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The Association Between Staff-Resident Interactions and Symptoms of Dementia:
A Systematic Review

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ABSTRACT

BACKGROUND: Little is known on how to create meaningful staff-resident interactions for persons living with dementia (PLwD) in long-term care settings. However, this knowledge gap is pertinent to fill because no matter the age of an individual, quality of life should be of utmost importance. It is hypothesized that if more meaningful staff-resident interactions are created for this population, then there could be an increase in quality of life.

PURPOSE: This systematic literature reviewed aimed to search and synthesize current evidence on the association between meaningful staff-resident interactions and behavioral and psychological symptoms of dementia (BPSD).

METHODS: A comprehensive and saturated literature search was conducted in PubMed, CINAHL, and PsycINFO. The inclusion criteria were: 1) peer-reviewed research study, 2) sample of older adults >65 years, 3) setting in a long-term residential care facility, 4) have a sample affected by dementia, 5) clearly explains and implements the staff-resident interaction intervention, and 6) clearly evaluates the desired outcome of behavioral and psychological symptoms of dementia (BPSD). Article selection and data extraction was conducted by two reviewers (GL and LB) using Covidence. A third reviewer (AP) resolved discrepancies. All studies were evaluated using the Johns Hopkins Nursing Evidence-Based Practice Guide for Level and Quality of Evidence.

RESULTS: The final dataset provided 27 articles for full article review. Outcomes measured throughout these studies were agitation, aggression/resistiveness to care, depression, anxiety, mood, collective BPSD, and quality of life. It was found that across the outcome measures for each study, there is a common trend of a staff-resident interaction having beneficial effects on

resident's BPSD. Specifically, a clear and significant decline was seen in outcome measures of aggression/RTC, depression, mood, collective BPSD, and quality of life.

DISCUSSION: Research evidence suggests that nonpharmacological interventions are having positive effects on BPSD in PLwD. This study reiterates this by showing a meaningful staff-resident interaction can have beneficial effects on BPSD in older adults with dementia. For clinical practice implementations, it is recommended there should be an increased usage of currently developed person-centered staff-resident interaction tools. Also, it is recommended to incorporate more staff-resident interaction interventions into nurse care planning. For future research recommendations, the Quality of Interactions Schedule (QuIS) tool should be used as a process measure when conducting research on specific staff-resident interactions. Also, more meaningful staff-resident interaction tools should be created and tested so that they can be implemented into clinical practice.

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Chapter 1

Introduction

Imagine a reality where over months to years, you steadily lose your memory to the point where you do not know your care routine, your loved ones, your birthday, or even your own name. Unfortunately, this reality is a bit too familiar for 10% of Americans (Mather & Scommegna, 2020). There are approximately 6.7 million persons living with dementia (PLwD) in America who are 65 years or older (Alzheimer's Association, 2023). For many of these individuals, the onset of dementia begins while they are still living independently at home or in community-based settings but as the disease progresses, they will require long-term care.

Dementia is an umbrella terms that encapsulates various forms of abnormal brain changes. These different brain changes have similar clinical manifestations such as loss of memory and other thinking abilities that are severe enough to interfere with daily life routine (National Institute on Aging, 2022). Some examples are Alzheimer's, Vascular, Lewy body, Frontotemporal, and mixed dementia. Of these, Alzheimer's disease accounts for 60-80% of cases (Alzheimer's Association, 2023). Along with the clinical presentation of memory loss that interferes with daily living routine, dementia also presents in the form of behavioral and psychological symptoms of dementia (BPSD). BPSD includes a range of neuropsychiatric disturbances such as anxiety, agitation, aggression, depression, psychosis, apathy, repetitive questioning, and wandering (Cloak & Khalili, 2022). These symptoms are not isolated, they tend to appear in clusters which increases their difficulty to manage for caregivers (Azermai, 2015). BPSD affects up to 97% of community-dwelling residents with dementia and influences the disease's prognosis and care (Cloak & Khalili, 2022). Unfortunately, there is no cure for dementia. Thus, the progression of the disease often leads to the PLwD transferring to a long-

term care community such as a nursing home due to the increased difficulty of care (Brodaty et al., 2014).

Understanding the Care Environment

A long-term care community includes both boarding and care homes, assisted living facilities, nursing homes, and continuing care retirement communities (National Institute on Aging, 2017). All of these vary in the level of nursing care depending on the needs of the older adult, yet all require the older adult planning to live in the facility long-term. It is common for PLwD to select assisted living or nursing homes because of the increased level of care and safety needed for managing their dementia symptoms. In these long-term care facilities, bed availability ranges from four to 100 beds (Park-Lee et al., 2013). Each facility decides how to divide this bed number into different floors. Within long-term care facilities in the United States, approximately 50% of the long-stay residents (i.e., those living permanently at the facility) have a dementia diagnosis (Jett, 2018). To put this in perspective, 1 in 2 residents receiving skilled nursing care in long-term care facilities will have some form of dementia. These statistics highlight the significant need for nursing staff to be familiar with best practice for dementia care.

The nursing home staff consists of a large variety of healthcare personnel, all who play an integral part in the care of a PLwD. This group of caregivers includes registered nurses (RN), licensed practical nurses (LPN), certified nursing assistant (CNA), medication-technician, residential care assistant (RCA), and physical therapists (PT) (Morgan, 2020). Each job title has specific scopes of practices, but all have a common goal of promoting resident independence, assisting with activities of daily living (ADLs), and striving to improve quality of care (QoC). Delivering person-centered care is the gold standard for quality care in nursing homes and is federal policy for all facilities that receive federal funding (Van Haitsma et al., 2014). Person-

centered care (PCC) is “care based on residents' values and preferences” (Behrens et al., 2022, p. 1), thus ensuring the individual is involved in all choices of their care. However, even when nursing staff desire to provide PCC, it becomes quite complex when BPSD are factored into a resident’s care routine.

Interventions for BPSD

Nursing staff often seek solutions for treatment of BPSD. Options for amelioration of BPSD include pharmacological and non-pharmacological interventions. Pharmacological methods consist of prescribed medications to reduce BPSD. Some typical medications used are acetylcholinesterase inhibitors, memantine, antipsychotic drugs, antidepressants, mood stabilizers, and benzodiazepines (Masopust et al., 2018). While these medications have possible benefits of slowing the progression of the disease and lessening symptoms of dementia, they also have other severe adverse effects such as extrapyramidal side effects, cardiac complications, and increased risk for falls (Masopust et al., 2018). Evidenced based practice recommends attempting to implement non-pharmacological interventions first before moving to pharmacological interventions (Masopust et al., 2018).

Some non-pharmacological evidence-based interventions include sensory practices such as aromatherapy and multisensory stimulation, structured care protocols for bathing and dressing, and psychosocial practices such as validation therapy and reminiscence therapy (Scales et al., 2018). Each have been investigated in trial experiments to explore the efficacy in lowering BPSD in long-term care residents living with dementia. Aromatherapy is when scented oils are used (lavender, eucalyptus, lemon, etc.) through diffusion, patches, or skin cream to bring forth a calm and positive effect. Research has shown there is mixed evidence, but it does show a positive effect on reducing agitation (Scales et al., 2018). Multisensory stimulation is when

multiple senses are stimulated through a variety of light effects, calming sounds, smells, and or/tactile stimulation to overcome apathy or induce calmness. This intervention is associated with improvement of agitation, anxiety, apathy, and depression (Scales et al., 2018). Structured protocols for bathing and dressing includes providing care in a manner that involves person-centered communication, interaction strategies, and technical skills. There is a small evidence base, yet it reports positive effects on reducing agitation, aggression, irritability, and anxiety (Scales et al., 2018). Validation therapy is when a resident's perceived reality and emotional experience are authenticated by the nursing care staff. There is mixed research evidence, yet it shows some positive effects on agitation, apathy, irritability, and night-time disturbances (Scales et al., 2018). Reminiscence therapy is when residents are led to focus on happy memories, often using photographs or objects, to induce a positive effect. Research evidence indicates positive effects on mood and depressive symptoms with this intervention (Scales et al., 2018). Non-pharmacological interventions for BPSD are on the rise within the geriatric research population due to theoretical declines in the symptoms of dementia.

Meaningful Staff-Resident Interactions

Recently, meaningful staff-resident interactions have been explored as a non-pharmacological intervention for BPSD (Paudel et al., 2020). This is a key component to delivering federally mandated person-centered care in the nursing home setting (American Geriatrics Society et al., 2016). Within the literature, this is commonly known as positive staff-resident interaction (Paudel et al., 2021) or a positive human interaction (Tible et al., 2017), which can be care-related or social-related. Examples of positive staff-resident interactions include respectful listening and observation to understand resident's feelings, showing empathy, maintaining eye contact, and projecting calm body posture. When these staff interactions are

negative (opposite positive traits), it can create more of an unmeaningful staff-resident interaction (Paudel et al., 2021). Examples of this would include rushing residents care, unclarified touching during care, restricting activity to prevent falls, limiting contact with residents, scheduling care without regarding resident's choices, and disrespectful communication. Currently, different components of a meaningful staff-resident interaction have been studied and have suggested a positive effect on BPSD; however, all studies have yet to be collected and synthesized to identify significant findings and gaps within the knowledge base.

Significance of Problem

It is often viewed that individuals living in long-term care facilities are *on their way out* or have *already experienced the good parts of life*. This mindset commonly leads to poor QoC for the older adult individuals. One way this is seen is by the nursing staff providing task-focused care rather than person-centered care. Task-focused care is any care that removes the preferences of the resident and only strives to complete a duty (Liu et al., 2022) However, person-centered care is “care based on residents' values and preferences” (Behrens et al., 2022), thus ensuring the individual is involved in all choices of their care. Person-centered care is a mandated policy for all long-term facilities that receive federal funding (Code of Federal Regulations, 2018), and it also strives to provide utmost QoC for the resident. Contradictory to a common perspective of the geriatric community, these older adults deserve to enjoy life just as much as people in their younger years. It is vital to see the significance of each day for an individual in a long-term care facility. For PLwD who experience BPSD, this does bring increased obstacles for achieving superlative QoC; however, it should still be highly valued among the nursing staff. Thus, highlighting the significance to research and discover methods to improve care involving

improvements of BPSD. One method being the meaningful verbal and non-verbal interactions a staff member has with each resident daily.

Purpose of Research

The purpose of this research is to examine the most recent evidence around the relationship between meaningful staff-resident interactions and BPSD in long-term care residents living with dementia. It is evident that continued research is needed for the different types of nonpharmacological interventions to help caregivers understand and resolve behavioral issues within the dementia population (National Institute on Aging, 2023). This review plans to do just so. The purpose of this systematic literature review is to summarize the available research literature and identify any knowledge gaps for future research. Through this process, this review hopes to provide justification for the allocation of time and resources to future research of improving staff interactions with their residents living with dementia and experiencing BPSD.

Chapter 2

Background

How is Dementia Diagnosed?

As previously stated, dementia is an umbrella diagnosis that includes various forms of abnormal brain changes. These different brain changes have similar clinical manifestations such as loss of memory and other thinking abilities that are severe enough to interfere with daily life routine (National Institute on Aging, 2022). To diagnose dementia, advanced practitioners use a “rule-out” process. First a physician will assess to ensure it is not any other underlying, potentially treatable condition that causes cognitive impairment. This may include a physical exam to assess blood pressure and other vital signs, and laboratory tests for blood and other body fluids to check chemicals, hormones, and vitamins in the body that could point to a different etiology for the cognitive impairment (National Institute on Aging, 2022). This rule-out process is imperative because if there is any potential of the etiology being a different diagnosis that can be cured, it must be identified. However, if the physician does not identify an etiology other than dementia, then they must move forward with the dementia diagnosis process. There are multiple diagnostic tools that advanced practitioners use to determine if a person is living with some form of dementia. A comprehensive use of diagnostic tools helps advanced practitioners come to a finalized diagnosis of dementia. These tools include neurological exams; cognitive, functional, and behavioral tests; brain imaging (MRI, CT, PET); cerebrospinal fluid tests; and blood tests (Alzheimer’s Association, 2023a).

Neurological Exams

A physician may perform a neurological exam to identify signs of brain disorders such as dementia. This exam will test reflexes, eye movements, speech, coordination and muscle

tone/strength, and sensitivity, and sensation (Alzheimer's Association, 2023a). This evaluation process does not indicate/confirm a dementia diagnosis, but if assessments begin to progressively become worse, it can highlight a concern for further testing (Alzheimer's Association, 2023a). This is a great place to start identifying the potential for a dementia diagnosis. Advanced practitioners can even educate family members/caregivers to help identify declining neurological symptoms so they have a better understanding of when to schedule another appointment with the physician.

Cognitive, Functional, and Behavioral Tests

Advanced practitioners may also use cognitive, functional, and behavioral tests as part of the diagnosis and clinical management process. For example, the Mini-Mental State Exam (MMSE) is the most common instrument used for cognitive tests (Chaves et al., 2011). This tool has test-retest reliability and diagnostic accuracy. The MMSE includes a set of 11 questions, with the goal to assess 6 areas of mental abilities. These abilities include orientation to time and place, attention/concentration, short-term memory (recall), language skills, visuospatial abilities, and the ability to understand/follow instructions (HealthDirect, 2022). The maximum score for this tool is 30. Any score below 25 suggests some form of cognitive impairment. Ranges 21-24 is considered "mild" cognitive impairment, 10-20 is considered "moderate" cognitive impairment, and 0-9 is considered "severe" cognitive impairment (Dementia.org, 2015). The bottom two categories can strongly indicate the presence of dementia; however, this tool serves as a portion of a full assessment for a dementia diagnosis. In other words, this tool can help highlight the potential for a dementia diagnosis but does not serve as an exclusive diagnosis tool. There are other tools to test the cognitive status for a potential PLwD such as the Cognitive Abilities

Screening Instrument-Short Form (CASI-S); however, the MMSE is the number one recommended tool to use for detection of dementia (Chaves et al., 2011).

Functional tests for a dementia diagnosis are used to assess how the individual performs their activities of daily living. These daily life skills can be broken up into basic activities of daily living (BADL) and instrumental activities of daily living (IADL) (Chaves et al., 2011). BADL include daily self-care such as personal hygiene, using the bathroom, getting in and out of bed, and feeding. IADL include more complex tasks such as cleaning, cooking meals, administering medications, and controlling finances. There are a large variety of tools used to measure where an individual places on the spectrum of care-independence.

Two functional assessment instruments often used, but are not limited to, are the Katz Index of Independence in Activities of Daily Living (Katz ADL) scale and the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) (Chaves et al., 2011). The Katz ADL scale has six different activity categories which include bathing, dressing, toileting, transferring, continence, and feeding. Each category is scored with either 1 point for independence or 0 points for dependence. The max score to receive on this scale is 6, indicating high patient independence (Wallace & Shelkey, 2007). Thus, this tool can highlight an individual's potential for a dementia diagnosis since the dementia criteria includes cognitive impairments severe enough to impact activities of daily living (ADLs). The IQCODE is a 16-item questionnaire that uses the perspective of a close friend or relative to the potential PLWD. Each item is tied to assessing functional decline on a scale from one to five. The scoring correlates to "much improved"-5, "a bit improved"-4, "not much change"-3, "a bit worse"-2, and "much worse"-1 (Jorm, 1994). Scores that average approximately three or less can indicate a potential dementia diagnosis since it highlights a decline in functionality.

The two recommended behavioral tests for diagnosing dementia are the Neuropsychiatric Inventory (NPI) and the Cambridge Examination for Mental Disorders of the Elderly (CAMDEX) (Chaves et al., 2011). The NPI has 12 behavioral domains, and within each domain, it has the care-provider rank the severity of the behavior on a scale from one to three and the distress it causes them on a scale of 0-5 (Cummings, 1994). This scale provides a clear illustration of what behaviors the potential PLwD displays, the severity of them, and how it affects the environment. Again, this tool is not an exclusive diagnostic tool but rather is another puzzle piece that adds to the full picture of a dementia diagnosis. The CAMDEX consists of three main sections: a clinical interview with potential PLwD to gather information about present state, past history, and family history; a range of cognitive tests; and an interview with close relative/caregiver to gather information about present state, past history, and family history (Roth et al., 1986). This instrument can provide a thorough assessment of behavioral changes in the potential PLwD.

Brain Imaging – CT, MRI & PET

Brain imaging can be used to rule out other potential causes of cognitive impairments other than dementia, and it can also be used to further understand what kind of dementia it may be. A computerized tomography (CT) scan is a type of x-ray that uses radiation to create images of the brain. When a head CT is performed, it can illustrate when brain regions shrink in size, which can occur in cases of dementia (How Biomarkers Help Diagnose Dementia, 2022). Magnetic resonance imaging (MRI) uses magnetic fields and radio waves to create detailed images of the size and shape of the brain regions. In comparison to a CT scan, an MRI provides clear images which can help advanced practitioners understand the brain better. MRI can help illustrate brain shrinkage (when compared to previous MRIs), and it can also capture clear

pictures of brain blood vessels (How Biomarkers Help Diagnose Dementia, 2022). Positron emission tomography (PET) scans use a radioactive substance, called a tracer, to quantify specific brain activity. PET scans can be used to identify regions of normal and abnormal chemical activity (“How Biomarkers Help Diagnose Dementia,” 2022). There are a couple different kinds of PET scans that can help advanced practitioners diagnose dementia.

An amyloid PET scan measures abnormal deposits of a protein called beta-amyloid. Beta-amyloid in high quantities is correlated to the presence of amyloid plaques, which is a major indicator of Alzheimer’s disease dementia (“How Biomarkers Help Diagnose Dementia,” 2022). When an individual has a positive amyloid PET scan, it can indicate they are in the early stages of this disease process (“How Biomarkers Help Diagnose Dementia,” 2022). A Tau PET scan is used to identify any abnormal amounts of tau protein in the body. This specific protein creates tangles within nerve cells in Alzheimer’s disease and other dementia (“How Biomarkers Help Diagnose Dementia,” 2022). This is not as common of a PET scan to use in medical practice but is seen in the research setting. Lastly, a fluorodeoxyglucose (FDG) PET scan can measure how the brain uses energy. The number one energy resource for our brain is glucose. There are research studies identifying that people with dementia often have a decreased glucose use in certain areas of the brain (“How Biomarkers Help Diagnose Dementia,” 2022). In the clinical setting, a physician may select to use this scan if they suspect frontotemporal dementia. In summation, these scans are a vital source of information for identifying dementia versus other etiology, and then also giving potential insight for the specific kind of dementia.

Cerebrospinal Fluid Tests

The brain and spinal cord are two precious components in the body that absolutely must be cushioned and supported during all of life. Cerebrospinal fluid (CSF) does just this job.

Within the clinical setting, a physician can perform a procedure called a lumbar puncture to remove some of this CSF for testing. This process can be used to help identify dementia (Alzheimer's Association, 2023a). In the CSF, advanced practitioners are looking for increased in beta-amyloid protein, tau protein, and neurofilament light chain (NfL) protein. Beta-amyloid protein is what correlates with the increased levels of amyloid plaques in the body—a solid indicator of Alzheimer's disease. Tau protein creates tangles within the nerve cells—another clear indicator of Alzheimer's disease. The NfL protein, is located on the myelinated axon of a neuron and can cause damage to the neuron—another indicator of neurodegenerative disease such as Alzheimer's (Gaetani et al., 2019; Alzheimer's Association, 2023a). The testing of CSF for dementia can tremendously help with the process of diagnosing dementia and there is still research being done today to continue strengthening this diagnostic measure (Alzheimer's Association, 2023a).

Blood Tests

Blood tests are currently being used in clinical setting; however, researchers are continuing to test this diagnostic method for its reliability associated with identifying biomarker changes pertaining to Alzheimer's disease (Alzheimer's Association, 2023a). These blood tests are very similar to the CSF tests. The individual with cognitive impairment will have their blood drawn and sent to the laboratory. The physician will specifically look at the beta-amyloid protein, the tau protein, the NfL protein, and other biomarkers levels that could be measured and assessed for dementia (Alzheimer's Association, 2023a). These tests can be used to help point to a potential diagnosis, but it is not used as a stand-alone test to diagnose Alzheimer' disease or any other dementias (Alzheimer's Association, 2023a). Like stated, researchers are still working toward developing standardized and validated testes that can produce reliable results for people

(Alzheimer's Association, 2023a). According to the Alzheimer's Association (2023a), these blood tests are "very likely to revolutionize the diagnostic process for Alzheimer's and all other dementia." If this projection becomes true, this diagnostic testing form will be used as priority over many of the other discussed methods.

What Are the Different Kinds of Dementia?

By defining dementia as an umbrella term, this suggests there are subcomponents and definitions within it. This is true because there are multiple pathophysiological processes that can cause this chronic cognitive impairment, which commonly presents as memory loss and thinking abilities that affect ADLs. According to Alzheimer's Association (2023b), there are twelve different kinds of dementia. The five most common types seen in long-term care facilities are Alzheimer's disease, dementia with Lewy Bodies, vascular dementia, frontotemporal dementia, and mixed dementia (World Health Organization, 2023).

Alzheimer's Disease. This type of dementia is the most commonly seen and contributes to 60% - 70% of the cases ("Dementia," 2023). Due to this, diagnostic tools such as CSF tests and bloods can specifically pinpoint this disease. Alzheimer's disease presents in individuals as an accumulation of abnormal plaques and neurofibrillary tangles. These plaques are microscopic lesions composed of extracellular amyloid beta-peptide protein that are surrounded by axonal endings (Kumar et al., 2022). The neurofibrillary tangles are intracytoplasmic structures in neurons formed by the tau protein (Kumar et al., 2022). When the tau protein is within its normal range, it acts as a stabilizer for the axonal microtubules which are pertinent for intracellular transport. However, when there is too much tau protein, it begins to aggregate and then form twisted paired helical filaments (Kumar et al., 2022). Thus, the neurofibrillary tangles are formed. These plaques and neurofibrillary tangles then begin to break down the neurons,

severely impairing the body's communication system—thus, causing severe cognitive impairment (“Causes of Alzheimer’s Disease,” 2017). Commonly seen BPSD within Alzheimer’s are lack of concentration, tremors, depression, lack of cooperation, and psychotic symptoms (Fernandez et al., 2010).

Dementia with Lewy Bodies. This type of dementia is not as commonly seen, yet still prevalent in long-term care facilities. There is no single diagnostic test for this disease; therefore, this becomes more of a “clinical diagnosis” which means it is a physician’s best professional judgement after compiling together assessments (Alzheimer’s Association, 2023b). One aspect of this type of dementia is there is an acetylcholine deficiency specifically in the temporal and parietal cortex of the brain. This causes hallucinations which is a common characteristic of Lewy Bodies dementia (Alzheimer’s Association, 2023b). Lewy Body dementia is commonly connected to Parkinson’s disease because of similar clinical manifestations such as hunched posture, rigid muscles, shuffling walk, and difficulty initiating movements (Alzheimer’s Association, 2023b). Commonly seen BPSD within dementia with Lewy bodies are visual hallucinations, hallucinations in other modalities, delusions, rapid eye movements, sleep behavior disorders, and depression (Kosaka, 2008).

Vascular Dementia. When there is an inadequate blood flow to the brain, it can cause damage and death to the brain cells. This is what happens to an individual with vascular dementia. Often, when an individual has an ischemic stroke (blood is withheld from brain tissue) or a complication with blood vessels to the brain, it begins to bring certain cognitive impairments depending on location of brain that has a lacking blood supply (Alzheimer’s Association, 2023b). About 5% - 10% of PLwD have vascular dementia. Instruments that are helpful in diagnosing vascular dementia include Magnetic Resonance Imaging (MRI) to visualize damage from

strokes/vascular brain changes and neurocognitive testing that highlights specific symptoms (Alzheimer's Association, 2023b). Two clearly linked BPSD within vascular dementia are depression and apathy (Tiel et al., 2015).

Frontotemporal Dementia. This specific kind of dementia refers to a collection of disorders caused by progressive nerve cell loss in the brain's frontal and temporal lobes (Alzheimer's Association, 2023b). Based on this brain location, this disease can specifically have an influence on behavior, personality, and/or cause difficulty with speech/language (Alzheimer's Association, 2023b). There are two pathological processes that can cause this frontotemporal degeneration. The first involves the tau protein and the second involves a protein called TDP43, yet there are gaps in research as to why these are involved (Alzheimer's Association, 2023b). This disease is commonly diagnosed by a physician's expert opinion when compiling together history, neurological exams, and possibly MRIs (Alzheimer's Association, 2023b).

Mixed Dementia. Mixed dementia are two or more kinds of brain changes occurring in the brain from different dementia types. The two kinds of dementias that are most seen mixed together are the abnormal protein deposits from Alzheimer's Association and the blood vessel complications in vascular dementia (Alzheimer's Association, 2023b). It is common for this kind of dementia to be misdiagnosed. Often when an autopsy is conducted on a PLwD's body, it reveals the person had two or more kinds of dementia which would contradict their single dementia diagnosis (Alzheimer's Association, 2023b). Typically, it would be an Alzheimer's diagnosis. Since this is true, there is still more research to be conducted to help diagnose mixed dementia.

As seen, each kind of dementia presents with some form of BPSD. It is important as a nursing professional to understand the likeliness that a dementia diagnosis comes with BPSD. Let's take a look at the various ways these symptoms may present.

Behavioral and Psychological Symptoms of Dementia

Behavioral and psychological symptoms of dementia (BPSD) encompass a range of neuropsychiatric disturbances such as anxiety, agitation, aggression, depression, psychosis, apathy, repetitive questioning, and wandering (Cloak & Khalili, 2022). When an individual is diagnosed with dementia—specified or unspecified—a physician will then perform a secondary diagnosis on if the PLwD has BPSD, and if so, what is the severity and what are the specific symptoms. The tool used for this diagnostic process is called the Diagnostic and Statistical Manual 5 edition (DSM 5) (Cloak & Khalili, 2022). The severity of the BPSD is classified as either mild, moderate, or severe (Alzheimer's Association, 2023c). It can often be hard for advanced practitioners to clearly pin-point the severity category, but they refer to how much memory loss and the BPSD impact the PLwD's independence with daily activities. The specific symptoms of dementia can often be broken into five specific domains: cognitive/perceptual, emotional, motor, verbal, and vegetative.

Cognitive/perceptual. Cognitive/perceptual includes symptoms such as delusions and hallucinations (Cloak & Khalili, 2022). This could present as a PLwD feeling people are watching them or trying to plot against them (Alzheimer's Society, 2021). This could be imagined (hallucination) or it could be a twisting of the reality around them (delusion). For example, a nursing staff member could be coming into a PLwD's room to put away clean clothes, but from the resident's perspective, they may believe their belongings are being stolen or that the staff member is trying to harm them. Another example is that a PLwD could be in

disbelief that their home in the long-term care facility is not their actual home and will constantly be trying to leave to “get back to their house.”

Emotional. Emotional includes symptoms such as euphoria, depression, apathy, anxiety, and irritability (Cloak & Khalili, 2022). This is an extremely common category for the presentation of BPSD. It is often seen that residents can become withdrawn to their rooms and lose interest in social activities (depression) (Alzheimer’s Association, 2023d). For example, a resident could weekly attend Monday night BINGO the first 6 months of being at a long-term facility, but then begin to lose interest in BINGO and withdraw slowly as weeks pass on. Unfortunately, it is also commonly seen for a resident to have increased fear and anxiety. For example, as a PLwD is being transported from a chair to a walker with 2-assist, they can verbally and non-verbally express they are “scared” and “worried.”

Motor. Motor includes symptoms such as pacing, wandering, repetitive movements, physical aggression (Cloak & Khalili, 2022). An example of this could be a resident ending up in other residents rooms because they have a lack of knowledge for their surroundings. Another example of this could be a resident anxiously walking up and down the halls, many times a day. Motor can also present as a resident displaying extreme physical strength around the nursing staff and even other residents.

Verbal. Verbal includes symptoms such as yelling, calling out, repetitive speech, and verbal aggression (Cloak & Khalili, 2022). This could present as a resident calling the same phrase continuously throughout the course of the day (or night). Another way this could present is a resident using harsh language, that they often did not use before their dementia presentation, when communicating with others.

Vegetative. Vegetative includes symptoms such as disturbances in sleep and appetite (Cloak & Khalili, 2022). Sleep disturbances often present as “day-night sleep pattern reversals, frequent nighttime awakenings, increase in daytime sleep, and decreases in slow-wave sleep and rapid eye movement sleep” (Bliwise, 2004; Rose et al., 2011). For example, a PLwD may take 3-4 naps during the day which then causes them to go to bed later in the night and/or wake up often during the night. Appetite disturbances can present as a PLwD wanting to skip certain meals during the day, or it can even present as a PLwD being unable to feed themselves, ultimately decreasing their daily intake (especially if there is a staffing shortage).

Managing BPSD in Long-Term Care

Within the long-term care setting, 80% of PLwD have some form of BPSD (“Behavioral and Psychological Symptoms of Dementia,” 2022). It is extremely important to understand the various presentations of BPSD in PLwD so that nursing staff can tailor their care towards meeting these individual’s needs. It is commonly thought that these BPSDs are “an attempt [for the PLwD] to communicate an unmet need” (Scales et al., 2018). This communication method can be compared to how an infant cries when basic needs must be met by their caregiver. When a baby cries, it is expected that their caregiver will fulfill their needs. This same concept is true for a PLwD when they display BPSDs (to clarify, this does not imply the older adult has the same developmental level as a baby, it solely refers to the reasoning behind expression). An example of this could be a PLwD who wanders “may be communicating the need to leave a situation that is that is causing mild anxiety” (Scales et al., 2018). If this need is unmet, the symptom of dementia could potentially persist and increase intensity. Thus, illustrating the significance to continue identifying ways nursing staff can implement interventions that assist with these BPSDs, and ultimately meet the needs of the residents living with dementia.

As stated in the introduction, options for amelioration of BPSD include pharmacological and non-pharmacological interventions. Evidence-based practice recommends attempting to implement non-pharmacological interventions first before moving to pharmacological interventions (Masopust et al., 2018). One non-pharmacological intervention within the geriatric research community is meaningful staff-resident interactions and its impact on decreasing BPSD (Paudel et al., 2020).

Meaningful Staff-Resident Interactions

Meaningful staff-resident interactions are an essential component for person-centered care (Behrens et al., 2019). A staff-resident interaction is a quantifiable exchange between a nursing staff member and a resident. When observing the relationship between a nursing staff member and resident, it is subjective and dynamic per each bond. However, recent work indicates that an interaction (rather than the relationship) between nursing staff member and resident can be observed, measured, and categorized—like how we can exchange money from person to person.

Staff-resident interactions can be perceived as negative, neutral, or positive (Paudel et al., 2021). These interactions include both verbal and nonverbal exchanges. Examples of a negative interaction can include rushing residents care, unclarified touching during care, restricting activity to prevent falls, limiting contact with residents, scheduling care without regarding resident's choices, and disrespectful communication (Paudel et al., 2021). Neutral interactions are similar to negative interactions but with less intensity and more passivity. Examples of this would be brief interactions that lack verbal or nonverbal contact with resident. Positive interactions would include respectful listening and observation to understand resident's feelings, showing empathy, maintaining eye contact, and projecting calm body posture.

When an interaction is positive, it can be understood as a meaningful interaction. This is true because the nursing staff member is more engaged in the exchange with the resident. They are mindful to choose a verbal or nonverbal connection that caters to and honors a resident's preferences. In other words, an interaction becomes meaningful when the resident's preferences are honored and highly valued, and when the resident is truly seen as an individual with dignity (Paudel et al., 2021). When an interaction is negative or neutral, it is understood to be an unmeaningful interaction. If a staff member rushes care or fails to communicate because they are worried about completing a task rather than helping the person, the interaction is unmeaningful.

To illustrate this, consider these two different scenarios of resident care:

Option one. A PLwD in a long-term care facility named Mr. Jones has just finished his lunch. As the dining staff members begin to wipe the tables down, the resident care assistant recognizes this and says to them, "I will wheel Mr. Jones out of your way." She goes over and rolls Mr. Jones directly over to the TV area. She faces him towards the TV displaying that afternoon's streaming service and walks away. Mr. Jones glances around with an anxious and lonesome look on his face, then watches the program.

Option two. A PLwD in a long-term care facility named Mr. Jones has just finished his lunch. As the dining staff members begin to wipe the tables down, the resident care assistant recognizes this and says to Mr. Jones, "How was your meal Mr. Jones?" He smiles at her and gives her two thumbs up. She says, "Oh, I'm so glad you enjoyed your meal. We are now going to move away from the dining area so it can be cleaned. Would you like to watch some TV together, do some coloring in the activities room, or head back to your bedroom?" Mr. Jones voices he would like to watch some television. The resident assistant wheels him into the TV room and decides to sit

next to him. She engages in the TV program for at least 10 minutes with Mr. Jones and even communicates some of her favorite scenes. Mr. Jones smiles and does not feel alone.

From a logistical perspective, both interactions appear very similar. The resident care assistant moved Mr. Jones from the dining hall to the TV room to watch the afternoon program. However, on the inside, these two interactions are drastically different. The first option only desires to complete a task (involves negative interactions), whereas the second option seeks to honor Mr. Jones' preferences and to spend intentional time with him (involved positive interactions). The first scenario resulted in Mr. Jones feeling anxious and lonesome, while the second option resulted in Mr. Jones smiling and not feeling alone. This is the idea behind a meaningful staff-resident interaction: to engage with the resident positively and intentionally, with the hopes that the outcome is positive—theoretically resulting in decreased BPSDs and increased quality of care.

Confounding Variables to Consider

Before completing an analysis of how staff interactions are associated with BPSD in PLwD, it is important to recognize potential confounding variables. This is true because it is pertinent to gain accurate research data that ultimately impacts clinical practice. Confounding variables are unmeasured variables that may impact the relationship between the cause (staff-resident interactions) and the effect (BPSD) variable. In an atmosphere like a residential long-term care facility, there are many components that contribute to the reduction and exacerbation of BPSD in PLwD. These potential confounding variables can be broken into three categories, as listed below:

- **Resident.** Examples include resident adjusting to new nursing home environment, resident preferring one staff member over another, resident's dementia displaying differently than another resident's (severity of dementia), etc. (Van Haitsma et al., 2019).
- **Staff.** Examples include staff member is not being properly trained to care for a PLwD, staff member not having a strong bond with resident, staff member not directing their motives towards providing the highest quality of care as possible, etc. (Van Haitsma et al., 2019).
- **Nursing home.** Examples include the nursing home not creating an atmosphere (lighting, color on walls, layout of bedroom) that is welcoming to residents, the nursing home not offering wellness activities to promote quality of life, the nursing home not cultivating a positive staffing environment (no staff continuity), etc. (Van Haitsma et al., 2019).

Chapter Summary

In summary, there is a clear need for person-centered non-pharmacological interventions for BPSD among PLwD in long-term care. Determining the impacts of a staff-resident interaction on BPSD in PLwD will help nursing staff better understand best practices in care and provide a way forward for research in this area. If we can pin-point and quantify the exchanges made from staff to resident that decrease BPSD, then long-term care facilities can begin to improve their staff training, and ultimately, their quality of care for their residents living with dementia. A systematic literature review will identify and summarize the potential correlations already being discovered within research and will reveal the gaps within research where more studies are needed.

Chapter 3

Methods

The purpose of this thesis is to conduct a systematic literature review to synthesize current research evidence on a potential connection between staff-resident interactions and symptoms of dementia in the older adult population living in long-term care. Also, the hope is to identify where additional research must be conducted for this topic of interest. Specifically, this review will address the question: What is the association between staff-resident interactions and behavioral and psychological symptoms of dementia in the older adult population living in long-term care? This chapter will outline how the literature searches were conducted and how the articles were selected for this review process.

Literature Search Methods

This systematic review followed the PRISMA 2020 checklist standards (Page et al., 2021). The literature search was conducted using the following databases: PubMed, CINAHL, and PsycINFO. These databases were selected because of their high volume of current, evidence-based nursing research. Search terms used were as follows ((Staff-resident interaction*) OR (nurse-patient relation*) OR (care interaction*) OR (quality of interaction*) OR (communication) OR (quality of nursing care) OR (care interaction)) AND ((dementia) OR (cognitive impairment) OR (cognitive dysfunction)) AND ((symptom* of dementia) OR (behavioral and psychological symptoms of dementia) OR (neurobehavioral manifestation) OR (behavioral symptoms)) AND ((long-term care) OR (assisted living) OR (nursing home) OR (residential living) or (residential facility) OR (residential care institution)). When crafting search terms, a research librarian was consulted to ensure the literature search in all three databases were saturated. Articles were filtered to only include participants 65 years or older.

Article Selection Process

The official literature search was conducted in PubMed, CINAHL, and PsycINFO and yielded 425 articles in total –133 articles from PubMed, 61 articles from CINAHL, and 231 articles from PsycINFO (see Figure 3.1). First, the duplicated articles were removed (n=37). Next, 388 articles' titles and abstracts were screened by two reviewers (GL and LB) for criteria of used was older adult with dementia diagnosis, staff-resident interaction, and presence of a BPSD outcome of BPSD. After this screening round, 293 articles were removed based on the title/abstract. Next, 95 articles were moved to the full-text screening by two reviewers (GL and LB). Disagreements on inclusion/exclusion criteria were resolved by consensus. This screening round followed the inclusion/exclusion criteria listed below. Sixty-eight articles were removed based on this criterion. Therefore, 27 articles were included in this systematic literature review.

Inclusion and Exclusion Criteria

The inclusion criteria were that articles must:

- Have a population of 65+ year old adult.
- Take place in a long-term residential care facility.
- Have a sample of residents affected with dementia.
- Clearly explain and implement a staff-resident interaction intervention.
- Measure the desired outcome of behavioral and psychological symptoms of dementia.

Articles were excluded with the following exclusion criteria:

- Population below 65 years of age.
- Study setting not in long-term care (e.g., acute-care facility or home).
- Staff-resident interaction is not clearly explained.

- Interventionist is not a long-term care nursing home staff member.
- Desired measured outcome does not clearly focus on behavioral and psychological symptoms of dementia.
- Not primary, peer-reviewed research.
- Not written in English.

Data Extraction

The first author (GL) extracted data from each individual article and placed it on a matrix (see Appendix B). The data extracted included author, year, country, design/methods, study aim, sample and setting, description of staff-resident interaction, staff member type, interaction type, mode of care, instruments used, and findings/results relating to BPSD. Data extraction was completed by the author. An overall review for completeness was conducted by the thesis supervisor to the paper (LB).

Level & Quality of Evidence

The Johns Hopkins Nursing Evidence-Based Practice Model for Nursing and Healthcare Professionals (JHN EBP; Dang et al., 2022; see Figure 3.2 and Figure 3.3) was used to critically appraise each study for its strength and quality of research. The JHN EBP appraisal tool is pertinent to helping understand to legitimacy of each research study and how much of an influence it can have on nursing practice. The level of evidence was rated for each article, ranging from a Level I to a Level V. Level I is the highest level of evidence and Level V is the lowest level of evidence. Level I research consists of randomized control trials, Level II consists of quasi-experimental studies, and Level III research consists of non-experimental studies. These studies can be either single research studies or systematic reviews. Single research studies can be quantitative, qualitative, or a combination of both. The quality of evidence can be ranked as

either high quality, good quality, or low quality. The ranking specifics are dependent on its level of evidence and if the study is qualitative or quantitative. The results of each studies' level and quality of evidence can be found in chapter four.

Data Analysis

Once extracted into the evidence tables, the data was categorized based on the type of staff-resident interactions (physical, psychosocial, spiritual, or combination of physical and psychosocial) and the specific types of BPSD outcomes (agitation, aggression/resistiveness to care, depression, anxiety, mood, collective BPSD). Quality of life was also included for outcome measures because research in this field often connects a staff-resident interaction/person-centered care to its impacts on BPSD and quality of life. It is often associated that as a resident's BPSD declines, their quality of life increases (Paudel et al., 2021). Each article's level and quality of evidence was taken into consideration when analyzing the trends found with each intervention and outcome.

Figure 3.1: PRISMA Flowchart of Article Selection

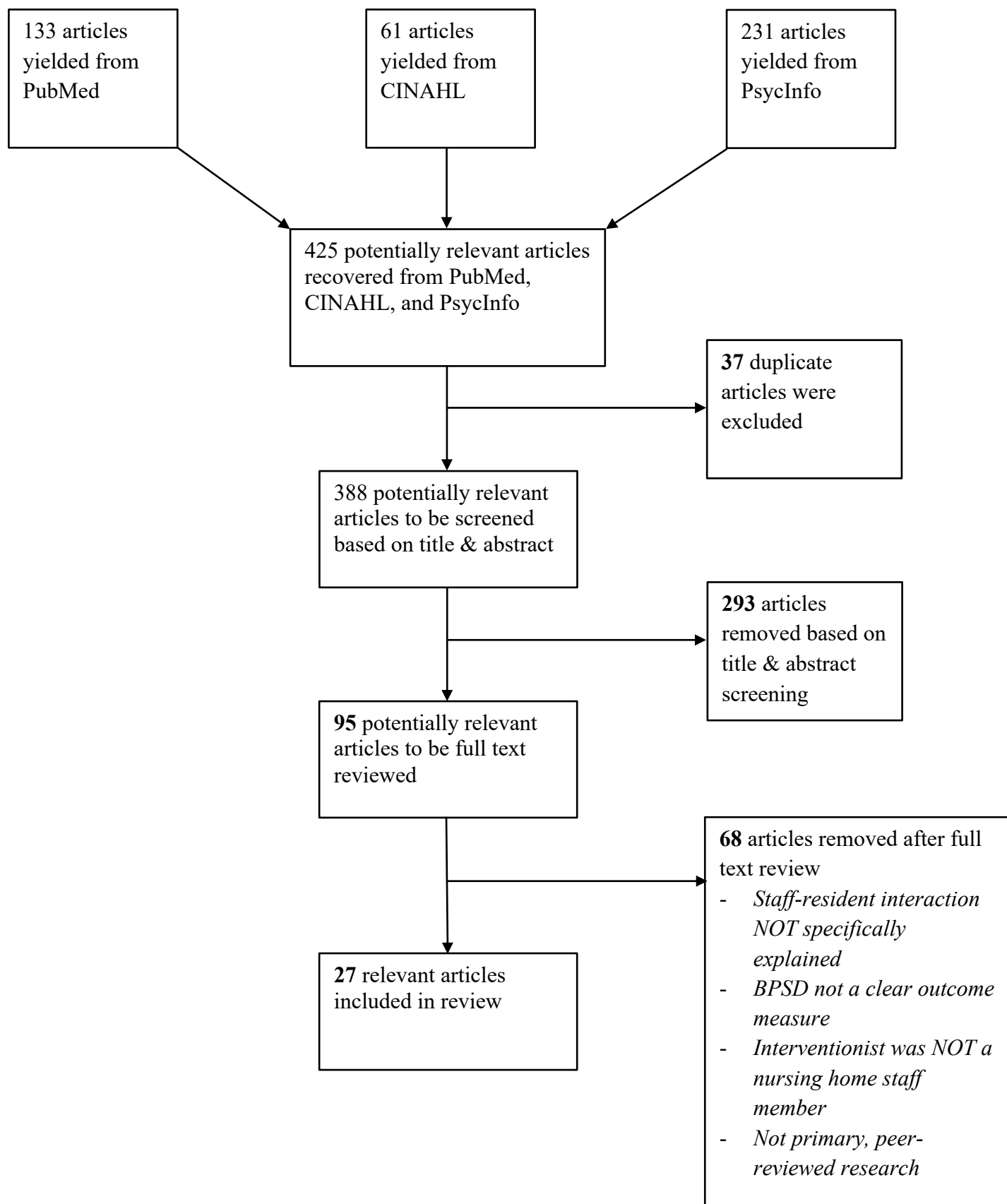


Figure 3.2: Johns Hopkins Nursing Evidence-Based Practice

Level of Evidence

	Evidence Level	Types of Evidence
Research Evidence (Appendix E)	Level I	<ul style="list-style-type: none"> • Experimental study, randomized controlled trial (RCT) • Explanatory mixed methods design that includes only a Level I quantitative study • Systematic review of RCTs, with or without meta-analysis
	Level II	<ul style="list-style-type: none"> • Quasi-experimental study • Explanatory mixed methods design that includes only a Level II quantitative study • Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis
	Level III	<ul style="list-style-type: none"> • Nonexperimental study • Systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, or nonexperimental studies only, with or without meta-analysis. • Exploratory, convergent, or multiphasic mixed methods studies • Explanatory mixed methods design that includes only a Level III quantitative study • Qualitative study • Systematic review of qualitative studies with or without meta-synthesis
Nonresearch Evidence (Appendix F)	Level IV	<p>Opinion of respected authorities and/or nationally recognized expert committees or consensus panels based on scientific evidence. Includes:</p> <ul style="list-style-type: none"> • Clinical practice guidelines • Consensus panels/position statements
	Level V	<p>Based on experiential and non-research evidence. Includes:</p> <ul style="list-style-type: none"> • Scoping reviews • Integrative reviews • Literature reviews • Quality improvement, program or financial evaluation • Case reports • Opinion of nationally recognized expert(s) based on experiential evidence

Dang, D., Dearholt, S., Bissett, K., Ascenzi, J., & Whalen, M. (2022). *Johns Hopkins evidence-based practice for nurses and healthcare professionals: Model and guidelines*. 4th ed. Sigma Theta Tau International

Figure 3.3: Johns Hopkins Nursing Evidence-Based Practice

Quality of Evidence (Levels I – III)

Evidence Level and Quality Guide	
Evidence Levels	Quality Ratings
<p>Level I</p> <p>Experimental study, randomized controlled trial (RCT)</p> <p>Explanatory mixed method design that includes only a level I quantitative study</p> <p>Systematic review of RCTs, with or without meta-analysis</p>	<p>Quantitative Studies</p> <p>A High quality: Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence.</p> <p>B Good quality: Reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence.</p> <p>C Low quality or major flaws: Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn.</p>
<p>Level II</p> <p>Quasi-experimental study</p> <p>Explanatory mixed method design that includes only a level II quantitative study</p> <p>Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis</p>	<p>Qualitative Studies</p> <p>No commonly agreed-on principles exist for judging the quality of qualitative studies. It is a subjective process based on the extent to which study data contributes to synthesis and how much information is known about the researchers' efforts to meet the appraisal criteria.</p> <p><i>For meta-synthesis, there is preliminary agreement that quality assessments of individual studies should be made before synthesis to screen out poor-quality studies¹.</i></p> <p>A/B High/Good quality is used for single studies and meta-syntheses².</p> <p>The report discusses efforts to enhance or evaluate the quality of the data and the overall inquiry in sufficient detail; and it describes the specific techniques used to enhance the quality of the inquiry. Evidence of some or all of the following is found in the report:</p> <ul style="list-style-type: none"> • Transparency: Describes how information was documented to justify decisions, how data were reviewed by others, and how themes and categories were formulated. • Diligence: Reads and rereads data to check interpretations; seeks opportunity to find multiple sources to corroborate evidence. • Verification: The process of checking, confirming, and ensuring methodologic coherence. • Self-reflection and scrutiny: Being continuously aware of how a researcher's experiences, background, or prejudices might shape and bias analysis and interpretations. • Participant-driven inquiry: Participants shape the scope and breadth of questions; analysis and interpretation give voice to those who participated. • Insightful interpretation: Data and knowledge are linked in meaningful ways to relevant literature. <p>C Low quality studies contribute little to the overall review of findings and have few, if any, of the features listed for high/good quality.</p>
<p>Level III</p> <p>Nonexperimental study</p> <p>Systematic review of a combination of RCTs, quasi-experimental and nonexperimental studies, or nonexperimental studies only, with or without meta-analysis</p> <p>Exploratory, convergent, or multiphasic mixed methods studies</p> <p>Explanatory mixed method design that includes only a level III quantitative study</p> <p>Qualitative study Meta-synthesis</p>	

Dang, D., Dearholt, S., Bissett, K., Ascenzi, J., & Whalen, M. (2022). *Johns Hopkins evidence-based practice for nurses and healthcare professionals: Model and guidelines*. 4th ed. Sigma Theta Tau International

Chapter 4

Results

There were 27 studies included in this systematic review. These articles were published between 1998 and 2022. All relevant data compiled from the screening of the selected articles is included and reviewed in this chapter. The articles' study design, level and quality of evidence, setting, sample, staff-resident interaction intervention, and behavioral and psychological symptoms of dementia outcome are described in this chapter.

Study Design

Among the 27 studies included in this review, seven of the articles are randomized control trials (Cheung et al., 2018; Hsu et al., 2015; Hutson et al., 2014; Livingston et al., 2019; Middelstadt et al., 2016; Van Haitsma et al., 2013; Vink et al., 2012). Six of the articles are experimental designs with randomization (Ballard et al., 2016; Balzotti et al., 2018; Buettner & Fitzsimmons, 2002; Gozalo et al., 2014; Tappen & Williams, 2009; Yoshiyama et al., 2015). One of the articles is a quasi-experimental design (Phillips et al., 2010). Three of the articles are observational studies (Belzil & Vezina, 2015; Herman & Williams, 2009; Ragneskog et al., 1998). There is one action research design (Stacpoole et al., 2014). There is one pre/posttest design (Vocht et al., 2015). One article is a two-group comparison design (Sprangers et al., 2015). There are two experimental designs without randomization (Carbone et al., 2021; Magee et al., 2017). Two of the articles are a secondary data analysis (Resnick et al., 2021, 2022). Two of the articles are case studies (Cunningham & Williams, 2007; Curyto et al., 2017). There is one systematic literature review (Vasse et al., 2010).

Level & Quality of Evidence

The Johns Hopkins Nursing Evidence-Based Practice Model for Nursing and Healthcare Professionals (Bradley University, 2023; see Figure 3.2 and Figure 3.3) was used to critically appraise each study for its strength of research. For this systematic review, articles included ranged from Level I to Level III Research. Level I research consist of randomized control trials, Level II consists of quasi-experimental studies, and Level III research consists of non-experimental studies. These studies can be either single research studies or systematic reviews. Single research studies can be quantitative, qualitative, or a combination of both. Single research studies can be quantitative, qualitative, or a combination of both. High quality research (A) consists of consistent and generalizable results, good quality research (B) consists of reasonably consistent results, and low quality (C) research consists of little evidence with inconsistent results. Each article was evaluated based on John Hopkins screening tool document (reference Figure 3.3).

There were 13 studies that are deemed as Level I evidence based on Johns Hopkins' level of evidence scale (Ballard et al., 2016; Balzotti et al., 2018; Carbone et al., 2021; Cheung et al., 2018; Gozalo et al., 2014; Hsu et al., 2015; Hutson et al., 2014; Livingston et al., 2019; Middelstadt et al., 2016; Tappen & Williams, 2009; Van Haitsma et al., 2013; Vink et al., 2012; Yoshiyama et al., 2015). There were nine studies that are deemed as Level II evidence based on Johns Hopkins' level of evidence scale (Buettner & Fitsimmons, 2002; Phillips et al., 2010; Magee et al., 2017; Resnick et al., 2021, 2022; Sprangers et al., 2015; Stacpoole et al., 2014; Vasse et al., 2010; Vocht et al., 2015). There were five studies that are deemed as Level III evidence based on Johns Hopkins' level of evidence scale (Belzil & Vezina, 2015; Cunningham & Williams, 2007; Curyto et al., 2017; Herman & Williams, 2009; Ragneskog et al., 1998).

There were seven studies that consisted of high quality (A) research based on John Hopkins' quality of research scale (Carbone et al. 2021; Cheung et al., 2018; Hsu et al., 2015; Livingston et al., 2019; Middelstadt et al., 2016; Sprangers et al., 2015; Van Haitsma et al., 2013). There were 16 studies that consisted of good quality (B) research based on John Hopkins' quality of research scale (Ballard et al., 2016; Balzotti et al., 2018; Buettner & Fitzsimmons, 2002; Cunningham & Williams, 2007; Gozalo et al., 2014; Hutson et al., 2014; Magee et al., 2017; Phillips et al., 2010; Resnick et al., 2021, 2022; Stacpoole et al., 2014; Tappen & Williams, 2009; Vasse et al., 2010; Vink et al., 2012; Vocht et al., 2015; Yoshiyama et al., 2015).

There were four studies that consisted of low quality (C) research based on John Hopkins' quality of research scale (Belzil & Vezina, 2015; Curyto et al., 2017; Ragneskog et al., 1998; Herman & Williams, 2009).

Study Settings

All the studies included in this review took place in a long-term care facility. The number of long-term care facilities that were included in each study ranged from one to 59 care homes in this review. Eight of the studies took place within the United States (Buettner & Fitzsimmons, 2002; Curyto et al., 2017; Gozalo et al., 2014; Phillips et al., 2010; Resnick et al., 2021, 2022; Tappen & Williams, 2009; Van Haitsma et al., 2013). The states that were specified were Florida, Maryland, Pennsylvania, New York, and Missouri. One study took place in Sweden (Ragneskog et al., 1998). Three studies took place in the Netherlands (Sprangers et al., 2015; Vink et al., 2012; Vocht et al., 2015). There were six studies that took place in the United Kingdom (Ballard et al., 2016; Hsu et al., 2015; Hutson et al., 2014; Livingston et al., 2019; Magee et al., 2017; Stacpoole et al., 2014). The United Kingdom countries that were specified were South London, Northern Ireland, and England. There were two studies that took place in Italy (Balzotti et al.,

2018; Carbone et al., 2021). There was one study that took place in Japan (Yoshiyama et al., 2015), and one study took place in Germany (Middelstadt et al., 2016). There were five studies that did not specify country of origin (Belzil & Vezina, 2015; Cheung et al., 2018; Cunningham & Williams, 2007; Herman & Williams, 2009; Vasse et al., 2010).

Participants

As described in Table 4.1, the number of participants per study ranged from one resident to 553 residents. The parameters for participants in each study varied in how they defined their dementia diagnoses of the older adult (65 years or older). Some studies selected residents by having an official diagnosis of dementia, meaning they had to be diagnosed by an official healthcare provider (Belzil & Vezina, 2015; Vink et al., 2012). Some studies described the dementia as either mild, moderate, or severe. Example studies of that used these parameters are Stacpoole et al. (2014) and Hutson et al. (2014) (refer to Table 4.1). Some studies included resident criteria of a Mini-Mental State Examination (MMSE) score lower than 23. This is the current standard MMSE score that reflects dementia (Gluhm et al., 2013). An example study that used these parameters is Buettner & Fitzsimmons (2002) (refer to Table 4.1). Lastly, some studies had set parameter that residents had to be displaying some form of BPSD already. An example study that incorporated these parameters is Curyto et al. (2017) (refer to Table 4.1). The residents included were 65 years or older in age. The studies included a mixture of both men and women participants. The residents and their families both consented for the residents to partake in the study and all studies factored in any deaths that occurred during the time of trial to obtain an accurate sample size.

Intervention – Staff-Resident Interaction

In this review, the staff-resident interactions were classified into four different types of care interactions. These included a physical care interaction, psychosocial care interaction, combination of physical/psychosocial care interaction, and spiritual care interaction.

The Interventionist

This review included a variety of long-term care staff members that implemented the staff-resident interaction intervention. The top staff members were the nurse and nursing aid that were employed by the long-term care facility (Ballard et al., 2016; Belzil & Vezina, 2015; Buettner & Fitzsimmons, 2002; Carbone et al., 2021; Cunningham & Williams, 2007; Curyto et al., 2017; Gozalo et al., 2014; Herman & Williams, 2009; Hsu et al., 2015; Hutson et al., 2014; Livingston et al., 2019; Magee et al., 2017; Ragneskog et al., 1998; Resnick et al., 2021, 2022; Sprangers et al., 2015; Stacpoole et al., 2014; Van Haitsma et al., 2013; Vasse et al., 2010; Vocht et al., 2015). The implementing individuals (staff members) are described as the ones who work with the residents on a day-to-day basis, regardless on if research is happening or not. They provide the direct care to the residents whether it be ADLs, passing daily medications, or engaging in daily social activities (refer to Table 4.1). Another staff member type seen in this review's studies was a trained research student/nurse to act in the role of the staffed caregiver (Cheung et al., 2018; Phillips et al., 2010; Tappen & Williams, 2009). Specifically, they do not work with the residents daily, only when research is occurring. However, they have the appropriate training needed to engage with the residents. Another staff member type seen in the studies were certified therapists such as general therapists, occupational therapists, music therapists, aroma therapists (Balzotti et al., 2018; Vink et al., 2012; Yoshiyama et al., 2015). These individuals are certified in their own specific field and know how to provide direct care to

residents with dementia based on their field of work. Lastly, there was one article that had a gerontologist implement the intervention (Middelstadt et al., 2016). This interventionist knew how to appropriately interact with this older adult dementia population due to his/her higher education on this specific population.

Physical Care Interaction

There were five out of the 27 studies that involved a physical care interaction intervention (Belzil & Vezina, 2015; Gozalo et al., 2014; Herman & Williams, 2009; Resnick et al., 2021; Sprangers et al., 2015). A physical care interaction consists of the activities of daily living (ADLs) that a resident may need assistance with such as bathing, dressing, and eating. In the Herman & Williams (2009) study, the observers focused on the interaction between staff and resident during daily care activities, and how the resident responded (resistive or non-resistive). The physical care activities included for the Herman & Williams (2009) study were any kind of physical direct care such as dressing, bathing, eating, and oral care. In the Gozalo et al. (2014) study, the interaction focused on was a staff member washing residents. This included showering, tub bathing, in-room bathing, and hair washing. This study recorded if the resident responded with aggression/agitation or not during this staff-resident interaction. In the Belzil & Vezina (2015) study, the interaction consisted of daily hygienic care to PLWD, changing of incontinence protection, and dressing. The study looked at if residents responded positively when care was provided with positive staff member statements and vice versa with negative staff member statements. In the Sprangers et al. (2015) study, the interaction focused on generalized ADLs and the specific communication nursing aids were using during the care. In the Resnick et al. (2021) study, the interaction focused on general ADL care provided to the residents and how it affected a resident's general BPSD.

Psychosocial Care Interaction

Fourteen of the 27 articles that involve a psychosocial care interaction intervention (Balzotti et al., 2018; Buettner & Fitzsimmons, 2002; Cheung et al., 2018; Curyto et al., 2017; Hsu et al., 2015; Hutson et al., 2014; Livingston et al., 2019; Magee et al., 2017; Middelstadt et al., 2016; Phillips et al., 2010; Tappen & Williams, 2009; Vasse et al., 2010; Vink et al., 2012; Yoshiyama et al., 2015). Psychosocial care consisted of the emotional and mental support that resident need while they spend their last few years of life in a long-term care facility. Examples of this type of interaction can include structured interactions such as music, art, and games or more unstructured interactions such as laughing with a resident, comforting a resident when he/she is sad, or validating a resident when he/she feels angry. The 14 articles included in this review focused on communication tools (Balzotti et al., 2018; Curyto et al., 2017; Tappen & Williams, 2009; Vasse et al., 2010), reminiscence therapy/storytelling (Hutson et al., 2014; Phillips et al., 2010), musical interventions (Cheung et al., 2018; Hsu et al., 2015; Vink et al., 2012), multisensory stimulation (Carbone et al., 2021; Hutson et al., 2014; Magee et al., 2017; Middelstadt et al., 2016; Yoshiyama et al., 2015), physical exercise (Buettner & Fitzsimmons, 2002; Hutson et al., 2014), and doll therapy (Balzotti et al., 2018).

The Buettner & Fitzsimmons (2002) study focused on a 15-minute staff-resident bike ride and its impacts on BPSD. The Tappen & Williams (2009) study looked at how a specific ‘Therapeutic Conversation’ tool used between staff member and resident could have positive effects on a resident’s BPSD. The Phillips et al. (2010) study tested a story telling program, ‘TimeSlips’, on residents with dementia to see its effects on BPSD. The systematic review conducted by Vasse et al. (2010) gathered studies that examined communication strategies used between staff member to resident and their relationship to residents’ BPSD. The Vink et al.

(2012) study implemented a music therapy intervention between staff member and resident. The Hutson et al. (2014) study implemented a program called ‘Sonas’ which involved multisensory stimulation, reminiscence activities, and physical exercises. The Hsu et al. (2015) study used a music therapy between staff member and resident to manage a residents’ BPSD. The Yoshiyama et al. (2015) study implemented aromatherapy applied by staff member to resident to discover potential effects on residents’ BPSD.

The Middelstadt et al. (2016) study examined how a cognitive stimulation intervention performed by staff member to resident could have effects on a residents’ BPSD. The Curyto et al. (2017) study implemented a specific program called ‘STAR-VA’ to focus on how communicate well with veterans with dementia. The Magee et al. (2017) study focused on a multisensory intervention called ‘Namaste Care Program (NCP)’ to help with agitated behaviors in residents with dementia. The Cheung et al. (2018) implemented a ‘music-with-movement’ intervention conducted by staff members to identify potential effects on BPSD. The Balzotti et al. (2018) study tested two treatments—gestural-verbal therapy and doll therapy—to see their effects on BPSD. Lastly, the Carbone et al. (2021) study looked at how personalized cognitive stimulation therapy provided by staff members could affect residents’ BPSD.

Combination of Physical & Psychosocial Care Interaction

Eight out of the 27 studies that involved both physical and psychosocial care interaction interventions in their studies (Ballard et al., 2016; Cunningham & Williams, 2007; Livingston et al., 2019; Ragneskog et al., 1998; Resnick et al., 2022; Stacpoole et al., 2014; Van Haitsma et al., 2013; Vocht et al., 2015). The Ragneskog et al. (1998) study observed interactions during social activities (such as coffee breaks or visitations), dinnertime, music time, and morning care activities. The Cunningham & Williams (2007) case-study looked at a specific interaction with

four different residents. One involved a staff member getting a resident ready for a medical appointment, another involved a staff member sitting and talking with a resident in a hallway, another involved a nurse assisting a resident with her coffee, and the last involved a nurse checking the circulation in a resident's casted lower leg. The Van Haitsma et al. (2013) study looked at an intervention between staff member and resident that involved five basic types of activities—physical exercise, music (singing or listening), reminiscence, ADLs, or sensory stimulation. The Stacpoole et al. (2014) study implements the 'Namaste Care Program' which focuses on sensory stimulation, food/hydration, meaningful activity, and life story for residents. The Vocht et al. (2015) study observed individualized, personal care moments between nurse and resident. Examples of these care moments include hand massage, singing, and playing with dolls.

The Ballard et al. (2016) study focused on a social interaction intervention that included exercise for the resident with dementia. The exercise interventions were implemented by staff, and they included routine walking, exercise to music, dancing or chair volleyball. The Livingston et al. (2019) study tested a program called the 'MARQUE intervention' that the staff were trained in and then they implemented it into their care. This intervention consisted of implementing person-centered care to PLWD, which looked like getting to know the person with dementia, improving communication, understanding agitation, and practical responses for the staff member. The Resnick et al. (2022) study implemented 'Function Focused Care' which encouraged staff members to engage residents in more physical activity in all care interactions (specifically, the physical and psychosocial care interactions). The aim of this study was to see if this intervention could help manage BPSD in residents with dementia.

Spiritual Care Interaction

Of the 27 articles included in this review, two studies examined a spiritual care interaction and its effects on BPSD (Magee et al., 2017; Stacpoole et al., 2014). A spiritual care interaction consists of providing an atmosphere where the resident can engage in any spiritual practices that he/she desires. Examples of the care include offering the resident time during their morning routine to complete spiritual rituals, connecting the resident with the facility's chaplain services, or asking the resident how you can enhance their spiritual wellbeing. Both Stacpoole et al. (2014) and Magee et al. (2017) focused on the Namaste Care program which seeks to address symptoms of dementia through an enhanced nursing program that integrates compassionate care with individualized meaning activities (Simard, 2013). The goal of the Namaste Care program is to promote residents with advanced stages of dementia's spiritual well-being.

Quality of Interaction – Positive/Negative/Neutral

For each study included, the staff-resident interactions were categorized into positive social, positive care, neutral, negative protective, negative restrictive, or not enough information to define. The tool specifically used to categorize these articles is the Quality of Interactions Schedule (QuIS) which was created by Dean et al. (1993). The QuIS is broken into two parts. The first describes the interaction location, interpersonal distance, interaction situation, type of staff or person(s) the resident is interacting with, and the level of participation of the resident (active versus passive). The second part includes the data on the quality of staff-resident interactions, which is broken down into the positive/negative/neutral categories listed previously.

Per Paudel et al. (2020), the interaction must be observed for approximately 15 minutes, then the evaluator must code the interaction as positive social, positive care, neutral, negative protective, negative restrictive. During these 15 minutes, multiple interaction types could be

recorded. Due to this criterion, none of the 27 articles included in this review were able to be placed into the specific quality of interactions categories. Therefore, all 27 of the articles were categorized as ‘not enough information to define’. While each of the articles described a specific staff-resident interaction to be included in this review, none were specific enough to be evaluated by the QuIS tool.

Outcome – Behavioral & Psychological Symptoms of Dementia (BPSD)

The types of BPSD seen measured throughout the 27 studies were agitation, aggression/resistiveness to care, depression, anxiety, mood, collective BPSD, and quality of life.

Agitation

Ten of the 27 studies measured for an outcome of agitation in a PLwD. Amongst these ten studies, there were three different types of measurement tools used to quantify a resident’s agitation. In Ragneskog et al. (1998) study, one of the ten studies, there was specific behavioral coding used to quantify the number of times agitation was observed. Eight of these ten studies used the Cohen-Mansfield Agitation Inventory (CMAI) to measure a residents agitation (Buettner & Fitzsimmons, 2002; Livingston et al., 2019; Magee et al., 2017; Resnick et al., 2021, 2022; Sprangers et al., 2015; Vink et al., 2013; Yoshiyama et al., 2015). The CMAI measurement tools consisted of four categories – physical/aggressive, physical/non-aggressive, verbal/aggressive, and verbal/non-aggressive – all of which have subcategories. Each subcategory rates the average frequency of each occurrence a resident has over the course of two weeks. In Gozalo et al. (2014), the last of the ten studies, a study-specific tool was used to measure the rate of agitation per the study’s desired outcome measurement.

Results for Agitation. Ragneskog et al. (1998) discovered probable reasons for agitation. These results were discomfort, a wish to be served immediately, conflicts w/ co-patients or the

nursing staff, environmental noises or sound, invasion of personal space, no probable reason. The results for Buettner & Fitzsimmons (2002) are slight decrease in CMAI score ($p=0.815$).

Livingston et al. (2019) outcomes stated that the CMAI scores were not significantly difference between their experimental group and control group at the 8-month follow up. Magee et al. (2017) states there was a noted decline in CMAI scores at the end of the intervention. Resnick et al. (2021) observational studies reported that there was little evidence of behavioral symptoms. In the Resnick et al. (2022) study, the mean score for agitation, based on the CMAI was 14.76 ($SD=2.2$) which refers to lower levels of agitation. Sprangers et al. (2015) states there was minimal significance on reducing agitation. The agitations scores based on the CMAI were 44.75 during baseline and 44.37 during post-intervention, indicating minimal change based on the intervention. The Vink et al. (2013) study showed the residents with at least one agitated behavior 1-hour before the session had reductions in CMAI scores that were somewhat greater in the music therapy group compared with the general activities group, but this was statistically not significant ($p = 0.090$). In the Yoshiyama et al. (2015) study, the agitated behaviors consisted of complaining and repetitious mannerisms, were measured by CMAI, changed but did not show statistical significance. In the Gozalo et al. (2014) study, there were statistically significant declines in agitation ($p=0.008$).

Aggression/Resistiveness to Care

Five of the 27 studies measured for aggressive/resistiveness to care in a PLwD. Both Cunningham & Williams (2007) and Resnick et al. (2022) used the Resistiveness to Care (RTC) scale to measure this specific type of BPSD. This scale lists different kinds of resistive behaviors a PLwD could potentially display when care is being provided. The observer must rank the behaviors based on its intensity and indicate whether the care was able to be provided or not. In

both the Herman & Williams (2009) study and the Gozalo et al. (2014) study, there was a behavioral coding created to measure aggression/resistiveness to care that was specific to each study. In Belzil & Vezina (2015), the last of the five studies, the Resistiveness to Care Behaviors Grid—created specifically for the study—was used to measure this BPSD outcome. This grid assessed the frequency of five types of resistiveness to care behaviors (either passive physical, active physical, aggressive physical, verbal, or verbally aggressive).

Results for Aggression/Resistiveness to Care. The Cunningham & Williams (2007) found a negative trend in the correlations between RTC and messages of care in the staff community, whereas the control group significantly correlated with RTC score. The Resnick et al. (2022) study found no difference in RTC with a mean of 11 on the RTC scale (SD = 0.46). The Herman & Williams (2009) study found a significant association between staff communication type and subsequent resident RTC was observed ($P < .001$). In other words, staff communication style and resident RTC showed a high degree of synchronicity. The Gozalo et al. (2014) study found statistically significant declines in physical and verbal behavior ($p=0.004$). The Belzil & Vezina (2015) observational study found that a staff member's negative statement is strongly associated w/ RTC when resistiveness is already present and moderately associated when PLwD showed no behavior before occurrence. A staff member's neutral state is moderately associated with RTC when resident is already resistive and weakly associated when no RTC was present initially. A staff member's positive instruction is associated with no RTC.

Depression

Ten of the 27 studies measured an outcome of depression in a PLwD. Both Buettner & Fitzsimmons (2002) and Cheung et al. (2018) used the Geriatric Depression Scale (GDS) to quantify depression within their studies. The GDS comprises of 15 short questions for the older

adult that can be answered in yes/no format. For example, one of the questions is “do you feel that your situation is hopeless?” and the PLwD can respond with either yes or no. In the Tappen & Williams (2009) study, the Montgomery-Asberg Depression Rating Scale was used to quantify depression in the PLwD. This scale has ten different categories related to depression screening and the reviewer must rank on a scale from 0 (no occurrence) to 6 (most definite occurrence). An example of one of these categories is “reduced appetite” and the reviewer must rank from 0 (normal or increased appetite) to 6 (needs persuasion to eat at all). The last seven of these studies that measured depression as an outcome used the Cornell Scale for Depression in Dementia (CSDD) (Carbone et al., 2021; Hutson et al., 2014; Magee et al., 2017; Phillips et al., 2010; Resnick et al., 2021, 2022; Yoshiyama et al., 2015). This screening tool is composed of five different categories—mood-related signs, behavioral disturbance, physical signs, cyclic functions, and ideational disturbance. All these categories have subcategories. The reviewed scales the PLwD within each subcategory using absent (0), mild or intermittent (1), severe (2), or unable to evaluate (n/a).

Results for Depression. Buettner & Fitzsimmons (2002) found decreased depression ($p < 0.000$) when implementing the therapeutic biking intervention. The Cheung et al. (2018) study discovered significant changes in depressive symptoms in the music-with-movement group compared to the music listening group and social activity group. In the Tappen & Williams (2009) study showed that the treatment group participants evidenced a significant decline in depressive symptoms ($p = 0.02$). Carbone et al. (2021) reported decreased depression scored on the CSDD. The Hutson et al. (2014) study reported no significant differences found between the intervention group and control group for depression. Magee et al. (2017) found a decline in CSDD scores. The Philips et al. (2010) study surprisingly found a decline in CSDD scores in the control group

but not in the intervention group receiving the tested TimeSlips intervention. The Resnick et al. (2021) observational study found little evidence of depression or sadness. The Resnick et al. (2022) study found that the mean score on the CSDD was 1.87 (SD=3.15) meaning there was minimal signs of depression. Lastly, the Yoshiyama et al. (2015) study found that the symptoms related to depression improved (CSDD scores), but not enough to gain statistical significance ($p=0.0625$).

Anxiety

Only two studies specifically measured for an outcome of anxiety in PLwD (Cheung et al., 2018; Hutson et al., 2014). Both studies used the Rating Anxiety in Dementia (RAID) Scale to measure this kind of BPSD. This scale includes six categories used for scoring—worry, apprehension and vigilance, motor tension, autonomic hypersensitivity, phobias, and panic attacks. Four of these six categories have subcategories. Within these categories/subcategories, the reviewer must score the PLwD with either absent (0), mild or intermittent (1), moderate (2), severe (3), or unable to evaluate (U). A score of 11 or more suggest significant clinical anxiety.

Results for Anxiety. The study conducted by Cheung et al. (2018) found insufficient evidence to conclude that the Music-with-Movement intervention was not significantly different from the music listening group and social activity group regarding changes with anxiety. The Hutson et al. (2014) also found no significant differences with anxiety in PLwD between the intervention group and the control group.

Mood

Only one study specifically measured for an outcome of mood in PLwD (Tappen & Williams, 2009). This study used the Dementia Mood Assessment (DMAS) to quantify their outcome of mood. The DMAS is a 24-item scale that rates observable mood and functional

abilities. The first 17 items measure mood, whereas the remaining items measure severity of dementia. All but two items measure mood, whereas the remaining items measure severity of dementia (Tappen & Williams, 2008). This mood assessment tool was created by Tappen & Williams and then used in the study included in this review.

Results for Mood. The study performed by Tappen & Williams (2009) found an increased positive mood and a decreased negative mood in the treatment group participants (receiving the Therapeutic Conversation intervention), whereas the control group participants maintained the same level of mood or declined in mood.

Collective BPSD

The last outcome that was measured in twelve of the 27 studies in this review is collective BPSD. Instead of specifically pin-pointing one type of BPSD, these studies looked at all types of BPSD. Eleven of these studies quantified this by using the Neuropsychiatric Inventory–Nursing Home Version (Balzotti et al., 2019; Belzil & Vézina, 2015; Carbone et al., 2021; Hsu et al., 2015; Hutson et al., 2014; Livingston et al., 2019; Middelstädt et al., 2016; Phillips et al., 2010; Sprangers et al., 2015; Stacpoole et al., 2015; Yoshiyama et al., 2015). This screening tool analyzes twelve different types of BPSD—delusions, hallucinations, agitation/aggression, depression/dysphoria, anxiety, elation/euphoria, apathy/indifference, disinhibition, irritability/lability, aberrant motor behavior, sleep/nighttime behavior disorders, and appetite/eating disorders. For each of these types of BPSD, the reviewer must first answer 6 questions specific to the BPSD and the resident. Then the reviewer must rate on a numerical scale each type of BPSD based on frequency, severity, and occupational disruptiveness. In the last of these studies, Van Haitsma et al. (2013) used study-specific observational categorizing to

quantity BPSD as their desired measured outcome. This was done through direct observation in the form of 10-min behavior streams and then BPSD was extracted using study-specific coding.

Results for Collective BPSD. In the Balzotti et al. (2019) study, there were two interventions being tested. For the doll therapy intervention, there was a highly significant BPSD improvement seen from pre-test to post-test ($p = 0.007$). For the gesture-verbal treatment, there was no significant difference between this experimental group and the control group regarding changes in BPSD. Belzil & Vézina (2015) found a significant association between the staff member's behavior towards a PLwD and the onset of certain behaviors by the PLwD. Carbone et al. (2021) found no change in NPI scores before and after the intervention. The Hsu et al. (2015) study found that BPSD in the standard care group increased over 5 months while BPSD in the music therapy group decreased. The Hutson et al. (2014) study reported no significant differences in BPSD between the intervention group and the control group. The Livingston et al. (2019) also found no significant findings regarding changes in BPSD from the intervention. The Middelstädt et al. (2016) study showed a significant decline in BPSD when implementing the cognitive stimulation intervention. In Phillips et al. (2010) the treatment group exhibited significantly higher quality of life than the control group ($p=0.05$). Sprangers et al. (2015) found there was a trend for a decrease in the severity of BPSD in the intervention group compared to the control group ($p=0.10$). Stacpoole et al. (2015) found BPSD improved significantly in four out of the five care homes involved in their study. The Yoshiyama et al. (2015) study found that BPSD measured by the NPI did not significantly improve with either of the tested therapies. Lastly, the intervention in the Van Haitsma et al. (2013) study found to be highly effective on the BPSD of the PLwD ($p=0.000$).

Quality of Life

Five of the 27 studies had the quality of life (QoL) of the PLwD as an outcome measure. Two of the studies used the Dementia Quality of Life-Proxy (DEMQOL-Proxy) to quantify QoL (Ballard et al., 2017; Livingston et al., 2019). This measurement tool consists of 32 items that measure six domains of general health, mood behavioral symptoms, cognition and memory, and physical and social functioning. These items are rated on a four-point scale ranging from ‘not at all’ to ‘a lot’. The higher the score indicates the higher QoL. Three of the studies used the Quality of Life–Alzheimer’s Disease Scale (QoL-AD) to measure the QoL in their participants (Carbone et al., 2021; Hutson et al., 2014; Phillips et al., 2010). This type of tool is used in an interview format. The interviewer asks the PLwD 13 different questions, and the options of response are ‘poor’, ‘fair’, ‘good’, or ‘excellent’. For example, one question that is asked is ‘how do you feel about your energy level?’ and the PLwD must respond with one of the four-word choices.

Results for Quality of Life. In the Ballard et al. (2017) study there was a statistically significant improvement in the health-related quality of life seen in the group receiving the social interaction intervention ($p=0.04$). Livingston et al. (2019) showed no significant difference between the experimental group and control group regarding quality of life. Carbone et al. (2021) showed results for a slight increase in QoL, and the increase was higher in the treatment group versus the control group. The Hutson et al. (2014) study found no significant differences between the experimental group and control group regarding quality of life. In Phillips et al. (2010) the treatment group exhibited significantly higher quality of life than the control group ($p=0.05$).

Relationship Between Staff-Resident Interaction and BPSD

Across outcome measures for each study, there is a common trend of a staff-resident interaction having beneficial effects on resident’s BPSD. Specifically, the studies that measured

agitation as their outcome did not find a statistically significant decline in agitation due to the staff-resident interventions. However, the studies focusing on aggression/RTC did find a statistically significant decline post-intervention. Most of the studies included in this review that measured for depression found a significant decline post-intervention. None of the included studies found significant results with declines in anxiety. The studies that quantified mood as the outcome found a significant increase in positive mood and decrease in negative mood post the staff-resident interactions. About half of the studies measuring collective BPSD found a significant decline in BPSD, others saw no change in BPSD or an increase. Lastly, about half of the studies measuring QoL found a significant decline in QoL. Chapter five will dive further into these results and look at the significant relationship between a staff-resident interaction and a resident's BPSD.

Table 4.1: Summary of Reviewed Studies

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
Ragneskog et al. (1998) Sweden	Observational Study Level III Low Quality (C) Video recordings of patients with dementia from three prior studies	- To identify probable reasons for expressed agitation in the patient. - To apply these findings to the Progressively Lowered Stress Threshold (PLST) model	Older adults with dementia (N = 40-60)	- The first study consisted of 33 patients and their caregivers who were videotaped during social activities, such as coffee breaks or visitations by troubadours. - The second study involved a dinner music intervention. 7 patients were videotaped during dinner as they sat around a table in a dining room. - The third study was an individualized music study, where all patients were chosen b/c they had signs of agitation. In addition, they included a patient recording during morning care activities.	Nursing home caregiver staff	Not enough information to define Physical care & psychosocial	Observation & behavioral coding	- Discovered probable reasons for agitation: discomfort, a wish to be served immediately, conflicts w/ co-patients or the nursing staff, environmental noises or sound, invasion of personal space, no probable reason
Buettner & Fitzsimmons (2002) New York, USA	Classical experimental design w/ randomization.	To discover if a daily program of therapeutic biking will	PLwD, MMSE 24 or less (N = 70).	A one-to-one bike 15-minute ride between staff member and resident; followed by a small group discussion.	Nursing home staff	Not enough information to define	Mini-Mental State Examination (MMSE)	- Decreased depression (p < .000)

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
	Level II Good Quality (B) A control & treatment group tested at three time points: pretest, post-test, and follow up.	improve a PLwD's depression, sleep patterns, feelings of isolation, & negative behavior patterns.	Rural long-term care facility (skilled nursing & assisted living).			Psychosocial	Geriatric Depression Scale (GDS) Cohen-Mansfield Agitation Inventory (CMAI)	- Decreased sleep disturbances (p < .000) - Increased activity involvement (p < .000) - Slight decrease in behavior (CMAI score) (p = 0.815).
Cunningham & Williams (2007) N/A	Single-subject case study. Level III Good Quality (B) Videotapes were recorded during resident-nursing staff interactions. Four videos were extracted	To examine how one nursing home resident with dementia responded to nursing staff use of elderspeak communication.	78y/o woman who was diagnosed with probable Alzheimer's dementia (N=1). Long-term skilled nursing facility in small, rural Midwestern	There are four specific interactions focused on this study. The first is a staff member preparing the resident for a medical appointment. The second is a staff caregiver talking with the resident as she sits in a wheelchair in the hallway. The third a nurse assisting the resident at a meal with her coffee. The fourth is a nurse checking the circulation in the	Staff members who performed residential care.	Not enough information to define Physical & psychosocial	Resistiveness to Care Scale Coding of Elderspeak Emotional Tone Rating Scale	- Negative trend was noted in the correlations between RTC and messages of care in staff community, whereas control was significantly correlated w/ RTC score. - Negative associations between respectful

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
	from 25 videos. These were pulled to created behavioral analysis and assess relationships between staff elderspeak & resident RTC.		community. Then traditional skilled nursing unit.	resident's casted lower extremity.				communication and resident RTC scale score. - Findings link nursing staff communication w/ behavioral symptoms during care of PLwD.
Herman & Williams (2009) N/A	Observational study Level III Low Quality (C) The principal investigator (PI) used a handheld video recorder to tape residents and staff during daily care activities. Prior to the	- To determine what specific resistive behaviors were directly related to the use of elderspeak by nursing staff.	Residents with dementia (N=20) Nursing staff (N=80)	On the actual day of recording, staffs assigned to care for participating residents were invited to sign consent forms and to participate. The principal investigator (PI) shadowed the resident during 1 shift and recorded ADL interactions as they occurred. With a few exceptions, bathing, eating, dressing, oral care, and other ADL were captured during one day. To ensure privacy, only activities or portions of	Nursing staff	Not enough information to define Physical	Behavioral coding - Using the Noldus Observer Video Pro program, videos were coded for nursing communication and resident behavior states. - Communication state was coded as elderspeak, silence, & normal adult	- A significant association between staff communication type and subsequent resident RTC was observed (P < .001). In other words, staff communication style and resident RTC show a high degree of synchronicity.

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
	actual recording, the PI spent a day on the resident's unit to allow the participants to adjust to the presence of the PI and camera and to identify least conspicuous positions to videotape from.			activities that did not require a curtain or door to be closed were recorded. (minimal interaction – unclear)			speech and considered potential antecedents of RTC behavioral responses. - Resident behavior state was coded as neutral, cooperative, & resistive to care. - Each resident behavior & nursing communication state included both verbal & nonverbal behaviors.	- Resident RTC actions of push away, no/negative, and scream/yell were significantly more likely to co-occur with elderspeak communication and occurred less frequently than expected with cry.
Tappen & Williams (2009) Miami, Florida	Two-group repeated measures design with random assignment. Level I	The current study builds on their previous work by testing whether Therapeutic Conversation can contribute to the mental	Residents with Alzheimer's Dementia (N=30)	30-min modified counseling sessions (Therapeutic Conversation) were provided 3 times per week for 16 weeks to participants in the treatment group. Therapeutic Conversation	The intervener is a graduate nursing student trained to provide the intervention	Not enough information to define Psycho-social	Dementia Mood Assessment Scale (DMAS) Alzheimer's Disease and Related Disorders (AD-RD)	- Treatment group participants evidenced increased positive mood and decreased negative mood, whereas control

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
	<p>Good Quality (B)</p> <p>Individuals were randomly assigned to either the treatment group or the control group. The treatment group were pretested immediately before the start of treatment & at the end of 16 weeks of treatment. Participants in the control group were tested following completion of consent procedures and again in 16 weeks.</p>	<p>health of older individuals with AD by improving mood.</p>		<p>is a psychotherapeutic approach modified for individuals with AD. The goals of Therapeutic Conversation are to: form & maintain a supportive relationship; provide the opportunity for the individual to express his or her feelings and concerns; reduce isolation; improve self-esteem; improve mood; reduce anxiety; maintain verbal abilities; maintain dignity.</p>			<p>Montgomery-Asberg Depression Rating Scale (MADRS)</p>	<p>group participants maintained the same level or declined.</p> <p>- Treatment group participants who engaged in Therapeutic Conversation evidenced a significant decline in sadness ($p = 0.03$) & apathy ($p = 0.05$) whereas control participants remained at the same level.</p> <p>- Treatment group participants also evidenced a significant decline in depressive</p>

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
								symptomatology (p = 0.02).
Phillips et al. (2010) Missouri, USA	Quasi-experimental Level II Good Quality (B) A two-group, repeated measures design was used to compare persons with dementia who were assigned to the twice-weekly, 6-week Timeslips intervention group (n = 28) or usual care group (n = 28) at baseline and postintervention.	- To test the effect of a storytelling program, TimeSlips, on communication, neuropsychiatric symptoms, and quality of life in long-term care residents with dementia.	Older adult with dementia (N = 56)	In a typical TimeSlips session, PWD are seated in chairs surrounding a facilitator. A funny or staged photograph is distributed to each person in the group. Facilitators use open-ended prompts to engage the storytellers, recording verbatim responses on a flip chart or a marker board. Facilitators do not correct storytellers but instead provide whatever is needed to allow the PWD to respond to the image. Responses are woven into an inclusive narrative & read back to the storytellers to help them develop the story further or bring it to a close. - The PI & research nurse were the ones implementing this intervention.	Principle investigator (PI) and the research nurse	Not enough information to define Psycho-social	Cornell Scale for Depression in Dementia Neuropsychiatric Inventory – Nursing Home Version (NPI – NH) The Functional Assessment of Communication Skills The Quality of Life – Alzheimer’s Disease The Observed Emotion Rating Scale	- Compared with the control group, the treatment group exhibited significantly higher pleasure at Week 3 (p < .001), Week 6 (p < .001), and Week 7 (p < .05). - Small to moderate treatment effects were found for Week 7 social communication (d = .49) and basic needs communication (d = .43). - A larger effect was found for

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	n at Weeks 7 and 10.							pleasure at Week 7 (d = .58)
Vasse et al. (2010) N/A	Systematic Literature Review Level II Good Quality (B) Pubmed, PsychInfo, Web of Science, the Cochrane Library, and reference lists from relevant publications were systematically searched to find articles about controlled interventions w/ communi-	The aim of this review was to study the effects of nonpharmacological interventions in residential and nursing homes on (1) communication between residents with dementia and care staff, and (2) the neuropsychiatric symptoms of residents with dementia.	Residents with moderate to severe dementia (N=30-201)	This review focused on the intervention that aimed at improving the communication of participants. Communication was defined as sharing information by speaking, writing, body movements, or other signaling behavior. 2 types of intervention: first type (10 studies) is a communicative session or intervention for residents carried out by a trained specialist or staff member at a “set-time session”. The second type (9 studies) was to teach care staff to apply communication techniques in daily care activities, the “daily-care” intervention.	Residential care assistants or other members of the care team.	Not enough information to define Psycho-social	A variety of instrumentation was used among the studies.	- Positive effects for communication outcomes are shown in individual studies when set-time interventions are single-task sessions, such as life review or 1-on-1 conversation, & when care staff apply communication techniques in daily care activities. - Both communicative interventions effects on BPSD

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	cation strategies. The data collected were pooled and subjected to a meta-analysis.							symptoms were marginal. - In most studies no effects on behavior were found or an outcome measure for BPSD symptoms.
Vink et al. (2012) Netherlands	Randomized Control Trial Level I Good Quality (B) Over a period of 4 months, residents participated in group interventions with a max. of 5 residents. Each music therapy	This study aimed to compare the effects of music therapy with general recreational day activities in reducing agitation in people with dementia, residing in nursing home facilities.	Residents with diagnosis of dementia from nursing home physician (N=77)	- In the music therapy condition , sessions started with a welcome song after which residents listened to music selected, sung or played by the and, if possible, actively participated in music activities by singing, dancing or playing a music instrument. The music was selected by the therapist to incite pleasant memories and to reduce agitation based on musical parameters, such as a slow tempo and little instrumentation.	Trained music therapists and occupational therapists	Not enough information to define Psycho-social	Cohen-Mansfield Agitation Inventory (CMAI)	- In residents with at least one agitated behavior 1 h before the session, reductions in CMAI scores were somewhat greater in the music therapy group compared with the general activities group, but this was statistically not significant ($p = 0.090$ after

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	intervention lasted for 40 min and was provided twice weekly, up to a max of 34 sessions, by a formally trained music therapist with at least 5 years working experience. Changes in agitation were measured with a modified Cohen-Mansfield Agitation Inventory (CMAI) at four intervals on each intervention day.			- Recreational day activities also lasted for 40 min and consisted of participation in general daily recreational activities, such as handwork, playing shuffleboard, cooking and puzzle games. These activities were provided by occupational therapists. Both music therapy and the general activities were provided in separate rooms, away from the ward.				adjustment for agitated behaviors 1 h before the session). - There was no interaction effect between type of intervention and session number for CMAI scores at 4 h after the intervention (p = 0.603).
Van Haitsma et al. (2013)	Randomized Control Trial	The purpose of this RCT was to test the	Nursing home residents	The intervention offered five basic types of activities reflective of the	CNAs implemented this	Not enough information to define	Preferences for Everyday Living	- Higher withdrawal and ADL

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Pennsylvania	<p>Level I</p> <p>High Quality (A)</p> <p>Residents were randomly assigned either to usual care or to one of 2 experimental conditions in which CNAs led one-to-one activities. RAs recorded behavioral and affective states before, during, and within a 30-min period after the intervention.</p>	<p>effectiveness of a preference-based activity intervention to improve affect and behavioral engagement, as well as reduce negative affect and behaviors, in nursing home residents with dementia.</p>	<p>with dementia (N=180).</p>	<p>most common preferences. Within each category, two or more specific options were offered (30 activity options total). Physical exercise included the option to take an outdoor walk or work with clay. Music included singing or listening to a favorite artist; reminiscence, reviewing family photos, or writing letters; ADLs, manicures, or making a snack; and sensory stimulation could mean a hand massage with lotion or smelling fresh flowers.</p>	<p>intervention with the residents.</p>	<p>Physical & psychosocial</p>	<p>Inventory-Nursing Home (PELI-NH)</p> <p>Outcome measures were collected through direct observation in the form of 10-min “behavior streams.”</p> <p>- Resident behavior, location, & affect state were recorded.</p>	<p>impairment scores were related to less pleasure, more anger, more anxiety, and less alertness; however, these covariates did not prevent the treatment effect from being highly (p=0.0000).</p> <p>- The AC and IPPI groups had significantly greater psychosocial task participation than the UC group.</p> <p>- The IPPI group showed significantly more very positive responses than</p>

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								either the UC or AC groups.
Gozalo et al. (2014) New York	Randomized crossover diffusion study. Level I Good Quality (B) Two groups observed at three points in time, with crossover between the two groups, was conducted in six nursing homes from 2009 to 2011.	To evaluate the effectiveness of the Bathing Without a Battle intervention in reducing physical and verbal aggressive behaviors for nursing home residents with dementia.	Nursing home residents with dementia (N=240) 6 nursing homes New York	The core of the Bathing Without a Battle (BWAB) intervention involves different techniques designed to make showering, tub bathing, in-room bathing, and hair washing safe and comfortable for the persons receiving and giving care. This strategy employs communication techniques appropriate for the resident's impairment level, views behavioral symptoms as expressions of unmet need, respects the preferences of the resident, and regulates the physical environment with the goal of maximizing resident comfort.	3-5 nursing staff members: Registered nurses & CNAs	Not enough information to define Physical	Care Recipient Behavior Assessment (CAREBA) - Measured rate of aggressive & agitated behaviors	- The intervention was found to be associated with a statistically significant 15.2% (p = 0.04) smaller percentage of time that residents were observed to be calling for help. - Combining all physical and verbal individual behaviors into three summary indicator variables (labeled as any physical behavior, any verbal behavior, any physical or verbal

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								behavior), statistically significant declines were found in any verbal behavior of 17.8% (p=0.008) & in any physical or verbal behavior 18.6% (p=0.004).
Hutson et al. (2014) United Kingdom	Pilot randomized controlled trial. Level I Good Quality (B)	- To investigate whether Sonas improves depression, anxiety, behavioral disturbance, communication, and QoL for residents with dementia. - To investigate feasibility (i.e., participant attendance and staff reports of	Older adults with moderate to severe dementia (N=39) 4 nursing care homes in the UK	Sonas sessions were planned to be facilitated 2x/week for 7 weeks. Sonas sessions involved multisensory stimulation (ex: the opportunity to listen to music, smell pleasant/interesting fragrant objects, taste food, & receive a massage), reminiscence activities (listening to proverbs and poems and looking at interesting household/personal items), & physical	Health care staff & trained Sonas personnel	Not enough information to define Psycho-social	Rating Anxiety in Dementia (RAID) Scale Cornell Scale for Depression in Dementia (CSDD) Neuropsychiatric Inventory Questionnaire (NPI-Q) Quality of Life-Alzheimer's	- No significant differences were found between the Sonas and the TAU groups for any of the outcome measures between baseline and follow-up. Notably, the effect sizes were so small (<0.20) that

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		implementing the intervention) by gathering information relevant to the practicalities of conducting future, larger trials examining the effectiveness of Sonas.		activities (gentle exercises done while sitting or standing). Although sessions were structured using a prerecorded tape, group facilitators were encouraged to use their knowledge of the group members to adapt the materials used in each session.			Disease (QoL-AD) Scale The Holden Communication Scale	there was no evidence to even suggest that a very large sample might produce a significant result indicating any worthwhile benefit. - <u>Note</u> : The intensity of the intervention and staff resources required may therefore make it difficult to implement consistently in care homes.
Stacpoole et al. (2014) South London	Action research design Level II Good Quality (B)	- The objective of the study was to evaluate the effects of the Namaste Care program on the behavioral symptoms of	Residents with advanced stages of dementia (N=37) Care Homes (N=5)	- Namaste Care is an intervention seeking to engage people with advanced dementia and enrich their QoL through sensory stimulation, shared activity and increased social interaction. Comfort is a	Care worker (someone who provides care to the resident)	Not enough information to define Physical & psychosocial & spiritual	Neuropsychiatric Inventory – Nursing Home Version (NPI – NH) Doloplus-2 behavioral pain assessment	- After the introduction of the Namaste Care program, both neuropsychiatric symptom severity and occupational

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	Action research is a critical, dynamic, collaborative process whereby the researcher engages with people to implement change and reflect upon the process of that change and its effect on the culture. Measures were recorded at baseline and then at three 1–2-month intervals.	residents with advanced dementia in care homes and their pain management.		primary aim of the care program, which includes formal pain assessment, as well as increasing care staff’s awareness and responsiveness to distress. The program takes place 7 days a week with 2-h sessions, morning, and afternoon. - Elements of the program include the presence of others, pain management, sensory stimulation, food treats/ hydration, meaningful activity, life story, care staff education, family meetings & care of the dying.			scale for the elderly	disruptiveness decreased in 4 CHs but inc. in one CH. - The frequency and severity of behavioral symptoms were significantly lower when comparing time intervals 1 & 2 with time intervals 2 & 3. - Neuro-psychiatric symptoms improved significantly in 4 of the 5 CHs. However, in CH C, the prevalence of neuro-psychiatric symptoms inc. while pain remained unrelieved.

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Belzil & Vezina (2015) N/A	Observational study Level III Low Quality (C) Began with 4 weeks of desensitization to the presence of research personnel. Then, 30 periods of daily hygiene care per PWD were recorded. These recordings were then categorized.	To study the interplay between various physical and verbal behaviors of caregivers and the RTC and collaborative behaviors of PWD in the context of daily hygienic care.	Older adults w/ confirmed dementia diagnosis & have been living in nursing home for at least 3 months (N = 8). Caregivers at nursing home (N = 43). Nursing home.	The staff caregiver provided daily hygienic care to the PLwD . The daily care routine corresponded to a range of activities related to the personal care of a resident, and could vary from one participant to another, but generally included daily hygiene, changing of incontinence protection, and dressing.	Caregivers who work at the facility.	Not enough information to define Physical	Resistiveness to Care (RTC) Behaviors Grid Clinical Dementia Rating Scale – Qualidem (CDR-Q) Severe Impairment Battery (SIB) Neuropsychiatric Inventory – Nursing Home Version (NPI – NH)	- Significant association between certain caregiver behaviors & the onsets of certain care recipient behaviors - Negative statement is strongly associated w/ RTC when resistiveness is already present. Moderate if PLwD showed no behavior before the occurrence. - Neutral state is moderately associated w/ RTC when resident already resistive. Weakly associated when

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								no resistiveness was present initially. - When there's no resistive behavior, positive instruction is closely associated w/ collaboration.
Vocht et al. (2015) Netherlands	Pre-/Post-test study. Level II Good Quality (B) Video recordings of resident-nurse interaction and surveys took place at three different points in time: pre-test (T0), first post-test (T1),	To assess the impact of a one-to-one 30-min individualized interaction per day on the behavior and quality of life of care-dependent residents with dementia .	Older adults with advanced dementia (N=15). Nursing home in the Netherlands.	The intervention consisted of an individualized, personal care moment by a nurse (working in close proximity the resident) for 30 min on a daily basis. The intervention was aimed at improving the wellbeing of the residents by individualized interaction . Interventions were selected from a list of activities that already had a proven positive effect on the behavior of residents with dementia.	Nurses	Not enough information to define Physical & psychosocial	Behavioral Codebook Qualidem Scale	- 5 behaviors significantly increased during the intervention: eye contact (p=0.04), touching (p=0.02), responding to speaking (p<0.01), tracking observable stimuli (p<0.01), asking questions about

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	and second post-test (T2). Interviews with nurses (T1 and T2) and relatives (T1) were also conducted.			Examples of these activities are hand massage, singing, and playing with dolls. Activities were selected in accordance with the preferences of the residents.				the activity (p<0.01). - No significant differences in the dimensions of QoL during study period (p values ranging 0.11 from 0.88). - Nurses reported how the <i>right</i> approach elicited unexpected responses from residents, such as the residents sharing feelings with the nurse & clearly valuing the interaction.
Hsu et al. (2015) United Kingdom	Cluster randomized control trial. Level I	To elucidate the interactive components of individual music therapy. To contribute	Older adults w/ dementia who display at least 2 BPSD (N=16).	Participants in the intervention group received 1:1 active music therapy 1x a week, in addition to standard care, for a period of 5 months.	Nurses	Not enough information to define Psychosocial	Neuropsychiatric Inventory – Nursing Home Version (NPI – NH)	- Dementia symptoms (NPI scores) in the standard care group increase over 5 months,

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	<p>High Quality (A)</p> <p>A mixed methods design: both qualitative & quantitative data were collected. Participants' levels of well-being and presentation of dementia symptoms were measured through interviews & observations at Baseline, Month 3, Month 5, and as a follow-up at Month 7</p>	<p>to the knowledge gaps within this field and explore how music therapy studies relates to the context of care.</p>	<p>Care staff member who has been at facility for at least three months (N=10).</p> <p>Two care homes in the United Kingdom.</p>	<p>Each 30-minute session was conducted by one music therapist in a quiet room on the unit & was video-recorded. The sessions were based on the live interactive music therapy methods. The therapists utilized their musical, vocal, bodily & facial expressions. These made up the auditory & visual inputs provided to the residents within sessions. These sensory inputs served as affective cues which could directly trigger patients' emotional & somatic reaction.</p>			<p>Dementia Care Mapping (DCM)</p> <p>Residents' physiological data</p> <p>Semi-structured interviews</p>	<p>while dementia symptoms in the music therapy group decreased.</p> <p>- The wellbeing of a resident (DCM scores) inc over time in the music therapy group from baseline to mo 7. The wellbeing for the standard care group decreased over this period.</p> <p>- Staff reported beneficial effects on residents, in particular on mood, emotion, sensorimotor functioning, self-expression, communication, memory,</p>

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								agitation, apathy, anxiety, & aberrant motor behavior.
Sprangers et al. (2015) Netherlands	Two group comparison design Level II High Quality (A) One ward served as the intervention group, and the other ward served as the control group. The two wards were separate: residents from different wards could not contact each other. The study was conducted in	- To assess the effects of the training on nursing aides' communication, caregiver distress, and job satisfaction and residents' psychopathology & agitation.	Older adult residents with dementia (N=26) Nursing aides' (N = 24)	In the mornings, during residents' activities of daily living , nursing aides' communication was observed from behind a door or curtain, because to be able to measure communication, hearing the conversations was sufficient. During these observations, the two communication skills checklists (CSC and OFGC) were used to record nursing aides' communication. Administration of one checklist took 5 minutes. The CSC was administered at least twice to the same nursing aide and the OFGC was administered at least four times. Each nursing aide	Nursing aids	Not enough information to define Physical	Communication Skills Checklist (CSC) Observation Form of General Communication (OFGC) Cohen-Mansfield Agitation Inventory – Dutch Version (CMAI-D) Neuropsychiatric Inventory Questionnaire (NPI-Q)	- Minimal significance on agitation – The agitation scores on the CMAI-D ranged from 29 to 203. For the intervention group, the mean agitation scores were 44.75 during baseline and 44.37 during postintervention observations. For the control group, these scores were 51.00 and 48.20, respectively. - There was a trend for a decrease of the

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	four phases: group assignment, baseline observations, training, and post-intervention observations. The total time period was 8 weeks.			was observed interacting with different residents.				severity of psychopathology in the intervention group against an increase in the control group (F(1,24)=2.88, P=0.10).
Yoshiyama et al. (2015) Nara, Japan	Randomized, crossover pilot trials Level I Good Quality (B) Participants were randomly assigned to the following two groups: (1) hand massage therapy that began with	To assess if aromatherapy can reduce the behavioral and psychological symptoms of dementia (BPSD), improve quality of care, and thus improve the quality of life for people with dementia.	Residents in nursing home with dementia diagnosis (N=12).	This study compared results of control therapy with jojoba oil with those of clinical aromatherapy with D&H oil administered by the same method. It was massaged gently on one hand and then the other in the following order: forearm, wrist, palm, fingers, and back of the hand. A single researcher and aroma therapist administered each therapy. with a total of 3 mL per both hands for 10 minutes in the	Researcher & aroma therapist administer each therapy	Not enough information to define Psycho-social	Cornell Scale for Depression in Dementia (CSDD) Cohen-Mansfield Agitation Inventory (CMAI) Neuropsychiatric Inventory—Brief Questionnaire Form (NPI-Q)	- The symptoms related to depression improved (CSDD score), but not statistically significantly, after the trials (versus before; p = 0.0625). - Agitated behavior consisting of complaining and repetitious mannerisms,

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	clinical aromatherapy and then switched to control therapy and (2) hand massage therapy that started with control therapy and then switched to clinical aromatherapy. B therapies were administered 3x per week for a total of 4 weeks, with a 4-week washout interval.			living room of the facility in the afternoon. Before and after the trials and 4 weeks after the study as a follow-up, a single researcher evaluated the effect on BPSD and also ADLs.				measured by CMAI, changed but did not show statistical significance. - BPSD, measured by NPI-Q and ADL, also did not significantly improve with either therapy.
Ballard et al. (2016) United Kingdom	Cluster randomized factorial study. Level I	To develop and evaluate an optimized antipsychotic review and PCC	Older adults with dementia (N=195).	The social interaction intervention was based on 3 evidence-based approaches, with supplementary communications skills	Staff of the care home	Not enough information to define	Dementia Quality of Life-Proxy (DEMQOL-Proxy)	- A statistically significant 6-point improvement in HRQL was seen in the group

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	<p>Good Quality (B)</p> <p>The unit of randomization was the care home. Each care home (cluster) received a randomly allocated intervention for 9months, in addition to training in PCC. Most homes were randomized to more than one of the three interventions (antipsychotic review, social intervention, and personalized exercise).</p>	<p>intervention to reduce antipsychotic use and improve well-being for people with dementia in care homes. The study adopted a novel factorial design to examine the added impact of antipsychotic review, social interaction, and personalized exercise respectively when combined with PCC training.</p>	<p>16 care homes in the UK where the PLwD resided.</p>	<p>training for staff to assist in their use of the approaches with people with impaired communication. Individualized care plans were developed per resident. The goal of exercise intervention was to promote physical activity, with a focus on pleasant experience to engage participants in at least 1hr/week. Exercise plans usually included routine walking with additional activities such as seated or standing exercise to music, dancing, or chair volleyball.</p>		<p>Physical & psychosocial</p>	<p>- This was measuring health-related quality of life (HRQL)</p>	<p>receiving the social interaction (p=0.04). - HRQL improvements observed for social interaction in the cognition (p=0.03) and appearance (p=0.01). - No overall impact on HRQL was observed for the exercise intervention in the main or sensitivity analyses. - A significant benefit was seen for the exercise intervention & positive</p>

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								emotion (p<0.001).
Middelstadt et al. (2016) Germany	Randomized control trial Level I High Quality (A) 71 persons w/ dementia were randomly allocated to the experimental group (EG; n = 36) that visited a CS program twice weekly for eight weeks or to the control group (CG; n = 35) that was receiving usual care. Neuro-psychological tests were conducted	To investigate the effects of CS on cognition, quality of life (QoL), behavioral symptoms, and activities of daily life in persons with dementia living in nursing homes.	People living with mild to moderate dementia in nursing homes (N=71)	The structure is as follows: Every session is framed by a short ritual in which every participant can report upon his or her mood. The first main phase includes an exercise targeting one of the four domains: executive functions, memory, language, or social cognition. Subsequently, a short period with a relaxation exercise from one of three domains is performed. Tasks in this period are inspired by the established approaches of progressive muscle relaxation and mindfulness (pg. 256). The second main phase includes sensory-stimulating procedures with tactile, olfactory, or auditory stimulation, or	The interventionist is a gerontologist	Not enough information to define Psycho-social	Neuropsychiatric Inventory – Nursing Home Version (NPI – NH) Alzheimer’s Disease Cooperative Study-Activities of Daily Living Inventory (ADCS-ADL)	- In the PP approach, a significant 3-way interaction effect, ADAS-cog Baseline × Depression × Group, showed that participants of the EG with low baseline scores in cognitive performance & fewer depressive symptoms had a higher probability to show cognitive improvements in the ADAS-cog from pretest to follow-up. - In the PP approach, a

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	before & after the intervention period & at six-week follow-up.			short narratives using slight movement tasks. Where possible, cognitive, and sensory exercises were constructed to establish a personal link to the biographies of group members and to induce conversations about personal experiences and opinions.				significant 3-way interaction effect, QoL-AD Proxy Baseline × Depression × Group, showed that participants of the EG with low QoL & low depressive symptoms at baseline had a higher probability to improve their QoL from pretest to follow-up.
Curyto et al. (2017) USA	Case Study Level III Low Quality (C) This study focuses in on the effects of the STAR-VA intervention on	To describe the clinical application of the STAR-VA behavioral intervention program and activators and consequences commonly	One 67 y/o man with dementia diagnosis & symptoms of BPSD Staff members caring for Mr. Jones	Implementation of the STAR-VA program for Mr. Jones. This consisted of first identifying his target behavior & also identifying the “activators”, or in other words, things that triggered Mr. Jones. Then the staff identified consequences with Mr.	Staff members caring for Mr. Jones	Not enough information to define Psycho-social	STAR-VA ABC card - Provided a structured method for identifying target behaviors & their circumstances and developing	- Four weeks later, Mr. Jones’ target behavior (physically threatening behavior when talking about money) had not occurred in the previous week. Staff now rated

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	one individual: Mr. Jones.	identified and changed.		Jones, trying to reason, explain, remind, and persuade with him. Then the staff set goals behaviors for him & begin to change their approaches with him. Staff were encouraged to change their nonverbal communication approach by making eye contact, smiling, sitting at the same level, and using a respectful tone of voice when talking to Mr. Jones. The staff also made sure to change the environment for Mr. Jones. For example, moving him to another area away from where he became angry. Lastly, the care staff would change the consequences with Mr. Jones.			behavioral plans.	the behavior as being not at all severe. - Assessed levels of anxiety decreased to below cutoff for significance. - As described on the final ABC card, when Mr. Jones approached a nurse asking about his money with a worried tone of voice, the nurse followed the ABC plan. There were positive effects seen in Mr. Jones (pg 41).
Magee et al. (2017) Northern Ireland	Implementation of a program into a nursing home	- To introduce the Namaste Care Program (NCP) to the	Older adults with advanced stage of	Facilitator held an NCP training session for nursing home staff. Then 2 staff members	Nursing care home staff & facilitator.	Not enough information to define	Cohen-Mansfield Agitation	- Decline in CMAI scores

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	(experiment design w/o randomization) Level II Good Quality (B)	care home staff and residents and identify the processes involved in running the program - To investigate the feasibility of measuring agitated behaviors, medication administration, incidence of infections, constipation, falls and BMI of residents participating in the program	dementia (N=9) Nursing home in Northern Ireland (N=1)	implemented this program. For a session, residents would be taken to a large lounge that was created to be a relaxing and calm ambience. At the start, residents hands were soaked in warm water and then dried and massaged. A small spray of their favorite scent was applied when available. Each day a different theme was then introduced, tailored according to residents needs/hobbies/like/dislikes. For example, for the theme of touch, different textures were used to stimulate pleasant memories. Table 1 lists all potential NCM activities.		Psycho-social & spiritual	Inventory (CMAI) Cornell Scale for Depression in Dementia (CSDD) Challenging Behavior Scale (CBS)	- Decline in Cornell Scale for Depression score - Decline in challenging behavior score
Cheung et al. (2018) N/A	Multicenter randomized controlled trial. Level I	To evaluate the immediate and lasting effects of an evidence-based music-	Older adults with moderate dementia (N=156).	The MM group participants listened to their preferred music and moved their limbs and trunk, twice a week for 6 weeks. The MM activities	Interventionist (trained research assistants).	Not enough information to define	RAID scale Geriatric Depression Scale (GDS)	- There were significant changes in depressive symptoms in the MM group

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff- Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
	<p>High Quality (A)</p> <p>Intervention participants received a 12-week MM program led by a trained health care professional. Participants in comparison ML group listened to their preferred music. Participants in the SA group engaged in social chatting. Cognitive functions, depressive symptoms, and anxiety were measured at baseline, the</p>	<p>with-movement (MM) intervention, as compared with music listening (ML) and social activity (SA), on the cognitive functions of nursing home residents with moderate dementia.</p>	<p>Nursing home.</p>	<p>included: batting balloons, waving ribbons, foot tapping, playing instruments, and mimicking movements demonstrated by the interventionist.</p>		<p>Psychosocial 1</p>	<p>MMSE</p>	<p>compared to the ML group and SA group. - Insufficient evidence to conclude that MM was significantly different from ML and SA in enhancing cognitive functions and improving anxiety and depressive symptoms.</p>

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
	6 th week, and 6 weeks post-intervention.							
Balzotti et al. (2018) Bisceglie, Italy	Pre-/post-design with randomization Level I Good Quality (B) Evaluated neuro-psychiatric symptoms in a total of 30 patients divided into 3 groups, the gesture-verbal treatment (GVT), the doll therapy (DT), and control groups, using a pre-post design. Treatment groups	- To compare the effects in older individuals with dementia living in a residential care, of two intervention programs, the gesture-verbal treatment (GVT), a treatment implemented by a previous method for word retrieval in individuals with aphasia, and the better-known doll therapy (DT). The GVT would act on both receptive	Older adults with dementia diagnosis (N = 30)	- The GVT protocol consists of 4 steps: (1) The therapist instructs the participants to perform slow-paced breathing exercises for 5 mins & then converses with them for 10 min. A conversational cue opens the conversation and suggests a specific direction or subject; (2) the therapist suggests a word from the selected topic & models the associated gesture for the word. The participants produce the target word and gesture 3 times; (3) the therapist presents the gesture alone and the participants imitate the gesture 3 times; (4) after a 5-second pause, the therapist prompts the participants to show and	The therapist	Not enough information to define Psycho-social	Neuropsychiatric Inventory Questionnaire (NPI-Q)	- The analysis of the NPI total score between preintervention and postintervention assessments showed a highly significant improvement in the DT group (Z = 2.66, P = .007). - Pre-post intervention comparisons of the NPI total scores yielded no significant difference in both the GVT group

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	completed 12-week nonpharm interventions w/ to standard rehabilitative therapies, while the control group participated only in standard rehabilitative therapies.	and expressive language skills, the DT on attachment and emotional connections.		tell the target word once again. - The DT protocol consisted of: (1) An operator presented the doll to the patient and invited him/her to sit on a chair; (2) the operator interacted with the patients and the doll for 5 to 10 minutes; (3) the operator left the patient alone with the doll; (4) the patient interacts with the doll for about 50 minutes starting from the moment when the nurse left him/her alone with the doll. This phase was interrupted if patients dropped the doll before the time limit; (5) the operator returned and took the doll back.				(Z = 1.43, P = .15) and the control group (Z = 1.52, P = .13)
Livingston et al. (2019) England	Parallel-group, cluster-randomized controlled trial	- To assess whether the Managing Agitation and Raising	Older adults with dementia (N=404)	Care home staff were trained in the MARQUE intervention & then implemented it into the care routines of PLwD.	Care home staff that provided direct care to residents.	Not enough information to define	Cohen-Mansfield Agitation Inventory (CMAI)	- CMAI scores were not significantly different between the

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	Level I High Quality (A) They developed MARQUE, a six-session manual-based intervention, followed by an implementation & supervision period (panel). Data was collected at baseline and at 8-month follow-up assessments.	Quality of Life (MARQUE) intervention reduced agitation in residents with dementia after 8 months compared with treatment as usual (TAU).	20 care homes	The MARQUE training had <u>5 sessions</u> – Getting to the know the person with dementia; Pleasant events; Improving communication; Understanding agitation; Practical responses and making a plan; & What works? Using skills and strategies in the future. During each of the training sessions, the staff participants shared examples from their practice to ensure that the intervention was individually focused and relevant.		Physical & psychosocial	Neuropsychiatric Inventory Questionnaire (NPI-Q) Dementia Quality of Life-Proxy (DEMQOL-Proxy) - This was measuring health-related quality of life (HRQL) Proxy-rated European quality of life five dimensions questionnaire (EQ-5D-5L)	two groups at 8-month follow-up (difference – 0·40, 95% CI – 3·89 to 3·09; p=0·8226). - No significant differences in secondary outcomes were identified between the two groups in the main or sensitivity analyses (table 3).
Carbone et al. (2021) Italy	Single-blind multicenter, controlled clinical trial. Level I	To assess the effectiveness in the short- and long- term of an Italian adaptation of	Older adults with mild-to-moderate dementia (N = 225)	Residents engaged in CST-IT program which was delivered by a psychologist and a staff member. Residents attended 14 structured	Two co-facilitators (one was always a psychologist & the	Not enough information to define Psychosocial	MMSE Alzheimer's Disease Assessment Scale—	- MMSE remained the same - Increase in performance on ADAS-Cog

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	High Quality (A) All participants were assessed for a pretest, posttest, and follow-up purposes with the listed instruments.	the Cognitive Stimulation Therapy protocol (CST-IT)	Residential care homes or day centers in Italy	group sessions. Each session included 10-minute intros, date/weather/time/location of residential center discussion, refreshments, personalized cognitive simulation therapies, and concluding messages.	other was a facility staff member)		Cognitive Subscale (ADAS-Cog) Narrative Language Test Cornell Scale Neuro-psychiatric Inventory (NPI) Disability Assessment for Dementia (DAD) Quality of Life – Alzheimer’s Disease Scale (QoL-AD)	- Increase in Narrative Language Test - Decreased scores on Cornell Scale (decreased depression) - NPI scores remained the same - DAD decreased slightly, for both groups - QoL increased slightly (higher increase in treatment than control group)
Resnick et al. (2021) Maryland & Pennsylvania	Secondary data analysis Level II Good Quality (B)	To explore gender differences in presentation and management of BPSD and	Older adults with dementia (N=553) Nursing homes from	The researchers directly observed the nursing assistant providing care to the resident on the day of testing.	Nursing assistant	Not enough information to define Physical	Cornell Scale for Depression in Dementia (CSDD) Cohen-Mansfield	- Among all participants there was little evidence of behavioral symptoms

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	Direct observation of the resident	quality of interactions between residents and staff.	Maryland & Pennsylvania (N=55)				Agitation Inventory (CMAI) Quality of Interaction Survey (QuIS)	- There is little evidence of sadness, apathy, physical aggression - 35% of the participants exhibited mild to severe anxiety - Verbal aggression was more prevalent - Repeated vocalization was the most common behavioral symptoms.
Resnick et al. (2022) USA	Secondary data analysis Level II Good Quality (B)	- To describe differences in pain, management of pain, behavioral symptoms, quality of staff-resident interactions	Older adults with cognitive impairment (N=550) Assisted Living communities	Function Focused Care (FFC) is an approach to care in which staff work with residents to engage them in physical activity at their highest level of ability during all care interactions. Motivational interventions with staff and residents are based on	Staff member (registered nurses, licensed practice nurse, direct care worker, social worker)	Not enough information to define Physical & psychosocial	Pain Assessment in Advanced Cognitive Impairment (PAINAD) Cohen-Mansfield Agitation	- There was very little evidence of behavioral symptoms among those with or without cognitive impairment.

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff-Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
	Using data from the second and third cohorts of an ongoing clinical trial testing the dissemination and implementation of Function Focused Care for Assisted Living study using the Evidence Integration Triangle (FFC-AL-EIT)	and participation in functional activities and physical activities among older adults with and without cognitive impairment in assisted living settings.	(N=59)	the Social Ecological Model & the theory of self-efficacy. Examples of FFC include such things as having staff walk the resident to the bathroom versus using a bedside commode; doing hand-over-hand bathing or eating; or taking a resident to exercise class or exercising with the resident in their room or while waiting for meals. Motivational techniques include successful performance of the behavior, verbal encouragement, role modeling, and elimination of unpleasant sensations as well as environmental and policy interventions to optimize opportunities for physical activity.			Inventory (CMAI) Cornell Scale for Depression in Dementia (CSDD) The Resistiveness to Care Scale Quality of Interaction Schedule (QUIS)	- Those with cognitive impairment had a mean score of 1.87 (SD=3.15) on the CSDD versus a score 1.75 (SD=2.68) for those without cognitive impairment (F=1.68 p=.20). - The mean score for agitation based on the CMAI was 14.76 (SD=2.22) for those with cognitive impairment and 14.60 (SD=2.03) for those without cognitive impairment (F=.93, p=.34).

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								<p>- No difference in resistiveness to care with a mean of .11 (SD=.46) for those with cognitive impairment and .09 (SD=.71) for those without cognitive impairment (F=.02, p=.90).</p> <p>- No difference in the quality of interactions between staff and residents based on cognitive impairment with a mean of 6.11 (SD=1.04) for those with cognitive impairment versus a mean of 5.88</p>

Author, Year, Country	Design/Level & Quality of Evidence ¹ / Methods	Aim	Sample & Setting	Description of Staff- Resident Interaction	Staff Member Type ²	Quality Interaction Type ³ & Mode of Care ⁴	Instruments – Interactions and Outcomes	Results- BPSD
								(SD=1.14, p=.29) for those without cognitive impairment (F=1.14, p=.29).

¹ Level and quality of evidence ranked based on the Johns Hopkins Evidence-Based Practice Model for Nursing and Healthcare Professionals.

² A nursing home staff member can be either a registered nurse, a licensed practical nurse, a certified nursing assistant, a medication-technician, a residential care assistant, an activities director, a physical therapist, or an occupational therapist. This review also includes trained research assistants trained to act in the role of a nursing home staff.

³ Quality Interaction type is defined by the Quality of Interactions Schedule (QuIS). It can be positive social, positive care, neutral, negative protective, negative restrictive, or not enough information to define.

⁴ Mode of care can be physical, psychosocial, and spiritual

Chapter 5

Discussion

The goal of this systematic review was to examine the current published research for evidence of an association between staff-resident interactions and behavioral and psychological symptoms of dementia (BPSD) in older adults living in long-term care. In this chapter, we will discuss the significance of the findings from the included studies, the review's strength and limitations, implications for clinical practice, and recommendations for future research. The purpose of this chapter is to answer the research question originally presented in chapter one:

- What is the association between a meaningful staff-resident interaction and behavioral and psychological symptoms of dementia (BPSD) in older adults living with dementia living in long-term care?

Summary of Findings

The outcome measures used in the 27 studies included in this article were agitation, aggression/resistiveness to care, depression, anxiety, mood, collective BPSD, and quality of life. Of the studies that specifically measured agitation, five of the studies found that a tested staff-resident interaction caused agitation to decrease. Five of the studies found no change. None of the studies found that the tested interaction cause agitation to increase. The results were spread evenly, thus revealing there is no clear evidence that a staff-resident interaction intervention has a positive or negative effect on agitation in older adults who live with dementia. Of the studies that specifically measured aggression/resistiveness to care (RTC), four of the studies found that a tested staff-resident interaction decreased aggression/RTC. One of the studies found no change. These results reveal a staff-resident interaction has beneficial effects on aggression/RTC in older adults who live with dementia.

Of the studies that specifically measured depression, seven of the studies found that a tested staff-resident interaction caused depression to decrease. Two of the studies found no change. One of the studies found that the tested interaction cause depression to increase. The ratio of these outcomes highlights a staff-resident interaction having positive effects on depression in PLwD. Of the studies that specifically measured for anxiety, both found no change. These results show there is no clear evidence that a staff-resident interaction intervention has an association on anxiety in PLwD.

One study that tested for mood found a staff-resident interaction has beneficial effects on mood in older adults with dementia. Of the studies that specifically measured for collective BPSD, eight of the studies found that a tested staff-resident interaction caused collective BPSD to decrease. Four of the studies found no change. None of the studies found that the tested interaction caused collective BPSD to increase. These results show that a majority of the included studies found a staff-resident interaction to have a positive effect on collective BPSD in PLwD.

Lastly, of the five articles measuring quality of life (QoL) as an outcome, three of the studies found the staff-resident interaction to improve QoL and two of the studies found the staff-resident interaction to have no effect on QoL in older adults with dementia. These results show that there is a small association between a staff-resident interaction and an older adult with dementia's quality of life. While quality of life is not typically categorized a type of BPSD in PLwD, it was chosen to be included in this review because much of the research in this field connects a staff-resident interaction/person-centered care to its impacts on BPSD and quality of life. It is often associated that as a resident's BPSD declines, their quality of life increases (Paudel et al., 2021). Thus, this justifies the importance to discover interventions, such as a

meaningful staff-resident interaction, to help decrease BPSD in older adults and increase their quality of life. No matter the age, everyone deserves to live with the highest of quality of life possible.

When categorizing the type of staff-resident interactions, most of the care interactions were either physical care interactions (n=5), psychosocial care interactions (n=14), or a combination of the two (n=8). Only two are the articles implemented a spiritual care interaction intervention. When using the QuIS to evaluate if each of the care interactions were either positive social, positive care, neutral, negative protective, negative restrictive, or not enough information to define, all articles categorized as not enough information to define.

Strengths

Multiple strengths of this review relate to the rigor of the review process. This systematic review followed the PRISMA 2020 checklist standards (Page et al., 2021). It began with developing a well-defined guiding research statement/question that utilized the PICO elements of Population, Intervention, Comparison, and Outcome (Owens, 2021). The article selection process had three reviewers. All articles were independently reviewed by two of the reviewers (GL and LB) and then a third reviewer was brought in (AP) to break a tie on an article initially reviewed by the first two reviewers (Owens, 2021). When crafting search terms, a research librarian was consulted to ensure a saturated literature search in all three databases. This review process utilized an electronic data management system known as Covidence. Within this system, specific inclusion and exclusion was used to clearly evaluate each article for title/abstract screening and full-text screening (Owens, 2021). Using clear saturated search terms and specific inclusion/exclusion criteria increases this review's likeliness for reproducibility.

Once the final 27 articles were extracted from the article selection process, each were rated for level of evidence and quality of evidence using the Johns Hopkins Nursing Evidence-Based Practice Model for Nursing and Healthcare Professionals (Dang et al., 2022; see Figure 3.2 and Figure 3.3). Using this screening tool helped understand the weight and reliability of each study's results.

Limitations

One limitation was that this review was not registered in a peer-reviewed database. However, the reviewer (GL) checked Cochrane Library with a research librarian to ensure this was a non-duplicative systematic review. Another limitation was that all three reviewers (GL, LB, and AP) struggled to clearly understand the staff-resident interactions in the studies. In order words, it felt there needed to be more of a common language for the three reviewers when trying to decide if a study's staff-resident interaction was specific enough to incorporate into the final article count for this review.

In addition, a limitation of this review is there is a risk for bias during the article selection and review process. Yet, in an attempt to counter this bias, the Johns Hopkins Nursing Evidence-Based Practice Model for Nursing and Healthcare Professionals tool (Dang et al., 2022; see Figure 3.2 and Figure 3.3) was used to evaluate each article's quality of evidence. Lastly, a limitation is there was no usage of snowballing or reverse snowballing which can help build the sample of potentially relevant studies and assures the exhaustive nature of the search (Owens, 2021).

Implications for Clinical Practice

As stated in chapter two of this review, meaningful staff-resident interactions are an essential component for person-centered care (Behrens et al., 2019). Research is still moving in

the direction of transitioning from pharmacological to non-pharmacological interventions to help improve symptoms of dementia (see chapter 2). These meaningful staff-resident interactions are one of many nonpharmacological methods continuing to grow within research and clinical practice for decreasing BPSD in older adults living with dementia. The results of this review highlight a small but positive association that as staff-resident interactions become more meaningful and positive, BPSD in older adults decline in prevalence. These findings indicate a need for increased usage of currently developed person-centered staff-resident interaction tools and to consider incorporating more staff-resident interaction interventions into nurse care planning.

Some example tools that are created, tested, and ready for clinical implication are PELI PAL Cards (Abbott et al., 2021), Individualized Positive Psychosocial Interaction (VanHaitisma et al., 2015), and Root Cards (Preference Based Living, 2024). The PAL Card is designed to share information at a glance about an older adult's daily preferences so that if any staff member of the long-term facility can quickly learn the older adult's preferences and instantly enrich the staff-resident interaction (Abbott et al., 2021). The Individualized Positive Psychosocial Interaction (IPPI) activities equip nursing home care staff to grow their emotion-focused communication and evaluate resident's preferences, all with the hope to enhance wellbeing and address communications of distress (VanHaitisma et al., 2015). Root Cards are an easy tool used to capture and share information about an older adult's personal care preferences, with the hopes of personalizing care and fostering relationship between resident and care team members (Preference Based Living, 2024). A reliable resource with more clinical-ready staff-resident interaction tools is the *Preference Based Living* website based at Miami University and Penn State University.

Nurse care planning is an intervention solely dependent on nursing practice. In other words, it is separate from medicinal interventions. Nurse care planning is a way for nurses to design processes to care for an individual's holistic health—physical, mental, emotional, and spiritual health. Based on this review's findings, it can be recommended to focus on how to integrate the staff-resident interaction interventions into nurse care planning for clinical practice. According to the National Academies of Sciences, Engineering, and Medicine report titled *The National Imperative to Improve Nursing Home Quality* (NASEM, 2022), one of the goals is to deliver comprehensive, person-centered, equitable care that ensures the health, quality of life, and safety of nurse residents. By integrating meaningful staff-resident interaction interventions into nurse care plans, it will simultaneously boost the comprehensiveness and continuity of care alongside enriching the resident's person-centered care and quality of life.

Recommendations for Future Research

When attempting to identify if a study's staff-resident interaction was either positive social, positive care, neutral, negative protective, or negative restrictive using the QuIS tool, none of the articles had enough information provided to help define this. All three reviewers of this study (GL, LB, and AP) found that this gap made it difficult to clearly depict what the interaction entailed. Therefore, this review recommends for future research to use the QuIS tool as a process measure when conducting research on specific staff-resident interactions. By having a process measure, a common language can be created to understanding the quality and meaningfulness of the interaction being tested. There is a current gap in literature for this kind of quality measurement. According to the National Academies of Sciences, Engineering, and Medicine report titled *The National Imperative to Improve Nursing Home Quality* (NASEM, 2022), another goal is to enhance quality measurement. By implementing the QuIS as a process

measure to enhance quality improvement, research can continue to point nursing homes towards providing comprehensive, person-centered care that ensures quality of life for residents (NASEM, 2022).

Another recommendation for future research is to continue creating and testing meaningful staff-resident interaction tools so that more can be implemented into clinical practice. Alongside this recommendation, there should be more research surrounding interventions based on staff-resident spiritual care interactions. This systematic review found there to be five physical care interactions, fourteen psychosocial care interactions, and eight combined physical/psychosocial care interactions. However, there were only two spiritual care interactions. It is pertinent to know that under the scope of nursing, nurses are supposed to provide wholistic care. This entails caring for the physical, mental, emotional, and spiritual health of their clients. If spiritual care interactions are being left out in the research community, one fourth of a client's health is being disregarded. This is significant. Therefore, research should continue to move in the direction of seeing how a meaningful staff-resident interaction centered around spiritual care could help lower symptoms of BPSD.

Conclusion

In conclusion, this review finds an association between a staff-resident interactions and behavioral and psychological symptoms of dementia. The implementation of a staff-resident interaction intervention that promotes person-centered care can lower BPSD in PLwD. These results align with the author's initial expected findings. These results validate the current research being conducted now in their patient population and it increases the exigence for more research to be developed. Efforts must be directed toward increasing implementation of current staff-resident interaction intervention, designing and testing new interventions to help effectively

decrease BPSD and increased in QoL (specifically focusing more on spiritual care interactions), and setting the standard of utilizing the QuIS tool as a process measure within the research community.

BIBLIOGRAPHY

- Abbott, K.M., Heppner, A., Kick, N., Hermes, A., & VanHaitma, K. (2021). Evaluating the Implementation of a Pragmatic Person-Centered Communication Tool for the Nursing Home Setting: PAL Cards. *Clinical Gerontologist*, 1-13.
<https://doi.org/10.1080/07317115.2021.1929632>
- Alzheimer's Association. (2023a). *Medical Tests for Diagnosing Alzheimer's*. Alzheimer's Association. https://www.alz.org/alzheimers-dementia/diagnosis/medical_tests
- Alzheimer's Association. (2023b). *Types of dementia*. Alzheimer's association. <https://www.alz.org/alzheimers-dementia/what-is-dementia/types-of-dementia>
- Alzheimer's Association. (2023c). *Stages of alzheimer's*. Alzheimer's association. https://www.alz.org/alzheimers-dementia/stages?utm_source=google&utm_medium=paidsearch&utm_campaign=google_grants&utm_content=dementia&gclid=CjwKCAjw586hBhBrEiwAQYEnHR-JdmoxGDH00AaGMIEhxQGzlgMRuyS9XE8rVx-PIVaInMuu42IzRoCpcYQAvD_BwE
- Alzheimer's Association. (2023d). *Stages and behaviors: Depression*. Alzheimer's association. https://www.alz.org/help-support/caregiving/stages-behaviors/depression?gclid=cj0kcqjwz6shbhcmari9a0qxulkqqspu4jy-ucbcjonpxggc9tawf_hmnbvv0h5t8numwngia8z8aamikealw_wcb
- Alzheimer's Society. (2021, February 26). *Delusions, paranoia, and dementia*. Alzheimer's society. <https://www.alzheimers.org.uk/about-dementia/symptoms-and-diagnosis/delusions#:~:text=Dementia%20can%20make%20a%20person,to%20conclusions%20without%20much%20evidence>

- Alzheimer's Association. (2023). Alzheimer's Disease Facts and Figures. *Alzheimer's & Dementia: The Journal of Alzheimer's Association*, 19(4). DOI 10.1002/alz.13016
- American Geriatrics Society Expert Panel on Person-Centered Care (2016). Person-centered care: A definition and essential elements. *Journal of the American Geriatrics Society*, 64(1), 15–18. <https://doi-org.ezaccess.libraries.psu.edu/10.1111/jgs.13866>
- Azermai, M. (2015). Dealing with behavioral and psychological symptoms of dementia: A general overview. *Psychology Research and Behavior Management*, 8, 181-185. DOI:10.2147/PRBM.S44775
- Ballard, C., Orrell, M., Sun, Y., Moniz-Cook, E., Stafford, J., Whitaker, R., Woods, B., Corbett, A., Banerjee, S., Testad, I., Garrod, L., Khan, Z., Woodward-Carlton, B., Wenborn, J., & Fossey, J. (2017). Impact of antipsychotic review and non-pharmacological intervention on health-related quality of life in people with dementia living in care homes: WHELD-a factorial cluster randomised controlled trial: Impact of WHELD on quality of life in people with dementia. *International Journal of Geriatric Psychiatry*, 32(10), 1094–1103. <https://doi.org/10.1002/gps.4572>
- Balzotti, A., Filograsso, M., Altamura, C., Fairfield, B., Bellomo, A., Daddato, F., Vacca, R. A., & Altamura, M. (2019). Comparison of the efficacy of gesture-verbal treatment and doll therapy for managing neuropsychiatric symptoms in older patients with dementia. *International Journal of Geriatric Psychiatry*, 34(9), 1308–1315. <https://doi.org/10.1002/gps.4961>
- Behavioral and psychological symptoms of dementia*. (2022, February 15). PsychDB. Retrieved on April 10, 2023, from <https://www.psychdb.com/geri/dementia/1-bpsd#:~:text=Prevalence,cases%20have%20serious%20clinical%20implications>

- Behrens, L.L., McGhan, G., Abbott, K.M., Fick, D.M. Kolanowski, A.M., Liu, Y., Buck, H.G., Roses, M., Heid, A.R., Spector, A., & Van Haitsma, K. (2019). Mapping core concepts of person-centered care in long-term services and supports. *Journal of Gerontological Nursing, 45*(2), 7-13. <https://doi-org.ezaccess.libraries.psu.edu/10.3928/00989134-20190111-02>
- Behrens, L., Boltz, M., Sciegaj, M., Kolanowski, A., Joanne, R. J., Paudel, A., & Van Haitsma, K. (2022). Nursing staff perceptions of outcomes related to honoring residents' "risky" preferences. *Research in Gerontological Nursing, 15*(6), 271-281. <https://doi-org.ezaccess.libraries.psu.edu/10.3928/19404921-20220930-01>
- Belzil, G., & Vézina, J. (2015). Impact of caregivers' behaviors on resistiveness to care and collaboration in persons with dementia in the context of hygienic care: An interactional perspective. *International Psychogeriatrics, 27*(11), 1861–1873. <https://doi.org/10.1017/S104161021500099X>
- Bliwise, D.L. (2004). Sleep disorders in alzheimer's disease and other dementias. *Clinical Cornerstone Journal, 6 Suppl 1A, S16-S28*. [https://doi-org.ezaccess.libraries.psu.edu/10.1016/s1098-3597\(04\)90014-2](https://doi-org.ezaccess.libraries.psu.edu/10.1016/s1098-3597(04)90014-2)
- Brodaty, H., Connors, M.H., Xu, J., Woodward, M., Ames, D., & PRIME study group. (2014). Predictors of institutionalization in dementia: A three year longitudinal study. *Journal of Alzheimer's Disease, 40*(1), pgs. 221-226. doi: 10.3233/JAD-131850.
- Buettner, L. L., & Fitzsimmons, S. (2002). AD-venture program: Therapeutic biking for the treatment of depression in long-term care residents with dementia. *American Journal of Alzheimer's Disease & Other Dementiasr, 17*(2), 121–127. <https://doi.org/10.1177/153331750201700205>

Carbone, E., Gardini, S., Pastore, M., Piras, F., Vincenzi, M., & Borella, E. (2021). Cognitive Stimulation Therapy for Older Adults With Mild-to-Moderate Dementia in Italy: Effects on Cognitive Functioning, and on Emotional and Neuropsychiatric Symptoms. *The Journals of Gerontology: Series B*, 76(9), 1700–1710.

<https://doi.org/10.1093/geronb/gbab007>

Causes of alzheimer's disease. (2017, May 16). National institute on aging. Retrieved on April 10, 2023, from <https://www.nia.nih.gov/health/what-happens-brain-alzheimers-disease>

Chaves, M.L.F., Godinho, C.C., Porto, C.S., Mansur, L., Carthery-Goulart, M.T., Yassuda, M.S., & Beato, R. (2011). Cognitive, functional and behavioral assessment: Alzheimer's disease. *Dementia & Neuropsychologia*, 5(3), 153-166. DOI: [10.1590/S1980-57642011DN05030003](https://doi.org/10.1590/S1980-57642011DN05030003)

Cheung, D. S. K., Lai, C. K. Y., Wong, F. K. Y., & Leung, M. C. P. (2018). The effects of the music-with-movement intervention on the cognitive functions of people with moderate dementia: A randomized controlled trial. *Aging & Mental Health*, 22(3), 306–315.

<https://doi.org/10.1080/13607863.2016.1251571>

Cloak, N. & Khalili, Y.A. (2022, July 21). *Behavioral and psychological symptoms of dementia*.

National library of medicine. [https://www-ncbi-nlm-nih-](https://www-ncbi-nlm-nih-gov.ezaccess.libraries.psu.edu/books/NBK551552/)

[gov.ezaccess.libraries.psu.edu/books/NBK551552/](https://www-ncbi-nlm-nih-gov.ezaccess.libraries.psu.edu/books/NBK551552/)

Code of Federal Regulations. (2018, October 1). *Part 483 - Requirements for states and long term care facilities*. GovInfo. Retrieved March 25, 2023, from

<https://www.govinfo.gov/help/cfr>

Crutch, S.J., Schott, J.M, Rabinovici, G.D., Boeve, B.F., Cappa, S.F., Dickerson, B.C., Dubois, B., Graff-Radford, N.R., Krolak-Salmon, Lehmann, M., Mendez, M.F., Pijnenburg, Y.,

- Ryan, N.S., Scheltens, P., Shakespeare, T., Tang-Wai, D.F., van der Flier, W.M., Bain, L., Carrillo, M.C., & Fox, N.C. (2013). Shining a light on posterior cortical atrophy. *Alzheimer's and dementia*, 9(4), 463-465. <http://dx.doi.org/10.1016/j.jalz.2012.11.004>
- Cummings, J.L. (1994). *The neuropsychiatric inventory questionnaire: Background and administration*. Alzheimer's Association. <https://www.alz.org/media/documents/npi-questionnaire.pdf>
- Cunningham, J., & Williams, K. N. (2007). *A Case Study of Resistiveness to Care and Elderspeak*. 21(1).
- Curyto, K. J., McCurry, S. M., Luci, K., Karlin, B. E., Teri, L., & Karel, M. J. (2017). Managing Challenging Behaviors of Dementia in Veterans: Identifying and Changing Activators and Consequences Using STAR-VA. *Journal of Gerontological Nursing*, 43(2), 33–43. <https://doi.org/10.3928/00989134-20160930-01>
- Dang, D., Dearholt, S., Bissett, K., Ascenzi, J., & Whalen, M. (2022). *Johns Hopkins evidence-based practice for nurses and healthcare professionals: Model and guidelines*. 4th ed. Sigma Theta Tau International
- Dean, R., Proudfoot, R., & Lindesay, J. (1993). The quality of interactions schedule (QuIS): Development, reliability and use in the evaluation of two domus units. *International Journal of Geriatric Psychiatry*, 8(10), 819-826. <https://doi-org.ezaccess.libraries.psu.edu/10.1002/gps.930081003>
- Dementia.org. (2015, July 2). *Diagnosing dementia: The mini mental status exam*. Dementia.org. <https://www.dementia.org/diagnosing-dementia-mini-mental-status-exam#:~:text=The%20Mini%20Mental%20Status%20Exam%20is%20a%20brief%20test%20given,memory%2C%20orientation%20and%20math%20skills>

Dementia. (2023, March 15). World health organization. Retrieved on April 10, 2023, from

<https://www.who.int/news-room/fact-sheets/detail/dementia#:~:text=Dementia%20results%20from%20a%20variety,60%E2%80%9370%25%20of%20cases>

De Vocht, H. M., Hoogeboom, A. M. G. M., Van Niekerk, B., & Den Ouden, M. E. M. (2015).

The Impact of Individualized Interaction on the Quality of Life of Elderly Dependent on Care as a Result of Dementia: A Study with a Pre-Post Design. *Dementia and Geriatric Cognitive Disorders*, 39(5–6), 272–280. <https://doi.org/10.1159/000371874>

Fernandez, M., Gobartt, A.L., Balana, M. & the COOPERA Study Group. (2010). Behavioral

symptoms in patients with Alzheimer’s disease and their association with cognitive impairment. *BMC Neurology*, 10(87). <https://doi.org/10.1186/1471-2377-10-87>

Gaetani, L., Blennow, K., Calabresi, P., Di Filippo, M., Parnetti, L. Zetterber, H. (2019).

Neurofilament light chain as a biomarker in neurological disorders. *Journal of Neurology, Neurosurgery & Psychiatry*, 90(8), 870-881. DOI: <https://jnnp.bmj.com/content/90/8/870>

Gluhm, S., Goldstein, J., Loc, K., Colt, A., Liew, C. V., & Corey-Bloom, J. (2013). Cognitive

performance on the mini-mental state examination and the montreal cognitive assessment across the healthy adult lifespan. *Cognitive and Behavioral Neurology: Official Journal of the Society for Behavioral and Cognitive Neurology*, 26(1), 1–5.

<https://doi.org/10.1097/WNN.0b013e31828b7d26>

Gozalo, P., Prakash, S., Qato, D. M., Sloane, P. D., & Mor, V. (2014). Effect of the Bathing

Without a Battle Training Intervention on Bathing-Associated Physical and Verbal

Outcomes in Nursing Home Residents with Dementia: A Randomized Crossover

Diffusion Study. *Journal of the American Geriatrics Society*, 62(5), 797–804.

<https://doi.org/10.1111/jgs.12777>

HealthDirect. (2022, February). *Mini-mental state examination*. HealthDirect.

<https://www.healthdirect.gov.au/mini-mental-state-examination-mmse>

Herman, R. E., & Williams, K. N. (2009). Elderspeak's Influence on Resistiveness to Care:

Focus on Behavioral Events. *American Journal of Alzheimer's Disease & Other*

Dementias, 24(5), 417–423. <https://doi.org/10.1177/1533317509341949>

How biomarkers help diagnose dementia. (2022, January 21). National Institute on Aging.

Retrieved on April 10, 2023, from [https://www.nia.nih.gov/health/how-biomarkers-help-](https://www.nia.nih.gov/health/how-biomarkers-help-diagnose-dementia#:~:text=Magnetic%20resonance%20imaging%20(MRI)&text=Repeat%20scans%20can%20show%20how.picture%20of%20brain%20blood%20vessels)

[diagnose-](https://www.nia.nih.gov/health/how-biomarkers-help-diagnose-dementia#:~:text=Magnetic%20resonance%20imaging%20(MRI)&text=Repeat%20scans%20can%20show%20how.picture%20of%20brain%20blood%20vessels)

[dementia#:~:text=Magnetic%20resonance%20imaging%20\(MRI\)&text=Repeat%20scan](https://www.nia.nih.gov/health/how-biomarkers-help-diagnose-dementia#:~:text=Magnetic%20resonance%20imaging%20(MRI)&text=Repeat%20scans%20can%20show%20how.picture%20of%20brain%20blood%20vessels)

[s%20can%20show%20how.picture%20of%20brain%20blood%20vessels](https://www.nia.nih.gov/health/how-biomarkers-help-diagnose-dementia#:~:text=Magnetic%20resonance%20imaging%20(MRI)&text=Repeat%20scans%20can%20show%20how.picture%20of%20brain%20blood%20vessels)

Hsu, M. H., Flowerdew, R., Parker, M., Fachner, J., & Odell-Miller, H. (2015). Individual music

therapy for managing neuropsychiatric symptoms for people with dementia and their

carers: A cluster randomised controlled feasibility study. *BMC Geriatrics*, 15(1), 84.

<https://doi.org/10.1186/s12877-015-0082-4>

Hutson, C., Orrell, M., Dugmore, O., & Spector, A. (2014). Sonas: A Pilot Study Investigating

the Effectiveness of an Intervention for People With Moderate to Severe Dementia.

American Journal of Alzheimer's Disease & Other Dementias, 29(8), 696–703.

<https://doi.org/10.1177/1533317514534756>

Jett, L. (2018, October 18). *Nursing homes with dementia special care units provide better*

quality of care. Harvard Medical School. Retrieved March 19, 2023, from

<https://hcp.hms.harvard.edu/news/nursing-homes-dementia-special-care-units-provide->

review. *Neuropsychiatric Disease and Treatment*, 14, 1211-1220. DOI:
10.2147/NDT.S163842

Magee, M., McCorkell, G., Guille, S., & Coates, V. (2017). Feasibility of the Namaste Care Programme to enhance care for those with advanced dementia. *International Journal of Palliative Nursing*, 23(8), 368–376. <https://doi.org/10.12968/ijpn.2017.23.8.368>

Mather, M., & Scommegna, S. (2020, March 28). *The demography of dementia and dementia caregiving*. PRB. <https://www.prb.org/resources/the-demography-of-dementia-and-dementia-caregiving/>

Middelstädt, J., Folkerts, A.-K., Blawath, S., & Kalbe, E. (2016). Cognitive Stimulation for People with Dementia in Long-Term Care Facilities: Baseline Cognitive Level Predicts Cognitive Gains, Moderated by Depression. *Journal of Alzheimer's Disease*, 54(1), 253–268. <https://doi.org/10.3233/JAD-160181>

Morgan, C. (2020). *What are the various types of nursing home staff?* Caitlin Morgan Insurance Services. Retrieved on March 22, 2023, from <https://www.caitlin-morgan.com/what-are-the-various-types-of-nursing-home-staff/>

National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Care Services; Committee on the Quality of Care in Nursing Homes. (2022, April 22). *The national imperative to improve nursing home quality: Honoring our commitment to residents, families, and staff*. National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK584655/>

National Institute on Aging. (2017). *Residential facilities, assisted living, and nursing homes*. National Institute on Aging. Retrieved on March 22, 2023, from <https://www.nia.nih.gov/health/residential-facilities-assisted-living-and-nursing->

[homes#:~:text=Facility%2Dbased%20long%2Dterm%20care,personal%20care%20and%20medical%20services.](#)

National Institute on Aging. (2022). *What is dementia? Symptoms, types, and diagnosis*. National Institute on Aging. Retrieved on March 21, 2023, from

<https://www.nia.nih.gov/health/what-is-dementia>

National Institute on Aging. (2023, March). *2023 National Research Summit on Care, Services, and Supports for Persons with Dementia and Their Care Partners/Caregiver*. National Institute on Aging. Retrieved March 25, 2023, from

https://www.nia.nih.gov/sites/default/files/2023-03/2023_dementia_care_and_caregiving_research_summit_program_final.pdf

Owens, J.K. (2021). Systematic reviews: Brief overview of methods, limitation, and resources.

Nurse Author & Editor, 31(3-4), 69-72. <http://doi-org.ezaccess.libraries.psu.edu/10.1111/nae2.28>

Page, M. J., McKenzie, J., Bossuyt, P., Boutron, I., Hoffmann, T., mulrow, cindy, Shamseer, L., Tetzlaff, J., Akl, E., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021).

The Prisma 2020 statement: An updated guideline for reporting systematic reviews. *The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Review*.

<https://doi.org/10.31222/osf.io/v7gm2>

Park-Lee, E., Sengupta M., & Harris-Kojetin, L.D. (2013). *Dementia special care units in residential care communities: United States, 2010*. Centers for Disease Control and Prevention. Retrieved March 22, 2023, from

<https://www.cdc.gov/nchs/products/databriefs/db134.htm>

- Paudel, A., Galik, E., Resnick, B., Doran, K., Boltz, M., & Zhu, S. (2021). A description of staff-resident interactions in assisted living. *Clinical Nursing Research*, 30(5), 690–698.
<https://doi-org.ezaccess.libraries.psu.edu/10.1177/1054773820974146>
- Paudel, A., Resnick, B., Galik, E. (2020). The quality of interactions between staff and residents with cognitive impairment in nursing homes. *American Journal of Alzheimer's Disease and Other Dementias*, 35. DOI: [10.1177/1533317519863259](https://doi.org/10.1177/1533317519863259)
- Phillips, L. J., Reid-Arndt, S. A., & Pak, Y. (2010). Effects of a Creative Expression Intervention on Emotions, Communication, and Quality of Life in Persons With Dementia. *Nursing Research*, 59(6), 417–425. <https://doi.org/10.1097/NNR.0b013e3181faff52>
- Quentin, W., Partanen, V.M., & Klazinga, N. (2019). *Measuring Healthcare Quality*. Improving healthcare quality in Europe: Characteristics, effectiveness and implementation of different strategies [Internet].
<https://www.ncbi.nlm.nih.gov/books/NBK549260/#:~:text=First%2C%20it%20is%20clear%20that,medical%20errors%20and%20patient%20satisfaction.>
- Ragneskog, H., Gerdner, L. A., Josefsson, K., & Kihlgren, M. (1998). Probable reasons for expressed agitation in persons with dementia. *Clinical nursing research*, 7(2), 189–206.
<https://doi.org/10.1177/105477389800700207>
- Resnick, B., Boltz, M., Galik, E., & Zhu, S. (2022). The Impact of Cognitive impairment on Clinical Symptoms, Physical Activity and Care Interactions among Residents in Assisted Living Settings. *Clinical Nursing Research*, 31(2), 310–319.
<https://doi.org/10.1177/10547738211040628>
- Resnick, B., Galik, E., Kolanowski, A., VanHaitsma, K., Boltz, M., Zhu, S., Ellis, J., Behrens, L., & Eshraghi, K. (2021). Gender differences in presentation and management of

behavioral and psychological symptoms associated with dementia among nursing home residents with moderate to severe dementia. *Journal of Women & Aging*, 33(6), 635–652.

<https://doi.org/10.1080/08952841.2020.1735925>

Resources (2024). Preference based living. Retrieved February 7, 2024, from

<https://www.preferencebasedliving.com/resources/>

Root Cards (2024). Preference based living. Retrieved February 8, 2024, from

<https://www.preferencebasedliving.com/root-cards/>

Rose, K.M., Fagin, C.M., Lorenz, R. (2011). Sleep disturbances in dementia: What they are and what to do. *Journal of Gerontological Nursing*, 36(5), 9-14. [https://doi-](https://doi-org.ezaccess.libraries.psu.edu/10.3928/00989134-20100330-05)

[org.ezaccess.libraries.psu.edu/10.3928/00989134-20100330-05](https://doi-org.ezaccess.libraries.psu.edu/10.3928/00989134-20100330-05)

Roth, M., Tym, E., Mountjoy, C.Q., Huppert, F.A., Hendrie, H., Verma, S., Goddard, R., (1986).

CAMDEZ. A standardized instrument for the diagnosis of mental disorder in the elderly with special reference to the elderly detection of dementia. *The British Journal of*

Psychiatry, 149, 689-709. [https://doi-](https://doi-org.ezaccess.libraries.psu.edu/10.1192/bjp.149.6.698)

[org.ezaccess.libraries.psu.edu/10.1192/bjp.149.6.698](https://doi-org.ezaccess.libraries.psu.edu/10.1192/bjp.149.6.698)

Scales, K., Zimmerman, S., & Miller, S. J. (2018). Evidence-based nonpharmacological practices to address behavioral and psychological symptoms of dementia. *The Gerontologist*,

8(S1), pgs. S88-S102. doi:10.1093/geront/gnx167

Simard, J. (2013). *The End-of-Life Namaste Care Program for People with Dementia* (2nd

Edition). Health Professions Press, Baltimore

Sprangers, S., Dijkstra, K., & Romijn-Luijten, A. (2015). Communication skills training in a nursing home: Effects of a brief intervention on residents and nursing aides.

Clinical Interventions in Aging, 311. <https://doi.org/10.2147/CIA.S73053>

- Stacpoole, M., Hockley, J., Thompsell, A., Simard, J., & Volicer, L. (2015). The Namaste Care programme can reduce behavioural symptoms in care home residents with advanced dementia. *International Journal of Geriatric Psychiatry*, *30*(7), 702–709.
<https://doi.org/10.1002/gps.4211>
- Tappen, R. M., & Williams, C. L. (2009). Therapeutic conversation to improve mood in nursing home residents with Alzheimer's disease. *Research in Gerontological Nursing*, *2*(4), 267–275. <https://doi.org/10.3928/19404921-20090428-02>
- Tible, O. P., Riese, F., Savaskan, E., & von Gunten, A. (2017). Best practice in the management of behavioural and psychological symptoms of dementia. *Therapeutic advances in neurological disorders*, *10*(8), 297–309. <https://doi-org.ezaccess.libraries.psu.edu/10.1177/1756285617712979>
- Tiel, C., Sudo, F.K., Alves, G.S., Ericeira-Valente, L., Moreira, D.M., Laks, J., & Engelhardt, E. (2015). Neuropsychiatric symptoms in vascular cognitive impairment: A systematic review. *Dementia & Neuropsychologia*, *9*(3), 230-236. <https://doi.org/10.1590/1980-57642015DN93000004>
- Van Haitsma, K., Abbott, K.M., Arbogast, A., Bangerter, L.R., Heid, A.R., Behrens, L.L., Madrigal, C. (2019). A preference-based model of care: An integrative theoretical model of the role of preferences in person-centered care. *The Gerontologist*, *60*(3), 376-384.
<https://doi-org.ezaccess.libraries.psu.edu/10.1093/geront/gnz075>
- Van Haitsma, K., Crespy, S., Humes, S., Elliot, A., Mihelic, A., Scott, C., Curyto, K., Spector, A., Eshraghi, K., Duntzee, C., Heid, A. R., & Abbott, K. (2014). New toolkit to measure quality of person-centered care: Development and pilot evaluation with nursing home

- communities. *Journal of the American Medical Directors Association*, 15(9), 671–680.
10.1016/j.jamda.2014.02.004 PMID: 24721341
- VanHaitsma, K.S., Curyto, K., Abbott, K.M., Towsley, G.L., Spector, A., & Kleban, M. (2015). A randomized controlled trial for an individualized positive psychosocial intervention for the affective and behavioral symptoms of dementia in nursing home residents. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 70(1), 35-45.
<https://doi.org/10.1093/geronb/gbt102>
- Vasse, E., Vernooij-Dassen, M., Spijker, A., Rikkert, M. O., & Koopmans, R. (2010). A systematic review of communication strategies for people with dementia in residential and nursing homes. *International Psychogeriatrics*, 22(2), 189–200.
<https://doi.org/10.1017/S1041610209990615>
- Vink, A. C., Zuidersma, M., Boersma, F., De Jonge, P., Zuidema, S. U., & Slaets, J. P. J. (2013). The effect of music therapy compared with general recreational activities in reducing agitation in people with dementia: A randomised controlled trial: Music therapy and dementia. *International Journal of Geriatric Psychiatry*, 28(10), 1031–1038.
<https://doi.org/10.1002/gps.3924>
- Wallace, M. & Shelkey, M. (2007). *Katz index of independence in activities of daily living (ADL)*. Alzheimer's Association. <https://www.alz.org/careplanning/downloads/katz-adl.pdf>
- Yoshiyama, K., Arita, H., & Suzuki, J. (2015). The Effect of Aroma Hand Massage Therapy for People with Dementia. *The Journal of Alternative and Complementary Medicine*, 21(12), 759–765. <https://doi.org/10.1089/acm.2015.0158>

Academic Vita

Genevieve C. LeFevre

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EDUCATION

The Pennsylvania State University, University Park, PA
Bachelor of Science in Nursing (BSN) – Intended

Anticipated Graduation: May 2024

WORK EXPERIENCE

Lancaster General Hospital, Lancaster PA

Summer 2023

Student Nurse Extern

- o Gained thorough patient assessment and charting skills
- o Practiced safe medication administration
- o Strengthened critical thinking and patient advocacy skills
- o Enriched basic and ADL care within hospital setting

Tel Hai Retirement Community, Honey Brook, PA

Summer 2022

Resident Care Assistant

- o Grew in person-centered care, especially for those of the dementia population
- o Created solid foundation of basic and ADL care within long-term care facility

The Parkesburg Point Christian Youth Center, Parkesburg, PA

Spring 2020 - Summer 2022

College Intern

- o Led students through activities such as sports and bible study
- o Provided safe space for students to create trusted relationships
- o Cooked and served meals to students

CLINICAL EXPERIENCE

NURS 405A: Care of the Adult Client w/ Complex Health Problems (Part A)

Fall 2023

- Penn State Health Milton S. Hershey Medical Center, Hershey, PA

NURS 301: Care of the Adult Client Requiring Med-Surg Intervention

Fall 2022

- Mount Nittany Medical Center, State College, PA

ACTIVITIES/EXTRACURRICULARS

Pennsylvania State University Navigators

Fall 2021 – Present

- o Member & Bible Study Leader

Pennsylvania State University Nursing Teaching Assistant

Fall 2022 – Spring 2023

Pathophysiology & Nurse Professionalism

- o Created study materials and exam reviews for students
- o Instructed lectures for students

AWARDS & SCHOLARSHIP

NESE College of Nursing Scholarship

Fall 2021 - Present

Dean's List Honoree

Fall 2020 - Present

Schreyer Honors College Scholarship

Fall 2020 – Present

Schreyer Honors College Thesis Completion – Systematic Literature Review

Fall 2021 – Present

CERTIFICATIONS

American Heart Association

Expires May 2025

- *Basic Life Support Healthcare Provider CPR/AED*