STAFF INTERACTIONS AND AFFECT IN PERSONS WITH DEMENTIA:
AN OBSERVATIONAL STUDY OF A MEMORY CARE UNIT

by

Keirstin V. Meyer

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Approved:

Elizabeth B. Fauth, Ph.D.
Major Professor

Lori A. Roggman, Ph.D.
Committee Member

Travis Dorsch, Ph.D.
Committee Member

Mark McLellan
Vice President for Research and
Dean of the School of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah
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ABSTRACT

Staff Interactions and Affect in Persons with Dementia:

An Observational Study of a Memory Care Unit

by

Keirstin V. Meyer, Master of Science

Utah State University, 2016

Major Professor: Dr. Elizabeth B. Fauth
Department: Family, Consumer, and Human Development

By the year 2050 it is expected that the number of older adults living with dementia will triple. With 42% of persons with dementia living in residential care, it is vital that we better understand how to maintain high psychosocial well-being for this population, in this setting. The objective of this study was to better understand psychosocial well-being in persons with dementia. The research team observed affect in clients with dementia (n = 22), as well as staff interactions with clients in a residential memory care unit for a total of 6999 minutes. The first purpose was to examine overall proportions of client affect and staff interaction types, both for the whole sample, and in more detail (assessing inter/intraindividual differences) for the five most observed clients. The second purpose was to identify whether proportions of positive affect in clients differed based on staff interaction type. The third purpose was to examine themes emerging from a review of field notes when staff interactions and/or client affect were
noted. Analyses identified that the most observed affect type was neutral affect (53.1% of all minutes observed). The most common interaction type was neutral or no interaction (81.1% of all minutes observed). Positive affect accounted for 44.5% of observations, and positive staff interactions for 18.1% of the observations. There was very little negative affect (2.4%) and negative interactions (.8%) observed. When staff had neutral/no/negative interactions, clients were positive 36% of the time, whereas when staff had positive interactions, clients were positive 81% of the time ($z = 28.84, p < .001$). The review of the field notes identified themes and subthemes related to behavioral problems and other client problems, and the staff either responding to or ignoring these problems. The review also identified occasions when staff engaged clients beyond what was required of them. While quantitative analyses suggested low rates of negative staff interaction, the field notes highlight that sometimes no interaction (ignoring a client) is also problematic. This study suggests that positive social interactions between staff and clients may be important in maintaining positive affect and overall wellbeing in persons with dementia.

(92 pages)
It is estimated that the number of people in the United States living with dementia in 2015 will nearly triple by the year 2050. With no cure for dementia, we are faced with providing care in a way that maximizes well-being. The majority of prior research focused on the best ways to reduce behavioral problems and mood disorders, such as depression and anxiety. The objective of this study was to increase knowledge about the social influences on well-being in persons with dementia, particularly from staff in residential memory care units. This study found that the most common interaction type from staff was “no interaction” with clients. However, we also found that when staff had neutral/no/negative interactions, clients displayed positive behavior 36% of the time, whereas when staff had positive interactions, clients displayed positive behaviors 81% of the time.

It is increasingly recognized that dementia does not leave individuals destined to live with low life satisfaction. In fact, people with dementia are capable of experiencing interest and pleasure. By learning ways in which staff may increase positive emotions in clients with dementia, results from this study may be used to train staff in memory care units and have a positive effect on the well-being of millions of people.
DEDICATION

I dedicate this thesis to the many men and women who have lived rich, honorable, and full lives and then became lost in a world of dementia. You are not forgotten. We still see you behind the confusion. You are loved, respected, and cherished.
I would like to thank Dr. Beth Fauth, my major professor, mentor, and friend, for the many hours she spent, never-ending support, and patience she showed me as I traversed the long journey of researching, analyzing, and writing my master’s thesis. I also thank my committee members, Dr. Lori Roggman and Dr. Travis Dorsch, for their expert advice and support throughout the entire process.

A special thanks to my daughter, Daniell Keirstin Valeen Zerull, for the countless hours of my time that she sacrificed as she completed her last year of high school and graduated. Thanks to my sons, Spencer Bradley Zerull and Daniel Scott Zerull, for always believing in me and cheering me on. And, not in the least, my mother, Valeen Meyer, for her constant encouragement and support. My family, friends, and colleagues carried me through.

Keirstin V. Meyer
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CHAPTER I

INTRODUCTION

Globally, as well as in the United States, the population aged 65 and over is growing rapidly. Within the next few years, for the first time ever, there will be a greater number of older adults than children worldwide (National Institute of Aging/World Health Organization, 2011). Between 2010 and 2050 the National Institute of Aging and World Health Organization estimate a 188% increase in the population aged 65 and older in the United States. The two main factors contributing to this growth are the Baby Boomers turning 65 (starting in 2011), and an increase in average life expectancy (Morgan, 2014; Ortman, Velkoff, & Hogan, 2014).

It is well established that increasing age is a major risk factor in dementia (Nilsson, Landqvist-Waldö, Nilsson, Santillo, & Vestberg, 2014; Treves & Korczyn, 2012). Eighty-one percent of those with dementia are aged 75 and older (Hebert, Weuve, Scherr, & Evans, 2013). Of people in the 75-84 age range, about one in six (17.1%) have dementia. The prevalence of dementia increases for those aged 85 and older to about one in three (32.1%). Therefore, with the increased number of people in these age ranges, and the elevated risk of dementia that comes with aging, we are facing a dementia epidemic (Treves & Korczyn, 2012). It is estimated that 5.3 million people in the United States had dementia in 2015 (Hebert, et al., 2013), however the prevalence of dementia is estimated to nearly triple by the year 2050.

According to the Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition (American Psychiatric Association, 2013), dementia is a neurocognitive disorder marked by significant cognitive decline. This decline may begin with difficulty in
performing complex cognitive activities, such as managing medications and finances. As the disease progresses even more simple cognitive tasks, such as dressing, using the bathroom, and even eating become too difficult for the individual to complete without help. In addition to memory loss and cognitive decline, dementia is also marked by other common symptoms, including confusion with time or place, decreased or poor judgement, withdrawal from work or social activities, and changes in mood or personality (Alzheimer’s Association, 2015). There are several types of dementia, including vascular, dementia with Lewy bodies, frontotemporal lobar degeneration, Parkinson’s disease dementia, Creutzfeldt-Jakob disease, normal pressure hydrocephalus, and mixed dementia, but the most common type is Alzheimer’s disease. Alzheimer’s accounts for 60 to 80% of all dementia cases (Alzheimer’s Association, 2015).

Dementia is not a curable condition, so the remaining course of action is to focus on providing the best care possible, including care of physical and emotional needs. Because of the advanced care needs and need for round-the-clock supervision, persons with dementia have a high probability of needing institutional care over the course of their illness. Of all people living in residential care facilities, 40% have dementia (Caffrey, Harris-Kojetin, Rome, & Sengupta, 2014). As cognitive and functional ability decline and behavioral and psychological symptoms increase in persons with dementia, their time until institutionalization decreases (Brodaty, Connors, Xu, Woodward, & Ames, 2014). Additional predictors of institutionalization include living alone, being unmarried, caregiver burden, relationship with caregiver, and sudden changes in dementia symptoms. According to the Alzheimer’s Association (2015), 42% of older
adults with dementia live in residential care. And yet, due to medical advances, they may live for many years, despite their cognitive decline (Salsman et al., 2013).

Certified nursing assistants (CNA) provide the most care of dementia residents. Federal regulations for CNA’s require only 75 hours of training, although the national average is 98 hours of training (Alzheimer’s Association, 2015; Hans et al., 2014). The Alzheimer’s Association found that during these hours of training, little focus was specific to dementia care. Their focus of care is commonly on meeting the client’s physical needs through assistance with activities of daily living such as personal hygiene and nutrition (Traynor, Inoue, & Crookes, 2011). It has long been accepted that persons with dementia experience a decline in life satisfaction due to the progression of cognitive decline and the many factors associated with it. This is particularly true when the focus of caregivers is solely on addressing the medical needs of the clients.

Because of their cognitive disabilities, people living with dementia rely much more on emotions and feelings (Kitwood, 1997). The majority of research on psychological well-being in persons with dementia has focused on negative affect, as indicated in mood disorders such as depression and anxiety (Lee, Algase, & McConnel, 2013). While it is important to address negative affect, psychological well-being is determined by the presence of positive affect as well as the absence of negative affect (Keyes, 2007). In fact, it is suggested that all humans need to experience happiness to have a high quality of life (Schreiner, Yamamoto, & Shiotani, 2005). Researchers are finding that persons with dementia may spend as much as 40 to 65 percent of their day
expressing no affect (Schreiner et al., 2005; Wood, Harris, Snider, & Patchel, 2005). This lack of affect is also referred to as disengaged or neutral affect.

Researchers are increasingly recognizing that those with dementia do not have to be destined to live with low life satisfaction (Downs, 2013). Kitwood (1997) proposed a person-centered approach in which there is interplay between meeting the individual’s psychosocial and medical needs. One aspect of the person-centered approach is the interaction between staff and client. With high quality staff communication, persons with dementia may still experience high levels of well-being, despite the presence of cognitive impairment (Kitwood, 1997; the National Institute for Health and Clinical Excellence and /Social Care Institute for Excellence, 2007).

The current study uses three research questions to better understand well-being in persons with dementia from a psychosocial perspective. The first purpose of this study is to document the frequency of types affect in persons with dementia and the frequency of the types of staff interactions that occur, as well as to determine if there is variability in affect and interactions by person. I examined the overall proportion of positive, neutral, and negative affect in clients in a dementia care unit, as well as the overall proportion of positive, neutral/no, and negative staff interactions by person. I observed both within person and between person differences in affect and staff interactions, as well as possible differences in the proportion of positive affect and positive staff interactions within clients across all of their observational sessions. The second purpose is to identify how staff-client interactions relate to affect in persons with dementia. Specifically, I tested whether there is proportionally higher positive affect occurring when the staff are
interacting in a positive way, vs when they are not interacting with clients, or interacting with them in a negative way. The third purpose was to examine what themes emerged from a review of field notes when instances of staff interaction and/or client affect was noted.
CHAPTER II
LITERATURE REVIEW

The world is entering a new era in which there will be more older adults (aged 65+) than children (aged < 18) for the first time ever (National Institute of Aging/World Health Organization, 2011). This is due, in part, to the Baby Boomers reaching retirement age, and because society is seeing average increased longevity; the number of oldest-old (those over 85 years) is the greatest ever. As a result of increased longevity, there is also an increase of those living with functional limitations, affecting their ability to perform activities of daily living. One in three adults aged 65 and older has a functional limitation (Morgan 2014), with that number increasing to two thirds for those aged 85 and older. Advanced age is the greatest risk factor for dementia (Alzheimer’s Association, 2015), and dementia accounts for these limitations in approximately half of older adults (Hebert et al., 2013).

Dementia is marked by loss of memory, challenges in problem-solving and the ability to think clearly, and a decline in language and learning (American Psychiatric Association, 2013). These problems all stem from damage to nerve cells in the brain (neurons). Depending on the type of dementia, the neuronal damage is caused by different mechanisms (neuronal plaques and tangles in Alzheimer’s disease, impaired blood flow in vascular dementia, etc.). In common with all dementia types is the accumulated cellular damage that prevents the neurons from functioning properly, obstructs communication between cells, and ultimately contributes to cell death. As the disease progresses, and individuals become more limited in their ability to perform
activities of daily living, and are at greater risk of being moved to a residential care facility.

At this time there are no pharmacological treatments that will slow or stop the progression of dementia (Alzheimer’s Association, 2015). Thus, the best option for care is to focus on maintaining and improving quality of life (QOL). In addition to meeting the physical care needs of the individual, one of the most significant and effective ways of maximizing quality of life is by addressing his or her psychosocial well-being. Psychological well-being is considered to be the central indicator for QOL of patients with dementia (Brod, Stewart, Sands, & Walton, 1999). Simply put, psychological well-being may be determined by the answer to ‘how good a person feels’ (Jonker, Gerritsen, Bosboom, & Van Der Steen, 2004). As individuals experience a decline in their cognitive ability they come to rely more on their emotions and feelings (Kitwood, 1997). It is through the individual’s emotional responses, as indicated through positive and negative affect, that psychological well-being may be determined (Lee et al., 2013; Jonker et al., 2004; Schreiner et al., 2005). Kitwood suggests a holistic approach known as person-centered care, in which considerations are made for the physical, psychosocial, and spiritual well-being of the individual. Residential facilities focus on meeting the physical needs of the clients and may offer some opportunities to address the clients’ spiritual needs. Addressing the psychosocial well-being of persons with dementia (as is the focus of the current analyses) may have the greatest impact on improving the individuals’ quality of life.
Psychological well-being is determined by both the absence of negative affect and the presence of positive affect (Keyes, 2007). Mood disorders, such as depression, may last for an extended period of time, even months, while on the contrary, emotional affect changes much faster, and may be a more accurate representation of the individual’s psychological well-being (Kolanowski, Litaker, Catalano, Higgins, & Heineken, 2002). Contrary to popular belief, persons with dementia living in residential care facilities may experience more positive affect than negative affect (Kolanowski et al., 2002; Lee et al., 2013). The difference was as great as 13 times more expressions of positive affect than negative affect in the study by Kolanowski and colleagues. Therefore, it may be the neutral affect, or disengagement, that needs our greatest attention. Researchers have found that persons with dementia spend between 40 and 65% of their time disengaged, showing little or no affect (Schreiner et al., 2005; Wood et al., 2005). Schreiner and colleagues (2005) suggest that times when neither positive nor negative affect are observed may actually be concealing a great deal of sadness and loneliness. In other words, a lack of positive affect, or displaying no affect, may in fact represent marginal or low levels of psychosocial well-being in persons with dementia.

Staff-client interactions seem to be a key factor in facilitating high psychosocial well-being in persons with dementia living in residential care facilities. For persons with dementia living in residential care facilities, direct care providers (typically Certified Nurse Assistants) are currently in the best position to facilitate interactions that may lead to positive affect in the clients because they spend the most time with them and provide the most care. Affect and social interactions will be discussed in more detail below.
Defining Affect

Affect is a reflection of a person’s feelings and emotions (Russell, 1980). There is significant empirical support for positive affect and negative affect being a two-factor model such that they vary independently from one another, rather than being opposite ends of the same continuum (Watson, 1988; Watson, Clark, & Tellegen, 1988). The underlying mechanisms for the two distinct factors are unique from each other. Positive affect has been found to be highly correlated with external sources, such as social interactions, while negative affect is correlated with internal sources, among which are genetic influences (Baker, Cesa, Gatz, & Mellins, 1992; Schilling & Wahl, 2006). This is particularly relevant to persons with dementia because external sources, and thus positive affect, may be manipulated and improved.

Most research has focused on positive and negative affect with little mention of neutral affect. Neutral affect represents times in which no affect is present (Wood et al., 2005). This may include times of sleep, rest, or just sitting with the absence of visible affect. Although neutral affect does not specifically represent either positive or negative affect it is an important construct to measure because it represents time that individuals are void of both positive and negative emotion (Lawton, Van Haitsma, & Klapper, 1996).

Affect in Persons with Dementia

Despite a decline in cognitive functioning, persons with dementia continue to feel emotions and respond to those emotions, as is evidenced by their expressions of affect (Stein-Parbury et al., 2012). As the disease progresses persons with dementia come to
rely on nonverbal communication (Beer, Hutchinson, & Skala-Cordes, 2012), and the ability to interact through emotions is maintained, even in late stage dementia (Magai, Cohen, Gomberg, Malatesta, & Culver, 1996). Caregivers must focus on the patients’ affect to communicate effectively with them and determine what their individual needs and wishes are. By doing so, caregivers may positively impact the psychosocial well-being of persons with dementia.

**Behavioral Symptoms (BPSD) and Negative Affect**

Negative affect is commonly manifested through Behavioral and Psychological Symptoms of Dementia (BPSD). BPSD are defined as “symptoms of disturbed perception, thought content, mood or behavior that frequently occur in patients with dementia” (Shinosaki, Nishikawa, & Takeda, 2000, p. 613). The symptoms may include physical aggression, agitation, anger, cursing, anxiety, and depressive mood (Brodaty et al., 2001; Shinosaki et al., 2000). These behaviors vary by individual and are not bound to a linear order throughout the progression of the disease (Shinosaki et al., 2000). It is important for caregivers to look further than the BPSD to effectively address the problem and help the individual.

**Biological Causes of BPSD and Changes in Affect**

Memory loss is the most prominent symptom of dementia, and is associated with damage to the hippocampus (Mirra et al., 1991). BPSD also occur, in part, as a result of damage to specific areas of the brain caused by the dementia processes. BPSD are often
an expression of negative emotions, or negative affect. Many regions within both hemispheres of the brain are involved in emotional processing (Rohr, Okon-Singer, Craddock, Villringer, & Margulies, 2013; Rosen & Levenson, 2009). Affective processing uses a joint network in the brain which is basic to the processing of all emotions. While there is a definite overlap of the regions being used for the processing of affect; positive affect is bilaterally dominant, while there is right-sided dominance for negative affect. The regions that are involved with positive and negative affect differ in other aspects, also. The region that is positively correlated with negative affect is smaller and has fewer connections to subcortical areas than the region that is negatively correlated with positive affect. Therefore, because this area of the brain is smaller than the area of the brain associated with positive affect, neural losses in the area associated with negative affect may have a more noticeable impact on behavior. Neural losses in the negative affect area of the brain may present a higher ratio of unhealthy to healthy cells, as compared to the positive affect area of the brain. Brain lesions in one area of the brain, caused by the dementing process, may result in a decline in emotional expression in one emotional domain without affecting all domains (Rosen & Levenson, 2009). Because there may be a smaller portion of neural loss to the area of the brain that impacts positive affect, there is a greater potential for eliciting positive affect in persons with dementia, and thus, increasing their psychosocial well-being.

Environmental and Social Influences on Affect and Behavior

While we understand that the root of BPSD lies in the damage to brain cells and
their ability to communicate and function with one another, there is also extensive evidence to support that BPSD is associated with environmental factors. Episodic behavioral problems typically signify that the behavioral disturbance is initiated by a change in the environment of the person with dementia, such as unfamiliar places, a change in caregiving staff, or a frightening experience (Dewing, 2010; Teri, Logsdon, & Schindler, 1999). Other environmental triggers for BPSD include confusing or noisy surroundings, and over- or under-stimulation (Dewing, 2010). Poorly lit areas can cause increased agitation, as well as persons with dementia being too hot or too cold. Persons with dementia are acutely sensitive to their environment and are particularly susceptible to uncertainty and change.

Extremes in the environment, such as being alone for an extended period of time, or being around too many people, may result in sudden agitation, anxiety, or increased confusion (Dewing, 2010). Nursing home staff purport that a restrictive environment may cause aggression (Pulsford, Duxbury, & Hadi, 2011). BPSD may also be a way of the person with dementia expressing a need or a discomfort. With limited communication skills, a person who is tired, hungry, or in pain, may express their discomfort via agitation (Pulsford et al., 2011). These expressions of emotions may be appropriate, although exaggerated, to their perception of the environment or circumstances they are in (Stein-Parbury et al., 2012). By being aware of potential environmental factors that may elicit negative affect in persons with dementia, caregivers are in a position to alleviate, or reduce, these factors. Additionally, when BPSD are presented, caregivers may seek potential environmental factors to resolve the BPSD.
Measurement of Affect/Mood

Due to cognitive limitations from the dementia process, persons with dementia have a diminished ability to articulate their feelings and emotions through language. In moderate stages of dementia, they are unlikely to be able to use self-report, and may have difficulty answering interview questions to relay their feelings; however, they are still able to express emotions through many observable signs of affect. Particularly as the disease progresses, it becomes necessary to rely on the observation of facial expression, body movements and posture, muscle tension, tone of voice, nonverbal vocalization, eye gaze, and touch to determine the feelings and emotions persons with dementia are experiencing (Lawton et al., 1996; Lee et al., 2013). The areas of positive affect that are typically studied in persons with dementia include pleasure and interest (or engagement) while observable negative affect in persons with dementia includes sadness, anxiety, and anger.

Pleasure is a key, basic emotion included in the domain of positive affect. There are many terms that are associated with pleasure that help define it. Some of these terms are used interchangeably with pleasure, such as happiness, joy, fun, enjoyment, and cheerfulness. Others refer to aspects of pleasure. These include optimism, personal control, vigor, energetic, active, wanting, and liking (Gooding & Pflum, 2014). In addition, pleasure is just one component of self-esteem, extraversion, personal control, and life satisfaction (Pannells & Claxton, 2008). Observable behaviors of pleasure in persons with dementia as defined by the Philadelphia Geriatric Center Affect Rating
Scale (ARS) include smiling, singing, and laughing (for more indicators see Table 2-1; Lawton et al., 1996).

Table 2-1

<table>
<thead>
<tr>
<th>Emotion</th>
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<tr>
<td>Pleasure</td>
<td>Smile, laugh, stroking, touching with “approach” manner, nodding, singing, arm or hand outreach, open-arm gesture, eye crinkled</td>
</tr>
<tr>
<td>Anger</td>
<td>Clench teeth, grimace, shout, curse, berate, push, physical aggression or implied aggression, like fist shaking, pursed lips, eyes narrowed, knit brows/lowered</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Furrowed brow, motoric restlessness, repeated or agitated motions, facial expression of fear or worry, sigh, withdraw from other, tremor, tight facial muscles, calls repetitively, hand wringing, leg jiggling, eyes wide</td>
</tr>
<tr>
<td>Sadness</td>
<td>Cry, tears, moan, mouth turned down at corners, eyes/head down turned and face expressionless, wiping eyes, horse-shoe on forehead</td>
</tr>
<tr>
<td>Interest</td>
<td>Eyes follow object, intent fixation on object or person, visual scanning, facial, motoric or verbal feedback to other, eye contact maintained, body or vocal response to music, wide angle subtended by gaze, turn body or move toward person or object</td>
</tr>
<tr>
<td>Contentment</td>
<td>Comfortable posture, sitting or lying down, smooth facial muscles, lack of tension in limbs, neck, slow movements</td>
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</tbody>
</table>

The other observable area of positive affect in persons with dementia is interest, which includes positive feelings while a person feels a personal connection to something, and/or a sense of value for something (Linnenbrink-Garcia, Patall, & Messersmith, 2013). Interest may emerge as a result of the context of what is taking place or may be independent of the context and reside within the individual. Focused involvement, paying attention, and showing persistence in something are expressions of interest. Passive and active participation in an activity show different levels of interest or engagement (Baroody & Diamond, 2013). Visual scanning, intent fixation on an object or person, and maintained eye contact are some of the observable behaviors of interest, as used in the ARS (for more indicators see Table 2-2; Lawton et al., 1996).

Sadness is a key, basic emotion in the domain of negative affect. It is defined as how one feels when something he/she wants appears to be “unattainable or irrevocably lost” (Smedslund, 1991, p. 328). Sadness is sometimes assessed by the presence of depressive symptoms (not necessarily clinical depression; sadness can be present at subclinical levels of depression). According to the guidelines in the *Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition* (American Psychiatric Association, 2013), feelings of sadness, or observed sadness, is listed as just one of five required symptoms for a diagnosis of major depressive disorder (see Table 2-2). Sadness is said to be preceded by some sort of loss (Cullari, 2002). Whether the loss is perceived or real is insignificant and may include the loss of loved ones, home, identity, autonomy, mobility, bodily functions, or that which is familiar.

Another observable emotion included in negative affect is anxiety. Anxiety is
caused by anticipating a future threat and may be associated with physical tension and preparation for future danger and possible avoidant behavior (American Psychiatric Association, 2013). When individuals experience anxiety they may panic or be particularly vigilant and avoid things they fear (Terluin et al., 2014). Some of the observable signs of anxiety are repeated or agitated motions, facial expression of fear or worry, and tight facial muscles (Lawton et al., 1996).

Table 2-2

**Symptom Differences between Major Depression and Chronic Sadness**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>MD</th>
<th>CS</th>
<th>Increased severity of symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed mood</td>
<td>Yes</td>
<td>Yes</td>
<td>No difference</td>
</tr>
<tr>
<td>Suicidal thoughts/gestures</td>
<td>Yes</td>
<td>Yes</td>
<td>No difference</td>
</tr>
<tr>
<td>Appetite disturbance</td>
<td>Yes</td>
<td>Yes</td>
<td>MD</td>
</tr>
<tr>
<td>Loss of libido</td>
<td>Yes</td>
<td>Yes</td>
<td>MD</td>
</tr>
<tr>
<td>Appetite disturbance - weight loss</td>
<td>Yes</td>
<td>Yes</td>
<td>MD</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Yes</td>
<td>Yes</td>
<td>MD</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Yes</td>
<td>Yes</td>
<td>CS</td>
</tr>
<tr>
<td>Hopelessness</td>
<td>Yes</td>
<td>Yes</td>
<td>CS</td>
</tr>
<tr>
<td>Helplessness</td>
<td>Yes</td>
<td>Yes</td>
<td>CS</td>
</tr>
<tr>
<td>Long duration</td>
<td>Yes</td>
<td>Yes</td>
<td>CS</td>
</tr>
<tr>
<td>Psychosis</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Discrete episodes</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cognitive impairment</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Gender differences</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Morbid obsession with death</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Psychomotor disturbance</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Reduced self-esteem</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Inability to function</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Obvious precipitator</td>
<td>Sometimes</td>
<td>Always</td>
<td></td>
</tr>
<tr>
<td>Relapse after recovery</td>
<td>Likely</td>
<td>Unlikely</td>
<td></td>
</tr>
</tbody>
</table>

Anger, unlike anxiety, is associated with a threat that is immediate, rather than a future threat. Antagonism or insults may also trigger anger. Like anxiety, anger causes a physical reaction that includes the secretion of epinephrine, more commonly known as adrenaline. This results in an increase in heart rate, muscle strength, and blood pressure (Bodenhausen, Sheppard, & Kramer, 1994). An increase in body temperature may also be associated with anger (Scheff, 2015). The Affective Neuroscience Personality Scale defines anger as “feeling hotheaded, being easily irritated and frustrated, experiencing frustration leading to anger, expressing anger verbally or physically, and remaining angry for long periods” (Davis, Panksepp, & Normansell, 2003, p. 60). The ARS includes physical aggression or implied aggression, like fist shaking, pursed lips, and narrowed eyes among the observable signs of anger (for more indicators see Table 2-2; Lawton et al., 1996).

**Effects of Staff Interactions on Affect and Behavior of Persons with Dementia**

In residential care facilities, staff interactions, attitudes, and behaviors often have an influence on clients with dementia, both in terms of their well-being and their behavior. When staff make demands of a client that are beyond his or her capabilities, BPSD may be triggered (Yamaguchi, Maki, & Yamagami, 2010). Additionally, denying clients something, arguing with, or correcting them, may bring about behavior problems (Teri et al., 1999). Interactions involving the provision of personal care have also been identified as significant triggers for BPSD (Pulsford et al., 2011). Due to their cognitive
declines they may perceive that “strangers” are telling them to get undressed to take a shower, and so forth.

Staff attitudes and behaviors are closely related. Much in the same way that staff attitudes, behavior, and interactions can elicit problem behaviors in the persons with dementia, research suggests that staff also play a role in reducing BPSD. Staff members’ sense of competence to care for persons with dementia, and their reactions to BPSD, strongly predict anxiety in the patient (Neville & Teri, 2011; Yamaguchi et al., 2010). The American Association for Geriatric Psychiatry (AAGP) states that the most effective therapy for negative behaviors such as agitation and aggression is modifying staff behavior (Yamaguchi et al., 2010). Staff being present and engaged with the patients helps develop a positive climate in which patients show positive affect. The absence of staff can quickly trigger anxiety in the patients (Edvardsson, Sandman, & Rasmussen, 2012). If staff view behavior as a form of communication and use affective engagement, which is to recognize and acknowledge the patient’s feelings, and respond accordingly, they can increase the patient’s well-being (Stein-Parbury et al., 2012).

There have been many observational studies conducted in the past two decades with the intention of gaining a better understanding of the care received by persons with dementia in residential settings (Ward, Vass, Aggarwal, Garfield, & Cybyk, 2008). The general finding is that most of these individuals spend the majority of their time with little or no focus, doing nothing, and have little effective interaction (Ballard et al., 2001; Ward et al., 2008). One study concluded, “what we call ‘null affect’ is probably concealing much more sadness and loneliness than we
would care to admit” (Schreiner et al., 2005, p. 134). Therefore, it would be beneficial to focus on increasing (both quantitatively and qualitatively) positive affect, as well as decreasing null and/or negative affect, in order to improve client psychosocial well-being. Interactions, whether verbal, nonverbal, and/or emotional, should focus on basic social communication and not be limited to only the delivering of physical care, providing nutrition, and assuring safety (Le Dorze et al., 2000).

**Summary, Purpose of the Study, and Hypotheses**

Communication is imperative to all humans (Kaakinen, 1995), yet due to cognitive decline, it becomes more challenging as dementia progresses. Although verbal communication may be more difficult, and in some cases impractical, persons with dementia are still capable of communicating through their emotions, as is reflected through their affect (Beer et al., 2012). It is through direct observation that the psychosocial well-being and quality of life of persons with dementia may be assessed and understood. Most research on affect in persons with dementia has focused on negative affect and BPSD. The current study focuses more broadly on both positive and neutral affect, in addition to negative affect, in order to provide an in-depth descriptive evaluation of these outcomes in residential care settings.

There are individual differences in factors that impact affect. For example, the level of cognitive decline due to neuronal damage as well as environmental factors, such as being cold, hungry, or in pain, will vary between individuals, as well as within individuals over time. The first purpose of this study is to examine the overall
proportion of positive, neutral, and negative affect in clients, and the overall proportion of positive, neutral/no, and negative staff interaction in a dementia care unit. I will observe between-person differences in affect and staff interactions, as well as within person variability in the proportion of positive, neutral, and negative affect and positive, neutral/no, and negative interactions, displayed across multiple observations. Prior research supports my general hypothesis that positive and neutral affect may be more prevalent in residential settings than negative affect.

The second purpose is to identify how staff-client interactions relate to positive affect in persons with dementia. Prior research supports that staff have the potential to exacerbate negative affect through their interactions with persons with dementia, yet less is known about the role of interactions and positive affect. I hypothesize that client positive affect is more likely to occur in the presence of positive staff interactions, as opposed to neutral/no or negative staff interactions.

Finally, the third purpose is to examine what themes emerge from a review of field notes when instances where staff interactions and client responses were noted. I will explore the field notes to determine patterns of effective or ineffective staff involvement in the occasions were staff interactions and client responses were noted.

**Research Questions**

1. What is the overall proportion of positive, neutral, and negative affect, and overall proportion of positive/neutral/no/negative staff interaction, for all persons with dementia included in this study?
1a. Do positive/neutral/negative affect, and positive/neutral/no/negative staff interactions, differ by client?

1b. Does the proportion of positive, neutral, and negative affect and positive, neutral, and no/negative interactions vary within individuals across all of their observational sessions?

2. Is positive affect more likely to occur in clients when staff use positive interaction types?

3. What themes emerge from a review of field notes on staff interactions and/or client affect?
CHAPTER III

METHODS

The current study uses a psychosocial perspective to better understand well-being in persons with dementia residing in a dementia care unit. The first question examines intra- and interindividual variability and differences in affect and interactions in persons with dementia. I will compare the overall proportion of positive, neutral, and negative affect in clients, and the overall proportion of positive, neutral/no, and negative staff interactions that were observed over the duration of the study. Questions two and three examine affect specifically within the context of staff interactions. The second purpose is, therefore, to identify the extent to which positive staff-client interactions co-occur with positive affect in persons with dementia. The third purpose expands upon the second purpose, by examining themes that emerge from a review of open-ended field notes when instances of staff interaction and/or client affect was noted. This chapter will discuss the methods, research design, sample, and procedures used to answer the aforementioned research questions.

Research Design

The current study utilized a naturalistic observational research design within a residential memory care unit. Consented clients with dementia were observed in common areas only, in order to preserve their privacy (i.e.; they were not observed while showering, dressing, toileting, or other times spent in their private rooms).
Observational time included meals, daily planned activities, semistructured activities such as participation in activity centers, and unscheduled “down” time.

Participants

Twenty-two participants, (12 females and 10 males) were recruited from a memory care unit inside a multiunit skilled nursing facility in Logan, Utah. Participants range in age from 49 years to 93 years old, with a mean age of 76 years old. Participants were admitted to the memory care unit from the community, or were residents of other units at the facility prior to residing in the memory care unit, but were relocated there due to having a dementia diagnosis, including dementia-related behavior of wandering, thus putting them at a safety risk in a unit with less supervision or in a unit with more access to the front door. Due to restrictions outlined by the Health Insurance Portability and Accountability Act (HIPAA) the research team was unable to access medical records or obtain more detailed information on specific dementia diagnoses.

Considering the cognitive impairment of the persons with dementia, it was necessary to obtain informed consent from someone with legal authority to answer on their behalf. Formal letters were sent to the family member(s) listed as the primary family caregiver(s) or power of attorney of each resident, explaining the purposes of the study and requesting consent to observe their family member. Only clients whose primary family caregiver(s) or power of attorney provided signed consent were observed. In addition to signed consent, ongoing assent was obtained
by the persons with dementia through nonverbal means (Dewing, 2007). If a client appeared to be uncomfortable with the observer’s attention, that client was not observed for the remainder of that day. Client confidentiality was protected by assigning an identification number to each client during data collection and analysis.

**Instruments**

Two widely used observational instruments were adapted for use in this study. The Philadelphia Geriatric Center Positive and Negative Affect Rating Scales (ARS; Lawton et al., 1996) was used (and also slightly adapted) to code the observed affect state of the person with dementia. The original scale was designed to assess affect in persons with dementia living in a nursing home. Six categories were included in the original scale: pleasure, interest, content, anger, anxiety, and sad. For the current study the research team added two additional categories by adapting the “interest” category, by dividing it into low interest and high interest, and including a “resting” category. The purpose of adapting the interest category was to identify interest that demonstrated engagement from interest that demonstrated a neutral affect, or lack of affect. The resting category was added to identify times when the clients asleep, and therefore, unable to display other signs of affect.

The Quality of Interactions Schedule (QUIS; Dean, Proudfoot, & Lindesay, 1993) allowed observers to code the type of interactions between staff and individual clients. Coding options of the original scale include positive social, positive care, neutral, negative protective, or negative restrictive. For the purposes of the current,
larger observational study, two additional categories were added: positive activity assistance and no interaction. The current study is part of the broader Quality of Life in Memory Care Settings Study (PI: E. Fauth). The purpose of the broader study was to examine quality of life within many different domains, one of which was activities. The positive activity assistance code was added for use in studying quality of life within activities. The code for no interaction was added so the proportion of time when no interactions took place between staff and clients could be identified. Definitions of these interactions may be seen in Table 3-1. Reliability for the original QUIS instrument was established by Dean and colleagues with Kappa’s ranging from .71 to .87.

The ARS captures positive affect (pleasure and high interest), neutral affect (low interest, content, and resting), and negative affect (anger, anxiety, and sadness). Table 3-2 provides observable behaviors and indicators used to identify each of these states of affect. The original ARS had high Kappa’s ranging from .76 to .89, demonstrating high reliability (Lawton et al., 1996). Validity was confirmed by Lawton et al. (1996) through factor loading with loadings showing two distinct construct: positive affect and negative affect.

**Procedures**

Structured observations of persons with dementia in a memory care unit were conducted weekdays between 10:00 am and 6:00 pm. Observations were completed by members of the research team (two undergraduate and/or graduate research
Table 3-1

Adaption of the Philadelphia Geriatric Center Positive and Negative Affect Rating Scales (ARS)

<table>
<thead>
<tr>
<th>Affect type</th>
<th>Description of observable emotions/behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleasure</td>
<td>Smile, laugh, stroking, touching with &quot;approach&quot; manner, nodding, singing, arm or hand outreach, open-arm gesture, eye crinkled, a positive emotional component to client response</td>
</tr>
<tr>
<td>High interest*</td>
<td>Body or vocal response to music, etc., turn body or move toward person or object, facial, motoric or verbal feedback to other, engagement</td>
</tr>
<tr>
<td>Low interest*</td>
<td>Eyes follow object, fixation on object or person, visual scanning, eye contact maintained, wide angle subtended by gaze, eating food routinely without enthusiasm, lack of affect</td>
</tr>
<tr>
<td>Content</td>
<td>Comfortable posture, sitting or lying down, smooth facial muscles, lack of tension in limbs, neck, slow movements</td>
</tr>
<tr>
<td>Anger</td>
<td>Clench teeth, grimace, shout, curse, push, aggression pursed lips, eyes narrow, knit brows</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Furrowed brow, motoric restlessness, repeated or agitated motions, facial expression of fear or worry, sigh, withdraw from other, tremor, tight facial muscles, calls repetitively, hand wringing, leg jiggling, eyes wide</td>
</tr>
<tr>
<td>Sad</td>
<td>Cry, tears, moan, mouth turned down at corners, eyes/head down turned and face expressionless, wiping eyes, horse-shoe on forehead</td>
</tr>
<tr>
<td>Resting*</td>
<td>Eyes closed</td>
</tr>
</tbody>
</table>

Table 3-2

Adaptation of the Quality of Interactions Schedule and Description of Observable Staff-Client Interactions

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive social</td>
<td>Interaction involving good, constructive conversation or companionship (greetings, general chat, offering choices, verbal explanation)</td>
</tr>
<tr>
<td>Positive activity</td>
<td>Interaction involving conversation or instructions, offering choices, verbal explanation during an activity</td>
</tr>
<tr>
<td>Positive care</td>
<td>Interactions during the appropriate delivery of physical care (toileting, feeding, removal from harmful situation with explanation – includes meals)</td>
</tr>
<tr>
<td>Neutral</td>
<td>Brief indifferent interactions not fitting into other categories (undirected greetings, putting a plate down w/o explanation (nonverbal interactions, lack of engagement neither negative nor positive)</td>
</tr>
<tr>
<td>Negative protective</td>
<td>Providing care, keeping safe or removing from harm in a restrictive way, without an explanation or reassurance (Don’t hit X, don’t touch that, being fed too quickly, being told to wait for treatment or medication)</td>
</tr>
<tr>
<td>Negative restrictive</td>
<td>Interactions that oppose or resist residents’ freedom of action w/o good reason or ignore resident as a person (being moved w/o explanation, told to do something without direction explanation or help, being told not to be angry, swearing, verbal or physical assault)</td>
</tr>
<tr>
<td>No interaction*</td>
<td></td>
</tr>
</tbody>
</table>

assistants and the project PI). Observations generally were conducted in two hour blocks; thus multiple 15-minute sessions would be observed during the same day. In the beginning of the study, two observers coded the same clients and same 15-minute session simultaneously to assess inter-rater reliability. The first few weeks of observations were used for training purposes, only. It was during this time frame that the team decided to slightly adapt the instruments by adding additional categories described above in the instruments section. After the initial training period, research assistants (RA’s) completed observations in pairs until a Kappa score of .80 was reached, after which research assistants completed observations individually. All data that was collected in pairs (after the training period) were entered using consensus procedures where agreed upon data points were entered, and any data points “off” by the raters were averaged and/or discussed by the research team until consensus on those categories was reached. At the end of the study data collection, reliability drift was assessed by again performing observations in pairs of two observers for the last 10% of the data collected. These final data yielded a Kappa of .85. Throughout the duration of the study, the research team met weekly to discuss questions regarding interpretation of specific categories from each scale in relation to what was being observed.

RAs positioned themselves in the unit in an unobtrusive way so they could observe interactions without drawing undue attention. Observations were completed in 15-minute segments with each minute receiving a code signifying the main interaction style and client affect observed during that one-minute time period. RAs
observed two clients at a time, marking an interaction/affect state every 30 seconds, rotating on the 30 second mark between the two clients. In addition to coding the interactions and affective states, RAs took field notes about what was taking place and any negative affect observed, how long it lasted, and how it was resolved, the staff-to-client ratio, and if the time was during a structured activity, semistructured activity, or unstructured time. For the field notes presented here, some content edited after the fact for grammar and comprehension. The date and time of day were also recorded. It was also noted if social interactions took place between staff and client, client and client, or “other” and client. The “other” category included family, visitors, volunteers, and RAs, however the data on interactions from other individuals besides staff is collapsed into the staff “no [staff] interaction” category for the current analysis.

**Data Analysis**

The first step in data preparation was to distribute the types of affect from the ARS and the types of interactions from the QUIS into their broader categories. Affect categories included positive (pleasure and high interest), neutral (low interest, content, and resting), and negative (anger, anxiety, and sadness). Staff interaction categories included positive interactions (positive social, positive activity assistance, and positive care), neutral/no interactions, and negative interactions (negative protective and negative restrictive). Each type of affect and interaction was measured in minutes; therefore, minutes is the unit of analysis in all quantitative procedures.
To answer Research Question 1, the proportion of client affect and staff interactions types observed over all clients was calculated as a percent by dividing the number of minutes observed in each affect and interaction category and subcategory, by the total number of minutes observed. To compare clients’ affect and the staff interactions occurring with these clients (interindividual differences), I calculated and charted the percent of total time spent in each subcategory for the five most observed clients, and also calculated their percent in the broader categories (positive vs. neutral/no/negative). The purpose of using data from the five most observed clients was that their data comprised 65.7% of the total collected data. The other 34.3% of the data was collected among the remaining seventeen clients. The smaller amount of data for each of these clients may not be an accurate representation of their overall affect and staff interactions.

Neutral and negative were combined because the frequency of negative behaviors was so low that there wasn’t enough statistical strength to provide reliable conclusions (recognizing that this does not dismiss the possibility that negative behaviors can still have a profound impact for the client). I used z scores to compare proportions of positive affect and positive staff interactions of each of the five most observed clients. The client that had the highest proportion of positive affect was used to compare each of the other four clients’ proportions of positive affect with. Likewise, the client that had the highest proportion of positive staff interactions was used to compare each of the other four clients’ proportions of positive staff interactions with. This analysis determined if,
statistically, the person with the highest percentage of positive affect/interaction was different from the other four clients – an indicator of interindividual differences.

To observe intraindividual differences over all observations for a client, I calculated the means and standard deviations of affect and staff interaction type (positive, neutral/no, negative) for the five most observed clients across all of their observed sessions. Larger standard deviations determined, descriptively, if individuals were consistent within the affect/interaction category, or if they tended to have more fluctuations within that category over observed sessions.

Research Question 2 used cross tabulations and chi-square tests, as well as z score comparisons. Due to low frequency of negative affect and negative staff interactions, I calculated these analyses using the dichotomous affect (positive vs. the combined neutral/negative affect) and interaction (positive vs. the combined neutral/no/negative interactions) variables. Chi-square tests were used as an overall omnibus test – to determine if cell percentages were as expected or not, while the z score comparison determined if the proportion of positive affect displayed during positive staff interactions was statistically different from the proportion of positive affect displayed during neutral/no/negative staff interactions.

To address Research Question 3, I organized field notes by themes, similar to a qualitative data analytic approach called immersion/crystallization (Borkan, 1999). I first extracted and coded the field notes for all instances in which field notes discussed staff interactions and/or client affect. Data were coded in each “theme” that was relevant. In other words, if a particular field note was relevant to both affect and interactions, it was
coded for each. Next I immersed myself in the field notes through cycles of reading and reflecting on the material until themes become apparent and crystallized. I identified three overarching themes: staff responses to client behavior problems; staff responses to other client problems; and staff attitudes and behaviors. I sorted all data accordingly. Once the overall themes were created I reviewed the data included in each to confirm that included data were a good fit for the given themes and also presented these themes to one other member of the research team, who had also immersed herself in the field notes, for verification that I had not missed anything. After determining that each theme fit well with the data and formed a thematic map that worked well, I reread and contemplated the data within each theme until subthemes became apparent and crystallized. Each of the first two themes (staff responses to client behavior problems, and staff responses to other client problems) contained four subthemes: unnoticed by staff; ignored by staff; addressed by staff insufficiently: no reduction in behavior problem; and addressed by staff sufficiently to reduce behavior problem. The third theme (staff attitudes and behaviors) contained three subthemes: inter-staff interactions that exclude clients; staff disrespecting clients (e.g., discussing clients in their presence, laughing at clients, mocking clients, or infantilizing clients); and staff engaging with clients beyond what is required. Once again, I had another member of the research team who had also immersed herself in the field notes, review these subthemes for accuracy. I then organized my findings in three descriptive tables (one for each theme) which represented the subthemes in one column, and samples of the subthemes in the next column.
CHAPTER IV

RESULTS

Over the one year in which data were collected, there were 287 observational visits, and since two participants were generally observed at a time and each participant’s data were entered separately, there were a total of 527 sessions available for analysis. Out of these 527 observations, 77.6% \((n = 409)\) were 15 minutes in duration, with the remaining 22.4% \((n = 118)\) being less than the full 15 minutes. A total of 6,999 minutes of client affect and staff interactions were collected. Clients were not all observed an equal amount of time. For example, two clients were observed in only one session each (both 15 minutes in length), while the most observed client was observed during 104 sessions (1,560 minutes). Data for the five most observed clients comprised 65.7% of the total collected data.

1. **Overall Proportion of Positive, Neutral, and No/Negative Affect and Staff Interactions**

   Research Question 1 examines the overall proportion of positive/neutral/negative client affect, and the overall proportion of positive/neutral/no/negative staff interactions for all observations in the study. There were 3,126 minutes observed where clients showed positive affect (44.5% of all observed minutes). Of these minutes, 1,271 minutes (18.1% of all observed minutes) were pleasure, and 1,855 minutes (26.4% of all observed minutes) were high interest. There was a total of 3,728 observed minutes (53.1% of all observed minutes) where clients showed neutral affect. Of these minutes, 2,034 minutes
(29.0% of all observed minutes) were low interest, 792 minutes (11.3%) were content, and 902 minutes (12.8%) were resting. There were a total of 167 minutes (2.4% of all observed minutes) where clients showed negative affect. Of these minutes, 148 minutes (2.1% of all observed minutes) were anxious, 6 minutes (0.1% of all observed minutes) were sad, and 13 minutes (0.2% of all observed minutes) were anger. Overall, clients showed 22.3 times more neutral affect than negative affect, and 18.7 times more positive affect than negative affect.

Positive staff interactions were observed 1,260 minutes (18.1% of all observed minutes). Of these minutes, 497 minutes (7.1% of all observed minutes) were positive social, 274 minutes (3.9% of all observed minutes) were positive care, and 489 minutes (7.0% of all observed minutes) were positive activity assistance. Neutral/no interactions were observed 5,648 minutes (81.1% of all observed minutes), with 33 minutes (0.1% of all observed minutes) of those minutes were neutral, and 5,615 minutes (80.7% of all observed minutes) were no interaction. Negative staff interactions were observed 52 minutes (0.7% of all observed minutes). Of those minutes, 5 minutes (0.1% of all observed minutes) were negative protective, and 47 minutes (0.7% of all observed minutes) were negative restrictive. Overall, staff showed 93.0 times more neutral/no interactions than negative interactions, and 20.8 times more positive interactions than negative interactions.

1a. Interindividual Variability in Affect and Staff Interactions

Research Question 1b describes affect and staff interactions categories by
behavioral category. Because five clients provided 65.7% of the total collected data, I elected to describe these affect categories only in the five most observed clients (see Figure 4-1). Negative affect was rare in these clients (0-3% of these clients’ observations were anxiety, sadness, and anger). Low interest was the most common affect type, between displayed 23-51% of these clients’ observations. There was statistically significant variability between these clients; for example, Client A showed the highest proportion (59.6%) of positive affect of while Client B showed positive affect only 14.2% of the observed time (see Table 4-1). With z scores ranging from 19.86 to 5.07, each at a level of $p < .05$, I concluded that each of the other four clients was statistically different from Client A in the proportion of positive affect experienced.

![Figure 4-1. Proportions of each type of affect for individual clients.](image-url)
Conducting the same analyses with staff interactions, using the five most observed clients, I assessed whether certain clients were more or less likely to be involved in positive, neutral/no, or negative interactions with staff (see Figure 4-2). No interaction with staff was by far the most common interaction type observed, with 75% to 88% of these clients observed minutes falling into this interaction category. Negative and other neutral interactions were rare, ranging from 0-2% of these clients’ total observed minutes. Like affect, there was statistically significant variability in the type of staff interactions observed between clients. Client A received the highest proportion of positive interactions (22.8%), while Client B showed the lowest proportion of positive staff interactions (9.5%; see Table 4-2). With z scores ranging from 7.5 to -1.6, each at a level of $p < .05$, I concluded that each of the other four clients was statistically different from Client A in the proportion of positive affect experienced, except for Client E.

Table 4-1

<table>
<thead>
<tr>
<th>Client</th>
<th>Minutes (% of total observed minutes)</th>
<th>Comparing proportion of positive affect with Client A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive affect</td>
<td>Neutral/no/negative affect</td>
</tr>
<tr>
<td>Client A</td>
<td>798 (59.6%)</td>
<td>542 (40.4%)</td>
</tr>
<tr>
<td>Client B</td>
<td>104 (14.2%)</td>
<td>626 (85.8%)</td>
</tr>
<tr>
<td>Client C</td>
<td>232 (36.4%)</td>
<td>405 (63.6%)</td>
</tr>
<tr>
<td>Client D</td>
<td>348 (47.9%)</td>
<td>378 (52.1%)</td>
</tr>
<tr>
<td>Client E</td>
<td>520 (45.5%)</td>
<td>623 (54.5%)</td>
</tr>
</tbody>
</table>

*Note. An (*) indicates the proportions of positive and neutral/no/negative affect between clients were statistically different from each other at a level of $p < .05$. 
Figure 4-2. Proportions of each type of staff interactions by individual client.

Table 4-2

Proportional Differences for Positive and Neutral/no/negative Interactions with Persons with Dementia, for 5 Most Observed Clients, by Interaction Type: z Score Comparisons with Positive Interactions with Client A

<table>
<thead>
<tr>
<th>Client</th>
<th>Positive interactions</th>
<th>Neutral/no/negative interactions</th>
<th>Comparing proportion of positive affect with Client A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minutes (% of total observed minutes)</td>
<td></td>
<td>z score</td>
</tr>
<tr>
<td>Client A</td>
<td>305 (22.8%)</td>
<td>1035 (77.2%)</td>
<td>7.52</td>
</tr>
<tr>
<td>Client B</td>
<td>69 (9.5%)</td>
<td>661 (90.5%)</td>
<td>5.27</td>
</tr>
<tr>
<td>Client C</td>
<td>81 (12.7%)</td>
<td>556 (87.3%)</td>
<td>6.38</td>
</tr>
<tr>
<td>Client D</td>
<td>82 (11.3%)</td>
<td>644 (88.7%)</td>
<td>-1.63</td>
</tr>
<tr>
<td>Client E</td>
<td>234 (20.5%)</td>
<td>909 (79.5%)</td>
<td></td>
</tr>
</tbody>
</table>

Note. An (*) indicates the proportions of positive and neutral/no/negative staff interaction between clients were statistically different from each other at a level of p < .05.
1b: Intraindividual Variability in Affect and Staff Interactions

Research Question 1b examines within person variability in affect, and staff interactions by looking at the means and standard deviations of positive, neutral, and negative affect for the five most observed clients, as well as the means and standard deviations of positive, neutral/no, and negative staff interactions for the five most observed clients (see Tables 4-3 and 4-4). There was substantial variability in affect observed within persons. Client A had a mean of 5.7 minutes of pleasure for an average 15-minute observation session, with a standard deviation of 4.7, however Client B had an average of 1.0 minutes of pleasure, with a standard deviation of 1.6. Descriptively, standard deviations were fairly high, indicating that while these five most observed clients were more or less likely to display higher or lower affect types, or be present with higher or lower proportions of staff interaction types, they also varied in displaying these categories of affect and interaction across all sessions.

2. Association of Staff Interaction Type and Affect Observed

Research Question 2 examined if the type of staff interaction was associated with the affect observed in the person with dementia. Analyses comparing percent minutes in three behavior categories (positive, neutral, negative) and three interaction categories (positive, neutral/no, negative) yielded statistically significant chi-square statistics \( \chi^2(4, N = 6999) = 1070.0, p < .001 \). Follow-up analyses used z-scores to determine the categories that yielded statistically different proportions from one another. Because negative affect was displayed so infrequently (167 minutes, or 2.4% of all observed minutes), the
negative affect category was combined with the neutral affect category such that all subsequent comparisons were made between positive affect vs. neutral/negative affect.

The combined neutral/negative affect category had 3,895 minutes of observation (55.5% of total minutes observed). Likewise, because the negative interaction category was displayed so infrequently (52 minutes, or 0.7% of all observed minutes), the negative interaction category was combined with the neutral/no interaction category such that all comparisons were made between positive interactions vs. neutral/no/negative interactions. The combined neutral/no/negative interaction category had 5,700 minutes of observation (81.9% of all observed minutes).

When positive staff interactions were observed, clients displayed positive affect 81.0% of the time and neutral/no/negative affect 19.0% of the time (see Figure 4-3).

Table 4-3

*Within Person Variability of Affect by Individual Client*

<table>
<thead>
<tr>
<th>Client ID (# of sessions observed)</th>
<th>Positive</th>
<th>High interest</th>
<th>Low interest</th>
<th>Content</th>
<th>Resting</th>
<th>Anxious</th>
<th>Sad</th>
<th>Anger</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pleasure</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>A (104)</td>
<td>5.7</td>
<td>5.3</td>
<td>5.3</td>
<td>2.1</td>
<td>3.6</td>
<td>0.7</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>B (54)</td>
<td>4.7</td>
<td>4.0</td>
<td>4.1</td>
<td>2.5</td>
<td>2.8</td>
<td>1.0</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>C (46)</td>
<td>5.6</td>
<td>3.7</td>
<td>6.3</td>
<td>3.7</td>
<td>5.7</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>D (55)</td>
<td>4.9</td>
<td>2.7</td>
<td>3.8</td>
<td>2.8</td>
<td>4.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>E (88)</td>
<td>4.8</td>
<td>4.5</td>
<td>5.9</td>
<td>2.9</td>
<td>4.9</td>
<td>2.3</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note.* The mean represents the average number of minutes the client displayed that particular type of affect, across all of their observed sessions.
### Table 4-4

**Within Person Variability of Staff Interaction by Individual Client**

<table>
<thead>
<tr>
<th>Client ID (# of sessions observed)</th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Positive social care M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive activity M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No interaction M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective activity M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restrictive M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (104)</td>
<td>2.1</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>B (54)</td>
<td>1.1</td>
<td>0.5</td>
<td>0.0</td>
</tr>
<tr>
<td>C (46)</td>
<td>1.3</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>D (55)</td>
<td>1.9</td>
<td>0.5</td>
<td>0.0</td>
</tr>
<tr>
<td>E (88)</td>
<td>2.1</td>
<td>0.6</td>
<td>0.7</td>
</tr>
</tbody>
</table>

*Note.* The mean represents the average number of minutes the staff displayed that particular type of interaction, across all of the clients' own observed sessions.

When neutral/no/negative staff interactions were observed, clients displayed positive affect 36.5% of the time and neutral/no/negative affect 63.5% of the time. *Z* scores revealed that clients showed proportionally higher levels of positive affect during positive staff interactions as compared to during neutral/no/negative interactions (*z* = 28.84, *p* < .001).

### 3. Themes Identified in Field Notes

Research Question 3 organized the open-ended field notes using an approach similar to immersion/crystallization, based on grounded theory, to evaluate and interpret the field notes, specifically noting all instances where staff interactions and/or affect were noted. I first extracted and coded the field notes for all instances in which field notes discussed staff interactions and/or client affect. Data were organized by
“theme” or “themes.” In other words, if a particular field note was relevant to both affect and interactions, it was coded for each. The first step in immersion/crystallization involves becoming immersed in the field notes through cycles of reading and reflecting on the material until themes become apparent and crystallize (Borkan, 1999). Through this process I noted three major themes: 1) Staff Response to Client Behavior Problems, 2) Staff Response to Other Client Problems, and 3) Staff Attitudes and Behavior. After having identified these themes, I presented them to two other members of the research team, who had also gone through the immersion process, to verify that they concurred with my interpretations, which they did.

Having reached a consensus of the three major themes, I then reread and analyzed data within these themes in a second immersion/crystallization cycle. My goal was to identify patterns in staff responses and results of each response type. The following patterns emerged in the first two themes, based on response from the staff (Unnoticed by

Figure 4-3. Percent of minutes of affect in client by staff interaction type.

- **Positive Staff Interactions**
  - 19% Positive Affect in Client
  - 81% Neutral/Negative Affect in Client

- **Neutral/No/Negative Staff Interactions**
  - 64% Positive Affect in Client
  - 36% Neutral/Negative Affect in Client
staff, Ignored by staff, Addressed by staff insufficiently: No reduction in behavior problem, and Addressed by staff sufficiently to reduce behavior problem). The following patterns emerged from the third theme: Interstaff interactions that exclude clients, Staff disrespecting clients (e.g., discussing clients in their presence, laughing at clients, mocking clients, or infantilizing clients), and Staff engaging with clients beyond what is required. Each of these new patterns became subthemes of the three major themes. Once again, I presented my findings to another member of the research team to verify that she agreed with my interpretations of the subthemes.

After field notes were coded, the frequency with which the themes and subthemes emerged was noted. Out of 287 observation sessions there were 32 instances of behavior problems noted in field notes. Of these 32 incidents, 8 were unnoticed by staff, 9 were noticed by staff, but ignored, 3 were addressed by staff but insufficiently to show a reduction in behavior problem, and 12 were addressed by staff sufficiently to reduce the behavior problem (see Table 4-5 for examples of each subcategory).

The next major theme included notes regarding other problems that clients were experiencing, but not specific to behavioral problems. These problems consisted of things such as a client presenting a medical problem, dementia clients wandering outside of memory care unit, clients at-risk for falls standing up from wheelchair, and so forth. There were 88 incidents of other problems noted out of 287 observation sessions. Fourteen of the incidents were unnoticed by staff, 31 were noticed by staff but were ignored, 13 were addressed by staff, but insufficiently to show a reduction in the
Table 4-5

*Staff Response to Client Behavior Problems*

<table>
<thead>
<tr>
<th>Response</th>
<th>Examples from field notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unnoticed by staff</strong></td>
<td>Client looked very anxious and called out for help. Staff wasn’t present and couldn’t hear her from where they were because of the volume of the movie.</td>
</tr>
<tr>
<td></td>
<td>Client was upset about her arm for some unidentified reason. Staff didn’t notice her trying to talk to them.</td>
</tr>
<tr>
<td></td>
<td>Clients wanted to leave an outdoor activity. Staff –client ratio was very low and the space was very crowded. Staff was focused more on the activity (a science experiment) than on clients.</td>
</tr>
<tr>
<td><strong>Ignored by staff</strong></td>
<td>Client tried to get staff attention by clapping her hands. Staff member looked at her and said “just a second” and then casually walked off. She got the attention of another staff about 5 min later. Staff went to her and listened and then said, “OK. Just a minute” then walked off. The staff member came back to the area but never went back to this client.</td>
</tr>
<tr>
<td></td>
<td>Client really wanted to eat on her own but wasn't allowed. She pinched her lips together so she couldn't take a bite. Finally, she said, “NO!” and, “Just let me eat.” Staff really wasn't paying attention to client as they fed her.</td>
</tr>
<tr>
<td></td>
<td>Client was tired and wanted to leave an activity. Staff ignored her requests and continued with the activity.</td>
</tr>
<tr>
<td><strong>Addressed by staff insufficiently:</strong> No reduction in behavior problem</td>
<td>Client wanted to leave the memory unit and got upset nobody would open the door for her. Staff moved her away from the door, without a warning. She yelled “Get your hands off my chair!”</td>
</tr>
<tr>
<td></td>
<td>Client was anxious about her lap desk. Staff tried to comfort her by touching her hair but it seemed to agitate her more.</td>
</tr>
<tr>
<td></td>
<td>Client was trying to get her lap desk off. She was jerking on it repeatedly. She then got ahold of the brake and started jerking on it repeatedly. She then pulled her shoes off with her feet. Staff tightened her lap desk</td>
</tr>
<tr>
<td><strong>Addressed by staff sufficiently to reduce behavior problem</strong></td>
<td>Client got agitated and started yelling and swearing during an activity. Staff offered to take him somewhere else. They unlocked his wheel chair wheels so he could move himself. When he continued to swear and yell they moved him out of the activity area and over by an aid and he soon moved himself out of the room.</td>
</tr>
<tr>
<td></td>
<td>Staff tried to put a tablecloth on the table that client was working on. It irritated client and she told the staff to “get it off here.” Staff asked if she could put the tablecloth under her book. Client told staff no. Staff said ok and moved the tablecloth out of her way and just put it on the other side of the table.</td>
</tr>
<tr>
<td></td>
<td>Client didn't want to take the medicine that staff brought her. Staff didn't force her. Staff waited patiently and then offered the medicine again. She did this a couple of times until the client willingly took it.</td>
</tr>
</tbody>
</table>
Table 4-6

**Staff Response to Other Client Problems**

<table>
<thead>
<tr>
<th>Response</th>
<th>Examples from field notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unnoticed by staff</td>
<td>Clients were taken to an activity outside of the memory care unit. As staff were gathering other clients from the facility, 2 dementia clients left and were wandering through the halls. Staff was not present to notice.</td>
</tr>
<tr>
<td></td>
<td>Client, who was a fall risk, went to freezer then stood up and got a game out of the freezer. Staff was present but was talking among themselves and didn’t notice.</td>
</tr>
<tr>
<td></td>
<td>Client’s wheelchair brakes were on and she was struggling to move around but unable to. Staff didn’t notice.</td>
</tr>
<tr>
<td>Ignored by staff</td>
<td>Client got stuck in her chair and a staff said “She'll just get wander off again, leave her there.”</td>
</tr>
<tr>
<td></td>
<td>Two clients were feeling very anxious and requested several times to leave the activity. Staff ignored them. Clients were showing significant anxiety and making requests that were recognized but ignored.</td>
</tr>
<tr>
<td></td>
<td>Client requested a pain pill and staff got it and then became distracted by a discussion with a family member and didn’t give the medication to the client. Staff kept putting client off when she became agitated and demanded her pill. Staff paid more attention to family member of new client than to clients.</td>
</tr>
<tr>
<td>Addressed by staff insufficiently:</td>
<td>Client likes to move around during music therapy activity. Staff pulled her wheelchair over in front of them and held it in place with their feet so she couldn't move for most (13 minutes) of the observation, even when she appeared to want to move the wheelchair.</td>
</tr>
<tr>
<td>No reduction in problem or problem resolution</td>
<td>Client was in an ornery mood and staff seemed impatient in her communications with him. Interactions weren't aggressive, just not necessarily kind.</td>
</tr>
<tr>
<td>unknown by RA</td>
<td>Client had a medical problem (possibly a stroke?) and the CNA requested a nurse to come help. The nurse didn't come and staff was unsure if they should move her. After waiting a few minutes for a nurse, the CNAs moved client to her room.</td>
</tr>
<tr>
<td>Addressed by staff sufficiently to reduce problem</td>
<td>Client was acting agitated so staff took her to a quiet sitting room with a large sensory lamp (like a lava lamp) turned on. All other lights were out and she sat next to the lamp for 10 minutes of observation and talked to herself very calmly.</td>
</tr>
<tr>
<td></td>
<td>Client slipped out of her wheelchair with a lap desk on it and staff helped her back in. Staff was very calm and gentle and explained to her what was happening and helped her back in and then asked her if she was okay.</td>
</tr>
<tr>
<td></td>
<td>Staff acknowledged requests by clients to go outside rather than staying at the activity. Staff took them outside individually for walks.</td>
</tr>
</tbody>
</table>
problem, and 30 were addressed by staff, sufficiently to reduce the problem (see Table 4-6 for examples of each subcategory).

The final theme that emerged from the field notes involved staff attitudes and behaviors. There were 128 incidents noted involving staff attitudes and behaviors. Of those, 16 represent staff talking among themselves, while clients are present but excluding the clients. There were 40 incidents noted when staff showed disrespect to clients by discussing clients in their presence, laughing at clients, mocking clients, infantilizing clients, etc. A total of 72 incidents were noted when staff positively engaged with clients beyond what was required of them (see Table 4-7 for samples of each subcategory).
Table 4-7

**Staff Attitudes and Behaviors**

<table>
<thead>
<tr>
<th>Attitudes/behaviors</th>
<th>Examples from field notes</th>
</tr>
</thead>
</table>
| Interstaff interactions that exclude clients | Staff was discussing kidney dialysis and who they (staff) feel should ethically receive it (old or young, etc.), in front of clients, during lunch.  
Staff stated in front of the clients “Only reason I get up in the morning is because sometimes I know I will have a day off.”  
Staff was discussing negative behaviors of both past and current clients in front of clients. |
| Staff disrespecting clients (e.g., discussing clients in their presence, laughing at clients, mocking clients, or infantilizing clients) | Staff laughed at clients’ responses during an activity when they couldn’t identify an animal correctly.  
Client requested more milk. Staff told her said that she needed to eat her food before she could have more milk. Client didn’t eat anything else or receive more milk.  
Client's daughter was discussing how difficult and ornery the client is (while daughter was cutting clients’ hair) and staff engaged in the negative talk about client. |
| Staff engaging with clients beyond what is required | Staff was sitting with and holding hands with a client. They were singing, clapping, talking, and kissing each other on their cheeks.  
Staff led a group of clients outside to the patio where they enjoyed the sunshine and blew dandelions.  
Staff began interacting with a client, stroking her arm and comforting her, and then handed her the phone and walked around the corner, called client from her cell phone and had a conversation with her. Client became very animated and happy. |
CHAPTER V
DISCUSSION

The purpose of this study was to better understand well-being in persons with dementia from a psychosocial perspective. Specifically, I sought to gain a more detailed understanding of the association between staff interactions and affect in persons with dementia in a residential dementia care setting. It is being increasingly recognized by researchers that those with dementia are not limited to living their lives with low life satisfaction (Downs, 2013). The National Institute for Health and Clinical Excellence and /Social Care Institute for Excellence (2007) states that, despite the presence of cognitive impairment, persons with dementia may still experience high levels of well-being with high quality staff communication.

RQ 1. Overall Proportion of Positive, Neutral, and Negative Affect and Staff Interactions

The first purpose of this study was to identify the overall proportion of positive, neutral, and negative affect and positive, neutral/no, and negative staff interactions for all persons with dementia included in the study. The current study identified that the largest percentage of affect was spent in neutral affect (53.1% of all minutes observed), followed by positive affect (44.5%). Negative affect was very rare (2.4% of observations). Previous research shows that persons with dementia may experience as great as 13 times more positive affect than negative affect (Kolanowski et al., 2002). The current study showed an even greater difference, with 18.7 times
more positive than negative affect. The current study’s findings regarding high levels of neutral affect also consistent with the findings of Schreiner et al. (2005) and Wood et al. (2005) who reported that persons with dementia spend as much as 40 to 65% of their day showing little or no affect.

The current study identified that the largest percentage of staff interactions was spent in neutral/no interactions (81.1% of all minutes observed), followed by positive interactions (18.1%). Negative interactions were very rare (0.8% of observations). Comparison of these findings with those of other studies is limited by the fact that there are few that have provided statistics of proportions of positive, neutral/no, and negative interactions, and those are not specific to memory care units.

**RQ 1a. Interindividual Variability in Affect and Staff Interactions**

The next purpose of Research Question 1 was to examine variability in affect and interactions between persons. By calculating z scores to compare proportions of positive affect across the five most observed clients, I was able to determine that there is statistically significant variability between clients in their observed positive affect. Of the five most observed clients, Client A was statistically more likely to experience positive affect than the other clients. The variability in affect between clients is in line with that of other researchers’ suggestion that there is not one specific personality type for persons with dementia (Pocnet, Rossier, Antonietti, & von Gunten, 2011).
Additionally, \( z \) scores were used to compare proportions of positive staff interactions across the five most observed clients. I determined that there is statistically significant variability between clients in the staff interactions they experienced. Of the five most observed clients, Client A was statistically more likely to experience positive staff interactions than the other clients, with the exception of Client E. I was not able to find any research that studied variability between persons with dementia and the staff interactions they experienced.

It is interesting to discover that Client A had the highest proportions of both positive affect and positive staff interactions and Client B had the lowest proportions of both positive affect and positive staff interactions. While high levels of positive affect occur simultaneously with high levels of positive staff interactions, there is no way, in the present study, to determine causation in either direction. It is difficult to tease the two apart. It could be that clients are experiencing pleasure because staff are using positive interactions. Then again, it could be that because clients are happy then staff are responding in kind to them. The same could be said of neutral/no and negative interactions. Despite the inability to determine the causal order of interaction and affect, I will discuss the co-occurrence of positive affect and positive interaction in more detail below (regarding RQ2).

**RQ 1b. Intraindividual Variability in Affect and Staff Interactions**

The purpose of Research Question 1b was to examine variability in affect and interactions within persons. Analyses of the five most observed clients show that,
while some clients were more likely to show positive affect (between-person differences), individual clients experience quite a bit of within person variability as well. For example, the individual means for pleasure range from 1.0 to 5.73, representing the average number of minutes the clients displayed pleasure across all of their observed sessions, and the standard deviations range from 1.62 to 4.93, indicating that clients fluctuate to some extent in displaying different types of affect when observed on multiple sessions. This highlights two important findings. First, the individuality of clients in that they differ from each other in the proportions of positive, neutral, and negative affect they experience. Secondly, it indicates that we should not identify clients as “happy,” “sad,” and so forth, because there will be variability within a person over time. These findings are in line with what other researchers have reported. Pocnet and colleagues (2011) found that persons with dementia retain much of their former personality and behavioral characteristics, but also show some variability within these behaviors and traits.

Similar results were found when examining between and within person variability in staff interactions for the five most observed clients. For example, the individual means for positive social interactions range from 1.1 to 2.1, representing the average number of minutes the clients experienced positive social interactions across all of their observed sessions, and the standard deviations range from .7 to 2.4, indicating that clients fluctuated to some extent in experiencing different types of staff interactions when observed on multiple sessions. These between and within
person differences in staff interaction type, however, are not as great as those for affect.

**RQ 2. Association of Staff Interaction Type and Affect Observed**

The second purpose was to identify how staff-client interactions relate to affect in persons with dementia. The data supported my hypothesis, in that client positive affect is more likely to occur in the presence of positive staff interactions, as opposed to neutral/no/negative staff interactions. Clients in this study experienced positive affect 36.5% of the time when staff interactions were neutral/no or negative. That proportion increased to 81.0% when staff interactions were positive. These findings are consistent with past research that reports that staff being present and engaged with the clients helps develop a positive climate in which clients show positive affect. By using affective engagement, which is to recognize and acknowledge the patient’s feelings, and respond accordingly, staff can increase the patient’s psychosocial well-being (Stein-Parbury et al., 2012).

**RQ 3. Themes Identified in Field Notes**

The third purpose was to examine what themes emerged from a review of field notes when staff interaction and/or client affect was noted. Three main themes became apparent as I reviewed the field notes: staff response to client behavior problems, staff response to other client problems, and staff attitudes and behaviors.
When clients presented a behavior problem staff either didn’t notice, noticed but ignored it, or addressed the problem. Incidents when staff addressed behavior and other problems were more likely to reduce the behavior problem than not. Past research shows that staff being present and engaged with clients helps develop a positive climate, increasing positive affect (Edvardsson et al., 2012). In contrast, the absence of staff can quickly trigger anxiety in clients. Taking these findings into consideration, it stands to reason that the problems that were addressed by staff had the greatest potential for being reduced.

Staff attitudes and behaviors, as reflected in their interactions, have the potential to influence clients’ psychosocial well-being (Yamaguchi et al., 2010). As seen in this study, occasions when staff engaged with clients, beyond what was required of them, resulted in positive affect being experienced by the clients. These were occasions when staff focused on social communication, whether verbal, nonverbal, and/or emotional, and were not limited to only delivering physical care, providing nutrition, and assuring safety, as suggested by Le Dorze et al. (2000).

One finding that was particularly surprising from these observations is related to negative affect and BPSD. Early research of psychosocial well-being in persons with dementia focused on negative affect and BPSD (Brodaty et al., 2001). Brodaty and colleagues found BPSD prevalent in more than 90% of the clients in their study and concluded that BPSD are extremely common in persons with dementia in residential settings. The current study did not replicate those findings. Very little negative affect or BPSD (2.4%) were observed. This may be the result of improved training of staff in the
current study, the method of reporting (direct observation by trained research assistants vs. reports by nursing staff), or observations in the current study being limited to common areas.

The majority of the time staff were physically present with the clients (post-hoc analyses indicated that staff were at least present in the same room for 258 out of 287 observed sessions). Throughout the day there were various tasks that staff needed to complete. When they were focusing on these tasks there was oftentimes little interaction between them and the clients. For example, while staff was charting on the computer they were in the room with the clients, but were not interacting with them. Other times they were taking clients to their rooms for personal care. During these times they might interact only with the clients on their list. If, as they completed these tasks, they would engage in casual positive engagement they could increase the proportion of positive affect experienced by the clients, thus, increasing their psychosocial well-being. There are many simple ways of doing this: asking a client how their day is going, laying a hand on clients’ shoulder as they walk by them, getting a blanket for a client who appears cold, or even something as simple as smiling at a client and telling them “Hi.”

Limitations

There are several limitations worth noting in the current analysis. This observational study collected data in only one facility. This facility may not be an accurate representation of all memory care units. The level of cognition of the clients may be different than other facilities. As cognitive abilities diminish, persons with
dementia rely on their emotional perceptions of the environment (Edvardsson et al., 2012). Facilities that have more clients with mild dementia may, for example, see more positive and/or negative affect as their interpretation of the psychosocial climate may be different than the clients in this study. Another limitation of using only one facility is that the quality of staff-client interactions might not be representative of all memory care units. Quantitative analyses suggested that there was a very low proportion of negative staff interactions at this facility. That may be due to particularly well-trained staff or the staff’s awareness of being observed and, therefore, consciously using more positive interactions and fewer negative interactions than if they were not being observed. The review of field notes, however, suggest that negative affect and negative staff interactions/responses were occurring at this facility. The “no interaction” category of quantitative staff interaction may be masking more negative behaviors in staff, for example, times where nonresponse from staff was actually ignoring or not adequately addressing a client.

In addition, due to HIPPA laws, and to protect the client’s privacy, the level of cognition and functioning impairment of each client was not measured or shared with researchers for this study. Knowing the client’s level of impairment would have allowed for additional analyses and provided further information on possible relations between staff interactions, client affect, and levels of impairment.

All observations for this study took place in common areas to preserve clients’ privacy. Showering, dressing, toileting, and other personal tasks (that take place in bedrooms and bathrooms) have been identified as significant triggers for negative affect.
and BPSD (Pulsford et al., 2011). If observations had been extended to these areas, higher levels of negative affect might have been observed. Additionally, staff might have shown higher levels of negative interactions if these were difficult tasks for them to complete.

Although the majority of the observation periods were 15 minutes in duration, not all were. The main cause of shorter observation periods was clients leaving the observation area, either by choice or as directed by staff. Because of this, Tables 4-1 and 4-2 might be slightly biased to lower numbers. For example, the mean value for number of minutes in which a type of affect was displayed might be lowered slightly if that mean included multiple sessions where the session was not 15 minutes in length. Similarly, the clients were not observed in equal proportions during the study. Several factors contributed to the inequality of observation times among clients. Some clients spent less time in the common areas than other clients, and several clients passed away while data were still being collected.

Analyses show that there is statistically significant variability in affect between persons. Due to both environmental and biological influences, another possible limitation regarding generalizability is that the five clients most observed may not be representative of all clients in a memory care unit. Because they are more often seen in common areas, this may mean that they are more social, healthier, or otherwise more or less likely to show different proportions of positive, neutral, and negative affect than other clients.
Implications and Future Directions

The current study provides important implications for future research and interventions. Based on the high proportion of both neutral affect and neutral/no staff interactions, focus in these areas may add important understanding to the field of psychosocial well-being in persons with dementia. These large portions of neutral affect may represent more than a lack of positive and negative affect. It may prove beneficial to identify how neutral affect represents the overall psychosocial well-being of clients (or lack thereof). As previously suggested, times when neither positive nor negative affect are observed might actually be concealing much sadness and loneliness (Schreiner et al., 2005). Additionally, although negative affect was observed infrequently, it can have a profound impact on the psychosocial well-being of the individual. Likewise, negative staff interactions might impact the individuals’ psychosocial well-being more than we were able to capture with the low frequency of observed incidents. Further review in these areas could provide valuable information to the topic of psychosocial well-being among older adults.

Based on the findings that positive affect is highly likely to co-occur with positive staff interactions, it is recommended that dementia care units provide training for staff on increasing positive interactions and decreasing neutral/no interactions and times of no interaction. Training should include what a positive interaction is, stressing the importance of positive interactions in eliciting positive affect in clients. Additionally, dementia care units might benefit from training staff to address BPSD and other client problems, using positive interactions. It may be helpful to use the field note data collected
here as examples: Staff could be asked in a training session, “what would have been a
more person-centered approach to this client’s problem”? It would be beneficial to this field of study to find a way to further research the
causal relationship between client affect and staff interactions. Perhaps an experimental
study in a memory care unit could be helpful, for example, one in which staff were
instructed to use specific types of interactions and then the affect could be measured in
the clients. If it were found that staff interactions influence client affect in a causal way,
then training and interventions could be further implemented to increase the psychosocial
well-being of persons with dementia through staff interactions. On the other hand, if it
were found that client affect influences staff interactions then training and interventions
could be implemented to improve staff’s ability to use positive interactions and recognize
the influence of client affect, even when clients are expressing neutral and negative
affect.

**Summary**

With the increase in the population of older adults and, as a result, the rapidly
growing number of persons with dementia, this field of study has become critical to
determining how to facilitate persons with dementia in living a life with the highest
psychosocial well-being possible. The high percent of persons with dementia living in
residential care settings emphasizes the need for staff, particularly those providing direct
care, to be trained in the most effective types of communication for eliciting positive
affect, and ultimately high psychosocial well-being, in persons with dementia. Further,
there is a need to increase awareness of the possible negative role that neutral affect may be playing in psychosocial well-being. Persons with dementia are capable of, and deserving of, living a life with high psychosocial well-being.
REFERENCES


Alzheimer’s & Dementia, 11(3), 332-420.


Watson, D. (1988). Intraindividual and interindividual analyses of positive and negative affect: Their relation to health complaints, perceived stress, and daily...
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Dr. Cullari,

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