

Yale University

EliScholar – A Digital Platform for Scholarly Publishing at Yale

Public Health Theses

School of Public Health

1-1-2019

Attachment Security And Psychological Health In Adult Child Caregivers And Their Parents With Alzheimer's Disease And Related Dementias

Wei Aiko Chang
weictw@gmail.com

Follow this and additional works at: <https://elischolar.library.yale.edu/ysphtdl>



Part of the [Public Health Commons](#)

Recommended Citation

Chang, Wei Aiko, "Attachment Security And Psychological Health In Adult Child Caregivers And Their Parents With Alzheimer's Disease And Related Dementias" (2019). *Public Health Theses*. 1862.
<https://elischolar.library.yale.edu/ysphtdl/1862>

This Open Access Thesis is brought to you for free and open access by the School of Public Health at EliScholar – A Digital Platform for Scholarly Publishing at Yale. It has been accepted for inclusion in Public Health Theses by an authorized administrator of EliScholar – A Digital Platform for Scholarly Publishing at Yale. For more information, please contact elischolar@yale.edu.

Attachment Security and Psychological Health in Adult Child Caregivers and Their Parents
with Alzheimer's Disease and Related Dementias

Name: Wei Chang

Year Completed: 2019

Year Degree Awarded: 2019

Degree Awarded: Master of Public Health

Department: School of Public Health
(Social and Behavioral Sciences)

Advisor: Dr. Joan Monin

Committee Member: Dr. Yusuf Ransome

Abstract

Objective: Attachment theory is a helpful framework for examining one of the most fundamental needs in parent-child dyads across the lifespan and how attachment security might protect both dyad members' psychological health, especially in times of crisis. In this study of adult child caregivers and their parents with early stage Alzheimer's disease and related dementias (ADRD), we examined the associations between both dyad members' attachment security, the adult child's depressive symptoms, and quality of life of the parent with ADRD.

Method: Thirty-four individuals (parents) with ADRD and their 34 adult-child caregivers each completed the 12-item Experiences in Close Relationship Scale – Short Form (ECR-S) to assess attachment orientations. The parents' with ADRD's quality of life was assessed using the 28-item DEMQOL scale and caregivers' depressive symptoms were assessed using the Center for Epidemiological Studies Depression Scale (CES-D)'s 20-item scale.

Results: In line with hypotheses, parents with ADRD who were high in anxious attachment were more likely to report lower quality of life, and caregivers who were high in anxious attachment reported more depressive symptoms. However, there were no significant interpersonal associations between one dyad member's attachment anxiety or avoidance and the other dyad member's well-being.

Conclusion: This study's results suggest the importance of considering the role of anxious attachment when examining both parents with ADRD and their caregivers' well-being. Future research and intervention should further investigate how attachment security could be improved and how this may influence the quality of caregiving.

Table of Contents

Abstract.....	2
Acknowledgement	4
ADRD Caregiving	5
The Challenges of Being an Adult Child Caregiver of a Parent with ADRD.....	6
Attachment Theory	7
Attachment and Dementia.....	8
The Parent with Dementia’s Attachment and Indicators of Their Own Well-Being (Pathway A).....	10
The Parent with Dementia’s Attachment and Indicators of Their Caregiver’s Well-Being (Pathway B) ..	10
Caregivers’ Attachment and Indicators of Their Own Well-Being (Pathway C)	11
Caregivers’ Attachment and Indicators of Well-Being in the Parent with Dementia (Pathway D).....	12
The Present Study	12
Method.....	13
<i>Participants</i>	13
<i>Procedure</i>	14
<i>Measures</i>	15
<i>Analysis and Results</i>	16
Discussion.....	18
Implications.....	19
Strengths and Weaknesses of the Study.....	20
Conclusion	20
Table 1. Participant Characteristics	22
Table 2. Interrelations for All Study Variables.....	23
Table 3. Multiple Regression Models: Attachment Dimensions of Parents with ADRD and Caregivers Predicting Individuals with ADRD’s Quality of Life and Caregivers’ Depressive Symptoms.....	24
Table 4. Pathway A (Hypothesis 1) Simplified Model: Anxiety Attachment of Parents with ADRD Predicting Their Quality of Life.....	24
Table 5. Pathway C (Hypothesis 2) Simplified Model: Anxiety Attachment of Caregivers Predicting Their Depressive Symptoms.....	24
Figure 1. Different Pathways Analyzed in the Study.....	25
References.....	26

Acknowledgement

Alzheimer's Association (IIRG-07-59784), National Institute of Nursing Research (NR08272, 09573), National Institute on Aging (P50 AG05133, AG015321, AG026010, and R01AG058565), National Institute of Mental Health (MH071944), National Heart, Lung and Blood Institute (HL076852 and HL076858), National Science Foundation (EEEC-0540865), and the Langeloth Foundation.

Attachment Security and Psychological Health in Adult Child Caregivers and Their Parents with Alzheimer's Disease and Related Dementias

Attachment security -- providing and receiving communication of safety and emotional support -- is one of the most fundamental needs in parent-child dyads across the lifespan (Bowlby, 1969). Most studies that examine attachment security and psychological outcomes have focused on young children and their parents, demonstrating that having greater attachment security protects both dyad members' psychological health, especially in times of crisis. However, not much is known about whether attachment security is protective for the psychological health of adult child caregivers and their parents with early stage Alzheimer's disease and related dementias (ADRD). The aim of this study is to examine dyad members' attachment security in association with the adult child's depressive symptoms and quality of life of the parent with ADRD in order to better understand how interventions can be designed to improve dementia caregiving.

ADRD Caregiving

Dementia is a syndrome that can have an impact on cognitive abilities, behaviors, and performing daily activities (World Health Organization and Alzheimer's Disease International, 2012). In 2017, the World Health Organization estimated that 50 million individuals are living with dementia worldwide and the number will increase substantially over the next few decades (World Health Organization, 2017). Within the United States, approximately 5.8 million people are living with dementia in 2019 and it is projected that Alzheimer's and other dementias will cost the nation \$290 billion dollars in 2019 (Alzheimer's Association, 2019). This increasingly common syndrome is a public health priority because due to a lack of awareness and understanding, dementia is often stigmatized, leading to issues with underdiagnosis and accessing care (World Health Organization and Alzheimer's Disease International, 2012). Providing adequate support for

caregivers is also a major concern because of how demanding dementia care can be (World Health Organization and Alzheimer's Disease International, 2012). Factors that contribute to physical and psychological demands of caregiving include time spent caring, the variety and intensity of behavioral, cognitive and psychological symptoms that must be addressed on a daily basis, competing demands of child care, work and care for an older family member (World Health Organization and Alzheimer's Disease International, 2012).

Caregiving for individuals with ADRD can be a combination of informal, medical, and social care (Wortmann, 2012). Informal care is care provided by relatives, which is often associated with high strain and burden for the caregivers, especially if care recipients and caregivers live together (National Alliance for Caregiving, 2017; Wortmann, 2012). Moreover, increased caregiving burden is associated with lower caregiver's physical, psychological, social, and environmental quality of life (Srivastava, Tripathi, Tiwari, Singh, & Tripathi, 2016). One meta-analysis found large differences in perceived stress, depression, self-efficacy, and general subjective well-being when comparing caregivers and non-caregivers, with caregivers reporting worse outcomes than non-caregivers (Pinquart & Sorensen, 2003). More recently, a perspective cohort study found that 60% of the 181 spousal caregivers of persons with dementia developed a depressive and/or anxiety disorder within 24 months when compared to a baseline without depressive and/or anxiety disorder (Joling et al., 2015).

The Challenges of Being an Adult Child Caregiver of a Parent with ADRD

Being an adult child caregiver for a parent with ADRD can be fulfilling and an expression of love, but it can also be emotionally challenging (Monin, Feeney, & Schulz, 2018). Parents with ADRD and their adult children may have to renegotiate their roles as care recipients and caregivers, and children may increasingly need to regulate their emotions in the face of their parent's memory

and behavior changes and distress (Monin et al., 2018). Caregiving and the burden associated with it can result in negative emotional effects on adult child caregivers (Cohen, Cook, Kelley, Sando, & Bell, 2015). Yet, other research shows that adult child caregivers also experience more personal growth (i.e., becoming more forgiving, compassionate, caring) compared to spousal caregivers (Kelber, Ott, & Sanders, 2007). Thus, it is important to learn more about the unique emotional and relational experiences of adult child caregivers and their parents with dementia.

The effect of caregiving on adult child caregiver's well-being may vary based on a wide range of factors. Previous studies have found that a number of determinants are associated with the caregiving burden (Karantzas, Romano, & Lee, 2019; Lee et al., 2018). Individual factors of the parents with dementia include behavioral symptoms and physical functioning as well as community level factors such as living in the community or in an institution (Lee et al., 2018). For caregivers of parents with dementia, caregiving burden has been associated with individual factors such as age, gender, and coping patterns (Lee et al., 2018). Relationship scientists have also suggested that another individual factor, attachment security, might help us better understand the strain related to caregiving (Karantzas & Simpson, 2015; Lee et al., 2018). Although researchers have argued that attachment orientations could intensify or buffer against the burden of caregiving, few studies have examined associations between attachment security and caregiver burden in adult child caregivers of parents with ADRD (Karantzas et al., 2019; Lee et al., 2018).

Attachment Theory

According to attachment theory, humans have an evolutionary-based system designed to ensure proximity to caregivers during times of threat throughout the lifespan (Bowlby, 1969). Based on interactions with primary caregivers in early life, people develop lasting cognitive schemas (*attachment orientations*) that continue into adulthood and guide behaviors and

expectations in other relationships (Bowlby, 1969; Monin, Schulz, & Kershaw, 2013). Attachment orientations can be broadly categorized as secure attachment and insecure attachment (Bowlby, 1969). *Secure attachment* refers to when responsiveness from primary caregivers results in the development of comfort with interpersonal closeness and willingness to depend on others (Bowlby, 1969; Monin et al., 2013). In contrast, *insecure attachment* develops in response to inconsistent or unresponsive caregiving and can involve a tendency to be anxious regarding possible rejection, discomfort with close relationships, or both (Bowlby, 1969; Monin et al., 2013).

There are two fundamental dimensions of attachment security (Brennan, Clark, & Shaver, 1998). The *anxiety dimension* assesses the degree to which the self is perceived to be unworthy of love and the degree to which the individual is worried about being rejected by others (Brennan et al., 1998; Monin et al., 2013). The *avoidance dimension* assesses the degree to which individuals are uncomfortable with intimacy and dependence on others (Brennan et al., 1998; Monin et al., 2013). When an individual scores low on both the anxiety and avoidance dimensions, they are considered to be securely attached (Bowlby, 1969). Although it is possible to examine these two dimensions as axis (e.g. low anxious attachment and low avoidant attachment), this is not appropriate for a small sample size since it is unlikely that the sample is representative of the general population. Therefore, in this study we take the more common approach of examining these two dimensions separately as independent traits (Brennan, Clark, & Shaver, 1998).

Attachment and Dementia

Although attachment theory originally focused on early childhood, there is an increasing body of literature that focuses on how attachment theory can help explain the emotional state of people with dementia. Attachment theory is particularly relevant to the context of dementia that involves experiences of loss, separation from attachment figures, and feelings of insecurity

(Browne & Shlosberg, 2006). Furthermore, attachment theory offers a useful explanation of the motivation for dementia caregiving where caregivers are committed to promote care recipients' welfare for the sake of the relationship, and where caregiving is perceived as a worthwhile activity, not merely a means to obtain self-benefits (Lang & Fowers, 2019).

Miesen has done some of the seminal work on applying attachment theory to the dementia experience, theorizing that during the early stages of dementia, a decline in the feelings of safety and security can stimulate attachment behaviors and 'parental fixation', where persons with dementia think their parents are still alive (Miesen, 1992, 1993). Attachment behavior is defined as any behavior aimed at obtaining and/or retaining the proximity of another person (Bowlby, 1969; Miesen, 1993). In a seminal study, Miesen recruited a group of 40 people over the age of 64 as a representative sample of new psychogeriatric admissions in The Netherlands (Miesen, 1993). The study used interviews and questionnaires to assess parent fixation, the level of cognitive functioning, and other attachment behaviors (Miesen, 1993). Results showed that as dementia progressed in this sample, it activated increased attachment behaviors with increased parental fixation (Miesen, 1992, 1993; Wright, Hickey, Buckwalter, & Clipp, 1995).

A more recent replication of Miesen's research in the UK included 53 people with dementia who were living in residential or nursing homes in which they completed the Standardized Mini-Mental State Examination and an interview about their parents (Browne & Shlosberg, 2005; Folstein, Folstein, & McHugh, 1975). Different from the Miesen study, a family member or friend rated pre-morbid attachment style and care staff reported attachment behaviors based on observations (Browne & Shlosberg, 2005). This study found that as dementia progresses, attachment behaviors could be equally, if not more, evident compared to early stages (Browne & Shlosberg, 2005). These studies highlight the importance of considering individual differences in

attachment for persons with dementia. In the present study, we seek to understand how attachment anxiety and attachment avoidance of both the parent with dementia and their adult child caregiver are associated with the well-being of both members of the dyad (Figure 1).

The Parent with Dementia's Attachment and Indicators of Their Own Well-Being (Pathway A)

A small body of research shows that insecure attachment (pre-morbid anxiety or avoidance) of people with dementia has negative consequences for their own well-being (Magai & Cohen, 1998; Magai, Cohen, Culver, Gomberg, & Malatesta, 1997). Conversely, secure attachment has been found to be associated with more positive affect among individuals with dementia (Magai et al., 1997; Nelis, Clare, & Whitaker, 2013). For example, Nelis and colleagues found that greater attachment security among individuals with dementia was associated with more positive self-concept and less anxiety symptoms (Nelis, Clare, & Whitaker, 2012). Furthermore, a systematic review found that greater attachment anxiety and avoidance were associated with care recipients' reports of more negative physical health symptoms (Karantzas et al., 2019). Given the findings from previous studies, the present study seeks to understand how attachment anxiety and avoidance might be associated with parents with dementia's quality of life, capturing their feelings in general, and more specifically their memory loss, changes in social support, functional ability, and health and quality of life overall.

The Parent with Dementia's Attachment and Indicators of Their Caregiver's Well-Being (Pathway B)

In past research there are mixed findings regarding whether the attachment security of the person with dementia is associated with less caregiver burden or greater psychological health in the caregiver (Chen, Uzdawinis, Schölmerich, & Juckel, 2014; Lee et al., 2018). One study found

older mothers with dementia's joyful and secure behaviors (e.g. proximity seeking and responsiveness), were positively associated with their daughters' secure attachment orientation (Monin et al., 2013; Steele, Phibbs, & Woods, 2004). Moreover, care recipients' insecure attachment was found to be associated with higher caregiving burden (Magai & Cohen, 1998). However, another study found that attachment style of care recipients did not predict caregivers' well-being (Nelis et al., 2012). Overall, there is a lack of consistency in findings related to how the attachment orientation of the person with dementia might be related to their caregiver's well-being.

Caregivers' Attachment and Indicators of Their Own Well-Being (Pathway C)

This pathway has had the most research attention to date, presumably because caregivers' self-reports are easier to obtain than care recipients' self-reports in the context of dementia. Previous studies have found that caregivers who were securely attached reported less caregiving difficulty and lower levels of psychological symptoms (Crispi, Schiaffino, & Berman, 1997). Moreover, caregivers with higher attachment security reported better psychological health (Nelis et al., 2012). Another study found that caregivers who were less securely attached experienced significantly more stress, but only when their parent was more cognitively impaired (Chen et al., 2014).

In terms of specific attachment dimensions, a systematic review found that attachment anxiety was associated with mental health issues and poor self-esteem among two-thirds of mental health outcomes in the studies examined (Karantzas et al., 2019). The same systematic review found that attachment avoidance was negatively associated with self-esteem in one study but was not significantly associated with any mental health outcomes in any study (Ávila, Brandão, Coimbra, Lopez, & Matos, 2016; Karantzas et al., 2019). Although previous studies have

suggested an association between caregiver's attachment security and their psychological health, more evidence is needed to understand how caregiver's attachment anxiety and avoidance might be related to their depressive symptoms.

Caregivers' Attachment and Indicators of Well-Being in the Parent with Dementia (Pathway D)

A few studies show interpersonal effects with dementia behaviors, but not quality of life. Perren and colleagues found that caregivers' avoidant attachment was associated with more agitation and/or aggression in their partners with dementia (Monin et al., 2013; Perren, Schmid, Herrmann, & Wettstein, 2007). A different study found that attachment style of caregivers did not predict care recipients' psychological well-being (Nelis et al., 2012). Past studies have suggested an association between caregiver's attachment security and persons with dementia's behaviors and psychological well-being. However, the results are inconsistent, and there are very few studies that examine this association.

The Present Study

The present study was a cross-sectional self-report interview study of parents with ADRD and their adult child caregivers. The study examined associations between both dyad members' attachment anxiety and attachment avoidance and indicators of well-being. The following hypotheses were tested. It is important to note that because our predictions are the same for attachment anxiety and avoidance, which both represent low attachment security, we used the term attachment security in the hypotheses for the sake of parsimony. However, our analysis treated attachment anxiety and avoidance as separate variables for each dyad member. Also, this study was a secondary analysis of a primary study (see Schulz et al., 2010 for details) which collected

different measures of well-being for caregivers and persons with dementia. Therefore, we operationalize well-being for the caregiver in terms of depressive symptoms and well-being for the parent with dementia in terms of quality of life.

Hypothesis 1: Greater attachment security (low anxious attachment and avoidant attachment) in each dyad member will be associated with greater quality of life in the parent with ADRD.

This hypothesis is based on past findings showing that persons with dementia with greater attachment security have more positive affect and a more positive self-concept (Karantzas et al., 2019; Magai et al., 1997; Nelis et al., 2012, 2013). Past findings have also suggest that caregiver attachment security was positively associated with preparedness to care, which may lead to better caregiving and greater quality of life in the parent with ADRD (Karantzas et al., 2019).

Hypothesis 2: Greater attachment security (low anxious attachment and avoidant attachment) in each dyad member will be associated with less adult child caregiver depressive symptoms.

This hypothesis is based on past findings showing that caregivers with lower attachment security experienced lower caregiver well-being and vice versa (Crispi et al., 1997; Nelis et al., 2012). Moreover, less caregiving burden was found among caregivers of more securely attached care recipients compared to less securely attached care recipients (Magai & Cohen, 1998).

Method

Participants

For the present study, data were analyzed from 34 individuals (parents) with ADRD and their 34 adult-child caregivers. Data were drawn using a convenience sample from a larger study of family caregivers (spouses, children, and fictive kin) and persons with ADRD (Schulz et al., 2010). For the larger study, participants were recruited from the University of Pittsburgh's

Alzheimer's Disease (AD) Research Center and the local chapter of the Alzheimer's Disease Association. There are several selection criteria for both the individuals with ADRD and the caregivers for the larger study. Individuals with ADRD had to: (a) be 50 years old or older; (b) have consensus-based diagnosis of probable or possible AD or related dementia; and (c) reside in the community with the primary caregiver. Caregivers had to: (a) be a family member/partner (e.g., spouse, child, or fictive kin); (b) be 21 years of age or older; (c) provide a minimum of three months of in-home care prior to recruitment; (d) speak English; and (e) self-define as primary caregiver of the parent with ADRD.

Procedure

In-person interviews were conducted with parents with ADRD and adult-child caregivers in the participant's home or another location of their choosing. Each participant was interviewed individually and privately by trained research staff with previous experience working with persons with ADRD.

The interviewer used visual cues to remind participants of response options and assessed the participant's comprehension level by rating participants' ability to reliably answer questions and to ask follow-up questions when responses were unclear or not consistent. The interviews included reliable, standardized attachment and psychological measures that have been shown to be easily interpreted by a wide range of study populations. Parents with ADRD who scored at least a 16 on the Mini Mental State Examination (MMSE) were considered able to provide reliable responses based on interviewer ratings, MMSE scores, and responses to structured questions (Folstein et al., 1975).

Measures

Caregivers and care recipients' attachment orientations. The Experiences in Close Relationship Scale – Short Form (ECR-S), which consists of 12 items, was used to examine two dimensions of adult attachment in parents with ADRD and their caregivers: anxious attachment (e.g., 'I worry about being alone') and avoidant attachment (e.g., 'I don't feel comfortable opening up to others') (Brennan et al., 1998; Monin et al., 2013). The scale for the response to each item ranges from 1 (strongly disagree) to 7 (strongly agree). The anxiety scale's descriptive statistics were calculated by taking the mean of the 6 anxiety items, and the avoidant scale's descriptive statistics were calculated by taking the mean of the 6 avoidant items. The alphas were 0.98 for parents with ADRD's anxious attachment (M=2.65, SD=0.97, range=1-5.67) and 0.99 for avoidant attachment (M=2.38, SD=0.80, range=1-4.5). The alphas were 0.83 for caregivers' anxious attachment (M=2.67, SD=1.23, range=1-5.33) and 0.84 for avoidant attachment (M=2.16, SD=1.07, range=1-5).

Caregivers' depressive symptoms. One instrument was used to assess depressive symptoms of the adult child caregiver (Schulz et al., 2010). The Center for Epidemiological Studies Depression Scale (CES-D)'s 20-item scale (e.g., 'I felt depressed', 'I had trouble keeping my mind on what I was doing') is used to measure depressive symptomatology and found to have very high internal consistency with adequate test-retest repeatability (Radloff, 1977). For each item, caregivers were asked to think about the past week and indicate how often they recall feeling or behaving in the ways described by the items (rarely or none of the time (less than 1 day)=0; some or a little of the time (1-2 days)=1; occasionally or a moderate amount of time (3-4 days)=2; most or all of the time (5-7 days)=3). Sum of the 20 items were calculated. The alpha for caregivers' depressive symptoms was 0.95 (M=13.79, SD=13.27, range=0 - 48).

Care recipients' quality of life. The 28-item DEMQOL scale was developed to assess quality of life of the care recipient with dementia (e.g., 'How worried have you been about forgetting who people are?', 'Have you felt full of energy?'). This measure captures feelings in general as well as feelings specifically about memory, functional ability, social support, physical health, and their assessment of quality of life as a whole. The DEMQOL scale demonstrated high reliability (internal consistency and test-retest) and moderate validity in individuals with mild or moderate dementia (Smith et al., 2007). For each item, the parent with ADRD was asked to think about the past week and indicate how often they recall feeling or worrying about the items described (a lot=1; quite a bit=2; a little=3; not at all=4; N=29, missing=5). The sum of these 28 items were calculated and the alpha for parents with ADRD's quality of life is 0.82 (M=94.6, SD=9.14, range =76 - 110).

Analysis and Results

In the present sample, the average age of parents with ADRD was 82.56 (SD=7.56) and 54 (SD=7.73) for the adult child caregivers. Among parents with ADRD, 76.5% were female, and 23.5% were male. Among caregivers, 85.3% were female, and 14.7% were male. Twenty-four of the parents with ADRD identified White (70.6%) as their primary racial group and 10 identified Black (29.6%) as their primary racial group. The same racial breakdown was observed in their adult-child caregivers. Twenty-one parents with ADRD (55.7%) and 34 caregivers (100%) completed at least a high school degree/GED. Among the caregivers, 52.9% are working full-time and for pay, 14.7% are retired, 14.7% are not employed and not retired, 8.8% are working part-time and for pay, and 8.8% are working as a homemaker and not for pay. Among 34 adult-child caregivers, 29 are daughters, 4 are sons, and 1 is a stepson to the parents with ADRD (Table 1).

We examined the interrelations of all study variables with variables such as age, sex, marital status, and education to identify potential covariates that may be related to both the independent variable (i.e. avoidant attachment and anxious attachment) and the outcome variables (i.e. parents with ADRD's quality of life and caregiver's depressive symptoms) (Table 2). The results indicate that age was significantly associated with both parents with ADRD and their caregiver's attachment dimensions such that older parents with ADRD were more avoidantly attached but also associated with less avoidantly attached caregivers. Moreover, older caregivers were associated with more avoidantly attached parents with ADRD. However, age was not significantly associated with the parent with dementia's quality of life or the caregiver's depressive symptoms. Meanwhile, sex, marital status, and education were not significantly associated with the parent with ADRD or their caregiver's attachment dimensions. Sex, marital status, and education were also not significantly associated with the parent with ADRD's quality of life or the caregiver's depressive symptoms. Therefore, these covariates were not included in subsequent analyses.

For the main hypothesis testing, we started with two multiple regression models that included both dyad member's attachment dimensions predicting parents with ADRD's quality of life and caregivers' depressive symptoms, separately (Table 3). There were no partner effects of one person's attachment dimension predicting the other person's well-being indicator. There were also no significant effects of attachment avoidance for any outcome.

This type of analysis is chosen because our hypotheses examined one dyad member's outcome (depressive symptoms among caregivers and quality of life for parents with ADRD), which does not require other dyadic data analysis approaches such as the Actor Partner Interdependence Model (Cook & Kenny, 2005). We conducted a power analysis to calculate the

minimum sample size needed to achieve a 0.8 test power in a regression model with four predictors (Statistics Kingdom). Using an expected r-square value of 0.46 from previous research, the results of the power calculation showed the recommended sample size is at least 20 (Lee et al., 2018; Statistics Kingdom).

We also conducted listwise regression and ended with the most parsimonious models, keeping all predictors that remained significant at $p < 0.10$ level in the model to maximize the power to detect effects. The first model relates to hypothesis 1 and included the anxious attachment dimension of parents with ADRD to predict their own quality of life (Table 4). The second model relates to hypothesis 2 and included anxious attachment of caregivers predicting their own depressive symptoms (Table 5).

Discussion

We collected and analyzed data from 34 parents with ADRD and their corresponding 34 adult-child caregivers. We identified significant associations between anxious attachment and well-being. More specifically, the results showed intrapersonal associations between attachment anxiety and well-being. Contrary to hypotheses, there were no interpersonal associations between one dyad member's attachment anxiety or avoidance and the other dyad member's well-being. Specifically, we found that parents with ADRD who were high in anxious attachment were more likely to report lower quality of life, and caregivers who were high in anxious attachment reported more depressive symptoms.

The finding that higher attachment anxiety of parents with ADRD was associated with their own self-reported lower quality of life is consistent with past research and theory. Individuals with higher attachment anxiety are more likely to perceive themselves as being unworthy of love and worry more frequently about being rejected by others, which can help explain the lower reported

quality of life (Brennan et al., 1998). Furthermore, care recipients who are generally more insecurely attached could be more concerned about their vulnerability and tend to perceive themselves to be less competent in terms of coping when exposed to threats such as dementia (Karantzas et al., 2019).

The finding that higher attachment anxiety of the caregiver was associated with caregivers reporting more depressive symptoms is also consistent with prior research and theory. Individuals high in attachment anxiety are generally characterized by hyperactivating strategies such as chronic intensification of distress and negative affect, which could help explain the increased probability of mental health issues (Karantzas et al., 2019). On the other hand, we found less support for our hypothesis that avoidance attachment would be associated with caregiver's depressive symptoms. One explanation might be caregivers who are avoidantly attached are generally more self-reliant, and their use of cognitive and behavioral deactivating strategies may help protect these individuals from mental health issues when assuming a caregiving role (Berant, Mikulincer, & Shaver, 2008; Karantzas et al., 2019). Another potential explanation for the lack of significant association between avoidance attachment and depressive symptoms is that previous research found that the relationship between avoidance and caregiving burden depends on the degree of filial obligation (Lee et al., 2018). Lee and others found that when filial obligation was high, attachment avoidance negatively predicted burden (Lee et al., 2018). The results suggest the importance of considering filial obligation as a factor since attachment avoidance might play a buffering role among those highly obligated (Lee et al., 2018).

Implications

Findings from this study have implications for future studies and dementia caregiving interventions. For example, parents with ADRD and caregivers with high attachment anxiety

might benefit from interventions that focus on increasing attachment security through methods such as exposing them to images that portray a mother holding an infant or security related words such as “love” or “care” (Gillath, Karantzas, & Fraley, 2016; Lee et al., 2018). Future research should also examine the relationship between attachment styles of individuals with ADRD and caregivers and the decision surrounding care setting such as residential long-term care services (Lee et al., 2018).

Strengths and Weaknesses of the Study

This study design was cross-sectional, which makes it difficult to determine the causality of the association between attachment style and parents with ADRD’s quality of life and caregiver’s depressive symptoms. This was also a small sample and the study relied on self-reports. Future research should follow parent-child dyads over time to understand how attachment security predicts well-being through the different stages of dementia. Although our small sample included a substantial proportion of persons of color which is a strength, these results should be replicated in larger, more representative samples in terms of socioeconomic status and race and ethnicity. Future research should also examine attachment behaviors with observational coding during interpersonal interactions.

This study is important because it measured the attachment dimensions and indicators of well-being of both the caregivers and their parents with ADRD, whereas many past studies have only measured the caregiver’s attachment style (Karantzas et al., 2019). This study also focused on parents and adult children, which are less represented in work on the role of interpersonal processes in caregiving burden in the context of dementia.

Conclusion

The findings of this study highlight the importance of considering the anxious attachment dimension of attachment security for parents with ADRD and their adult child caregivers when considering indicators of their well-being. The results suggest a need for future intervention to target attachment behaviors and communication that might help both parents with ADRD and their adult child caregivers to become less anxiously attached and improve their psychological health. The findings also suggest that assessing attachment orientations may be helpful in understanding who is at greatest risk for poor psychological well-being and who should be targeted for dyadic interventions.

Table 1. Participant Characteristics

	Parent with ADRD (N=34)	Adult Child Caregiver (N=34)
Age	82.56 (SD=7.56; range= 62 - 96)	54 (SD=7.73; range= 40 - 67)
Sex	76.5% Female 23.5% Male	85.3% Female 14.7% Male
Education	41.4% Less than high school 41.2% High school degree or vocational/training school after high school 2.9% Some college/associate degree 5.9% College degree 5.9% Professional degree 2.9% Unknown (missing)	23.5% High school degree or vocational/training school after high school 32.4% Some college/associate degree 23.5% College graduate 11.8% Professional degree
Primary Racial Group	70.6% White 29.4% Black	70.6% White 29.4% Black
Employment	N/A	52.9% Full-time, for pay 8.8% Part-time, for pay 8.8% Homemaker, not for pay 14.7% Retired 14.7% Not employed, not retired
Relationship Type	N/A	29 Daughters 4 Sons 1 Stepson

Table 2. Interrelations for All Study Variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parents with ADRD														
1. Anxious attachment	1	0.36	-0.06	0.06	0.16	-0.15	-0.43**	-0.16	0.27	-0.25	0.06	-0.10	-0.21	0.23
2. Avoidant attachment	–	1	0.41**	-0.11	0.22	-0.05	-0.24	-0.30	-0.14	0.44**	0.05	-0.15	0.12	-0.16
3. Age	–	–	1	0.08	0.42**	0.01	-0.03	-0.33	-0.34**	0.34	0.02	-0.16	0.17	-0.22
4. Sex	–	–	–	1	0.23	-0.24	-0.16	-0.08	-0.24	-0.03	0.16	-0.02	0.07	0.02
5. Marital Status	–	–	–	–	1	-0.15	0.03	-0.15	-0.02	0.22	0.11	-0.21	0.05	0.40**
6. Education	–	–	–	–	–	1	0.23	-0.13	-0.00	-0.31	0.02	0.04	0.23	-0.14
7. Quality of Life	–	–	–	–	–	–	1	-0.06	-0.19	0.09	-0.21	-0.24	0.09	0.01
Caregiver														
8. Anxious attachment	–	–	–	–	–	–	–	1	0.46***	-0.04	-0.07	0.23	-0.26	0.45***
9. Avoidant attachment	–	–	–	–	–	–	–	–	1	-0.18	0.01	0.31	-0.26	0.53***
10. Age	–	–	–	–	–	–	–	–	–	1	0.28	-0.08	-0.00	-0.18
11. Sex	–	–	–	–	–	–	–	–	–	–	1	0.21	0.10	-0.07
12. Marital Status	–	–	–	–	–	–	–	–	–	–	–	1	0.02	0.03
13. Education	–	–	–	–	–	–	–	–	–	–	–	–	1	-0.25
14. Depressive Symptoms	–	–	–	–	–	–	–	–	–	–	–	–	–	1

Notes: ***p<0.01.

**p<0.05.

Table 3. Multiple Regression Models: Attachment Dimensions of Parents with ADRD and Caregivers Predicting Individuals with ADRD's Quality of Life and Caregivers' Depressive Symptoms.

Variables	Parents with ADRD's quality of life			Caregivers' depressive symptoms		
	β	SE	p	β	SE	p
Intercept	109.38	7.61	0.000	-12.28	10.51	0.254
ADRD anx	-3.41	1.89	0.085	4.04	2.61	0.136
ADRD avoid	-1.68	2.19	0.450	-1.68	3.02	0.583
CG anx	-1.03	1.58	0.520	5.40	2.18	0.021
CG avoid	-0.31	1.72	0.858	2.81	2.38	0.249

Notes: ADRD=parents with ADRD, CG=caregiver, anx=anxious attachment, avoid=avoidant attachment.

β = unstandardized coefficient.

SE=Coefficients standard error.

Table 4. Pathway A (Hypothesis 1) Simplified Model: Anxiety Attachment of Parents with ADRD Predicting Their Quality of Life.

	Parents with ADRD's quality of life		
	β	SE	p
Intercept	103.06	4.35	0.000
ADRD anx	-3.79	1.55	0.021

Notes: ADRD=parents with ADRD, CG=caregiver, anx=anxious attachment, avoid=avoidant attachment.

β = unstandardized coefficient.

SE=Coefficients standard error.

Table 5. Pathway C (Hypothesis 2) Simplified Model: Anxiety Attachment of Caregivers Predicting Their Depressive Symptoms.

	Caregivers' depressive symptoms		
	β	SE	p
Intercept	0.90	4.99	0.858
CG anx	4.83	1.70	0.008

Notes: ADRD=parents with ADRD, CG=caregiver, anx=anxious attachment, avoid=avoidant attachment.

β = unstandardized coefficient.

SE=Coefficients standard error.

Figure 1. Different Pathways Analyzed in the Study

The following figures outline the different combinations of attachment style and well-being outcomes for both the parents with ADRD and their adult-child caregivers.

	Parent with ADRD Well-being	Caregiver Well-being
Parent with ADRD Anxious Attachment	Pathway A	Pathway B
Parent with ADRD Avoidant Attachment	Pathway A	Pathway B

	Parent with ADRD Well-being	Caregiver Well-being
Caregiver Anxious Attachment	Pathway D	Pathway C
Caregiver Avoidant Attachment	Pathway D	Pathway C

References

- Alzheimer's Association. (2019). Alzheimer's Disease Facts and Figures Infographic.
- Ávila, M., Brandão, T., Coimbra, J. L., Lopez, F., & Matos, P. M. (2016). Experiencing an Intimate Partner's Breast Cancer: Attachment, Caregiving, and Burden in Men. *Psychiatry*, *79*(3), 236-248. doi: 10.1080/00332747.2016.1158003
- Berant, E., Mikulincer, M., & Shaver, P. R. (2008). Mothers' Attachment Style, Their Mental Health, and Their Children's Emotional Vulnerabilities: A 7-Year Study of Children With Congenital Heart Disease. *Journal of Personality*, *76*(1), 31-66. doi: 10.1111/j.1467-6494.2007.00479.x
- Bowlby, J. (1969). Attachment and loss. Vol. 1. Attachment. London: Hogarth; New York: Basic Books.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview.
- Browne, C. J., & Shlosberg, E. (2005). Attachment behaviours and parent fixation in people with dementia: The role of cognitive functioning and pre-morbid attachment style. *Aging & Mental Health*, *9*(2), 153-161. doi: 10.1080/13607860412331336760
- Browne, C. J., & Shlosberg, E. (2006). Attachment theory, ageing and dementia: A review of the literature. *Aging & Mental Health*, *10*(2), 134-142. doi: 10.1080/13607860500312118
- Chen, C. K., Uzdawinis, D., Schölmerich, A., & Juckel, G. (2014). Effects of Attachment Quality on Caregiving of a Parent with Dementia. *The American Journal of Geriatric Psychiatry*, *22*(6), 623-631. doi: <https://doi.org/10.1016/j.jagp.2012.12.003>
- Cohen, S. A., Cook, S., Kelley, L., Sando, T., & Bell, A. E. (2015). Psychosocial factors of caregiver burden in child caregivers: results from the new national study of caregiving. *Health and Quality of Life Outcomes*, *13*(1), 120. doi: 10.1186/s12955-015-0317-2
- Cook, W. L., & Kenny, D. A. (2005). The actor-partner interdependence model: A model of bidirectional effects in developmental studies. *International Journal of Behavioral Development*, *29*(2), 101-109.
- Crispi, E. L., Schiaffino, K., & Berman, W. H. (1997). The Contribution of Attachment to Burden in Adult Children of Institutionalized Parents With Dementia¹. *The Gerontologist*, *37*(1), 52-60. doi: 10.1093/geront/37.1.52
- Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, *12*(3), 189-198.
- Gillath, O., Karantzas, G. C., & Fraley, R. C. (2016). *Adult attachment: A concise introduction to theory and research*: Academic Press.
- Joling, K. J., van Marwijk, H. W. J., Veldhuijzen, A. E., van der Horst, H. E., Scheltens, P., Smit, F., & van Hout, H. P. J. (2015). The Two-Year Incidence of Depression and Anxiety Disorders in Spousal Caregivers of Persons with Dementia: Who is at the Greatest Risk? *The American Journal of Geriatric Psychiatry*, *23*(3), 293-303. doi: <https://doi.org/10.1016/j.jagp.2014.05.005>
- Karantzas, G. C., Romano, D., & Lee, J. (2019). Attachment and aged care: a systematic review of current research. *Current Opinion in Psychology*, *25*, 37-46. doi: <https://doi.org/10.1016/j.copsyc.2018.02.016>
- Karantzas, G. C., & Simpson, J. A. (2015). Attachment and aged care. *Attachment theory and research: New directions and emerging themes*, 319-345.
- Kelber, S. T., Ott, C. H., & Sanders, S. (2007). Grief and Personal Growth Experience of Spouses and Adult-Child Caregivers of Individuals With Alzheimer's Disease and Related Dementias. *The Gerontologist*, *47*(6), 798-809. doi: 10.1093/geront/47.6.798
- Lang, S. F., & Fowers, B. J. (2019). An expanded theory of Alzheimer's caregiving. *American Psychologist*, *74*(2), 194.

- Lee, J., Sohn, B. K., Lee, H., Seong, S. j., Park, S., & Lee, J.-Y. (2018). Attachment style and filial obligation in the burden of caregivers of dementia patients. *Archives of Gerontology and Geriatrics*, 75, 104-111. doi: <https://doi.org/10.1016/j.archger.2017.12.002>
- Magai, C., & Cohen, C. I. (1998). Attachment style and emotion regulation in dementia patients and their relation to caregiver burden. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 53(3), P147-P154.
- Magai, C., Cohen, C. I., Culver, C., Gomberg, D., & Malatesta, C. (1997). Relation between premorbid personality and patterns of emotion expression in mid-to late-stage dementia. *International Journal of Geriatric Psychiatry*, 12(11), 1092-1099.
- Miesen, B. M. (1992). Attachment theory and dementia. *Caregiving in dementia. Research and applications*, 1, 38-56.
- Miesen, B. M. (1993). Alzheimer's disease, the phenomenon of parent fixation and Bowlby's attachment theory. *International Journal of Geriatric Psychiatry*, 8(2), 147-153.
- Monin, J. K., Feeney, B., & Schulz, R. (2018). ATTACHMENT SECURITY AND PSYCHOLOGICAL HEALTH IN ADULT CHILD CAREGIVERS AND PARENTS WITH DEMENTIA. *Innovation in Aging*, 2(Suppl 1), 907-907. doi: 10.1093/geroni/igy031.3375
- Monin, J. K., Schulz, R., & Kershaw, T. S. (2013). Caregiving spouses' attachment orientations and the physical and psychological health of individuals with Alzheimer's disease. *Aging Ment Health*, 17(4), 508-516. doi: 10.1080/13607863.2012.747080
- National Alliance for Caregiving. (2017). Dementia Caregiving in the U.S. Research Recommendations.
- Nelis, S. M., Clare, L., & Whitaker, C. J. (2012). Attachment representations in people with dementia and their carers: Implications for well-being within the dyad. *Aging & Mental Health*, 16(7), 845-854. doi: 10.1080/13607863.2012.667779
- Nelis, S. M., Clare, L., & Whitaker, C. J. (2013). Attachment in people with dementia and their caregivers: A systematic review. *Dementia*, 13(6), 747-767. doi: 10.1177/1471301213485232
- Perren, S., Schmid, R., Herrmann, S., & Wettstein, A. (2007). The impact of attachment on dementia-related problem behavior and spousal caregivers' well-being. *Attachment & human development*, 9(2), 163-178.
- Pinquart, M., & Sorensen, S. (2003). Differences between caregivers and noncaregivers in psychological health and physical health: a meta-analysis. *Psychol Aging*, 18(2), 250-267.
- Radloff, L. S. (1977). The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement*, 1(3), 385-401. doi: 10.1177/014662167700100306
- Schulz, R., Monin, J. K., Czaja, S. J., Lingler, J. H., Beach, S. R., Martire, L. M., . . . Cook, T. B. (2010). Measuring the experience and perception of suffering. *The Gerontologist*, 50(6), 774-784.
- Smith, S., Lamping, D., Banerjee, S., Harwood, R., Foley, B., Smith, P., . . . Levin, E. (2007). Development of a new measure of health-related quality of life for people with dementia: DEMQOL. *Psychological medicine*, 37(5), 737-746.
- Srivastava, G., Tripathi, R. K., Tiwari, S. C., Singh, B., & Tripathi, S. M. (2016). Caregiver Burden and Quality of Life of Key Caregivers of Patients with Dementia. *Indian journal of psychological medicine*, 38(2), 133-136. doi: 10.4103/0253-7176.178779
- Statistics Kingdom. Linear Regression Sample Size Calculator. Retrieved April 7, 2019, from http://www.statskingdom.com/sample_size_regression.html
- Steele, H., Phibbs, E., & Woods, R. (2004). Coherence of mind in daughter caregivers of mothers with dementia: Links with their mothers' joy and relatedness on reunion in a strange situation. *Attachment & Human Development*, 6(4), 439-450.
- World Health Organization. (2017). Dementia Key Facts. from <https://www.who.int/en/news-room/factsheets/detail/dementia>

- World Health Organization and Alzheimer's Disease International. (2012). Dementia: a public health priority.
- Wortmann, M. (2012). Dementia: a global health priority - highlights from an ADI and World Health Organization report. *Alzheimer's research & therapy*, 4(5), 40-40. doi: 10.1186/alzrt143
- Wright, L. K., Hickey, J. V., Buckwalter, K. C., & Clipp, E. C. (1995). Human development in the context of aging and chronic illness: The role of attachment in Alzheimer's disease and stroke. *The International Journal of Aging and Human Development*, 41(2), 133-150.