (AL) is lacking.

**Purpose:** The purpose of this dissertation was to: (1) describe the staff-resident interactions in AL; (2) explore the resident and facility factors associated with the care interactions in AL; and (3) test the feasibility and preliminary efficacy of the Promoting Positive Care Interactions (PPCI)—a four step intervention designed to establish positive care interactions between the staff and residents with cognitive impairment or dementia in AL.

**Methods:** Utilizing baseline data in a randomized trial that included 379 residents from 59 AL facilities, aim 1 used descriptive statistics to describe the quality of staff-resident interactions in AL and aim 2 used stepwise regression to examine factors influencing interactions. Aim 3 involved pilot-testing of PPCI intervention in one AL community in Maryland using a single group pretest-posttest design. Feasibility was demonstrated with the evidence of delivery, receipt, and enactment of PPCI. Preliminary efficacy was

evaluated with repeated measures ANOVA for staff outcomes and descriptive change in summary scores for facility outcomes.

**Results:** Although majority of the interactions observed were positive, almost 25% were negative and neutral suggesting a need to improve the interactions in ALs. Factors influencing interactions included resident agitation and facility ownership which accounted for 8.2% of variance. Additionally, PPCI was implemented as intended with 100% staff exposure to education and considerable staff engagement in mentoring sessions. While there was an improvement in AL environment and policy, no significant changes were observed in staff outcomes post PPCI.

**Conclusions:** Understanding the quality of staff-resident interactions in AL and the factors that influenced these interactions guided the development of PPCI. Pilot testing supported the feasibility and preliminary staff adoption of PPCI in ALs. PPCI will be further tested with a randomized trial, and a hybrid model with both online education and in-person mentoring and coaching of staff to improve staff knowledge and behavior related to care interactions.

Staff-Resident Interactions in Assisted Living: Optimizing the Quality of Daily Care  
Interactions

By  
Anju Paudel

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  
2021

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## **DEDICATION**

This work is dedicated to my mom, Nirmala Paudel.

“It always seems impossible until it’s done.” – Nelson Mandela

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To the faculty and staff at the School of Nursing, thank you for the education, support, and encouragement. I have learned from each of you, and you all helped me grow into a professional. And to my fellow doctoral colleagues, thank you for your wonderful friendship and support over the years. We were in this journey together and you all made it worthwhile and easier.

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## LIST OF ABBREVIATIONS

Abbreviation	Terms
AL	Assisted Living
ADL	Activities of Daily Living
IADL	Instrumental Activities of Daily Living
NACSP	Nursing Assistant Communication Skills Program
RCCI	Resident Centered Communication Intervention
CHAT	Changing Talk
STAR	Staff Training in Assisted Living Residences
PPCI	Promoting Positive Care Interactions
SEM	Social Ecological Model
SCT	Social Cognitive Theory
QUIS	Quality of Interaction Schedule
ANOVA	Analysis of Variance
SLUMS	Saint Louis University Mental Status Examination
CMAI	Cohen Mansfield Agitation Inventory
CSDD	Cornel Scale for Depression in Dementia
BPSD	Behavioral and Psychological Symptoms of Dementia
FFC-AL-EIT	Function Focused Care in Assisted Living Using the Evidence Integration Triangle
SPSS	Statistical Package for the Social Sciences
SD	Standard Deviation
FFC	Function Focused Care



IRB	Institutional Review Board
CI	Confidence Interval
BI	Barthel Index
SCIDS	Sense of Competence in Dementia Care
SE	Standard Error
RNF	Research Nurse Facilitator

## CHAPTER 1: Introduction and Background

Assisted Living (AL) includes a range of residential care communities that provide a combination of housing, personal care, healthcare, and other services to older adults with varying levels of physical and cognitive impairment who need some support but do not require 24-hour skilled nursing care. Over the last three decades, AL communities have become widely popular because of their emphasis on resident autonomy and independence, and the maintenance of home-like environment (Harris-Kojetin et al., 2019; Kaskie, Nattinger, & Potter, 2015; Polzer, 2013). Recent estimates suggest that nearly one million residents are provided care in 28,900 AL communities in the U.S. by 298, 800 nursing and social work staff (Harris-Kojetin et al., 2019).

### Staff-Resident Composition in ALs

Unlike federally regulated nursing homes, AL communities are regulated at the state level. There is much heterogeneity across ALs with regard to size, services, skill mix of staff, and case mix of resident (Carder, O’Keffe, & O’Keffe, 2015; Guo & McGee, 2012; Kelly, Craft Morgan, Kemp, & Deichert, 2018; McKenzie et al., 2011). Estimates are that 83.3% of staff in ALs comprise of unlicensed direct care workers (Harris-Kojetin et al., 2019). Majority of them are younger (mean age = 38.3 years) females (83.8%) and English speaking (78.3%); slightly more than half are white (52.4%) and have attended some college (54.4%; Kelly et al., 2018). The direct care workers in AL provide the majority of hands on care to the residents but they often work under minimal supervision and presumably have less training in caring for older adults with physical and cognitive difficulties (Guo & McGee, 2012; Kelly et al., 2018; McKenzie, Teri, Pike, Lafazia, & Leynseele, 2012).

The residents in AL are mostly 65 years or older (93%) living with often more than two comorbidities (Galik, Resnick, Lerner, Hammersla, & Gruber-Baldini, 2015; Resnick, Galik, Boltz, Zhu, Fix, & Vigne, 2020) and require support and assistance with Activities of Daily Living (ADL) such as bathing and dressing and Instrumental Activities of Daily Living (IADL) such as medication management and transportation. An estimated 40% of residents in ALs require assistance with 3 or more categories of ADL (Harrison et al., 2019; Resnick & Galik, 2015). Additionally, about 70% have some form of cognitive impairment (Harris-Kojetin et al., 2019; Zimmerman, Sloane, & Reed, 2014) and 42% have Alzheimer's disease or dementia (American Health Care Association & National Center for Assisted Living, 2020). These residents present with impaired communication and exhibit behaviors such as resistiveness to care (Boustani et al., 2005; Caffrey et al., 2012; Kaskie et al., 2015) making it difficult for the staff to understand and attend to the specific care needs of the residents (Mass & Buckwalter, 2006; Teri et al., 2010; Teri, Huda, Gibbons, Young, & Leynseele, 2005). Therefore, staff in ALs could benefit from education and training that focuses on recognition and understanding of change in cognitive status of the residents and management of negative resident responses during care interactions using a positive approach. This is especially of significance in ALs since there are a considerable proportion of direct care workers in AL whose primary language is not English and have only high school education (Kelly et al., 2018) and therefore, might benefit from education and training opportunities.

#### Staff-Resident Interactions in ALs and Factors Associated With Interactions

Staff-resident interaction, also referred to as 'care interaction' and 'interaction' in this work, refers to any form of verbal or non-verbal exchange between staff and

residents that occur during daily care activities (Machiels, Metzelthin, Hamers, & Zwakhalen, 2017; Paudel, Resnick, & Galik, 2019). Although the interactions between staff and residents in settings of care have been found to be positive, there is evidence of negative and neutral care interactions with rates as high as 28%. Negative and neutral interactions are likely to exacerbate behavioral symptoms among residents (Belzil & Vézina, 2015; Savundranayagam, 2014) and management of these behavioral symptoms might lead to stress, burnout, and dissatisfaction among staff (Lachs et al., 2011; Pitfield, Shahriyarmolki, & Livingston, 2011; Squires et al., 2015) which could further impact work ability of staff (Pitfield et al., 2011) and quality of life of residents (Bird, Anderson, Macpherson, & Blair, 2016).

Factors that influence the quality of interaction between staff and residents in settings of care include resident related issues, and staff and facility related issues. Resident related factors include unmodifiable demographic characteristics (e.g., age, gender, race, and marital status), cognitive status, and presence of comorbidities (Barker et al., 2016; Caris-Verhallen, Kerkstra, & Bensing Professor, 1997; Chen Yu-Ling, Ryden Muriel B., Feldt Karen, 2000; Lindsay & Skea, 1997; Shippee, Henning-Smith, Kane, & Lewis, 2015). Modifiable factors that may influence care interactions include functional status and behavioral symptoms such as agitation, resistiveness to care, and presence of depressive symptoms among residents (Arling & Williams, 2003; Belzil & Vézina, 2015; Bridges, Gould, Hope, Schoonhoven, & Griffiths, 2019; Shippee et al., 2015; Smith & Haedtke, 2013). The staff and facility related factors include such things as staffing hours, number of staff per shift, and size and type of ownership of the setting (Kane et al., 2004; Mitchell & Kemp, 2000; Shippee et al., 2015).

Organizational policy and environment may also influence the quality of staff-resident interactions in settings of care including AL. A supportive work environment (e.g., managerial support, facility wide interventions with stakeholder groups, and worksite health programs) is likely to induce positive feelings about work among staff and consequently, positive attitudes towards the residents (Henning, Warren, Robertson, Faghri, & Cherniack, 2009; Sandel & Johnson, 1987; Schaefer & Moos, 1996; Squires et al., 2015). Similarly, physical environment with adequate lighting, appropriate temperature, optimal acoustics, and provision of alternative communication tools such as cue cards, pocket talkers, and whiteboards could help to establish supportive friendly environment for interactions (Stans, Dalemans, de Witte, Smeets, & Beurskens, 2017). Positive attitudes among staff and optimal physical environment might mean more positive and less negative interactions in AL.

#### Staff Behavior Change Interventions in Long-term Care and ALs

Prior work in long-term care settings has shown that staff education and training can improve interaction skills (Burgio et al., 2001; K. N. Williams, Kemper, & Hummert, 2003) and perceived competence of staff in resident care (McCallion, Toseland, Lacey, & Banks, 1999; Ripich, Wykle, & Niles, 1995), decrease behavioral symptoms such as agitation and aggression (Ballard et al., 2018; Burgio et al., 2002; Ripich et al., 1995), and improve quality of life of residents with cognitive impairment or dementia (Ballard et al., 2018; Bird et al., 2016). For example, behavior management skills training, a training program for nursing assistants that focused on communication and behavior management in nursing homes was successful in reducing agitation among residents and improving communication skills among staff (Burgio et al., 2002). Staff were taught techniques such

as maintaining appropriate eye contact during interactions and avoiding arguments with residents (Burgio et al., 2002). The Nursing Assistant Communication Skills Program (NACSP; McCallion et al., 1999), Resident Centered Communication Intervention (RCCI; McGilton et al., 2017), CHAT intervention (K. N. Williams, Perkhounkova, Herman, & Bossen, 2017), and Communication skills training (Burgio et al., 2001) are examples of similar interventions focused on improving communication with residents in long-term care settings. These interventions were all developed and tested in nursing home settings. Further, they focused on social interactions such as use of short sentences and close ended questions and eye contact (Burgio et al., 2001; Ripich et al., 1995; K. N. Williams, 2006; K. N. Williams et al., 2003) and did not specifically consider personal care interactions, or assess the environment or policy related issues within the settings that might affect care interactions. In addition to teaching interaction skills, it is also important to educate staff on identification of triggers in the environment such as too much noise, misplacement of hearing aids or other assistive devices, and invasion of resident's personal space that can affect care interactions.

Environmental issues were addressed in the Staff Training in Assisted Living Residences (STAR) intervention developed for and tested in ALs (Teri et al., 2005). Although the STAR program both educated staff on interaction techniques and encouraged them to recognize triggers in the environment that could impact daily care interactions, a comprehensive assessment of AL environment and policy related to care interactions was missing. Other trainings developed for and tested within AL communities that incorporated some aspects of care interaction primarily focused on educating staff to optimize resident function (Galik et al., 2015; Walker & Harrington,

2013) or improve resident sleep (Li, Grandner, Chang, Jungquist, & Porock, 2017).

Training that particularly focused on optimizing daily care interactions between staff and residents with cognitive impairment or dementia in ALs was lacking.

#### Challenges Related to Behavior Change Interventions in Long-term Care

Training staff and implementing behavioral interventions in long-term care is not easily accomplished. While staff turnover has been a consistent challenge in long-term care, there are other challenges related to staff education such as scheduling conflicts, low attendance due to staff shortage in the unit, low motivation among staff to participate, inadequate administrative support for training, as well as lack of belief in the non-pharmacological approaches and willingness to refer management of behavioral problems that occur during personal care interactions (e.g., bathing or dressing) to psychiatric consultants (Edwards et al., 2003; Moyle, Hsu, Lieff, & Vernooij-Dassen, 2010; Resnick et al., 2016). Reviews of behavioral interventions in long-term care suggest that the challenges could be addressed through participation and commitment from the management, and the use of training methods that are interactive and engaging (Caspar, Cooke, Phinney, & Ratner, 2016; Eggenberger, Heimerl, & Bennett, 2013; Moyle et al., 2010; Vasse, Vernooij-Dassen, Spijker, Rikkert, & Koopmans, 2010). Administrative engagement helps to successfully implement interventions in the setting and foster a learning environment for staff (Caspar et al., 2016; Eggenberger et al., 2013; Gilster, Boltz, & Dalessandro, 2018). Similarly, use of adult learning principles (e.g., role play, use of video vignettes) during education session helps to promote staff participation and engagement in the training (Chaghari, Saffari, Ebadi, & Ameryoun, 2017; Collins, 2004). Behavioral interventions in long-term care should consider facility stakeholder

engagement to help facilitate implementation of the intervention and utilize adult learning principles to engage staff in education and training.

#### Promoting Positive Care Interactions (PPCI) Intervention and Theoretical Basis

A four-step PPCI intervention was established to specifically improve care interactions in AL. The four steps include: (1) Stakeholder webinar meeting and facility goal development; (2) Environment/policy assessment; (3) Virtual staff education; and (4) Ongoing mentorship and motivation. A similar four-step approach has been successfully used in behavioral interventions in nursing homes and ALs previously (ClinicalTrials.gov, n.d.; Galik, Resnick, Hammersla, & Brightwater, 2014; Resnick et al., 2016, 2018, 2019; Resnick, Galik, Vigne, & Carew, 2015).

The PPCI is based on the social ecological model (SEM; McLeroy, Bibeau, Steckler, & Glanz, 1988) and social cognitive theory (SCT; Bandura, 1997). According to the SEM used in PPCI, an individual's health behavior are influenced by various factors at intrapersonal, interpersonal, community, organizational, and policy levels (McLeroy et al., 1988). Through the use of SEM, the PPCI offers a broad perspective in optimizing staff-resident interactions in ALs by intervening at intrapersonal (e.g., assessment of staff and resident characteristics), interpersonal (e.g., facilitating positive staff-resident interactions through education and mentoring), organizational (e.g., stakeholder engagement, and assessment of facility environment such as adequate lighting and controlled noise) and policy (e.g., assessment of facility policy related to person-centered care and staff communication with residents) levels. The SCT is used at the interpersonal level to facilitate behavior change among staff and improve staff-resident care interactions in AL (Bandura, 1997, 2001). According to SCT, the individuals with



stronger ‘self-efficacy’ and ‘outcome’ expectations are more likely to learn a behavior and reproduce the learned behavior. Self-efficacy expectations refer to an individual’s belief that they are able to change a behavior or perform a course of action while outcome expectations refer to the belief that the action or change in behavior will result into a desired outcome (Bandura, 1997).

#### Purpose and Overview of Manuscripts

The purpose of this dissertation was to examine staff-resident interactions in AL and pilot test the PPCI intervention designed to improve care interactions between staff (nurses, nursing assistants, medication aides, activity staff, housekeeping staff, and dining staff) and residents with cognitive impairment or dementia in AL. Aim 1 was to explore and describe the staff-resident interactions in AL; (Hypothesis 1) There would be more positive and less negative or neutral interactions between staff and residents in AL. Aim 2 was to examine the resident and facility factors associated with the quality of care interactions in AL; (Hypothesis 2) Controlling for resident age, gender, marital status, comorbidities, and cognition, resident factors (functional status, agitation, depressive symptoms, and resistiveness to care) and facility factors (size and ownership) would be significantly associated with the quality of care interactions in AL. Aim 3 was to test the feasibility and preliminary efficacy of PPCI in AL; (Hypothesis 3) It is hypothesized that (a) all four steps of PPCI would be implemented as intended using an online format, and (b) there would be an improvement in staff knowledge, sense of competence in resident care, and ability to recognize positive, negative, and neutral interactions, as well as facility environment and policies related to care interactions post PPCI.

## A Description of Staff-Resident Interactions in Assisted Living (Manuscript 1)

Manuscript #1 describes the characteristics and the quality of staff-resident interactions in ALs using the Quality of Interaction Schedule (QUIS) measure. The characteristics include descriptive information such as interaction location (e.g., dining room or resident room), interaction situation (e.g., care-related, and structured or unstructured group activities), interpersonal distance (e.g., less than 1.6 ft and 1.6 to 2.6 ft), person(s) resident is interacting with (e.g., nursing and activity staff), and level of resident participation (e.g., active and passive). The quality of interactions includes information on the frequency of positive, negative, and neutral interactions. Positive interactions involve pleasant, friendly conversation or companionship with integration of resident choices, and encouragement, reassurance and comfort during care that is more than necessary to complete the task; negative interactions are staff-resident exchanges lacking appropriate regard to the resident and their freedom of choice or action; and neutral interactions are brief exchanges with almost absent verbal or non-verbal contact with residents (Dean, Proudfoot, & Lindesay, 1993). Prior studies have examined the quality of staff-resident interactions in settings of care. Most of this work has been done in nursing homes or acute care settings and shown that while the interactions between staff and residents are positive in general, negative and neutral interactions still persist (Barker et al., 2016; Bridges, Griffiths, Oliver, & Pickering, 2019; Chenoweth & Jeon, 2007; Fritsch et al., 2009; Hartmann et al., 2018). AL settings vary from nursing home and acute care settings in that they follow a social model of care versus a medical model. In addition, AL residents are presumed to have higher functional and cognitive status in general. Thus, this study contributed to the literature by providing information about the

prevalence of positive, negative, and neutral interactions between staff and residents in ALs using baseline data from the second and third cohorts of the ‘Dissemination and Implementation of Function Focused Care for Assisted Living Using the Evidence Integration Triangle’ study. The sample included 379 residents from 59 ALs across three states. Understanding the ways in which staff interact with residents in ALs will raise important research questions focused on exploring the impact of various resident, staff, and facility related factors on the quality of care interactions in AL.

#### Factors Associated With the Quality of Staff-Resident Interactions in Assisted Living (Manuscript 2)

After describing the staff-resident interactions, it was important to consider the factors that were associated with these interactions to help guide the development of appropriate interventions to improve care interactions in AL. Building off the socioecological model and empirical findings, manuscript 2 tested the hypothesis that resident related factors and facility related factors would be associated with the quality of care interactions in AL when controlling for resident demographics, comorbidities, and cognition. This study also used baseline data from the second and third cohorts of the ‘Dissemination and Implementation of Function Focused Care for Assisted Living Using the Evidence Integration Triangle’ study. Stepwise regression analysis was used to test the hypothesis in a sample of 379 residents from 59 ALs across three states. Findings from this study will help identify the resident and facility factors that need to be considered to optimize the quality of staff-resident interactions in AL settings.

## Pilot Testing of Promoting Positive Care Interactions (PPCI) Intervention in Assisted Living (Manuscript 3)

Manuscript #3 focused on pilot testing of PPCI intervention, a non-pharmacological four-step approach to improve care interactions between staff and residents in AL with a particular focus on care of residents with cognitive impairment or dementia. The four steps include: (1) Stakeholder webinar meeting and facility goal development; (2) Environment and policy assessments; (3) Virtual staff education; and (4) Ongoing mentorship & motivation. PPCI was developed based on social ecological model (SEM; McLeroy et al., 1988) and social cognitive theory (SCT; Bandura, 1997) and from empirical findings from manuscripts 1 and 2. SEM suggests that intrapersonal, interpersonal, community, organizational, and policy factors contribute to health behaviors and it was used as the theoretical framework for PPCI. SCT is a behavior change theory and it was used at the interpersonal level to facilitate staff education and coaching to change staff behavior related to care interactions.

The purpose of manuscript 3 was to examine the feasibility of PPCI intervention implemented using an online format and evaluate the preliminary efficacy of PPCI on staff and facility outcomes. The PPCI was implemented online early during the COVID-19 pandemic (September 2020 and December 2020) in one AL community in Maryland using a pretest-posttest design. A total of 17 staff were recruited into the study. The feasibility of PPCI was based on successful delivery of the intervention activities, receipt of information among the staff, and enactment of PPCI. The preliminary efficacy was based on change in staff outcomes assessed with repeated measures ANOVA and change

in AL environment and policies assessed with descriptive change in summary scores. Findings from this study will be used in the development of a larger randomized trial.

### Definition of Terms

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

1. **Assisted living:** Assisted living is defined as a residential care setting that provides a combination of housing, health care, personal care, and other services to older adults who need support with everyday activities in a way that promotes person-centered care (American Health Care Association & National Center for Assisted Living, 2020).
2. **Staff – resident interactions:** Staff – resident interaction also referred to as ‘care interaction’ or ‘interaction’ in this work is conceptually defined as any verbal or non-verbal exchange between staff and residents that can range from simple gestures (e.g., smiles) to individual conversations or intimate personal care (Machiels et al., 2017; Paudel et al., 2019). It is operationally defined as the total score obtained in the quantified QUIS (Resnick et al., 2021) based on the binary (yes/no) response on five types of interactions—‘positive social’, ‘positive care’, ‘neutral’, ‘negative protective’, and ‘negative restrictive’.
3. **Positive social interaction:** A staff-resident interaction which involves good constructive conversation and companionship, integration of resident choices, and reassurance and comfort that is more than necessary to complete the task; operationally defined as a rating of yes for ‘positive social interaction’ category in the QUIS measure (Dean et al., 1993).

4. Positive care interaction: A staff-resident interaction which involves limited interactions necessary to complete the task and or to keep residents safe and/or protect from danger; operationally defined as a rating of yes for ‘positive care interaction’ category in the QUIIS measure (Dean et al., 1993).
5. Neutral interaction: A staff-resident interaction that lacks verbal or non-verbal contact with residents; operationally defined as a rating of yes for ‘neutral interaction’ category in the QUIIS measure (Dean et al., 1993).
6. Negative protective interaction: A staff-resident interaction that lacks reassurance, comfort, and appropriate regard to the resident; operationally defined as a rating of yes for ‘negative protective interaction’ category in the QUIIS measure (Dean et al., 1993).
7. Negative restrictive interaction: A staff-resident interaction that opposes resident’s freedom of choice or action without a valid reason; operationally defined as a rating of yes for ‘negative restrictive interaction’ category in the QUIIS measure (Dean et al., 1993).
8. Age: The length of time an individual has lived since being born; operationalized by a numeric value created from the date of birth available in the chart.
9. Gender: A range of characteristics of individuals that are socially constructed or biologically determined; operationalized by matching the identified gender data collected from the patient’s chart as either male or female.
10. Marital status: The state of being married with another individual or not married (e.g., single, divorced, widowed, or separated); operationalized by matching the

- identified marital status data collected from the patient's chart as either married or not married.
11. Co-morbidities: The simultaneous presence of more than one disease or health condition in the same individual at the same time; operationalized by a total count of the list of health conditions obtained from the patient's chart.
  12. Cognition: Cognition is conceptually defined as the ability of an individual to learn, comprehend, recall, concentrate, and make decisions (Centers for Disease Control, 2018). It is operationally defined as a total score on the Saint Louis University Mental Status Examination (SLUMS), a cognitive screener where lower scores indicate greater cognitive impairment (Tariq, Tumosa, Chibnall, Perry, & Morley, 2006).
  13. Functional status: Functional status is conceptually defined as the ability of an individual to physically perform the activities of daily living such as washing, grooming, bathing, dressing, feeding, ambulation, and transfers. It is operationally defined as the total score on Barthel Index where higher scores indicate greater level of functioning (F. I. Mahoney & Barthel, 1965).
  14. Agitation: Agitation is conceptually defined as a socially inappropriate behavior comprising of inner unrest among individuals, as well as verbal or physical abuse and aggression towards others. It is operationally defined as the total score on Cohen-Mansfield Agitation Inventory (CMAI) where higher scores indicate more agitation (Cohen-Mansfield, 1991).
  15. Depressive symptoms: Depressive symptoms conceptually refer to feelings of sadness, low self-esteem, altered sleep and appetite, lack of attention, and/or

unexplained fatigue impacting daily performance of an individual. It is operationally defined as the total score on Cornell Scale for Depression in Dementia (CSDD) where higher scores indicate more depressive symptoms (Alexopoulos, Abrams, Young, & Shamoian, 1988).

16. Resistiveness to care: Resistiveness to care is conceptually defined as a disruptive or problematic behavior where an individual opposes personal care assistance from caregivers. It is operationally defined as the total score on Resistiveness to Care Scale (E. K. Mahoney et al., 1999).

#### Assumptions of the Study

1. The interactions between staff and residents in AL communities can be positive, negative, or neutral. It can be evaluated using the selected instrument and that the evaluation accurately represents the ways staff interact with residents in AL.
2. The quality of staff-resident interactions in AL can be influenced by resident level factors such as age, gender, marital status, comorbidities, cognition, functional status, level of agitation, depressive symptoms, and restiveness to care, as well as facility level factors such as size and ownership.
3. A behavioral intervention that addresses intrapersonal, interpersonal, organizational and policy factors pertaining to care interactions in AL can be implemented online and that such intervention can facilitate changes in AL and staff to improve care interactions.

#### Summary

This first chapter of the dissertation provides a background information on the topic based on empirical evidence in existing literature and describes the purpose and



significance of this work. The theoretical models guiding this work, the socioecological model and social cognitive theory, were also explained and supported from empirical literature for its application within this work. Lastly, this chapter presents the definition of terms and outlines the assumptions of the study.

## CHAPTER 2: A Description of Staff-Resident Interactions in Assisted Living<sup>1</sup>

### Abstract

Positive social and care interactions are vital to understand and successfully accomplish the daily care needs of the residents in assisted living (AL) and optimize their quality of life. The purpose of this study was to explore and describe the staff-resident interactions in AL. This descriptive analysis utilized baseline data in a randomized trial that included 379 residents from 59 AL facilities. The majority of the interactions observed were positive; almost 25% were neutral or negative. Most interactions were care-related (31.9%) or one-on-one (27.4%), occurred with nursing (40.2%) or support staff (e.g., dining aide; 24.6%), and involved close interpersonal distance (64.6%). Future research should focus on the transition of neutral or negative interactions to positive and explore the factors that might influence neutral and negative interactions. Additionally, innovative approaches are needed to optimize interactions amid physical distancing in the context of the COVID-19 pandemic.

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<sup>1</sup> Paudel A., Galik E., Resnick B., Doran K., Boltz M., & Zhu S. (2020). A Description of Staff-resident Interactions in Assisted Living. *Clinical Nursing Research*, doi:10.1177/1054773820974146

## Background

In the past three decades, assisted living (AL) has flourished as a preferred residence option for older adults who are unable to live independently but do not require nursing home care (Harris-Kojetin et al., 2019; Kaskie et al., 2015; Polzer, 2013). Approximately 811,500 individuals were living in 28,900 AL settings in the U.S. in 2016 and 93.4% were 65 years or older (Harris-Kojetin et al., 2019). A high proportion of AL residents require assistance with bathing (63.6%), dressing (48.2%), and other activities of daily living (ADL; Harris-Kojetin et al., 2019). Nearly 70% of AL residents have some form of cognitive impairment (Zimmerman et al., 2014); 40% have Alzheimer's disease or other dementias (Harris-Kojetin et al., 2019), which often result in agitation, resistiveness to care and other behavioral and psychological symptoms of dementia (BPSD) during care (Hyde, Perez, & Forester, 2007; Kaskie et al., 2015). Resident behavioral symptoms in addition to functional disability may increase the complexity of care and influence daily interactions between staff and residents in AL (Gaugler, 2005; Hyde et al., 2007).

Staff-resident interaction refers to any verbal or non-verbal exchange between staff and residents (Machiels et al., 2017; Paudel et al., 2019). While there is evidence of meaningful positive interaction of staff with the residents (Hartmann et al., 2018; Zimmerman et al., 2005), use of ineffective care approaches by long-term care staff is also widely discussed in literature (Bird, Anderson, Macpherson, & Blair, 2016; Lung, Yat, & Liu, 2016; Savundranayagam, 2014). Rushing residents during care and juggling multiple responsibilities at the same time, speaking rapidly to or at residents, negative touching (e.g., quickly removing clothes to bathe a resident), discouraging and restricting

activity to prevent falls (e.g., constantly telling residents to sit down as they might fall), limiting verbal or non-verbal contact (e.g., simply giving a meal tray or clearing the resident table without saying anything), and scheduling care without appropriate regard to resident choices (e.g., being assigned a bath time) are some examples of ineffective approaches staff use during care interactions with residents. Such ineffective approaches can negatively influence resident's mood, willingness to participate in care being provided by staff, or quality of life (Belzil & Vézina, 2015; Colón-Emeric et al., 2016; Eggenberger et al., 2013; Herman & Williams, 2009; Kolanowski & Litaker, 2006).

One contributor to use of ineffective care approaches by staff is lack of adequate knowledge and skills to recognize and interpret resident behaviors (Ryvicker, 2011; Savundranayagam, Ryan, Anas, & Orange, 2007) which may be related to licensing and training requirements in AL. The AL facilities are regulated at the state level and vary by size, services, case mix of residents, skill mix of staff, and policies (Carder et al., 2015; Guo & McGee, 2012; Kelly et al., 2018). There are fewer licensing and training requirements for AL staff with only a few states required to hire licensed staff (Carder et al., 2015; Guo & McGee, 2012; McKenize et al., 2012). In 2016, 83.3% of staff in AL settings were comprised of unlicensed direct care workers (Harris-Kojetin et al., 2019). The unlicensed staff assist older adults with physical and cognitive impairments in activities of daily living (ADL) such as bathing and dressing and instrumental activities of daily living (IADL) such as medication management and meals (Carder et al., 2015; Harris-Kojetin et al., 2019). Yet, staff are often inadequately prepared for the responsibility of this challenging and inadequately supervised role (Guo & McGee, 2012; Kelly et al., 2018).

The negative or neutral interaction between staff and residents can also be a consequence of the complex interaction between the resident's cognitive status and task-focused approach of staff. Due to neurocognitive disorders and resulting aphasia (impaired language), motor apraxia (impaired motor skills), and agnosia (impaired perception), residents have challenges with speaking and understanding speech, performing precise movements and gestures, and recognizing the care interactions from staff (Ellis & Astell, 2017; Forsgren, Skott, Hartelius, & Saldert, 2016; Hamdy et al., 2018; Hubbard, Cook, Tester, & Downs, 2002; Zadikoff, Lang, & Shulman, 2005). Staff need to utilize respectful listening and observation to understand resident feelings, fulfill their needs and desires, and appreciate and address unmet needs. However, staff are often expected to and acknowledged for expedited completion of caregiving tasks (e.g., bathing, dressing) and hence engage in hurried, brief, fragmented interactions required to complete the task (Gilster et al., 2018; Savundranayagam, 2014). While residents who are reserved and quiescent might generally adapt to such interactions, extroverted residents might be less adaptable and misinterpret the interactions as threatening and express their distress through physical behaviors such as hitting, resisting care, or via inappropriate vocalizations. This increases the likelihood the resident will be exposed to more negative and neutral interactions (Burgio et al., 2000; Kolanowski & Litaker, 2006; Lachs et al., 2011; Pitfield et al., 2011; Savundranayagam, 2014).

The interactions between staff and residents and the quality of the interactions are integral to the quality of life of residents in long-term care settings including AL facilities (Anderson, Bird, MacPherson, & Blair, 2016; Bird et al., 2016). Positive meaningful interactions address resident needs and preferences and help to improve mood (Tappen &

Williams, 2009), promote food intake (Liu, Jao, & Williams, 2019), increase resident engagement (Hartmann et al., 2018), minimize behavioral symptoms (Teri et al., 2005), and reduce use of antipsychotic drugs thereby improving the overall well-being of the resident (Anderson et al., 2016). Conversely, negative or neutral interactions do not address residents needs and preferences adequately and negatively impact resident function and well-being (Anderson et al., 2016; Machiels et al., 2017). Negative interactions are most likely to exacerbate resident behaviors (Belzil & Vézina, 2015; Savundranayagam, 2014), increase the risk of staff-resident injuries during care (Boye & Yan, 2018; Lachs et al., 2011; Pitfield et al., 2011) and contribute to staff burnout and dissatisfaction and consequently turnover (Hayes et al., 2006; Pitfield et al., 2011; Squires et al., 2015) affecting the work ability of staff (Pitfield et al., 2011) and quality of life of the resident (Bird et al., 2016).

A considerable amount of work has focused on evaluating resident-caregiver interactions in long-term care with a special attention to residents with cognitive impairment or dementia. Most of the work has been done in nursing home settings and shown that while there are a higher number of positive interactions, negative and neutral interactions also persist in these settings with rates ranging from 16 to 28 percent (Chenoweth & Jeon, 2007; Fritsch et al., 2009; Hartmann et al., 2018; Paudel et al., 2019). The purpose of this study, therefore, was to explore and describe the interactions between staff and residents in AL. This study will specifically examine the characteristics and the quality of staff-resident interactions in AL. While the characteristics of staff-resident interactions provide descriptive information of interactions such as interaction location and interpersonal distance during interactions, the quality of interactions

provides information on the frequency of positive, negative, and neutral interactions. Findings related to the quality of staff-resident interactions in AL can guide existing efforts and future work needed to optimize interactions between staff and residents in AL. This is particularly important to consider in the post COVID-19 pandemic era, as well as future emergency or disaster situations, in which staff-resident interactions may have to be altered to optimize safety and disease prevention while providing person centered care that considers other clinical outcomes (e.g., quality of life, behavioral symptoms associated with dementia).

## Methods

### Study Design, Sample and Setting

This was a descriptive cross-sectional study utilizing baseline data from the second and third cohorts recruited in the Dissemination and Implementation of Function Focused Care for Assisted Living Using the Evidence Integration Triangle (FFC-AL-EIT) study. The baseline data was collected between 2017 and 2019. The focus of FFC-AL-EIT is to help AL settings integrate function-focused care into routine care of AL residents. Function-focused care is a philosophy of care that encourages older adults to engage in their highest level of physical activity during all care interactions. The two cohorts enrolled a total of 550 residents from 59 ALs in the U.S. across Maryland, Pennsylvania, and Massachusetts. The current study included data from 379 residents to focus on staff-resident interactions in AL. Data from 171 participants were excluded because the interactions recorded for the residents did not involve interaction with staff.

The study was approved by a University-based ethics committee. To be eligible to participate in the study the AL facilities were required to: (1) have at least 25 beds; (2)

identify a nurse (direct care worker, licensed practical nurse, or registered nurse) to be the champion and work with the study team in the implementation of FFC-AL-EIT; and (3) access email and websites via a phone, tablet, or computer. In the current study, the participating sites had 91 (SD = 66) beds on average, majority were for profit (n=41, 69%), were equally distributed between urban and rural areas, and had a mean staffing ratio of direct care workers to patient of 11.50 (SD = 4.55) to 1, a mean of 45.83 (SD = 39.82) hours of nursing oversight per week and 45.47 (SD = 12.91) hours of assisted living manager oversight per week. Residents were eligible to participate if they were: (1) 65 years or older; (2) able to speak English; (3) living in the AL at the time of recruitment; and (4) able to recall at least one of the three words per the Mini-Cog (Borson, Scanlan, Chen, & Ganguli, 2003).

#### Data Collection and Measures

Data collection was completed through chart review, interview and observation by trained research evaluators who had prior experience working with residents in long-term care settings and their caregivers and families. The study variables include residents' demographic characteristics (age, gender, race, ethnicity, and marital status), cognition, and quality of staff-resident interactions in AL.

Data on age, gender, race, ethnicity, and marital status was obtained from resident charts/electronic records at the facility. The Saint Louis University Mental Status Exam (SLUMS) was used to evaluate the cognitive status of the participants. The SLUMS is a 30-point 11 question cognitive screener which includes items to assess orientation, memory, attention, and executive function of older adults through interview. Cut-off for diagnosis of the level of cognitive impairment or dementia is based on whether resident



had high school education (normal: 27-30, mild neurocognitive disorder: 21-26, & dementia: 1-20) or less than high school education (normal: 25-30, mild neurocognitive disorder: 20-24, & dementia: 1-19; Tariq, Tumosa, Chibnall, Perry, & Morley, 2006). Prior research provided evidence of reliability and validity of SLUMS (Feliciano et al., 2013; Tariq et al., 2006).

The quality of staff-resident interactions was assessed using the Quality of Interaction Schedule (QUIS; Dean, Proudfoot, & Lindesay, 1993). Data on QUIS was collected based on direct observation of each staff-resident interaction by a research evaluator for approximately 20 minutes. Some observations were completed in the morning and lunch hours while some were completed in the afternoon or post lunch during activity hours. The research evaluators followed the residents participating in the study during their interaction with staff and sought permission from both staff and resident while doing so. QUIS was developed to assess the quality of staff-resident interactions in long-term care settings. The first part of the QUIS focuses on descriptive aspects of the interaction such as interaction location (e.g., dining and resident room), interaction situation (e.g., care-related and structured or unstructured group activities), interpersonal distance (e.g., less than 1.6 ft and 1.6 to 2.6 ft), type of staff or person(s) resident is interacting with (e.g., nursing and activity staff), and level of resident participation (e.g., active and passive). The second part focuses on the type or quality of staff-resident interactions. An evaluator observes and codes a staff-resident interaction as 'positive social', 'positive care', 'neutral', 'negative protective', or 'negative restrictive' using a dichotomous response (present/not present). Positive social interactions involve good constructive conversation and companionship that is more than necessary to

complete the task; positive care interactions involve limited interactions necessary to complete the task and or to keep residents safe and prevent from danger; negative protective interactions are those interactions that lack reassurance, comfort, and appropriate regard to the resident; negative restrictive interactions are those that oppose residents freedom of choice or action without a valid reason; and neutral interactions are brief interactions that lack verbal or non-verbal contact with residents (Dean et al., 1993). A detailed description of the QUIIS with the definition of each type of interaction has been previously published (Paudel et al., 2019). The QUIIS was quantified in the current study and scoring was done such that ‘positive social’ was a 2 if present, ‘positive care’ was a 1 if present, ‘neutral’ was a 1 if not present, ‘negative protective’ was a 1 if not present, and ‘negative restrictive’ was a 2 if not present (Resnick et al., 2021). The QUIIS scores range from 0-7 with higher scores indicating a better, or more positive, quality of interaction between the staff member and the resident (Resnick et al., 2021). Since development, QUIIS has been tested and used in both acute and long-term care settings as a valid and reliable measure (Dean et al., 1993; McLean, Griffiths, Eguiagaray, Pickering, & Bridges, 2017). Prior testing provided evidence of inter-rater reliability of the QUIIS based on Cohen’s kappa ranging from .60 to .96 (Dean et al., 1993; Jenkins & Allen, 1998). Additional testing provided evidence of internal consistency of the quantified QUIIS with item separation of 6.33 and item reliability of .98 based on Rasch analysis (Resnick et al., 2021). In the current study, two evaluators observed the interaction in a subsample i.e., 10% of the enrolled participants and the inter-rater reliability was 100% for positive, negative, and neutral interactions.

## Data Analysis

Statistical analyses were completed using Statistical Package for the Social Sciences, SPSS version 26.0. Descriptive statistics were used to report participant demographics and the interaction characteristics including interaction location, interaction situation, the interpersonal distance, person(s) resident is interacting with, and the level of resident participation. Continuous variables were described with means, standard deviation and range while categorical variables were presented with frequencies and percentages.

## Results

### Sample Descriptive

Table 1 provides the descriptive characteristics of the residents participating in the study. The mean age of the residents (N = 379) was 88.18 years [standard deviation (SD) = 7.74] and the mean score on the SLUMS was 15.85 (SD = 4.78) indicating dementia. The majority of the residents participating in the study were female (n = 269, 71.1%), Caucasian (n = 370, 98.1%), and non-Hispanic (n = 375, 99.2%). More than half of the participants were widowed, divorced, or separated (n = 232, 71.8%) with some individuals reporting being married and a few never married.

### Characteristics of Staff-Resident Interactions in AL

As shown in Table 2, majority of the interactions observed were in the resident's room (n = 170, 39.7%) or dining room (n = 122, 28.5%) and the rest occurred in the hallway, living room, or other spaces such as the nurses' station, outside porch area, open sitting areas, bathrooms, and tub/shower rooms. The staff-resident interactions in the ALs were mostly care-related such as during bathing, dressing or helping with a meal (n =

121, 31.9%) followed by one-on-one unstructured social interactions (n = 104, 27.4%). The interpersonal distance between the staff and resident for almost a half of the interactions was as close as less than 1.6 ft (n = 82, 21.6%) or 1.6 ft to 2.6 ft (n = 91, 24.0%). More than half of the observed staff-resident interactions in AL occurred with nursing staff (i.e., registered nurse, licensed practical nurse, and nurse aides; n = 175, 40.2%) or support staff, such as dining and housekeeping aides (n = 107, 24.6%). Most residents in AL were actively engaged with staff during the interactions (n = 341, 90.0%).

**Table 1**

*Descriptive Statistics of the Sample*

Resident Characteristics (N = 379)	Mean (S.D.) or n (%)
Age (years), range:65-105	88.18 (7.74)
SLUMS, range:1-24	15.85 (4.78)
Gender (% , Female)	269 (71.1)
Race (%)	
White/Caucasian	370 (98.1)
Black/African American	7 (1.9)
Ethnicity	
Hispanic/Latino	3 (0.8)
Non-Hispanic/Latino	375 (99.2)
Marital Status (%)	
Married	63 (19.5)
Never married	28 (8.7)
Widowed /divorced/separated	232 (71.8)

*Note.* Numbers may not add to actual N due to missing values; SLUMS = Saint Louis University Mental Status Examination.

**Table 2***Characteristics of the Interactions in AL*

Characteristics of Interactions	n (%)
<b>Interaction location</b>	
Resident room	170 (39.7)
Dining room	122 (28.5)
Hall	42 (9.8)
Living room	41 (9.6)
Other	53 (12.4)
<b>Interaction situation</b>	
Care -related	121 (31.9)
One-on-one	104 (27.4)
Small group	88 (23.2)
Large group	63 (16.6)
Family visit	3 (0.8)
<b>Person(s) resident interacting with/type of staff</b>	
Nursing staff	175 (40.2)
Activity staff	95 (21.7)
Support staff	107 (24.6)
Other staff	59 (13.5)
<b>Interpersonal distance</b>	
4+ ft	134 (35.4)
2.6-4 ft	72 (19.0)
1.6-2.6 ft	91 (24.0)
<1.6 ft	82 (21.6)
<b>Level of participation</b>	
Active	341 (90.0)
Passive	38 (10.0)

*Note.* N (sample) = 379. Numbers may not add to actual N due to missing values or multiple choice options.

## Quality of Staff-Resident Interactions in AL

As can be seen in Table 3, a total of 705 staff-resident interactions were recorded for 379 residents during the observation period. Overall, 342 (92.4%) of the interactions were positive social, 272 (75.8%) were positive care, 75 (20.7%) were neutral, 12 (3.2%) were negative protective and 4 (1.1%) were negative restrictive. On average, the quality of staff-resident interactions in the AL were positive (mean = 6.3, SD = 1.03).

**Table 3**

### *Quality of Staff-Resident Interactions in AL*

Quality of Interactions (mean = 6.3, SD = 1.03)	Present n (%)	Not Present n (%)
Positive Social	342 (92.4)	28 (7.6)
Positive Care	272 (75.8)	87 (24.2)
Neutral	75 (20.7)	287 (79.3)
Negative Protective	12 (3.2)	360 (96.8)
Negative Restrictive	4 (1.1)	368 (98.9)

*Note.* N (sample) = 379; N (interactions) = 705. Numbers may not add to actual N due to missing values. A total of 705 interactions were present for 379 residents.

## Discussion

This study examined the quality of staff-resident interactions in AL and the characteristics of the interactions using baseline data from a larger randomized trial. Our study found that the quality of interactions between staff and residents in AL were mostly positive. The prevalence of positive social and positive care interactions was 92.4% and 75.8% respectively. This is similar to what has been reported in prior work done in nursing home, residential care, and acute care settings (Barker et al., 2016; Bridges, Griffiths, et al., 2019; Chenoweth et al., 2009; Fritsch et al., 2009; Zimmerman et al., 2005). The prevalence of positive social and positive care interactions ranged from 73 to

84 percent in the long-term and acute care settings (Barker et al., 2016; Chenoweth & Jeon, 2007; Hartmann et al., 2018; Paudel et al., 2019).

Although most of the interactions observed in this current work and prior studies were positive (Barker et al., 2016; Hartmann et al., 2018; Paudel et al., 2019), the findings from this study and prior work suggest that there still is room for improvement to decrease negative or neutral interactions in care settings. In the current study, approximately 21% of the staff-resident interactions in AL were neutral, 3.2% were negative protective, and 1.1% were negative restrictive. Prior research in long term and acute care settings have reported rates as high as 23% for neutral, 9% for negative protective, and 10% for negative restrictive interactions (Barker et al., 2016; Chenoweth & Jeon, 2007; Hartmann et al., 2018; Paudel et al., 2019). As mentioned previously, the negative and neutral interactions in AL could be attributed to the unlicensed status and consequently, the inadequate training of AL staff on care and communication with residents in AL, particularly those with cognitive impairment or dementia.

There are concerns that care interactions may transition to being more neutral if not negative due to some of the challenges associated with interactions following precautions necessary due to COVID-19 (Iaboni et al., 2020; Padala, Jendro, & Orr, 2020; Zimmerman et al., 2020). For example, in addition to staff turnover and shortage, there are communication challenges due to the wearing of masks and distance challenges with regard to trying to maintain a safe distance from a resident for their protection as well as the protection of the staff. Settings of care need to continue to focus on reducing neutral and negative interactions using innovative approaches such as simulation (O'Brien et al., 2018), roleplay (McCallion et al., 1999), workshops (McGilton et al.,

2017), web enhanced and on-site coaching as part of the educational programs to help staff self-evaluate their daily interactions with the residents and identify negative and neutral interactions used knowingly or unknowingly in daily care.

Similarly, using positive statements, avoiding authoritative speech, showing empathy, maintaining eye contact, projecting a calm body posture, listening respectfully, and observing responses and non-verbal cues from residents are some supportive strategies to teach staff to help facilitate positive social and care interactions with residents with cognitive impairment or dementia (Clare et al., 2013; Medvene & Lann-Wolcott, 2010; Teri et al., 2005; Williams, Kemper, & Hummert, 2003). Providing see-thru masks to facilitate communication when medically appropriate, and external amplification devices to help with communication are also options to improve interactions in the context of COVID-19 pandemic era. Utilizing these and other similar strategies to improve staff-resident interactions and quality of care in long-term care resulted in the decrease of negative and neutral interactions by almost 7% (28%-21.3%; Hartmann et al., 2018) and 20% (27.3%-7.3%; Chenoweth & Jeon, 2007) in prior work.

In examining the characteristics of the staff-resident interactions in AL, we observed that most of the interactions were care-related or one-on-one and occur with nursing or support staff (e.g., kitchen aide, housekeeping staff). These findings support existing research noting that the AL staff make essential contribution to the typical needs of the residents by providing assistance with ADLs such as bathing, dressing, feeding, toileting and IADLs including housekeeping and medication management (Carder et al., 2015; Harris-Kojetin et al., 2019). Similarly, the finding that most interactions are care-related also support existing research noting that long-term care staff are often engaged in



task-focused interactions with the residents (Saldert, Bartonek-Åhman, & Bloch, 2018; Savundranayagam, 2014).

In the current study, almost half of the interactions in AL involved a close interpersonal distance (i.e., < 2.6 ft) between staff and residents; approximately two-thirds (i.e., 64.6%) involved a distance less than 4 ft. Research suggests that older adults prefer greater interpersonal distance (Sorokowska et al., 2017). Additionally, current guidelines on preventing the spread of COVID-19 infection recommend physical distancing of six feet. To consider the preference of older adults and more importantly, to protect the residents from infection, staff caring for older adults in long-term care will need to provide positive interactions done by maintaining a safe distance. While distancing might be impossible for personal care activities (e.g., bathing and dressing) at times, it could be achieved with Function Focused Care (FFC) approach (Resnick & Galik, n.d.). Function Focused Care provides a philosophy of care in which residents are helped to optimize their participation in personal care. Appropriate verbal cueing and role modeling, encouraged in FFC for example, may mean the caregiver can be safely apart from the resident yet providing the cues needed for the resident to complete the task. Additionally, replacing touch with smile or a wave or other positive body language during social interactions, playing familiar music to engage residents, and using simulated presence (i.e., playing an individualized video or audio recording of family members and friends) to reassure residents can further facilitate safe, positive interactions. It might be helpful to assess the difference in interpersonal distance by the type of care and or staff and teach appropriate communication techniques to the caregivers accordingly.

An important finding from this study was that a majority of the residents in AL actively participated in the interactions. Research suggests that it is possible for staff to maintain a therapeutic communication and relationship with the residents with cognitive impairment or dementia (Williams & Tappen, 1999). Further, prior research has also noted that residents with cognitive impairment retain the need for meaningful interactions (Williams et al., 2003) and are able to actively engage in interactions with the staff, even more so when staff identify the opportunities for engagement (Hartmann et al., 2018; Paudel et al., 2019).

### Limitations

This study was limited as it included a sample of residents in relatively large AL facilities in only three states all of whom had consented to participate in a study focused on optimizing function and behavior. The findings cannot be generalized to all AL settings. Further, the study participants were mostly white, female, and non-Hispanic or Latino. As with any observation measure it is possible that the staff performed in a more positive, socially desirable manner than they would if interacting with a resident without an objective observer. The number of negative or neutral interactions could be higher during non-observation periods particularly given the less stringent licensing and training requirements in AL and staff tendencies to engage in brief, fragmented interaction with residents while juggling multiple responsibilities and prioritizing task completion. To minimize potential bias, the research evaluators did not specifically indicate that they are evaluating interactions but instead maintained that observations are to learn about challenges related to care and communication in AL. In addition, the research evaluators maintained appropriate distance during observations and whenever possible, for example,

during observation in dining hall, activity area, and other common areas did not mention particularly which residents were being observed. Future researchers could also utilize other methods such as evaluation of video recordings of interaction to minimize the bias. Despite these limitations this study provides useful descriptive information on the current ways in which staff interact with residents in AL and encourage the development and implementation of education and training approaches to decrease neutral and negative interactions in AL.

### Conclusion

The ability of long-term care staff to maintain meaningful positive social and care interactions with residents, particularly those with cognitive impairment or dementia, is vital to understand and successfully accomplish the daily care needs of the residents and further improve their quality of life. Almost 25% of the interactions observed were neutral or negative suggesting that it may be helpful to educate staff and or implement behavior change interventions to transition these interactions from neutral or negative to positive interactions. Future research should focus on exploring the factors (e.g., resident agitation or aggression; staff gender, experience, or attitude; facility size, ownership, policy, and environment) that might influence these negative and neutral interactions. Further, innovative approaches are needed, such as using Function Focused Care, see-thru masks and other communication techniques to help with physical distancing in the context of the COVID-19 pandemic while improving the quality of the care interactions that should occur between residents and staff in AL settings.

## **CHAPTER 3: Factors Associated With the Quality of Staff-Resident Interactions in Assisted Living<sup>2</sup>**

### **Abstract**

Care interactions are verbal or non-verbal interactions between staff and residents during social or physical care activities. The quality of care interactions could be positive, negative, or neutral. The purpose of this study was to examine the resident and facility level factors associated with the care interactions in assisted living (AL). Regression analysis was performed using a stepwise method utilizing baseline data of 379 residents from 59 ALs recruited in a randomized trial. Accounting for 8.2% of variance, increased resident agitation was associated with negative or neutral quality interactions while for-profit ownership was associated with positive quality interactions. To promote positive care interactions, staff should be educated about strategies to minimize resident agitation (e.g., calm posture and respectful listening). Findings also suggest the need to work toward optimizing care interactions in nonprofit settings. Future research could further explore the influence of staff level factors on care interactions.

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<sup>2</sup> Paudel A., Galik E., Resnick B., Doran K., Boltz M., & Zhu S. (under review). Factors Associated With the Quality of Staff-resident Interactions in Assisted Living. *Journal of Nursing Care Quality*.

## Background

The interactions between staff and residents, particularly care interactions, are essential to understand and respond to resident needs in assisted living (AL). Care interactions (referred to as ‘interactions’ or ‘staff-resident interactions’ throughout the paper) are any verbal or non-verbal interactions between staff and residents that occur during social or physical care activities such as bathing, grooming, mealtime assistance, medication administration, exercise, walking, and transfers. The quality of daily care interactions between staff and residents could be positive, negative or neutral (Dean et al., 1993). Positive interactions involve pleasant, friendly conversation or companionship, and reassurance and comfort during care that is more than necessary to complete the task; negative interactions are staff-resident exchanges lacking appropriate regard to the resident and their freedom of choice or action; and neutral interactions are brief exchanges with almost absent verbal or non-verbal contact with residents (Dean et al., 1993). Positive interactions make residents feel cared for, valued, and respected as a person and are likely to promote person-centered care (Dean et al., 1993; Paudel, Resnick, & Galik, 2019; Savundranayagam, 2014). Negative and neutral interactions make residents feel disregarded or ignored and are unlikely to promote person-centered care (Dean et al., 1993; Paudel et al., 2019; Savundranayagam, 2014).

While most interactions observed between the care staff and older adults in settings of care are positive, existing evidence suggests that neutral and negative interactions continue to persist (Bridges, Gould, et al., 2019; Hartmann et al., 2018; Paudel et al., 2020; Zimmerman et al., 2005). The prevalence of neutral and negative interactions was reported to be as high as 28% and 23% respectively in long-term and

acute care settings (Barker et al., 2016; Chenoweth & Jeon, 2007; Hartmann et al., 2018; Paudel et al., 2019). The persistent neutral and negative interactions observed in settings of care have undesirable implications for both staff and residents including exacerbation of agitation, aggression and other behavioral and psychological symptoms of dementia (BPSD) and result in a decline in resident function and well-being (Belzil & Vézina, 2015; Ragneskog, Gerdner, Josefsson, & Kihlgren, 1998; Savundranayagam, 2014). For staff, managing BPSD may lead to stress, burnout and dissatisfaction consequently forcing them to leave the profession (Hayes et al., 2006; McKenzie et al., 2011; Squires et al., 2015).

#### Factors Associated with Staff-Resident Interactions

Factors associated with care interactions include resident related issues and facility and staff related issues. Although not always consistent, resident characteristics including age, gender, marital status, cognition, and comorbidities have been found to influence staff-resident interactions in prior work in long-term and acute-care settings (Barker et al., 2016; Caris-Verhallen et al., 1997; Chen Yu-Ling, Ryden Muriel B., Feldt Karen, 2000; Lindesay & Skea, 1997; Shippee et al., 2015). The likelihood of negative interactions increased with resident age (Barker et al., 2016). Compared to their female counterparts, male residents were less likely to be exposed to positive care interactions based on reports of lower engagement and less personal attention from staff (Shippee et al., 2015). Residents who were married and those with better cognition were more likely to be exposed to positive care interactions (Caris-Verhallen et al., 1997; Chen Yu-Ling, Ryden Muriel B., Feldt Karen, 2000; Shippee et al., 2015). Additionally, comorbidity has been found to result in multiple restrictions (e.g., dietary, activity) among residents,

create complexity in care and thus, negatively affect care interactions (Doraiswamy, Leon, Cummings, Marin, & Neumann, 2002; Shippee et al., 2015; Zulman et al., 2014).

The functional status of residents and behavioral symptoms such as agitation, resistiveness to care, and depression have also been linked to care interactions in prior research, particularly in nursing home and hospital settings (Arling & Williams, 2003; Belzil & Vézina, 2015; Bridges, Griffiths, et al., 2019; Shippee et al., 2015; Smith & Haedtke, 2013). Functional dependency of residents increases caregiving time and caregiver stress negatively impacting care interactions (Arling & Williams, 2003; Caris-Verhallen et al., 1997; Shippee et al., 2015). Resident agitation (Barker et al., 2016; Bridges, Griffiths, et al., 2019), resistiveness to care (Belzil & Vézina, 2015), physical aggression and other resistive behaviors (Lachs et al., 2011; Zeller et al., 2009) which mostly occur during care activities, are likely to expose residents to negative care interactions. The presence of depressive symptoms among residents is also likely to reduce opportunities for positive care interactions with staff (Smith & Haedtke, 2013; Van Beek, Frijters, Wagner, Groenewegen, & Ribbe, 2011; Watson, Garrett, Sloane, Gruber-Baldini, & Zimmerman, 2003).

Facility characteristics such as size and ownership also appear to impact the quality of care interactions in long-term care settings (Kane et al., 2004; Mitchell & Kemp, 2000; Shippee et al., 2015). Prior research suggests that residents in nonprofit facilities are likely to be exposed to positive care interactions based on reports of better quality care and respectful treatment of residents in nonprofit settings (Kane et al., 2004; Sikorska-Simmons, 2005a; Xu, Kane, & Shamliyan, 2013). Similarly, residents in smaller facilities are reported to be more likely to be exposed to positive care interactions

due to greater engagement, respectful treatment of residents, and more flexibility with regard to meeting resident choices and preferences (Boumans, Van Boekel, Baan, Luijkx, & Heyn, 2019; Shippee et al., 2015).

Despite regulatory efforts to increase person centered care there is evidence that neutral and negative care interactions persist in long term care settings. Further, such interactions have a negative impact on clinical outcomes such as resident mood, food intake, and general well-being (Anderson et al., 2016; Bird et al., 2016). Prior work has shown that resident (Barker et al., 2016; Bridges, Griffiths, et al., 2019; Chen Yu-Ling, Ryden Muriel B., Feldt Karen, 2000; Shippee et al., 2015; Smith & Haedtke, 2013) and facility (Kane et al., 2004; Mitchell & Kemp, 2000; Shippee et al., 2015) related factors can influence staff-resident interactions, however, most of this work was done in nursing home and hospital settings. AL settings vary from nursing home and acute care settings in that they follow a social model of care versus a medical model. In addition, AL residents are presumed to have higher functional and cognitive status in general. Therefore, building off prior work, the purpose of this study was to test the association of resident and facility factors with the quality of staff-resident interactions in AL. It is hypothesized that resident functional status, agitation, depressive symptoms, and resistiveness to care, as well as facility size and ownership will be significantly associated with the quality of staff-resident interactions in AL when controlling for resident age, gender, marital status, comorbidities, and cognition. Findings from this study will help identify the resident and facility factors that need to be considered to optimize the quality of staff-resident interactions in AL and other long-term care settings.



## Methods

### Study Design, Sample and Setting

This was a cross-sectional analysis of secondary (baseline) data from the second and third cohorts recruited in the randomized trial titled Dissemination and Implementation of Function Focused Care for Assisted Living Using the Evidence Integration Triangle (FFC-AL-EIT; ClinicalTrials.gov, n.d.; Resnick et al., 2018). The FFC-AL-EIT incorporates function-focused care into daily nursing care of residents in AL settings. The philosophy of function-focused care is to optimize physical function among older adults by encouraging them to participate in personal care activities to the best of their ability (Resnick, Galik, Gruber-Baldini, & Zimmerman, 2011). There were 550 residents enrolled in the two cohorts from 59 ALs in Maryland, Pennsylvania, and Massachusetts. Because we focus on staff-resident interactions in the current study, data was included from only 379 residents. The interactions recorded for the remaining 171 residents involved interaction with other individuals (e.g., other resident, family, and friend) in the facility and therefore, were excluded from the current analysis.

The study received approval from a university-based Institutional Review Board (IRB). To be eligible to participate, the AL facilities needed to: (1) have 25 or more beds; (2) select a nurse champion (direct care worker, licensed practical nurse, or registered nurse) and support the study team in conducting FFC-AL-EIT; and (3) connect via email and websites using phone, tablet, or computer. Residents from eligible facilities were included in the study if they: (1) were at least 65 years; (2) could communicate in English; (3) were residing in the AL during recruitment; and (4) could remember one or more of the three words based on the Mini-Cog (Borson et al., 2003).

## Data Collection and Measures

Data collection was completed by trained and experienced research evaluators using methods such as chart review, interview, and observation. The research evaluators were experienced in engaging with older adults with cognitive impairment or dementia in long-term care settings, as well as their caregivers and families.

**Resident Measures.** Residents' age, gender, race, marital status, and comorbidities were accessed from resident health records at the facility. Resident cognition was assessed using the Saint Louis University Mental Status Exam (SLUMS; Tariq, Tumosa, Chibnall, Perry, & Morley, 2006). The SLUMS is a 30-point cognitive screening tool. There are 11 items in the SLUMS to assess orientation, memory, attention, and executive function of older adults via questioning. The cut-off scores to determine the level of cognitive impairment of older adults is based on education level. For those with high school education, 27-30 indicates normal cognition, 21-26 indicates mild neurocognitive disorder, 1-20 indicates dementia. For those with less than high school education, 25-30 indicates normal cognition, 20-24 indicates mild neurocognitive disorder, 1-19 indicates dementia (Tariq et al., 2006). The reliability and validity of SLUMS have been established by prior research (Feliciano et al., 2013; Tariq et al., 2006).

The Barthel Index (F. I. Mahoney & Barthel, 1965) was used to assess the functional status. There are 10 items in Barthel Index to assess the level of physical functioning in the areas of self-care, mobility, and bowel/bladder functions (F. I. Mahoney & Barthel, 1965). Scores range between 0 and 100; higher scores suggest higher independence. While 0 indicates complete dependence, 100 suggests a complete independence. Prior work established internal consistency of the Barthel Index with alpha

coefficients ranging from .62 to .80. The intraclass correlation coefficient of .89 provided evidence of interrater reliability, and the correlation of the Barthel Index with the Functional Inventory Measure ( $r = .97, p < .05$ ) provided evidence of construct validity (F. I. Mahoney & Barthel, 1965; Sainsbury, Seebass, Bansal, & Young, 2005).

The Cohen-Mansfield Agitation Inventory (CMAI; Cohen-Mansfield, 1991) short form was used to measure agitation. CMAI is a 14-item caregiver rated questionnaire using a 5-point Likert scale to rate the frequency of disturbing behaviors in dementia such as verbal/physical aggression, general restlessness, and strange noises (Cohen-Mansfield, 1991). Scores range from 14 to 70 with lower scores suggesting less agitation. Prior work provided evidence of the reliability and validity of the CMAI based on high internal consistency (Cronbach alpha = .86 to .91), an adequate interrater reliability (.82 correlation between two raters), and correlation of primary caregivers' and research evaluators' observation of behaviors using CMAI (Finkel, Lyons, & Anderson, 1992).

The Cornell Scale for Depression in Dementia (CSDD; Alexopoulos, Abrams, Young, & Shamoian, 1988) was used to assess depressive symptoms. The CSDD is a 19-item questionnaire used to evaluate depressive symptoms in persons with a diagnosis of dementia; scores range from 0 to 38 with higher scores indicating more depressive symptoms (Alexopoulos et al., 1988). Prior research has provided the evidence of internal consistency (Cronbach's alpha = 0.84) and predictive utility (sensitivity = 0.83 & specificity = 0.73 for cut-off at  $\geq 6$ ; sensitivity = 0.75 & specificity = 0.82 for cut-off at  $\geq 8$ ) for CSDD (J. R. Williams & Marsh, 2009).

The Resistiveness to Care Scale was used to evaluate resistive behaviors during care (E. K. Mahoney et al., 1999). The Resistiveness to Care Scale is a 13-item

observational Likert scale designed to assess residents' resistive behaviors during daily care with established psychometric properties in long-term care. Studies have reported internal consistency of .82 to .87 with good to excellent kappa (Galik, Resnick, Vigne, Holmes, & Nalls, 2017; E. K. Mahoney et al., 1999) and an evidence of construct validity with good item fit (Galik et al., 2017).

Facility Measures. Data on organizational aspects including size and ownership of ALs was obtained by research evaluators based on the survey with facility administrators.

Outcome Measure. The Quality of Interaction Schedule (QUIS) was used to assess the outcome variable— quality of staff-resident interactions ( Dean et al., 1993). QUIS is an observational measure developed to evaluate the quality of interactions between staff and residents in long-term care settings. Data is collected by research evaluators observing an interaction between staff and resident for about 20 minutes. The first part of the QUIS is centered on assessing characteristics such as location of the interaction, context of the interaction, and interpersonal distance between staff and resident during interactions. The second part is centered on assessment of the quality of interactions. After observing a staff-resident interaction, a research evaluator rates the interaction in five categories: 'positive social', 'positive care', 'neutral', 'negative protective', and 'negative restrictive' (see table 4 below). The definition of all five categories and overall description of the QUIS is presented in detail in prior work (Paudel et al., 2019). The QUIS has been quantified with scores ranging between 0 and 7; higher scores suggest a better, or more positive, quality of staff-resident interaction (Resnick et al., 2021). Prior research established the inter-rater reliability of the QUIS with Cohen's kappa ranging from .60 to .96 (Dean et al., 1993; Jenkins & Allen, 1998). (Dean et al.,

1993; Jenkins & Allen, 1998)(Dean et al., 1993; Jenkins & Allen, 1998)Additional testing using Rasch analysis established the internal consistency of the quantified QUIIS with item separation of 6.33 and item reliability of .98 (Resnick et al., 2021).

**Table 4**

*Description of Quality of Interactions in QUIIS*

Type or Quality of Interactions	Definition
Positive Social	Interactions involving good, constructive, beneficial conversations and supportive companionship; caregivers provide explanation, reassurance, and comfort that is more than necessary to carry out a task. For example, greetings directed to individuals, offering choices etc.
Positive Care	Interactions during delivery of care with no general conversation; caregivers provide brief verbal explanation and encouragement only necessary to complete tasks. For example, brief information about the food on plate during mealtime.
Neutral	Brief, indifferent interactions not meeting the definitions of the other categories. For example, undirected greetings, putting plates down without verbal or non-verbal contact etc.
Negative Protective	Interactions lacking appropriate regard for the individual; caregivers provide care, keep individuals safe or remove them from danger but without proper explanation or reassurance. For example, being fed too quickly, being asked to wait for medication without stating the reason etc.
Negative Restrictive	Interactions that oppose or resist residents' freedom of action without good reason. For example, resident being told they can't have something (e.g., a cup of tea) without good reason.

*Note.* QUIIS: Quality of Interactions Schedule; Source: Dean et al.(Dean et al., 1993)

## Data Analysis

Data was analyzed using the Statistical Package for the Social Sciences, SPSS version 26.0. Descriptive statistics were used to report participant characteristics and to ascertain distributional characteristics and ensure that the assumptions (e.g., normality) associated with the planned statistical procedures were met. Means, standard deviations, and range were reported for continuous variables. Frequencies and percentages were reported for categorical variables.

Following data check and descriptive analysis, the proposed hypothesis was tested with stepwise linear regression. We did not control for site in this study as there was no difference in study findings controlling for setting. For stepwise regression analysis, a step method of entry level probability of F was set at  $p = .05$  and removal level at  $p = .10$  for predictors. Resident age, gender, marital status, comorbidities, and cognition were entered first as control variables. Then, the proposed predictors including resident agitation, depressive symptoms, functional status, and resistiveness to care, as well as facility size and ownership were regressed on the outcome measure staff-resident interactions using a stepwise method. While the skewness of the outcome variable was within the acceptable limits, some predictors including agitation, depressive symptoms, and resistiveness to care were transformed to be dichotomous (any symptoms present versus no symptoms present) to correct skewness.

## Results

### Sample Characteristics

The descriptive characteristics of the study participants are presented on Table 5. The residents ( $N = 379$ ) were 88.18 years [standard deviation (SD) = 7.74] on average

and seemed to present with dementia based on the mean SLUMS score of 15.85 (SD = 4.78). Most resident participants were female (n = 269, 71.1%), Caucasian (n = 370, 98.1%), and non-Hispanic (n = 375, 99.2%). While some residents reported being married (n = 63, 19.5%), majority were widowed, divorced, or separated (n = 232, 71.8%). In regard to facilities, the average number of beds was 98 (SD = 74) and more than half were for profit (n = 37, 63%).

**Table 5**

*Descriptive Statistics of the Sample*

Resident Characteristics (N = 379)	Mean (S.D.)	n (%)
Age (years), range:65-105	88.18 (7.74)	
SLUMS, range:1-24	15.85 (4.78)	
Comorbidities, range:1-11	4.99 (1.84)	
Functional Status (BI, range:8-80)	63.46 (16.38)	
Depressive symptoms (CSDD, range:0-17)	1.68 (2.74)	
Agitation (CMAI, range:14-35)	14.69 (2.05)	
Resistiveness to Care (range:0-4)	0.10 (0.44)	
Quality of Interaction (QUIS, range: 2-7)	6.30 (1.03)	
Gender (% , Female)		269 (71.1)
Race (% , White/Caucasian)		370 (98.1)
Ethnicity (% , Non-Hispanic/Latino)		375 (99.2)
Marital Status (%)		
Married		63 (19.5)
Never married		28 (8.7)
Widowed /divorced/separated		232 (71.8)
Facility Characteristics (N = 59)		
Number of beds (range:24-300)	98 (74.0)	
For-profit (%)		37 (62.7)

*Note.* Numbers may not add to actual N due to missing values; SLUMS = Saint Louis University Mental Status Examination, CSDD = Cornell Scale for Depression in Dementia, CMAI = Cohen-Mansfield Agitation Inventory, BI = Barthel Index.

On average, the residents had 5 (SD = 1.84) comorbidities and were functionally dependent based on the Barthel Index (mean = 63.46, SD = 16.69). The mean depression score was 1.68 (SD = 2.74) suggesting mild depressive symptoms; very few residents (n = 16, 4.7%) presented with depressive symptoms. The mean score on Cohen-Mansfield agitation scale was 14.69 (SD = 2.05) suggesting low levels of agitation in the sample; about a fifth of the residents (n = 67, 18.9%) exhibited some form of agitated behaviors. Similarly, there was a slight evidence of resistiveness to care among study participants with a mean of less than 1 (mean = 0.10, SD = 0.44); few residents (n = 24, 6.6%) were resistive to care. Overall, the quality of interactions in AL was positive with the mean QUIS score of 6.3 (SD = 1.03).

#### Correlates of the Quality of Staff-Resident Interactions

As shown in Table 6, resident age [ $\beta = 0.017$ ; 95% confidence interval (CI) = 0.001, 0.033;  $p < .05$ ], agitation ( $\beta = -0.541$ ; 95% CI = -0.855, -0.227;  $p < .01$ ), and facility ownership ( $\beta = 0.428$ ; 95% CI = .167, .690;  $p < .01$ ) had significant association with the quality of staff-resident interactions after controlling for resident characteristics such as age, gender, marital status, cognition, and comorbidities. Resident age, agitation and facility ownership explained 8.2% variance in the quality of care interactions ( $F = 4.289$ ,  $df = 7$ ,  $p = .000$ ). The quality of care interactions decreased with the increase in resident agitation, and the quality of care interactions was higher in for-profit AL facilities compared to nonprofit facilities.



**Table 6***Associations of the Quality of Care Interactions in AL*

Variables	$\beta$	S.E.	B	p-value	Adjusted R <sup>2</sup>	R <sup>2</sup> change
Age	.017	.008	.130	.037		
Gender (Ref = male)	.106	.138	.047	.442		
Marital status (Ref = not married)	.184	.153	.073	.230		
Cognitive status, SLUMS	-.010	.012	-.047	.443		
Comorbidities	-.001	.035	-.002	.974	.008	.028
					<i>F</i> (5, 254) = 1.437	
Agitation, CMAI	-.541	.159	-.207	.001	.047	.042
					<i>F</i> (6, 253) = 3.150*	
Facility ownership (Ref = nonprofit)	.428	.133	.195	.001	.082	.037
					<i>F</i> (7, 252) = 4.289**	

*Note.* N = 379; \*p<.01; \*\*p<.001;  $\beta$  = Unstandardized beta coefficient, B = Standardized beta coefficient; S.E. = Standardized Error, SLUMS = Saint Louis University Mental Status Examination, CMAI = Cohen Mansfield Agitation Inventory. Covariates: age, gender, marital status, cognition, and comorbidities. Functional status, depression, resistiveness to care, and facility size were excluded during stepwise regression.

### Discussion

The findings from this study provide partial support for the hypothesis and contribute to our understanding of the association of resident behavioral symptoms and facility characteristics with the quality of care interactions in AL. Consistent with prior research, resident agitation had significant negative association with care interactions in AL (Barker et al., 2016; Bridges, Griffiths, et al., 2019). The negative association of resident agitation with the care interactions observed in this study suggests that agitation

could play an important role in shaping the quality of staff-resident interactions in AL. BPSD including agitation is observed in more than one-third of residents in AL (Samus et al., 2013; Zimmerman et al., 2014) and is challenging and upsetting for AL staff (McKenize et al., 2012; Pitfield et al., 2011). To improve the quality of care interaction and decrease agitation, staff should acknowledge agitation as a form of resident communication, listen to residents with respect and patience, and use positive physical approach (e.g., calm body posture, avoiding too much touch or talk). Additional strategies to manage agitation and improve interactions include an assessment of resident comfort during care related activities, facilitating optimal independence in personal care and other activities, the use of redirection and distraction when necessary versus stopping an activity the resident is attempting to perform, and most importantly, the use of communication and care approach that works best for the individual resident (Gaugler, Hobday, Robbins, & Barclay, 2016; Kolanowski & Litaker, 2006; Teri et al., 2005).

Although findings from prior work indicated a decrease in staff-resident interactions with increased functional impairment among residents in nursing homes (Caris-Verhallen et al., 1997; Chen Yu-Ling, Ryden Muriel B., Feldt Karen, 2000; Shippee et al., 2015), we did not find an association between functional status and care interactions in AL. Our finding is encouraging in that it suggests no difference in the ways staff interact with the residents based on residents' functional ability. Higher functional level among our sample, which is consistent with existing reports of greater functional ability among residents in AL settings compared to nursing homes (Harris-Kojetin et al., 2019; Harrison et al., 2019), might have affected our findings.

Likewise, we did not find any association of resistiveness to care and resident depressive symptoms with care interactions in this study because our sample had very little evidence of resistiveness to care, and depressive symptoms were present in only 4.7% of our sample. Resistiveness to care has been linked to staff-resident interactions in prior research (Belzil & Vézina, 2015; Herman & Williams, 2009; K. N. Williams et al., 2017) and therefore, further research should continue to examine the association and establish whether resident's resistiveness to care result in neutral or negative care interactions or vice versa. Similarly, residents with depressive symptoms have been found to have low social engagement and reduced participation in self-care and organized activities (Harrison et al., 2019; Watson et al., 2003) which staff perceive as resistance and no desire to engage (Smith & Haedtke, 2013). Collectively, this might translate to neutral interactions if not negative so future research should continue to explore the influence of depressive symptoms on care interactions.

Consistent with prior research (Mitchell & Kemp, 2000; Sikorska-Simmons, 2005a) facility ownership was associated with the quality of care interactions in AL. However, we noted higher quality, i.e., more positive, care interactions in for-profit facilities. This was an unexpected finding given that the majority of prior work (Comondore et al., 2009; Kane et al., 2004; Sikorska-Simmons, 2005a; Stearns et al., 2007) reported more positive outcomes (e.g., better quality of care, higher resident quality of life, and higher skill-mix) in nonprofit settings compared to for-profit settings. For-profit ALs, by definition, must focus on adequate occupancy and cost savings as they are purpose-built i.e., oriented to generate revenue (Crook & Vinton, 2001; Sikorska-Simmons, 2005a). It is possible that staff in for-profit settings are well-versed in

customer focused and positive approach (e.g., smiles and positive gestures) to achieve adequate occupancy and as a result we see more positive interactions in for-profits. It is also possible that for-profit ALs are better resourced, and that staff are paid more or rewarded with monetary bonus or other rewards and overall, staff have a more positive attitude towards their work and positive interaction with residents. Future work should explore factors that mediate or moderate the association between profit status and care interactions in AL.

Prior research supported an association between facility size with the quality of care interactions (Shippee et al., 2015; Sikorska, 1999). This was likely due to staff in smaller settings being able to pay more attention to residents and their personal choices (Boumans et al., 2019; Shippee et al., 2015; Sikorska, 1999; Stearns et al., 2007). In the current study there was not an association between facility size and care interactions in AL. Differences in findings may be due to the homogeneity of our sample. Staffing levels were not included in the current analysis. However, organizational aspects pertaining to staffing such as care hours and nursing staff availability have been noted to influence resident outcomes (e.g., resident satisfaction and care deficiencies) in AL (Chou, Boldy, & Lee, 2003; Stearns et al., 2007; Trinkoff et al., 2019). Thus, future studies should examine the impact of staffing levels (e.g., number of care staff per shift, licensed nurse hours, manager hours, and activity staff hours), as well as resident acuity/care needs on care interactions in AL. Other staff factors such as knowledge and skills pertaining to positive interactions with residents, attitude towards residents, training, tenure at the facility or tenure within the role, and job satisfaction may also influence care interactions in AL and could be considered for further research.

In this study we included resident characteristics such as age, gender, marital status, cognition, and comorbidities as covariates based on the association of these variables with staff-resident interactions in prior research. However, these resident variables accounted for only 0.8% of variance in the model with no significant associations except age. These findings suggest that while quality of interactions increase with resident age, there is no discrimination in the ways staff interact with residents based on gender, marital status and cognitive status of the resident, and resident's comorbid condition. Future research should continue to consider these resident factors in examining the factors associated with quality of care interactions in AL.

#### Study Limitations and Conclusion

This study was limited in that it was a secondary analysis of baseline data only. Our findings were limited as well due to the sample included which was mainly white, largely female resident sample with little evidence of BPSD from AL facilities of three states who were all recruited for an intervention study geared to optimize resident function. Additional research is needed to replicate the findings in a more diverse population. Future studies should include smaller ALs and obtain a racially diverse sample. The quality of interaction between staff and residents was rated following observations of a brief 20-minute period. Future work can consider use of longer observation periods or video recordings to capture staff-resident interactions over longer periods of time in various types of interactions. The observations were also subject to social desirability, although the research evaluators maintained distance during observations, did not indicate which specific residents were being observed (especially while in common areas such as dining hall), and informed that observations are to learn

daily challenges staff face during resident care in ALs. Additionally, staff-resident interactions assessed in this study were captured from staff perspectives with staff as providers and residents as receivers. Examining the interactions from resident perspectives is important and might yield interesting findings.

Despite limitations, findings from this study have certain implications for practice and research. Staff training may be an important vehicle to improve the quality of care interactions and reduce resident agitation in AL with the goal of expanding staff knowledge and skills related to maintenance of positive, resident-centered care and communication approach. While our finding of more positive, care interactions in for-profit AL facilities is preliminary, some policy and programmatic interventions for staff could be effective in optimizing care interactions in nonprofit settings. Future research should continue to consider the influence of resident agitation and facility ownership on the quality of interactions in ALs since they accounted for only a small portion of variance. In addition, future work should also examine whether the quality of staff-resident interactions in AL varies by additional organizational issues (e.g., tenure of AL manager, consistent assignment of care staff, and staff hours), and staff characteristics (e.g., education, training, tenure at the facility or tenure within role, and job satisfaction).

## **CHAPTER 4: Pilot Testing of Promoting Positive Care Interactions (PPCI) Intervention in Assisted Living<sup>3</sup>**

### **Abstract**

The purpose of this study was to implement Promoting Positive Care Interactions (PPCI)—a four-step intervention designed to establish positive care interactions between staff and residents in Assisted Living (AL)—and test the feasibility and preliminary efficacy of PPCI in AL using an online approach. PPCI was implemented in one AL community using a single group pretest-posttest design; 17 care staff were recruited. Delivery, receipt, and enactment of PPCI were assessed for feasibility. Change in staff outcomes (repeated measures ANOVA) and facility outcomes (descriptive statistics) were examined for preliminary efficacy. The four steps of PPCI were implemented as intended with 100% staff exposure to education and considerable staff engagement in weekly mentoring sessions. While there was an improvement in AL environment and policy, no significant changes were observed in staff outcomes. Behavioral interventions like PPCI should further explore a hybrid model that includes both online education and in-person mentoring and coaching of staff.

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<sup>3</sup> Paudel A., Galik E., Resnick B., Doran K., Boltz M., & Zhu S. (under review). Pilot Testing of Promoting Positive Care Interactions (PPCI) Intervention in Assisted Living. *Western Journal of Nursing Research*.

## Background

Assisted Living (AL) also referred to as residential care, has become a popular and preferred residential care option for older adults with physical and cognitive difficulties in the past three decades (Kaskie et al., 2015; Polzer, 2013). While it may vary by setting, it is estimated that seven in 10 residents in AL have cognitive impairment, four in 10 have some form of Alzheimer's disease or dementia, and a high proportion have functional impairment and require assistance with personal care activities such as bathing (63.6%), dressing (48.2%), or ambulation (56.5%; Harris-Kojetin et al., 2019; Zimmerman, Sloane, & Reed, 2014).

## Staff-Resident Interactions

Similar to skilled nursing, residents in AL, particularly those with dementia, may present with impaired communication and exhibit behavioral symptoms such as resisting care (Caffrey et al., 2012; Gruber-Baldini, Boustani, Sloane, & Zimmerman, 2004). Staff who may not be adequately trained and skilled to comprehend these behaviors have difficulty meeting the unique needs of residents (Kaskie et al., 2015; Mass & Buckwalter, 2006). Few states require ALs to hire licensed staff and staff in AL receive less dementia education compared to nursing home staff (Guo & McGee, 2012; Kaskie et al., 2015). Additionally, staff are mostly appreciated and rewarded for timely completion of caregiving tasks and hence follow a task-completion approach versus a person-centered approach during resident care (Park-Lee, Sengupta, & Harris-Kojetin, 2013; Savundranayagam, 2014). Person-centered approach involves understanding the person, appreciating their preferences, and addressing their unmet needs (Fazio, Pace, Flinner, & Kallmyer, 2018).



The combination of limited knowledge about dementia care and task focused care approaches affects the dynamics of daily interactions between staff and residents, resulting in distress among both groups (Kelly et al., 2018; Pitfield et al., 2011; Savundranayagam, 2014). Residents are rushed during care and feel threatened, increasing the potential for physical harm for both residents and staff (Forsgren et al., 2016; Pitfield et al., 2011). Distress among staff increases the likelihood of workplace errors such as medication or charting errors (Carlton & Blegen, 2006; Pitfield et al., 2011). Staff may feel stressed, frustrated, less competent, and dissatisfied, and are likely to leave the facility or their profession (Hayes et al., 2006; Pitfield et al., 2011). This in turn has a negative impact on residents' quality of life (McGilton et al., 2017; Willemse et al., 2015).

Care interactions, which refer to any form of interactive exchange between staff and residents during resident care such as simple gestures (e.g., smiles), individual conversations, or intimate personal care (Dean et al., 1993; Eggenberger et al., 2013), is integral to identify and fulfil resident needs. Positive care interactions involve pleasant and respectful interactions between staff and residents where residents feel appreciated and understood (Dean et al., 1993). Although there is evidence of positive care interactions between staff and residents in AL and other settings of care (Bridges, Griffiths, et al., 2019; Paudel et al., 2020), use of negative or neutral care approaches also persist. These may include trying to rationalize with individuals with cognitive impairment who cannot understand, being overprotective due to safety concerns, helping residents too much, rapid talking or rapid dressing, and trying to complete the caregiving task contrary to the resident's wish. There is a growing interest and effort to replace

negative or neutral care interactions between staff and residents in long-term care with positive care interactions, particularly when caring for residents with cognitive impairment or dementia since positive interactions help to improve resident mood, engagement, and food intake which further contributes to their well-being (Eggenberger et al., 2013; Hartmann et al., 2018; Liu et al., 2019). Positive interactions also help to facilitate person-centered care as being pleasant and respectful, and assuring that residents are understood leads to care provided in the way that is most comfortable to the resident.

### Interventions to Improve Staff-Resident Interactions

Interventions with staff in settings of care have been noted to improve communication skills and perceived competence among staff (Burgio et al., 2001; Ripich et al., 1995; K. N. Williams, 2006), improve management of behavioral symptoms such as agitation and aggression (Burgio et al., 2002; Teri et al., 2005), and enhance the quality of life of residents (Bird et al., 2016). For example, the FOCUSED program addressed language and communication barriers in dementia care (Ripich et al., 1995). Nursing assistants learned strategies such as using short sentences & close-ended questions and reported greater feeling of control and satisfaction in communicating with residents post training. Similarly, another intervention focused on enhancing communication by minimizing elderspeak which is a particular way of speaking that includes infantile vocabulary and grammar with high intonation, pitch, and volume, and sounds like “babytalk” (K. N. Williams et al., 2003). Nursing assistants reduced their use of elderspeak and engaged in more respectful interaction with residents post training. These programs were all developed and tested in nursing home settings. Additionally, these

interventions addressed communication in general but did not specifically consider care interactions. Moreover, they did not address the facility environment, organizational issues, or policies within the setting. Several organizational factors can contribute to care interactions. For example, a positive and supportive work environment (e.g., managerial support, facility wide interventions with stakeholder groups) can improve staff morale, job performance and satisfaction (Henning et al., 2009; Sandel & Johnson, 1987) wherein staff are more likely to have positive feelings about their work and positive attitudes towards residents (Henning et al., 2009; Sandel & Johnson, 1987; Schaefer & Moos, 1996). This might mean more positive and less negative care interactions with residents. Similarly, physical environments that provide good lighting, controlled noise, clean surroundings, and environmental manipulations that promote resident privacy (e.g., room temperature control and private baths or toilets) are likely to improve resident behaviors and yield positive care interactions (Bicket et al., 2010; Lee, Boltz, Lee, & Algase, 2017).

Another intervention developed to improve staff-resident interactions was the Staff Training in Assisted Living Residences (STAR) designed for AL staff in the U.S. (Teri et al., 2005). Although the STAR program focused on ALs and the need to identify factors within the environment and interactions with residents that could be altered to manage resident behaviors, a comprehensive assessment of AL environment and organizational and policy issues was missing. Other interventions that incorporated some focus on improving staff-resident interactions in AL communities provided education for staff to engage residents in physical activity (Galik et al., 2015; Walker & Harrington, 2013), minimize BPSD with behavioral approaches (Galik et al., 2015; Teri et al., 2005), and/or to use person-centered dementia care to improve sleep among residents with

dementia (Li et al., 2017). Training that specifically focus on improving care interactions with residents with cognitive impairment or dementia in the AL is uncommon.

### Promoting Positive Care Interactions and Theoretical Basis

To specifically improve care interactions between staff and residents a theoretically based intervention, the Promoting Positive Care Interactions (PPCI) intervention was developed. Based on social ecological model (SEM; McLeroy, Bibeau, Steckler, & Glanz, 1988) and social cognitive theory (SCT; Bandura, 1997), PPCI includes a non-pharmacological four-step approach to improve the care interactions between staff and residents in AL settings with particular focus on care of residents with cognitive impairment or dementia. The four steps are: (1) *Stakeholder webinar meeting and facility goal development*; (2) *Environment and policy assessments*; (3) *Virtual staff education*; and (4) *Ongoing mentorship & motivation* (see Table 7). The SEM used in PPCI is a variation of Bronfenbrenner’s model and assumes that intrapersonal, interpersonal, community, organizational, and policy factors influence behavior change and outcomes (McLeroy et al., 1988). The first two steps of the PPCI— ‘Stakeholder webinar meeting and facility goal development’ and ‘Environment and policy assessments’ address organizational and policy factors to facilitate a supportive organizational framework. The third and fourth steps— ‘Virtual staff education’ and ‘Ongoing mentorship & motivation’ address intrapersonal and interpersonal factors using SCT to increase staff knowledge and sense of competence related to care interactions. The SCT posits that the stronger the ‘self-efficacy’ and ‘outcome’ expectations among individuals, the more likely it is that they will learn and reproduce the learned behavior (Bandura, 1997). Self-efficacy expectations refer to individual’s belief in their ability to

change behavior or perform a course of action; outcome expectations are the individual's belief that the action or change in behavior will give desired outcome. Bandura (1997) states four major sources of self-efficacy— (1) mastery experiences; (2) verbal persuasion and encouragement; (3) vicarious experiences or, observing peers do similar activity; and (4) psychological management of self-responses like anxiety, physical reactions like pain, or stress (Bandura, 1997).

**Table 7**

*Description of the Promoting Positive Care Interactions (PPCI) Intervention*

Steps	Description of the Intervention
1. Stakeholder meeting & facility goal development  (Week 1)	<ul style="list-style-type: none"> <li>• RNF held a virtual meeting with a group of stakeholders (AL administrator, AL manager, and others in leadership roles within the setting such as unit manager and activity coordinator) to introduce the intervention and establish facility goals.</li> <li>• After introducing intervention and study significance, a brainstorming approach used to assess barriers and facilitators of positive interactions in the AL, set goals to overcome barriers, and discuss the most feasible strategies to accomplish goal/s.</li> <li>• Note. The RNF checked on the progress of goal/s established at the stakeholder meeting and provided feedback as needed during weekly virtual f/u scheduled for 30-60 mins with the facility champion who was designated by facility leadership to coordinate PPCI at the AL &amp; regularly communicate with the stakeholders.</li> </ul>
2. Environment/ policy assessments  (Week 1)	<ul style="list-style-type: none"> <li>• RNF completed policy and environment assessments with the AL manager, unit manager, or the champion to evaluate whether policies and environmental factors within the facility facilitate positive care interactions between staff and residents.</li> <li>• Appropriate and affordable interventions to alter environment and policies recommended to the AL manager, unit manager, and the champion so that changes could be initiated as approved by the facility administration; progress assessed at the weekly virtual f/u.</li> </ul>

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**Table 7 continued**

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3. Virtual staff education (Week 2)	<ul style="list-style-type: none"><li>• RNF scheduled four 30 to 45-minute in-service education sessions or webinars for staff; the champion helped to schedule sessions such that staff could attend at least one session.</li><li>• The first half of the webinar focused on educating staff on cognitive impairment and dementia, behavioral symptoms (e.g., aggression, agitation, and resistiveness to care) among residents and when (e.g., bathing and dressing) and why they occur (e.g., pain and hunger), the different types or quality of care interactions (e.g., positive, negative, and neutral), and how to maintain positive care interaction with residents (speech, body language, gestures, environment assessment, and use of alternative communication tools) while also providing some tips for success.</li><li>• The second half followed an interactive approach using adult learning principles where staff watched video vignettes of staff and resident care interactions and were asked to identify the occurrences of positive, negative, and neutral interactions in the video recording.</li></ul>
4. Ongoing mentorship & motivation (Weeks 3-6)	<ul style="list-style-type: none"><li>• RNF coordinated weekly virtual mentorship and motivation sessions with help from champion to address any concerns and encourage the use of positive care approaches.</li><li>• Staff invited to these weekly follow-up sessions and ask any questions they had. Facility champion educated and encouraged to provide support to the staff as needed outside of these mentorships and motivate staff to use learned positive care approaches.</li></ul>

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*Note.* RNF = Research Nurse Facilitator; AL = Assisted Living.

### Promoting Positive Care Interactions in AL

The primary goal of PPCI was to alter the ways staff provide care and communicate with residents in AL, particularly those with cognitive impairment or dementia, and thereby optimize care interactions. The purpose of this study was to test

the feasibility and preliminary efficacy of PPCI in AL. Aim 1 examined the feasibility of PPCI intervention implemented using an online format. It was hypothesized that all four steps of PPCI will be implemented as intended using an online format. Aim 2 evaluated the efficacy of PPCI on staff and facility outcomes. It was hypothesized that there will be an improvement in staff knowledge, sense of competence in resident care, and ability to recognize positive, negative, and neutral interactions, as well as AL environment and policies related to care interactions post PPCI. Findings were anticipated to provide some information about the value of online staff training, and the preliminary influence upon staff behavior to inform the development of a larger randomized trial.

## Methods

### Study Design

This study used a single group pretest-posttest design to test the feasibility and preliminary efficacy of PPCI in AL. The study was approved by a university based institutional review board (IRB) and conducted between September 2020 and December 2020. The participating AL was a 50-bed for-profit community in an urban setting.

### Sample

Staff were eligible if they provided direct care to residents (e.g., direct care workers, activity staff, medication aides, or dining service workers), were able to communicate in English, and worked at least 16 hours a week. A list of currently employed and eligible staff was provided by the AL manager. The staff were approached for recruitment by arranging virtual meet and greet sessions with the support from AL leadership. During the sessions, staff were informed about the study and given the opportunity to ask questions and if interested consented to participate. A total of 21 staff

were approached for the study of which 17 were enrolled. Only one individual refused to participate, two (9.5%) did not respond to follow ups, and one (4.8%) dropped out after consent and prior to collection of baseline data because of personal reasons.

### Intervention

The PPCI intervention was implemented over a period of 6-weeks by a Research Nurse Facilitator (RNF), a registered nurse with prior experience in long-term care. The participating AL identified an in-house champion who helped the RNF to identify the stakeholder team prior to implementation of PPCI as described in Table 1. The stakeholder team included AL manager, AL administrator, and others in leadership roles within the AL such as unit manager and activity coordinator. After establishing the stakeholder team, the RNF worked with the champion weekly to implement the intervention sequentially and alter how staff manage care and communication with residents with cognitive impairment or dementia in AL via online webinar and virtual meetings. The staff were sent weekly tidbits after each online mentorship and motivation session. Small incentives (e.g., pens, bags, and mugs) and two \$25 gift cards, each at the beginning and the end of the study were also provided as an appreciation for staff's time and participation.

### Data Collection and Measures

Data collection was completed via online surveys and interviews at baseline and 6 weeks post implementation of the intervention. Descriptive information for staff included age, gender, race, marital status, education, service type (e.g., nursing staff, activity staff, dining staff or other), years of experience in the current role, and length of employment at the AL which were all obtained via virtual staff interview.



## Staff Outcomes

Staff outcome measures included knowledge, competence, and the ability to distinguish quality or types of care interactions. Staff knowledge was assessed via online survey with Knowledge of Person Centered Behavioral Approaches for BPSD, a 10-item self-report questionnaire using four responses (1 correct & 3 distracters/incorrect) to assess staff knowledge & awareness on use of person-centered behavioral approaches in dementia care with established psychometric properties (Resnick, Kolanowski, Van Haitsma, Galik, Boltz, Ellis, et al., 2020). A higher number of correct responses indicates greater knowledge.

Staff competence in dementia care was also assessed via online survey using Sense of Competence in Dementia Care Staff (SCIDS) scale (Schepers, Orrell, Shanahan, & Spector, 2012). SCIDS is a 17-item self-report questionnaire with Likert response ranging from 1 (Not at all) to 4 (Very much) to assess perceived abilities & skills in dementia care with evidence of acceptable to good internal consistency (Cronbach alpha = .91) and substantial test-retest reliability (Intraclass Correlation Coefficient = 0.74; Schepers et al., 2012). Evidence of validity was based on significant association of SCIDS with work experience, job satisfaction, and person-centered care approach of staff (Schepers et al., 2012). Higher scores indicate greater sense of competence.

The ability of staff to identify the type or quality of care interaction was examined using *Quality of Interactions Schedule (QUIS; Dean et al., 1993)* QUIS is an observational tool and it was developed to examine the quality of staff-resident interactions in long-term care. After observing a staff-resident interaction, an evaluator rates the interaction in five categories: positive social, positive care, neutral, negative

protective, and negative restrictive as ‘present’ or ‘not present’. Because this study was conducted remotely and on-site observations by evaluators were not possible, we collected data on staffs’ ability to identify the type or quality of care interactions. Staff were asked to watch a video and then identify whether the five types of care interaction as indicated in the QUIIS were present or not present and record via an online survey. The higher the number of correct responses the better the staff ability to identify the type or quality of care interactions. Description of the QUIIS and definition of each of the five types of interaction has been published previously (Paudel et al., 2019). QUIIS has been tested and used in both acute and long-term care settings (Dean et al., 1993; McLean et al., 2017). The inter-rater reliability of QUIIS has been previously established with Cohen’s kappa ranging from .60 to .96 (Dean et al., 1993; Jenkins & Allen, 1998). The internal consistency of the quantified QUIIS was based on Rasch analysis with item separation of 6.33 and item reliability of .98 (Resnick et al., 2021). Validity was based on significant association between QUIIS findings (e.g., positive interaction) and positive patient experiences (Dean et al., 1993) and improvement in staff-resident interaction following an intervention (Ballard et al., 2018).

### Facility Outcomes

The facility outcome measures included environment and policy assessments based on interviews with the AL manager, charge nurse, and the champion. Assessment of the Environment for PPCI is based on a revision of the Assessment of the Environment for Person-Centered Management of BPSD (Resnick, Kolanowski, Van Haitisma, Galik, Boltz, Zhu, et al., 2020). The Assessment of the Environment for PPCI is a 23-item measure that focuses on components of a communication friendly environment and an

environment that supports positive staff-resident interactions during care in AL such as provision of personalized and private rooms, homelike communal areas, acoustic environment, good lighting, and appropriate water temperature in showers (Bicket et al., 2010; Lee et al., 2017; Stans et al., 2017). The Assessment of Policies for PPCI is based on a revision of the Assessment of Policies for Person-Centered Management of BPSD measure (Resnick, Kolanowski, Van Haitsma, Galik, Boltz, Zhu, et al., 2020). The Assessment of Policies for PPCI is a 24-item measure with organizational policies that facilitate positive care interactions between staff and residents in AL such as policies on assessment of resident preferences, person-centered care, and consistent assignment of staff (Henning et al., 2009; Sandel & Johnson, 1987; Savundranayagam et al., 2007; Savundranayagam, Sibalija, & Scotchmer, 2016). For both assessments, items are scored as 'present' or 'not present' and summed.

#### Fidelity Measures

The assessment of treatment fidelity focused on delivery, receipt, and enactment of the intervention to ensure that the intervention was implemented as intended (Bellg et al., 2004). Fidelity related to delivery of the intervention was demonstrated by evidence of completion of facility goals during Step 1 of PPCI, completion of AL environment and policy assessments during Step 2 of PPCI, evidence that there was 100% of the staff exposure to education during Step 3 of PPCI, and evidence that the staff participated in weekly mentoring and motivating sessions during Step 4 of PPCI. Receipt of the intervention was based on 80% staff ability to identify positive, negative, and neutral interactions in the practice videos during step 4 of PPCI. Enactment was based on goals

achievement of the facility goals established during Step 1 and evidence of changes in AL environment and policy as recommended during Step 2 of PPCI.

### Data Analysis

Data analysis was completed using Statistical Package for the Social Sciences, SPSS version 27.0. A significance level of  $\leq 0.05$  was used for all analyses. Descriptive statistics were used to describe the sample. This was done to ascertain distributional characteristics and to ensure that the assumptions associated with the planned statistical procedures are met. The impact of PPCI intervention on staff outcomes including knowledge, sense of competence in resident care, and the ability to identify the quality of interactions was assessed with repeated measures analyses of variance. Marginal mean estimates were reported together with standard errors (SE). We did not adjust for staff characteristics in this study since there was no significant relationship observed between staff characteristics and outcome measures. The improvement in AL policies and environment following PPCI was assessed based on a descriptive change in summary scores for each assessment from baseline to post intervention period.

## Results

### Sample Characteristics

The descriptive characteristics of the sample are shown in Table 8. The mean age of participating staff (N = 17) was 47.36 years [standard deviation (SD) = 10.55]. On average, the staff had been engaged in their current roles (e.g., nursing staff or activity staff) for 13.12 years (SD = 8.88) and employed in the participating AL for 8.63 years (SD = 9.09). Most of the staff participating in the study were female (n = 15, 88.2%) and African American (n = 15, 88.2%). Majority went to trade school or attended some

college (n = 12, 70.6%). Slightly more than half of the participants were married (n = 9, 52.9%). The majority of the participants were nursing staff which included licensed practical nurses and certified nursing assistants (n = 13, 76.5%).

**Table 8**

*Descriptive Statistics of the Sample*

Staff Characteristics	Mean (SD)	n (%)
Age (years), range: 25-66	47.36 (10.55)	
Years spent in current role, range: 2-30	13.12 (8.88)	
Years worked in the AL, range: 1-29	8.63 (9.09)	
Gender (% , Female)		15 (88.2)
Race (%)		
White/Caucasian		2 (11.8)
Black/African American		15 (88.2)
Education (%)		
High School Graduate		3 (17.6)
Trade School/Some College		12 (70.6)
College Graduate		2 (11.8)
Marital Status (%)		
Married		9 (52.9)
Never married		5 (29.4)
Widowed /divorced/separated		3 (17.6)
Type of staff (%)		
Nursing		13 (76.5)
Activity		4 (23.5)

*Note.* N = 17; SD = Standard Deviation; AL = Assisted Living.

**Staff and Facility Outcomes— Preliminary Efficacy**

The mean scores for staff knowledge, sense of competence in resident care, and ability to identify the quality of care interactions, as well as summary scores for AL environment and policies at baseline and post intervention period are shown in Table 9.

There was no significant change for knowledge with a baseline mean of 6.35 [standard error (SE) = 0.49] and 6.18 (SE = 0.53) at 6 weeks ( $F = 0.16, p = 0.693$ ), for sense of competence in resident care with a baseline mean of 60.65 (SE = 1.92) and 60.00 (SE = 1.80) at 6 weeks ( $F = 0.29, p = 0.599$ ), and QUIS with a baseline mean of 2.65 (SE = 0.27) and 2.76 (SE = 0.23) at 6 weeks ( $F = 0.07, p = 0.791$ ).

In regard to AL environment and policies, the summary score improved from 19 at baseline to 20 at 6 weeks post-intervention for environment assessment and from 22 at baseline to 23 at 6 weeks post-intervention for policy assessment. The changes in the availability of alternative communication tools in the facility such as cue cards, pocket talkers, and white boards to facilitate care interactions represented improvement in the AL environment. Similarly, the changes to support unlimited visiting hours or contact with family and friends amid social isolation and physical distancing represented policy improvement in the AL community.

#### Treatment Fidelity— Feasibility

Delivery of PPCI was supported in that facility goals were completed during Step 1, assessment of AL environment and policies were accomplished during Step 2, and 100% of staff were exposed to education in a webinar format ( $n = 12, 71\%$ ) or 1:1 review ( $n = 5, 29\%$ ) during Step 3. Although there was not 100% participation in the mentoring and motivating sessions during Step 4, 7 staff (41.2%) attended the 1<sup>st</sup> mentoring and motivating session, all 17 staff (100%) received the email which included resources for the second mentoring and motivating session, 8 staff (47.1%) attended the 3<sup>rd</sup> mentoring and motivating session, and 5 staff (29.4%) attended the 4<sup>th</sup> mentoring and motivating session. Receipt of the PPCI intervention was supported with 80% of staff correctly

identifying positive, negative, and neutral interactions at weekly mentoring and motivating sessions during Step 4. Lastly, the enactment of PPCI was demonstrated in that the goals established to improve interactions with residents were achieved as expected and there was evidence of improvement in the AL environment and policies to support positive care interactions.

**Table 9**

*Staff and Facility Outcomes at Baseline and 6-weeks Post Intervention*

Staff Outcomes (N = 17)	Mean (SE)	F	p-value
Knowledge (range: 1-10)		.161	.693
Baseline	6.35 (.49)		
6 weeks	6.18 (.53)		
Sense of Competence (range: 17-68)		.288	.599
Baseline	60.65 (1.92)		
6 weeks	60.00 (1.80)		
Quality of care Interactions (range: 1-5)		.073	.791
Baseline	2.65 (0.27)		
6 weeks	2.76 (0.23)		
Facility Outcomes (N = 1)	Summary Scores	Change	
Environment Assessment (range: 0-23)		+1	
Baseline	19		
6 weeks	20		
Policy Assessment (range: 0-24)		+1	
Baseline	22		
6 weeks	23		

*Note.* SE = Standard Error.

## Discussion

The findings from this study provided evidence that PPCI was feasible to implement. Although the hypotheses in this study were not fully supported, changes were made in the environment and policies that could thereby support improvement in staff-resident interactions. It is particularly noteworthy that this study was done early during the COVID-19 pandemic via an online method. Prior studies have similarly demonstrated that online trainings are feasible in long-term care settings and that staff and the facility generally show acceptability of online approach to staff training (Gaugler et al., 2016; Kloos, Drossaert, Bohlmeijer, & Westerhof, 2019). For example, an online training to improve staff response to behavioral symptoms of dementia was successfully delivered in nursing homes and AL (Gaugler et al., 2016). Likewise, a module-based online training focused on reducing elderspeak among nursing assistants was also successfully completed in nursing homes early in pandemic (K. N. Williams et al., 2020). We anticipate that the successful delivery of the PPCI intervention was based on supportive engagement of the AL stakeholders and champion, our flexibility with regard to the intervention (e.g., multiple education sessions, opportunity for 1:1 review of educational materials, and adaptation of education to address COVID implications), and ongoing support to staff in the form of weekly mentorship sessions.

Consistent with mixed findings in prior research (Galik et al., 2014; McCallion et al., 1999; Ripich et al., 1995; Teri et al., 2005) we did not demonstrate a statistically significant improvement in staff knowledge, sense of competence related to resident care, and ability to identify positive, negative, and neutral interactions. Lack of significant change in staff outcomes is probably due to this pilot conducted at a single AL where



staff worked on a memory care unit and had good knowledge about caring for residents with cognitive impairment or dementia, a considerable sense of competence related to resident care, and a fair ability to distinguish between positive, negative, and neutral interactions at baseline. Additionally, implementation of intervention activities such as staff mentoring and coaching for only four weeks might have affected our findings. Evidence suggests that it takes some time for staff to get exposed to ongoing motivational interventions and change their behavior and unlike 6-weeks in the current study, prior studies assessed outcomes at three, four, and six months post intervention (Galik et al., 2015; Jeon et al., 2012). Future studies should attain a more diverse sample and adopt a longer timeline.

In the current study we included environment and policy assessments as outcome measures to understand if it is possible to accomplish simple adjustments to AL environment and policies for positive care interactions. An environment change occurred with availability and staff use of alternative communication tools to improve their daily care interactions with residents with cognitive impairment and hearing issues, as well as to facilitate communication between residents and family members during family visits. Use of pocket talker, for example, to facilitate physically distanced talks and clear face masks to build human connection during interactions were related to COVID-19. Similarly, staff supported policies such as unlimited visiting hours by facilitating socially distanced meeting of residents with their family despite the pandemic. Although it might vary by facility and the level of modifications needed, our findings demonstrated that it is possible to achieve simple policy and environment modifications to optimize care

interactions in the AL. Future work should consider working with the facility and staff to identify and initiate simple policy/environment alterations to optimize care interactions.

The PPCI was initially designed as a traditional on-site intervention. Because of COVID-19 related restrictions in long-term care facilities, the intervention was transformed to be conducted remotely through webinar and virtual meetings. Although we successfully delivered PPCI using an online format, it is possible that some aspects of PPCI did not translate well in the online format. For example, it is likely that web-based opportunities for mentoring and motivating staff were not as effective as individual on-site mentorship when direct assessment and coaching of resident and staff interactions would be possible. Other interventions, such as Function Focused Care (Galik et al., 2014, 2015) motivate and engage staff using contests that include face to face interaction with the interventionist, role modeling by interventionists, and providing ongoing positive reinforcement when desired behaviors occur. We recommend exploring ways (e.g., check-in texts and emails) to create individualized mentorship experience for staff while conducting interventions online.

Based on existing evidence (Galik et al., 2014; Gaugler et al., 2016; K. N. Williams et al., 2020) and our observation of staff interest and engagement in online didactic education with video vignettes, we further recommend a hybrid model for behavior change interventions like PPCI that includes both interactive online education and in-person mentoring and coaching of staff. Online education offers a flexible schedule and supports learning by promoting staff participation and engagement unlike traditional on-site education which is likely to limit staff access and participation due to scheduling conflicts and staff shortage or lack of staff in the unit for resident care

(Gaugler et al., 2016; K. N. Williams et al., 2020). Similarly, in-person mentoring and coaching of staff reinforces learning in real-world situations where staff could be redirected in the moment unlike online mentoring where direct assessment and coaching is not possible (Galik et al., 2014, 2015). A hybrid model with both could help to improve staff knowledge and behavior related to care interactions.

Although limited by a small homogenous sample from a select AL, the strength of this study is the use of online methodology to implement an educational intervention in AL. Participant recruitment, delivery of intervention, and data collection were all conducted remotely via virtual meetings, webinars, and online survey in adapting to challenges related to the pandemic. Given the impact of COVID-19 on face-to-face meetings providing interventions to improve care interactions using online approaches is necessary and effective. We were also able to retain staff participants in the study. A major limitation of this single group pretest-posttest study is the lack of a control group. Although we did not see significant changes in study outcomes except a descriptive change in AL environment and policy, a control group would have provided a clear evidence that any significant changes observed in study outcomes are related to the intervention. The study is further limited by our inability to carry out onsite QUIS observations to evaluate staff-resident interactions because of the pandemic. In the future, we recommend onsite observations or an evaluation of video recording of interactions. Furthermore, the use of convenience sampling in selecting study site could have led to sampling bias, and the findings might be biased due to social desirability in subjective measure used in the study.

The findings of this pilot demonstrated an ability to recruit and retain staff participants using an online approach and feasibility of implementation of education and testing likewise all online. Despite limitations and lack of significance at the staff level, information obtained from this study will inform future sample size determinations and guide further testing of PPCI. Future testing of the PPCI intervention should explore a hybrid model that includes both interactive online learning and in person mentoring and coaching of staff to improve care interactions.

## **CHAPTER 5: Discussion, Implications, and Recommendations**

### Introduction

The purpose of this dissertation was to: (1) explore and describe the staff-resident interactions in AL; (2) examine the resident and facility factors associated with the care interactions in AL; and (3) test the feasibility and preliminary efficacy of the PPCI intervention designed to optimize care interactions in AL. The respective hypotheses were: (1) there will be more positive and less negative or neutral interactions between staff and residents in AL; (2) controlling for resident age, gender, marital status, comorbidities, and cognition, resident factors (functional status, agitation, depressive symptoms, and resistiveness to care) and facility factors (size and ownership) will be significantly associated with the quality of care interactions in AL; and (3) all four steps of PPCI will be implemented as intended using online format, and there will be an improvement in selected staff and facility outcomes post PPCI. The first manuscript titled, “A Description of Staff-Resident Interactions in Assisted Living” examined the characteristics (e.g., interaction situation) and quality (e.g., positive, negative, or neutral) of staff-resident interactions in AL using basic descriptive statistics such as frequencies and percentages. The second manuscript titled, “Factors Associated With the Quality of Staff-Resident Interactions in Assisted Living” tested the resident and facility factors associated with the care interactions in AL using stepwise regression. The final manuscript titled, “Pilot Testing of Promoting Positive Care Interactions (PPCI) Intervention in Assisted Living” examined feasibility of PPCI by assessing delivery, receipt, and enactment of the intervention and evaluated preliminary efficacy using descriptive statistics and repeated measures ANOVA. This chapter summarizes the major

findings from each manuscript, discusses practice implications and recommendations for future research, and presents strengths and limitations of this work.

## Summary of Study Findings

### A Description of Staff-Resident Interactions in Assisted Living

Using the QUIS measure, this study described the characteristics of staff-resident interactions in AL and the prevalence of positive, negative, and neutral interactions.

Consistent with prior research (Barker et al., 2016; Chenoweth & Jeon, 2007; Hartmann et al., 2018; Zimmerman et al., 2005), there was higher prevalence of positive interactions between staff and residents in AL. The higher prevalence of positive social (92.4%) and care (75.8%) interactions in ALs observed in this study was comparable to the findings in prior work done in nursing home, residential care, and acute care settings where the prevalence of positive social and care interactions ranged from 73 to 84 percent (Chenoweth & Jeon, 2007; Hartmann et al., 2018; Paudel et al., 2019). The AL communities follow a social model of care; it is possible that staff in AL communities are well-versed in pleasant, friendly, consumer-oriented care approaches as outlined in social model of care and thus, we see higher positive interactions in ALs.

In this study, approximately 21% of the staff-resident interactions in AL were neutral, 3.2% were negative protective, and 1.1% were negative restrictive. This is consistent with prior research in long-term and acute care settings that reported rates as high as 23% for neutral, 9% for negative protective, and 10% for negative restrictive interactions (Barker et al., 2016; Chenoweth & Jeon, 2007; Hartmann et al., 2018; Paudel et al., 2019). Although the interactions between staff and residents in settings of care are found to be positive in general, the negative and neutral interactions still persist and there

is a need to replace these negative or neutral interactions with positive interactions. Educating and training staff on positive care strategies such as showing empathy, projecting a calm body posture, listening respectfully, using positive language, maintaining eye contact while talking, and observing responses or non-verbal cues from resident could help to facilitate positive interactions and consequently, decrease negative and neutral interactions. Education and training may be particularly important and beneficial in AL communities. This is because although AL residents are presumed to have higher functional and cognitive status in general, with an increase in older adult population and resident and family preferences for a homelike setting that promotes autonomy and independence, AL population is increasing and so are the care needs (Hyde et al., 2007; Stearns et al., 2007). The majority of the staff caring for this rising AL population with increasing care needs are unlicensed direct care workers (83.3%; Harris-Kojetin et al., 2019) who may have less knowledge and skills in caring for older adults with complex care needs, particularly those with cognitive impairment or dementia.

With regard to characteristics of staff-resident interactions in ALs, more than half of the interactions observed were care-related or one-on-one, occurred in the resident room or the dining area, and occurred with nursing staff or support staff (e.g., kitchen aide and housekeeping staff). It is evident that staff in long-term care settings such as AL significantly contribute to the daily care needs of residents by providing assistance with ADLs and IADLs including bathing, dressing, feeding, toileting, housekeeping, and medication management (Carder et al., 2015; Harris-Kojetin et al., 2019) and the findings from this study also support that. Almost half of the interactions observed in this study involved a close interpersonal distance of less than 2.6 feet between staff and residents.

While there is a lack of research on interpersonal distance between staff and residents during daily interactions in long-term care settings including AL, it is recommended that staff in long-term care settings maintain appropriate interpersonal distance, particularly while caring for residents with cognitive impairment or dementia. Prior research findings suggested that older adults in general prefer a greater interpersonal distance compared to younger adults (Sorokowska et al., 2017) and that invading personal space of residents with cognitive impairment or dementia might make residents feel agitated (Ragneskog et al., 1998). Future work could further explore the optimal interpersonal distance between staff and residents in ALs and identify the distance deemed appropriate by residents. Additionally, staff could also be encouraged to use Function Focused Care (FFC) that could help them maintain distance with the resident yet provide the cues needed for the resident to complete the task. FFC is a philosophy of care that teaches direct care workers to evaluate older adults' underlying capability regarding function and physical activity and optimize their participation in all activities. Examples of function focused care interactions include: modeling behavior for residents (e.g., oral care and eating); providing verbal cues during dressing; walking a resident to the dining room rather than transporting via wheelchair; doing resistance exercises with residents prior to meals; and providing recreational physical activity such as physical activity bingo (Galik et al., 2015; Resnick et al., 2011). Intervention approaches used in FFC interventions such as modeling behavior and providing verbal cues to resident allows staff to remain safely apart while still helping residents to complete the task. These FFC approaches are particularly relevant for the COVID-19 pandemic era where staff caring for older adults



in long-term care need to provide positive care interactions while maintaining a safe distance as much as possible.

In the majority (90%) of the staff-resident interactions observed in this study, the residents demonstrated active participation by engaging with the staff using verbal or non-verbal responses during interactions. This is an important finding as it demonstrated that residents with cognitive impairment or dementia can actively engage in daily interactions with staff (Hartmann et al., 2018; Paudel et al., 2019; K. N. Williams et al., 2003). Future work should focus on educating staff about ways to further facilitate meaningful interactions with residents in AL. Staff can talk with a resident about things that are important to him or her (e.g., prior life, occupation, travel, children, grandchildren, and favorite activities such as baseball) while assisting with physical care activities such as bathing or dressing and during one-on-one interactions, engage the individual in tasks to help in the community such as setting the table for mealtimes, and share relatable aspects of their own life in order to facilitate meaningful interactions.

In summary, this secondary data analysis provided information about the ways staff interact with residents with cognitive impairment or dementia in AL and some descriptive details about the interactions. Although the majority of the interactions observed were positive, about 25% were negative or neutral. Continued research is needed to develop and test educational interventions to reduce and ideally eliminate negative and neutral care interactions in AL. Policymakers should also promote staff education and training to adequately prepare and retain direct care workforce since there are concerns related to staff turnover in settings of care (Hayes et al., 2006; Sikorska-Simmons, 2005b), particularly during emergency situations such as the COVID-19

pandemic where staff experience uncertainty and unpreparedness and thus, are likely to leave the profession (White, Wetle, Reddy, & Baier, 2021; Zhao et al., 2021).

#### Factors Associated With the Quality of Staff-Resident Interactions in Assisted Living

This study contributes to our understanding of the influence of resident level and facility level factors on the quality of care interactions in AL. Findings indicated that resident age, agitation, and facility ownership are significantly associated with staff-resident interactions and explained 8.2% of variance in the model ( $F = 4.289$ ,  $df = 7$ ,  $p = .000$ ). Consistent with prior research, the quality of the care interaction decreased with the increase in resident agitation (Barker et al., 2016; Bridges, Griffiths, et al., 2019). Additionally, the quality of care interactions was higher in for-profit AL facilities compared to nonprofit facilities. This was an unexpected finding given that majority of prior research (Comondore et al., 2009; Kane et al., 2004; Sikorska-Simmons, 2005a; Stearns et al., 2007) reported positive outcomes (e.g., better quality of care, higher resident quality of life, and higher skill-mix) in nonprofit settings. Most ALs are for profit and it is likely that these are private pay and better resourced in terms of staff and other types of support. Thus, it is possible that staff are paid more or rewarded with monetary bonus or other rewards in for profit ALs, and overall staff have a more positive attitude towards their work and positive interaction with residents. Further much of the research considering the quality of care interactions and profit status was done in nursing homes where a greater number are nonprofit.

Multiple resident (e.g., functional status, depressive symptoms, and resistiveness to care) and facility level factors (e.g., size) were not associated with the quality of care interactions in AL. There are a number of explanations for the lack of significant

relationships between resident and facility factors and the quality of staff-resident interactions in AL including lack of variance in the sample and the outcomes. First, the resident sample included a mostly white, female, non-Hispanic population from AL facilities of three states who were all recruited for an intervention study geared to optimize resident function; 98.1% were Caucasian, 71.1% were female, and 99.2% were non-Hispanic. As noted above, future studies should include a more diverse sample from diverse geographical locations. Additionally, there was little evidence of behavioral symptoms among the sample. For example, the mean depression score was 1.68 (SD = 2.74) suggesting mild depressive symptoms, and only a few (n = 16, 4.7%) presented with depressive symptoms. Similarly, there was a slight evidence of resistiveness to care among participants with a mean of less than 1 (mean = 0.10, SD = 0.44), and few (n = 24, 6.6%) were resistive to care. The facilities included were also considered large in size with an average of 98 (SD = 74) beds. Further, there was limited variance in the quality of care interactions measured by QUIS; the mean score was 6.3 (SD = 1.03) out of 7 possible points suggesting a high quality of care interactions in AL.

Staffing levels or other staffing factors were not included in this analysis. It is possible that staff related issues are more important in determining the quality of staff-resident interactions in AL. Prior research suggested that organizational aspects pertaining to staffing such as being short staffed and rushed could influence the quality of care interactions in long-term care settings (Savundranayagam, 2014; Zeller et al., 2009). While findings are inconsistent, higher staff hours, particularly higher activities staff hours expose residents to more positive quality of interactions such as greater attention and care toward residents and engagement in activities that are enjoyable and of interest

to residents (Shippee et al., 2015; Xu et al., 2013). Future studies should examine the impact of staffing levels (e.g., number of care staff per shift, licensed nurse hours, manager hours, and activity staff hours) on care interactions in AL and consider the optimal staff-resident ratios to assure consistent positive care interactions. Other factors relevant to staff such as education level, training related to dementia care, experience in the current role and tenure in the facility, and work ability of staff might also influence the quality of staff-resident interactions in AL and could be explored in future work.

In summary, this study provides new information about the association of resident behavioral symptoms such as agitation and the profit status of the facility on the quality of staff-resident interactions in AL. Future research could build on this work by using a more diverse sample of AL residents and settings, and exploring staffing levels and staff characteristics (e.g., gender, race, education level, training related to dementia care, and experience in the current role) to improve our understanding of factors that influence the quality of care interactions between staff and residents in AL. Understanding the factors that influence interactions could also help to inform future interventions to improve resident care interactions in AL.

#### Pilot Testing of Promoting Positive Care Interactions (PPCI) Intervention in Assisted Living

Although a considerable amount of research has focused on improving staff-resident interactions in long-term care, attention to care interactions in AL is lacking. This study focused on designing and testing the PPCI intervention in AL. Using a single group pretest-posttest design PPCI was implemented online in one AL community in Maryland with data collected at baseline and 6 weeks post intervention. The findings

from this study provided evidence that PPCI was feasible. We were able to recruit and retain staff participants in the study using an online approach. Additionally, there was 100% staff exposure to education, and engagement of facility stakeholders and staff (approximately 50%) at weekly meetings and mentoring sessions. Prior research has also supported the feasibility of online education in long-term care settings (Gaugler et al., 2016; Kloos et al., 2019; K. N. Williams et al., 2020). Given the impact of COVID-19 on face-to-face meetings providing interventions to improve care interactions using online approaches is necessary and an effective.

Conversely, there was little support for the preliminary efficacy of the intervention. While there was an improvement in facility environment and policy based on mean summary scores for both environment and policy assessments, these were not significant and there were no significant changes observed in staff knowledge, sense of competence related to resident care, and ability to identify positive, negative, and neutral interactions. Prior studies have noted mixed findings in terms of the benefit of online education of staff (Coleman, Fanning, & Williams, 2015; Gaugler et al., 2016; K. N. Williams et al., 2020). Some recent studies using online approaches for staff training have reported significant improvement in staff knowledge related to elderspeak and management of behavioral symptoms during resident care interactions (Gaugler et al., 2016; K. N. Williams et al., 2020). A prior research comparing outcomes of onsite and online formats of staff training focused on staff recognition of person-centered communication reported improvement in staff ability to recognize person-centered communication in the onsite group only (Coleman et al., 2015).

There are a couple of potential reasons for lack of significant change in staff outcomes. First, this pilot was conducted at a single AL community where staff worked on a memory care unit and were knowledgeable about caring for residents with cognitive impairment or dementia, had a considerable sense of competence related to resident care, and a fair ability to distinguish between positive, negative, and neutral interactions at baseline. Further, the staff-level intervention activities were implemented for only four weeks. Prior work suggests that it takes at least three to six months for staff to get exposed to motivational interventions and change behaviors (Galik et al., 2015; Jeon et al., 2012). This highlights the need for a more diverse sample and a longer study timeline.

Initially planned as an on-site intervention, PPCI was later transformed to be virtual due to visiting restrictions related to the COVID-19 pandemic. Although PPCI was implemented as intended using an online format, it is possible that some aspects of PPCI did not translate well in the online format. For example, it is likely that the web-based opportunities for mentoring and motivating staff were not as effective as individual on-site mentorship when direct assessment and coaching of staff-resident interactions would be possible. Future work should explore ways (e.g., check-in texts or emails) to create individualized mentorship opportunities for staff while doing interventions online, and consider face-to-face coaching or mentoring that include role modeling or positive reinforcement by interventionist when possible (Galik et al., 2014, 2015).

Environment and policy assessments were included as outcomes measures in this study to learn about facility environment and policies that facilitate positive care interactions in AL and to understand if it is possible to accomplish simple adjustments to facility policies and environment for positive care interactions. The changes in the

availability of alternative communication tools in the facility such as cue cards, pocket talkers, and white boards to facilitate care interactions represented improvements in the AL environment. Similarly, the changes to support unlimited visiting hours or contact with family and friends amid social isolation and physical distancing represented policy improvements in the AL community. Although it might vary by facility and the level of modifications needed, findings demonstrated that it is possible to achieve simple policy and environment modifications to optimize care interactions in AL. While not tested in this study, future work should also examine the impact of environmental changes on care interactions and clinical outcomes such as quality of life.

In summary, the findings of this pilot work demonstrated an ability to recruit and retain staff participants using an online approach and feasibility of implementation of education and testing likewise all online. The online education and testing involved the use of video-vignettes comprising of short videoclips simulating staff-resident interactions in AL during care activities such as bathing and dressing. Video-vignettes are widely used in health professional education as they facilitate participant engagement and help to enhance learning through simulation of real-life scenarios (Thistlethwaite et al., 2012). They can be used for online teaching and testing.

Based on existing evidence (Galik et al., 2014; Gaugler et al., 2016; K. N. Williams et al., 2020) and our observation of staff interest and engagement in online education with video vignettes, future testing of PPCI should include a hybrid model that includes both interactive online education and in-person mentoring and coaching of staff. Online education with video vignettes allows for flexible scheduling for participant, and helps to promote staff engagement through simulation (Thistlethwaite et al., 2012). In-

person mentoring and coaching of staff reinforces learning in real-world situations where staff could be redirected in the moment (Galik et al., 2014, 2015). A hybrid model with both could help to improve staff knowledge and behavior related to care interactions.

### Practice Implications

The quality of staff-resident interactions is relevant to the current focus on person-centered care in ALs. Person-centered care is a philosophy of care that emphasizes on respecting the ‘person’, and understanding their physical/emotional needs and care preferences relative to their lifestyle (Love, 2010; Savundranayagam, 2014). Positive care interactions which involve pleasant, friendly conversation or companionship, and comfort and reassurance that is more than necessary to complete the task make residents feel cared for, valued, and respected as a person and are likely to promote person-centered care (Dean et al., 1993; Savundranayagam, 2014). Thus, evaluating the quality of care interactions in ALs and using that information to guide education and training of staff to provide positive care interactions may help to promote person-centered care in ALs.

The findings from this work provide some guidance for AL administrators. AL administrators may want to consider designating an internal champion to help teach about, model and reinforce staff for providing positive care interactions. The champion could monitor care interactions between staff and residents at intervals in the AL, work with staff to identify the cause of negative and neutral interactions, and provide resources (e.g., educational support and environmental modifications) to facilitate positive care interactions. Similarly, this study demonstrated that resident agitation influences the quality of care interactions in ALs. AL administrators should explore and provide professional development opportunities for staff through paid conferences or dementia



training workshops where they can learn about non-pharmacological management of agitation and other behaviors among residents with cognitive impairment or dementia.

The PPCI intervention developed and tested in this dissertation focused on helping staff engage in positive care interactions versus providing negative or neutral care interactions in AL. Although not tested in this study, prior evidence supports that positive care interactions benefit residents (Anderson et al., 2016; Bird et al., 2016; Liu et al., 2019). Resident needs and preferences are better addressed, and positive interactions can improve resident mood and engagement in care related and social activities, minimize behavioral symptoms, and further help to reduce the use of antipsychotic drugs (Anderson et al., 2016; Hartmann et al., 2018; Tappen & Williams, 2009). From a marketing perspective, facilitating high quality interactions have implications for AL owners and administrators. For example, facilitating high quality care interactions in ALs is more likely to result in person-centered care and better resident satisfaction with AL (Chou et al., 2003; Poey et al., 2017). This can help ALs to attract residents and maintain occupancy amid a competitive AL market (Wylde, Smith, Schless, & Bernstecker, 2009).

#### Recommendations for Future Research

The findings from this dissertation helped to identify next steps for research related to assessing staff-resident interactions in AL and altering the ways in which staff interact with residents in ALs. First, continued education and training are needed to eliminate the negative and neutral interactions that persist and replace them with positive interactions since there were almost 25% of the interactions in which care was negative or neutral. Additionally, direct face to face observations of care interactions, and observations particularly during personal care such as bathing, dressing, and toileting are

needed in future evaluation of care interactions. Observations may also need to be done for longer than the brief 15-30 minutes done in most studies using the QUIIS (Baillie & Thomas, 2017; Bridges, Griffiths, et al., 2019). Furthermore, while current work focused on selected resident and facility factors, future research should examine the impact of resident acuity and care needs, as well as staff factors such as education, training, experience, health status, and job satisfaction on the quality of care interactions in AL. Lastly, findings from pilot testing of PPCI suggest that future interventions such as PPCI should be provided over a longer period. Behavior change is challenging, and it may take longer to give staff sufficient exposure to motivational interventions and facilitate change in behavior. Similarly de-implementation of negative care interactions may need to occur which also takes longer. Prior research has shown that de-implementation of low-value nursing care could take three to 24 months (Evans et al., 1997; Rietbergen et al., 2020). Lastly, the pilot study supported the value of online education and training for staff. Post COVID-19 the access and ability to provide online staff education/training has expanded and greater understanding of the ways in which this is successful should be explored.

#### Strengths and Limitations

The strength of this dissertation remains in the unique opportunity it presents to learn about the current ways in which staff interact with residents in ALs, as well as advance education and training of staff to reduce negative or neutral interactions in ALs using an online method. Findings can be used to inform the AL industry, care providers, and consumers, as well as policymakers about quality of care interactions in ALs. The study was limited due to the homogeneity and size of the samples included in these studies, the design of the intervention study, data collection procedures, and measures

utilized. As outlined in chapters two and three, the first two studies were secondary data analyses that used data collected at a single timepoint and included a homogenous sample of AL residents from three states who were all enrolled in a randomized trial focused on optimizing resident function in ALs. Hence, the findings cannot be generalized to all AL residents. Additional research is needed to confirm the findings using a diverse resident population from diverse AL settings. Data were obtained via self-reports and proxy reports and may be biased based on recall and social desirability. Additionally, staff-resident interactions were evaluated based on observations done over a brief 20-minute period, possibly with observations occurring more during mealtimes or other less private interactions versus bathing or dressing. Future research should focus on conducting longer observations and capturing all interactions equally. As outlined in chapter four, the pilot intervention study was limited by the inclusion of a single site, a small sample, and the lack of face-to-face interactions with participants. Limitations also remain in convenience sampling of study site and social desirability in subjective measures (e.g., sense of competence in resident care) used in the pilot.

## Summary

This last chapter presented a summary of key findings from this dissertation work, discussed implications for practice, and provided recommendations for future research. The strengths and limitations of this work were also discussed in relation to sample, study design, data collection, and measures. This dissertation contributes to the current literature by advancing the assessment of the quality of staff-resident interactions in AL, and the development and evaluation of staff education and training related to care interactions in AL which will inform strategies to optimize care interactions in AL.

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