2021

A Stress Process Approach to Assessing Caregiver Burden, Depressive Symptoms, and Quality of Life: The Role of Attachment in Adult Relationships

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Recommended Citation

Atkins, Ghislaine Celine, "A Stress Process Approach to Assessing Caregiver Burden, Depressive Symptoms, and Quality of Life: The Role of Attachment in Adult Relationships" (2021). *All ETDs from UAB*. 610.
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A STRESS PROCESS APPROACH TO ASSESSING CAREGIVER BURDEN, DEPRESSIVE SYMPTOMS, AND QUALITY OF LIFE: THE ROLE OF ATTACHMENT IN ADULT RELATIONSHIPS

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A DISSERTATION

Submitted to the Department of Psychology of the University of Alabama at Birmingham
in partial fulfillment of the requirements of the degree of
Doctor of Philosophy

BIRMINGHAM, ALABAMA

2021

A STRESS PROCESS APPROACH TO ASSESSING CAREGIVER BURDEN, DEPRESSIVE SYMPTOMS, AND QUALITY OF LIFE: THE ROLE OF ATTACHMENT IN ADULT RELATIONSHIPS

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DEVELOPMENTAL PSYCHOLOGY

ABSTRACT

Aging adults (65 years and older) are projected to be the largest age group in the United States by around the year 2030. Importantly, the population of aging adults is expected to outnumber their adult children for the first time by the year 2033. The extant literature posits that the majority of carer-care-recipient relationships are between adult children/in law and their aging parent or a spouse/partner. Familial carers dealing with these multiple stressors are more likely to exhibit depressive symptoms, have higher appraisals of stress and have worse quality of life.

This dissertation project utilized sociologist Pearlin's Stress Process Model as a framework to examine the mental and physical health outcomes of familial carers of aging adult loved ones through an assessment of various carer stressors as well as the introduction of Bowlby & Ainsworth's Attachment Theory as a potential buffer between carer stressors and outcomes.

Therefore, using data from the Caring for Adults with Difficulties Study (CFAD), I (N =56, Black carers = 33 and White carers =23) explored the relationship between stressors and buffers on carer mental health outcomes. In, the end, the results of a series of linear regressions indicated that care-recipient disruptive behaviors (e.g., memory and behavioral problems) were associated with more depressive symptoms, worse quality of life and stronger appraisals of caregiver burden, $p < .05$. Further, it was found that secure attachment orientation, approach-avoidance for respite and caregiver self-efficacy for respite did predict caregiver burden, mental health component of quality life and depressive symptoms, p’s $< .05$.

Lastly, it was found that perceptions of caregiver burden appraisals did statistically differ by caregiver-care-recipient relationship type and that pairwise comparisons indicated that adult-child/in law and spousal/partner had much more appraisal of the severity of care-recipient disruptive behaviors compared other caregiver-care-recipient relationship types. All in all, the implication of these findings suggests that familial carer attachment orientation may be considered as a viable buffer between familiar carer stressors and mental health outcomes.

Keywords: caregiving, relationships, attachment, coping, mental health, stress

DEDICATION

This dissertation work is dedicated to my maternal grandmother Marie Ghislaine Cave for whom I was named and whose legacy of cleverness, poise, and benevolence flows through my veins. Thank you, Granny for caring so much.

This dissertation work is also dedicated to my former students Hunter, Dayana, Sarah, Victoria, Emilee, Nick, Gopiann, Urmee, Kristin, MJ, Halie, Cody, Michael, Victoria, Jack, Reese, Trinity, Liam, Lily, Veronica, Dorelle, Demetrius, Khylah, Jacobi, and Ari. “I love you all. Class dismissed”.

ACKNOWLEDGEMENTS

“There are such far, far better things ahead than any we leave behind”-C.S. Lewis, author of the Chronicles of Narnia

First and foremost, I owe a debt of gratitude to my dissertation chair and mentor Dr. Olivio Clay. You helped me to see the light through the trees even during the most dark and uncertain times. When I was afraid of my potential, you helped me to harness it and do the impossible.

To my dissertation committee, Dr. Karlene Ball, Dr. Michael Crowe, Dr. Patricia Drentea, and Dr. Mieke Thomeer-McBride. Thank you for your time, your support, and for all of the ways that you challenged me to be a better scholar including adopting the notion that intelligence is a gift and must be used to better serve human-kind.

To the rest of C.L.A.Y.S. Lab: Dr. Tamika Smith, Dr. Pamela Bowen, Dr. Jeff Pouncey, Dr. Myles Moody, Dr. Maya Martin, Henrietta Armah, Veronica Mixon, Dorelle Wilson, and Demetrius Smith. Thank you for your brilliance, your energy, and for creating a wonderful academic family.

A special thank you to my academic brother in arms Wesley Browning. I still remember in August of 2016 when we promised each other that since we started this program together, we would finish this program together. Thank you for sticking with me through the trenches and allowing us to lean on one another when we needed to with no judgement.

To Dr. Brandon Wolfe and Dr. Paulette Patterson-Dilworth, thank you both for championing and financing my scholarship through the Keystone Fellowship. You turned a shy comic book nerd into a superpowered visionary who got to think outside of the box to curate an academic career based on mental health advocacy, community leadership, and devoted mentorship.

To Dr. (“My-Dude”) Deanna Rumble and Maria Lechtreck, thank you both for being my girlfriends, my confidants, and for always keeping the lines of communication open. You both have saved my life so many times.

Thank you to my teaching mentors Dr. Bridge Kennedy, Dr. Shannon Wittig, Dr. Jonathan Adams, and Dr. Meredith Henry. Thank you for providing me with the benefit of your experiences and for teaching me that it is never wrong to continue to learn from “teachable moments” and to adopt the notion that teaching is a lot like theater... A special thank you to my “Fairy Godmother” Terri Roberson who always found a way to make things happen at the right time.

Thank you to my colleagues and life-long friends Dr. Thomas DeRamus, Dr. Roman Johnson, and Dr. Laurence Black Boiet, and Dr. Vinetra Murphy. Thank you for reminding me to trust in my own magic and find joy (and memes) in the smallest of moments. A very special thanks to Dr. Whitney Rice for being an inspiration, a sister in science, and the living embodiment of #blackgirlmagic.

Thank you to my siblings: Chelsea, Colbourn, Taylor, Joshua, and Gabriel. I am honored to be your sister and I sincerely hope I made you proud. To my large family (both blood and chosen), I love you all and would need another dissertation to properly acknowledge you, but always know that your efforts never went unnoticed.

Lastly, I want to thank my husband and best friend, Dr. Keith Allen Manning. This accomplishment would not be possible without you cheering me on every step of the way. It’s been a long, arduous journey for the both of us to earn our doctorate degrees, but I wouldn’t change having you as my adventure partner for all of the gummy bears in the world.

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INTRODUCTION

“There are only four kinds of people in the world. Those who have been carers, those who are currently carers, those who will be carers, and those who will need a caregiver”. -Rosalyn Carter, former First Lady of the United States

Overview of Caregiving

Caregiving is defined as providing assistance to someone who is unable to or has great difficulty with managing their basic needs. A care-recipient may be a young child, a person living with a physical, intellectual, or emotional disability, or an aging adult who needs assistance with activities of daily living (e.g., bathing, dressing, toileting, and eating) (Snelling, 2012; Lightfoot & Moone, 2020). Caregivers and caregiving will be henceforth referred to as a carers and carework in the rest of this document to emphasize the reality that caregiving is in fact real work that lasts anywhere from several months to up to several years and requires the same level of effort and endurance exhibited by professional carers (Bookman and Kimbrel, 2011; Stall et al., 2019).

Carers can be professional (e.g., a paid at home nurse, physician, assisted living employee) or familial (e.g., someone who is unpaid and has a personal relationship with the care-recipient: a spouse, adult child, sibling, grandchild, friend or neighbor) (Garcia-Toro, Sanchez-Gomez, Madrigal Zapata, & Lopera, 2018) (Kjällman-Alm, Norbergh, & Hellzen, 2013).

For the purposes of this dissertation research, the focus will be on familial carers of aging adults living with difficulties. Although it is common for some families to place their loved ones in an assisted living facility or a nursing home, many families are choosing to care for their aging loved ones in their own home. Specifically, a recent report stated that there were approximately 41.8 familial carers in the United States who spent an average of 24 hours a week caring for their aging loved ones (Mudrazija, 2019). This range of hours may be below average or above average depending on the needs of the care-recipient and the severity of the illnesses they experience.

It should also be noted that carework is of important economic value to the U.S. economy as it was found in the AARP Public Policy Institute 2019 report that the amount of informal caregiving was valued at 470 billion dollars in the year 2017 (Reinhard , Feingberg, Houser, Choula, & Evans, 2019). Secondly the amount of caregiving hours was calculated to be 34 billion dollars (Reinhard et al., 2019).

These values are important because of how much they save taxpayers on government spending for institutions like hospitals and hospices. Importantly, due the demands caregiving makes on a caregiver's time they may opt to reduce their employment hours or quit their employment to devote to caring for their loved one (Doty & Janus, 2018; Hopps, Iadeluca, McDonald, & Makinson, 2017; Sun, Hilgeman, Durkin, Allen, & Burgio, 2009).

Not only does caregiving expend financial resources, it also affects caregiver physical and mental health (Monin & Schulz, 2009; Nicolaou, Egan, Gasson, & Kane, 2010). In other studies it was found that spouses caring for a spouse who lives with dementia are more likely to develop anxiety and depression symptoms) (Häusler et al., 2018; Joling et al., 2015; Ornstein, Gaugler, Zahodne, & Stern, 2014; Safavi, Berry, & Wearden, 2018). Also, carers are also at higher risk for physical health problems such as high blood pressure, arthritis, back injuries gastro-intestinal problems, and headaches like because they may ignore their own needs for health and wellness (Chang, Chiou, & Chen, 2010; Große, Treml, & Kersting, 2018; Sawatzky & Fowler-Kerry, 2003).

Finally, there are the relationship costs to carework. Some carers may end up neglecting their personal relationships outside of the one that they have with their care-recipient loved one due to time constraints of caregiving. This often means that they will have less access to social support resources and may end up feeling isolated and more depressed (Conde-Sala, Garre-Olmo, Turró-Garriga, Vilalta-Franch, & López-Pousa, 2010; Kelley, Lewis, & Southwell, 2017; Ploeg et al., 2017; Pope, Giger, Lee, & Ely, 2017).

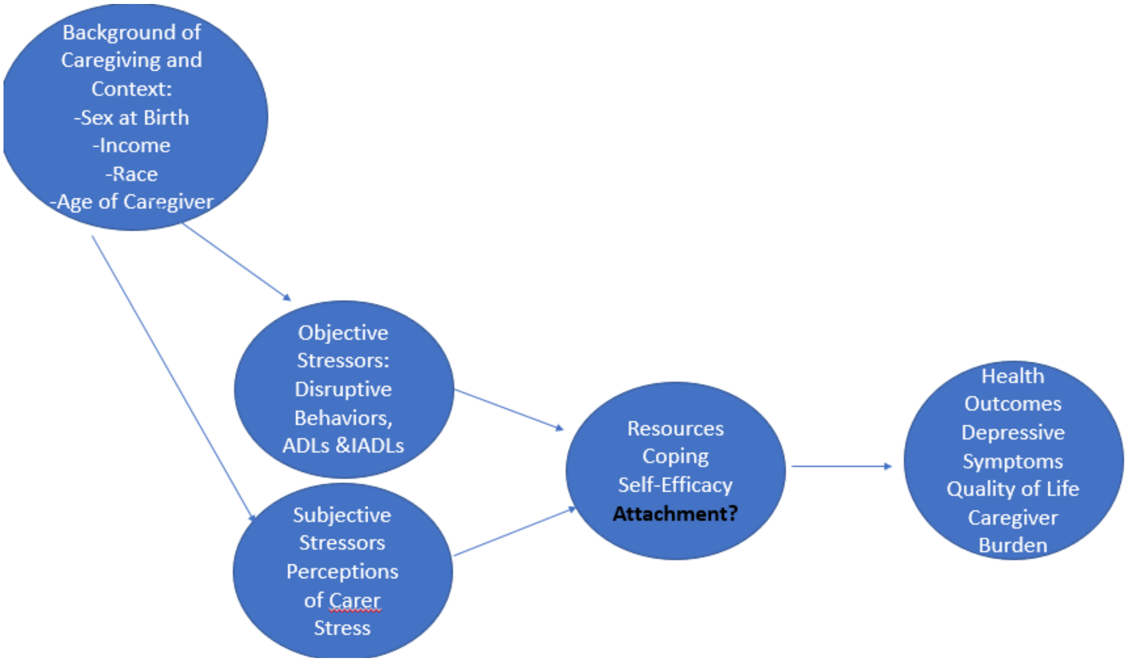
Importantly, by the year 2035 aging adults will outnumber their children (Vespa, Armstrong, & Medina, 2018) for the first time. This projection is supported by the understanding that the individuals belonging to the large "Baby-Boomer" generation (named for the babies born during the post-World War II born between the years of 1946 and 1964 when there was a substantial birth rate increase) will have all reached old age by the year 2030. Therefore, there is increased concern as to how familial carers will secure resources to care for their aging loved ones without experiencing negative health outcomes that often the manifestations of the stressful demands of carework. In this next section, I will describe the Stress Process Model and Attachment Theory and how it informs my dissertation work.

The Stress Process Model for Caregiving

Sociologist Leonard Pearlin's Stress Process Model (SPM) will serve as the framework for gaining a better understanding of how carers experience and appraise the stressors associated with their caregiving duties (Pearlin, 1999; Pearlin, Menaghan, Lieberman, & Mullan, 1981). Pearlin et al.'s (1981)'s stress process model for caregiving examines the contribution of life events, chronic life strains, self-concept, coping, and social support to illustrate the experience of caregiver stress.

Within the SPM, the stressors and the typical mental and physical health outcomes of stress are organized into a hierarchical system. Firstly, there is the background of the caregiving context (e.g., a caregiver's racial identity, gender identity, level of education, etc.), then there are primary stressors (the care-recipient disruptive behaviors and care-recipients' difficulty with performing activities of daily living), then secondary stressors (e.g., caregiving role strain, caregiver feelings of being overwhelmed). Thirdly, there are resources that may attenuate the levels such as social support, coping mechanisms (e.g., religious coping and self-efficacy). Lastly, there are the mental and physical outcomes associated with caregiver stress (e.g., caregiver burden, lower quality of life, and depressive symptoms). These model components are described below:

Figure 1. Adapted Pearlin's Stress Process Model With Attachment As A Potential Buffer



Caregiver Background & Context

Some carers belong to groups that place them at more risk for negative outcomes than others. Historically, there have been health disparities among racial minorities due to economic, educational, and financial barriers to accessing quality health care (Cohen, Sabik, Cook, Azzoli, & Mendez-Luck, 2019) For exemplar, research has shown that carers who are Black American, female identified and the daughter or daughter-in-law of the care recipient are much more likely to experience psychological stress (e.g., depressive symptoms, anxiety) and poorer physical health outcomes (e.g., high blood pressure, heart disease, diabetes)(Dilworth-Anderson, Pierre, & Hilliard, 2012). Research has also posited that Black carers are less likely to use formal services (e.g., placing loved ones in an institution or in a nursing homes) due in part to having less knowledge about healthcare and lowered access to quality care, as well as lower income and wealth to afford to place their loved ones in expensive institutions compared to their white counterparts (Thomeer et al., 2015; Thomeer et al, 2018).

These racial disparities are ultimately occurring because of the structural and systemic racism that made it more difficult for Black carers to access these important resources (Dilworth-Anderson, Boswell & Cohen, 2007). Therefore, Black carers have utilized other methods (e.g., social support and religious coping) to manage stress in their caregiving relationships (Dilworth-Anderson et al., 2007; Dilworth-Anderson, Williams, & Gibson, 2002; Graham-Phillips, Roth, Huang, Dilworth-Anderson, & Gitlin, 2016). Racial disparities and lower access to care are important points of concern because it has been projected that aging adults who are racial minorities will be more numerous than their Caucasian counterparts (U.S Bureau of the Census, 2000).

The Stress Process Model also takes into account the demographic background of carers to better ascertain how stress manifests for them based on their age, gender, race, and level of education (Brown, Vassar, Connor, & Vickrey, 2013; Lahaie, Earle, & Heymann, 2013; Skarupski, McCann, Bienias, & Evans, 2009; Stewart et al., 2016)). As an example, a recent study on adult children carers showed that there are gender and racial disparities in the amount of caregiving assistance for instrumental daily activities of daily living (IADLs) and for activities of daily living (ADL). The results of the study showed that across the board, Black carers were more likely to provide more hours of care for their aging loved ones compared to white Americans and Hispanic-Americans. Further, it was shown that there were significant differences between Black women and men when it came to IADLs but not for ADLs (Chen & Bailey, 2018) . This was consistent with previous literature in that adult daughters or daughter in law were most likely to assume the caregiving role for aging parents (Kjällman-Alm et al., 2013). Though it is beyond the scope of this manuscript, but it may be that one's culture socializes daughters to assume caregiving responsibilities(Conde-Sala et al., 2010). Previous research extended the stress proess model framework while adding racial differences as a moderator of stress (Hilgeman et al., 2009).

In the context of caregiving, it is important to understand the significance of race for family carers as well as their loved ones. To elaborate, Black carers were found to be more likely to report less stress with their caregiving responsibilies because they are more likely to seek caregiving assistance within their community (e.g., family, friends and neighhors) as well as utilize forms of coping such as praying and attending church (Hilgeman et al., 2009) .

In the end, the results indicated a significant fit for racial differences (using race as the moderator) in the structural equation models were run for each of the three ethnic groups of carers of Alzheimer's diesease(e.g., Black; Caucasian- American, and Hispanic-American. Further, it was found that overall the carers who have less access to resources (e.g., coping and social support) were more likely to experience role strain and experience more psychological distress. In the end the results posited that Black carers were more likely to suffer from role strain and that Caucasian Americans were more likely to suffer from intrapsychic strain. It may be that Black carers' coping resources assist in lowering levels of distress in caring for their loved ones but may still experience the hardship of the balancing act of managing caregiving for different members of their family simulataneously.Compared to white Americans, Black carers are more likely to use informal means of to help support the caregiving of their aging loved one while white Americans were more likely to utilize more formal means of support and assistance.

Specifically, in a study that examined the Medicare hospitalization claims for aging loved ones who are ischemic stroke survivors it was found that compared to white carers, Black carers were more likely to utilize at-home care visits and that female ischemic stroke survivors were more likely to receive home health care than male ischemic survivors after hospitalization(Roth et al., 2016).

Another study involving Black and white family stroke carers utilized the SPM to inquire about their quality of life, the difficulties their aging loved ones were experiencing and their appraisals of the stress they were experiencing. The results indicated that Black carers compared to white carers self-reported fewer problems, lower levels of stress, and better mental health (Clay et al., 2013).

Racial health disparities and lower access to care are important points of concern because it has been projected that aging adults who are racial minorities will be more numerous than their white counter-parts (U.S Bureau of the Census, 2000) and as previously iterated are more likely to care for their loved ones at home rather than put them in an institution. In this next section, I will talk about carer stressors (the different types of levels of carer appraisals).

Sources of Caregiving Stress

Next in the SPM are the primary sources of stress. The primary or objective sources of caregiving stress can refer to the memory problems of the aging care-recipient (e.g., forgetting what they ate for breakfast, forgetting their caregiver's answer to a question that the care-recipient just asked). Another objective source of caregiving stress are the disruptive behaviors exhibited by the aging care-recipient (e.g., cursing at their caregiver, wandering around, being physically aggressive, refusing to use restroom, to bathe or get dressed).

A systematic review of the literature on behavioral and psychological symptoms of dementia aging loved ones found that care-recipient disruptive behaviors were associated with increased stress for family carers (Feast et al., 2016). Another source of primary stress is cognitive problems of aging care-recipients. A more recent study looked at the experiences of female carers caring for aging adults with neurocognitive disorders. The study randomly assigned to a telehealth behavioral intervention using video tutorials, relaxation events and telephone coaching or given a handbook educating carers about managing their loved ones' behaviors. It was concluded that female carers who were assigned to the behavioral intervention condition self-reported fewer depressive symptoms, less frustration with their loved ones' behaviors compared to those in the simple handbook education condition (Steffan & Gant, 2016).

Another source of caregiver stress can be care-recipient difficulty with activities of daily living (ADL) (e.g., caregiving-recipients may need help with everyday tasks such as moving from one side of the room to the other, eating, dressing, bathing and toileting) and instrumental activities of daily living (IADLS) (e.g., needing assistance with (Goode, Haley, Roth, & Ford, 1998; McAuliffe, Ong, & Kinsella, 2018; Perrig-Chiello & Hutchison, 2010).

A secondary source of stress can be role strain. Role strain can be described in terms of the adult-child caregiver having to juggle the demands of employment, caring for their loved one as well as managing their loved one's household and financial affairs. Role strain can happen as a result of a caregiver's perception of stress. One research study recruited family carers of loved ones living with Alzheimer's Disease to participate in a mindfulness based intervention or a standard social support activity to decrease perceptions of stress in carers (Brown, Coogle, & Wegelin, 2016). Ultimately, it was shown that after measuring levels of cortisol (to assess level of stress) that participants in the mindfulness intervention self-reported lower levels of perceived stress indicating that the caregiver's ability to manage stress significantly impacts the way they handle their aging loved one needs and behaviors (Brown et al., 2016).

Ultimately, it was shown that after measuring levels of cortisol (to assess level of stress) that participants in the mindfulness intervention self-reported lower levels of perceived stress indicating that the caregiver's ability to manage stress significantly impacts the way they handle their aging loved one needs and behaviors (Brown et al., 2016). One study looked at global and caregiving mastery in the context of the caregiving stress process for spousal carers of individuals living with Alzheimer's disease (Pioli, 2010) .It was found that carers who exhibited caregiving mastery were more likely to better cope with objective caring demands (e.g., activities with daily living, behavioral problems with their care-recipient) and subjective demands (e.g, role strain).

Although global mastery and caregiving mastery were entered into the models as moderators, only caregiving mastery emerged as a viable moderator. It may be that global mastery may be more difficult to analyze as a moderator of caregiving outcomes because of its generality in terms of one feeling like they have control of their many aspects of life and not just caregiving.

In a subsequent review paper, researchers attempted to assess the viability of the stress process framework using the context of informal carers managing stress while caring for their aging loved ones with Alzheimer's Disease (Llanque, Savage, Rosenburg, & Caserta, 2016). The authors' criticism of the stress process model is that stress is measured objectively and subjectively across the literature. Llanque and colleagues also postulate that the concept of caregiver stress is best understood in terms of the care-givers appraisals (e.g., reactions to and perceptions of caregiving stress. In other words, carers who don't see their caregiving role as stress inducing will have better caregiving outcomes. However, just because caregiver may not perceive caregiving as stressful does not mean that stress will not manifest itself in other ways (e.g, physical health, fatigue) (Llanque et al., 2016).

A study in Switzerland used the stress process model to assess the relationship between family carers stressors (objective and subjective) and care-recipient behaviors. It was found that there was an effect of gender and kinship in that female adult child carers as they were found to experience the most objective and subjective stress (Perrig-Chiello & Hutchison, 2010). Secondly, although adult children carers may have less primary objective stressors, they may experience more subjective stressors and perceive their care-giving situation was more arduous (implying the possibility that they are caring for young children and trying to maintain their careers along with caring for their aging parents).

A secondary source of stress can be financial. As reported in the previously mentioned 2019 AARP Caregiver Report, carers who are adult children ,who have hourly employment, and earn a household income of 50,000 a year are more likely experience financial strain (e.g., using life-savings and taking on debt) to meet the financial obligations of providing healthcare to their aging loved ones.

Further, these costs can steadily increase as the care-recipient's health condition and difficulty continue to worsen (Reinhard, Feingberg, Houser, Choula, & Evans, 2019). Another source of stress can be thought of as a stressful life event. In particular, the stress of learning that an aging loved one has been diagnosed with dementia is associated with psychological difficulties (e.g., depressive symptoms) for the carers (Pot, Blom, & Willemse, 2015) .The study found that carers who were able to feel that they were able to learn to master their carework abilities were better protected against experiencing negative psychological outcomes in order to deal with their aging loved one's recent diagnosis (Pot et al., 2015).

As an example, stressful life events such as the death of one's spouse (a negative event) or an adult child getting married (a positive event) can both be viewed as stressful circumstances as they both bring about change and adjustment (Byun et al, 2016; Damianakis, Wilson & Marziali, 2018). In this next section, I will be talking about the different manifestations of stress which will be interchangeably referred to carer health outcomes. In other words, I will discuss what are the potential ramifications for carers who are unable to manage these persisting stressors.

Additionally, high levels of stress experienced by the carer has unfortunate implications for their health and well-being. To be more specific, caregiver burden (a manifestation of stress) was related to negative psychological symptoms (e.g., anxiety and depression) , sleep disturbances, physical decline, and lower quality of life (Liu et al., 2017). The quantitative cross-sectional study examined carers stressors (e.g, sleeping patterns, self-reported quality of life and physical condition) of aging adult care-recipients living with Alzheimer's Disease in China and found that older adult female carers and spousal carers experienced more stress and that the care-recipient's severity of dementia was correlated with increased appraisals of caregiver burden (Liu et al., 2017).

Manifestations of Caregiving Stress

Caregiver burden is defined as an appraisal of the psychological, physical, and financial stressors related to the subjective experience of caring for an aging loved one. The literature suggests that carers are more likely to develop depressive symptoms and possibly experience burnout from their caregiving responsibilities (García-Alberca et al., 2014; García-Alberca, Lara, & Luis Berthier, 2011; Srivastava, Tripathi, Tiwari, Singh, & Tripathi, 2016).

Caregiver burnout is defined as a response to the stressors of caregiving (e.g., feeling emotionally exhausted, feeling unmotivated and feeling overwhelmed with caregiving tasks (Gérain & Zech, 2019). Gerain & Zech's study objective was to formulate a model (The Informal Caregiving Integrative Model) that triangulates a model to assess informal carers capabilities with dealing with stressors, their personal relationship with their care-recipient and feeling overwhelmed with stress to the point of burnout and exploring the possible mediating effect of a caregiver's appraisal of their stress.

A study using a randomized control trial intervention derived from the NYU Caregiving Intervention included a sample of adult children carers caring for a loved one with dementia. The results showed a relationship between caregiver depressive symptoms and reactions to their care-recipient's disruptive behavior (memory and behavioral problems) and concluded that carers who experience frustration and internalize resentment towards care-recipients were more likely to exhibit depressive symptoms and self-report a lower quality of life (QOL) (Gaugler, Reese, & Mittelman, 2016). It is likely that carers expend so much time and effort in caring for their loved ones that their own health and wellness may become jeopardized (Gaugler, Roth, Haley, & Mittelman, 2008; Liu et al., 2017).

Additionally, high levels of stress experienced by the carer has unfortunate implications for their health and well-being. To be more specific, caregiver burden (a manifestation of stress) was related to negative psychological symptoms (e.g., anxiety and depression) , sleep disturbances, physical decline, and lower quality of life (Liu et al., 2017). The quantitative cross-sectional study examined carers stressors (e.g, sleeping patterns, self-reported quality of life and physical condition) of aging adult care-recipients living with Alzheimer's Disease in China and found that older adult female carers and spousal carers experienced more stress and that the care-recipient's severity of dementia was correlated with increased appraisals of caregiver burden (Liu et al., 2017).

Thusly, caregiver burden has become a public health concern (Hilgeman et al., 2009; Vaingankar et al., 2016). Interestingly, there is evidence to suggest that the dynamic of the caregiving relationship may help to lessen the impact of caregiver burden (Lou et al., 2015). For exemplar, research has shown that spouses who were more likely to define their caregiving responsibilities as part of being married self-reported lower caregiver burden (Aloweni, Doshi, Fook-Chong, Malhotra, & Østbye, 2019; Conde-Sala et al., 2010; Daley, O'Connor, Shirk, & Beard, 2017; Morse, Shaffer, Williamson, Dooley, & Schulz, 2012; Nelis, Clare, & Whitaker, 2012) .

On the other hand, some adult children carers were more likely than the spousal carers to see the caring of their parent as more of a stressful obligation while holding down employment and caring for their own young children this is colloquially termed "being in the sandwich generation" (Boyczuk & Fletcher, 2016; Kohl, Mossakowski, Sanidad, Bird, & Nitz, 2019; Solberg, Solberg, & Peterson, 2014) To reiterate, informal caregiving may be stressful due to the propensities of having limited psychological and financial resources to accommodate the demands of caring for loved ones as well as themselves (Bauer & Sousa-Poza, 2015; Sun et al., 2009).

A review of the literature on financial impacts of caregiving found that the financial difficulties associated with caregiving (e.g., going to place of employment late, leaving place of employment early and or resigning from employment altogether) were associated with more negative appraisals of stress and increased negative psychological outcomes (Bauer et al., 2015). Finally, a cross sectional study using a diverse sample of carers of aging adults used race as a moderator to assess appraisals of income inadequacies. The results indicated that caregiver perceived income inadequacy, but not household income was correlated with higher levels of depressive symptoms in carers.

These findings reveal that it is more feasible for a caregiver's perception of being able to maintain a household to be a source of stress than simply socioeconomic status (Sun et al. 2009). Although it is understood that the carework can make many demands on familial carer's time and resources resulting in potential mental and physical health difficulties (e.g., burden, poorer physical health quality of life and increased depressive symptoms) this next session will go into detail to illustrate some potential psychosocial buffers or intermediaries between stressors and outcomes.

Buffers of Caregiving Stress

Social support and coping can both be thought of as important mechanisms for lowering levels of caregiver burden and other manifestations of caregiver stress (e.g., depressive symptoms, physical difficulties and lower quality of life. Social support can be defined as financial support (e.g., giving paying for a loved one to get food and receive their medication), instrumental support (e.g., driving an aging care-recipient to the nearest health clinic) and emotional support (e.g., listening while a caregiver vents about their frustration and struggles involved in their life as a caregiver).

Importantly, social support is associated with more positive mental and physical health outcomes for carers (Jackson, Roberts, Wu, Ford, & Doyle, 2016). In a review paper by Jackson et al (2016) on telephone, internet, or combined telephone internet social support interventions studies concluded that social support coming from a combined internet and telephone communication strategy was linked perceptions of less stress, feelings of connecting to one's community and social network as well as a lower propensity of negative psychological outcome (e.g., depressive symptoms).In terms of coping, finding from prior work indicate that Black carers who utilize religious coping combined with social support (e.g., attending their local church, socializing with fellow community members and praying) have found that using this strategy resulted in self-reported lower stress and lower self-reported lower caregiver burden as well as the ability to find more positive aspects of caregiving (Heo, 2014).

Additionally, social support has the potential to attenuate the levels of stressors and burden by providing financial, instrumental and emotional resources (Pearlin et al., 1981). Also coping is another means of managing perceptions of stressful experiences inherent in caregiving duties by helping carers to focus on the positive aspects of caregiving (e.g., keeping their loved one safe, spending time with their loved one)(Heo & Koeske, 2013) and believe in their abilities to provide quality care to their aging loved ones.

To reiterate, the Stress Process Model is a mechanism through which researchers can better understand how life circumstance create stress and difficulties in the everyday lives of carers and care recipients. Additionally, social support has the potential to attenuate the levels of stressors and burden by providing financial, instrumental and emotional resources (Pearlin et al., 1981). Also coping is another means of managing perceptions of stressful experiences inherent in caregiving duties by helping carers to focus on the positive aspects of caregiving (e.g., keeping their loved one safe, spending time with their loved one)(Heo & Koeske, 2013) and believe in their abilities to provide quality care to their aging loved one and believe in their abilities to provide quality care to their aging loved one.

Another recent study examined the relationship between stress, coping, and decision making for carers of loved ones living with Alzheimer's disease. The study used Pearlin's Stress Model as a framework for studying how stressors impact the relationship and daily functioning of informal caregiver- care-recipient dyads. The research implemented an in-person survey reasearch design to better explore the relationships betweeen stress, coping and mental health and physical health outcomes. In the end it was found that care-giver self-efficacy was more effective at attenuating the stress and at improving decision making skills for caregiving of their loved ones.

Importantly, it should be noted that this study sample was not very representative to the general population of carers. To elaborate, the sample consisted of mostly well-to-do Caucasian-American women who tended to be more educated and more likely to be knowledgable about the healthcare resources they could utilize to better care for their loved one living with Alzheimer's disease (Thompson, Bridier, Leonard, & Morse, 2018). As previously stated, caregiving presents a significant amount of stress to carers and their loved ones.

Understanding how stress manifests is crucial to developing adequate interventions to addressing caregiver burden and other negative health and aging outcomes. The Stress Process Model has been utilized and replicated by researchers the world over studying carers of loved ones living with developmental disabilities (e.g., children who are on the autism spectrum), and of aging and cognitively-impaired older adults (Garcia-Toro et al., 2018).

One of the major gaps in the stress process literature is the paucity of research conducted that explores how relationship dynamic may factor in a carer's appraisal of and ability to cope with stress.Some researchers hold that adult attachment theory can be utilized to better understand the complexities and demands of those relationships(Browne & Shlosberg, 2006; Nelis et al., 2012; Nelis, Clare, & Whitaker, 2014). Therefore, in the next section, I will discuss attachment as an additional possible buffer between carer stressors (e.g., care-recipient activities of daily living (ADLS), care-recipient instrumental activities of daily living (IADLS), care-recipient disruptive behaviors) and carer health outcomes (e.g., carer depressive symptoms and appraisals of caregiver burden).

Attachment As A Potential Buffer Within The Stress Process Model

According to the previous literature, attachment is defined as a strong sustaining bond between a person and a significant other (Bowlby, 1982). Attachment theory posits that attachment bonds in relationships can be utilized during times of stress and uncertainty (e.g, psychological stress). In attachment theory, there are four distinct attachment styles: secure, avoidant, anxious, and disorganized. Although attachment theory is usually studied in the context of parent-young child and adult-romantic relationships, attachment can also be studied in the context of relationships with aging adults and their carers who may be (Lee et al., 2018).

Recent research has postulated that certain attachment orientations may improve or worsen the functionality of the caregiver-care recipient relationship (Karantzas, Romano, & Lee, 2019). For an example, carers who self-reported as being more anxious and avoidant in their attachment style were more likely to self-report higher levels of caregiver burden (Crispi, Schiaffino, & Berman, 1997). And in turn, research studies have demonstrated that there is a relationship between lower self-concept and depressive and anxiety symptoms for carers (Boltz, Chippendale, Resnick, & Galvin, 2015). On the positive side of matters, a study reported that caregiver relationships characterized by a more secure attachment orientation were more likely to ameliorate levels of caregiver burden and promote positive self- concepts as well as utilizing resources (e.g., social support) for the caregiver and care-recipient relationship (Sörensen, Pinquart, & Duberstein, 2002).

As previously mentioned in this dissertation, familial carers expend psychological, financial and social resources when caring for their aging relative. Attachment theory lends itself well to better disentangling the relationship complexities for the care recipients living with dementia (Osborne et al, 2010). To elaborate, care-recipients who have a secure attachment style are more likely to feel confident in seeking care and assistance in IADL (instrumental activities for daily living) from their caregiving relatives (Nelis et al, 2012).

Importantly, for the aging adults who live with dementia, that bond may lessen as the aging adult's symptoms begin to worsen (Markiewicz et al, 1997). Therefore, it is often left up to the caregiver to remain calm and organized in terms of managing the relationship while providing care to their loved one.

The research on dementia/Alzheimer's disease shows that for aging parent-adult child relationships, there becomes a role reversal. Studies on caregiving burden and dementia have demonstrated that taking care of an adult parent living with dementia is that the parent becomes the child and in turn, the child becomes the parent (Kjällman-Alm et al., 2013; Pot et al., 2015) . In addition, research also posits that parent fixation is related to increased cognitive decline in older adults with dementia. In summary, parent fixation occurs when the aging adults with dementia assume that their parents are still alive and insist on making plans to see them. Understandingly, parent fixation can induce more frustration in the care-recipient and their adult child caregiver (Browne & Sholsberg, 2006).

According to Bowlby (1982), attachment is defined by the importance of healthy secure relationships between caregiver and child in early life and by the secure bond for romantic relationships in adulthood (Sroufe, Carlson & Shulman, 1993). For the purposes of this dissertation work, in the next section, attachment theory will be reviewed in the context of caregiver and aging care- recipient relationships within Pearlin's Stress Process Model.

Although there is robust literature on attachment style in parent-child relationships (Bowlby, 1979, 1982), fewer studies have explored the paradigm in the context of platonic adult relationships. More specifically, less work has been done examining the relationship with attachment in caregiving relationships with aging adults. To elaborate, to what extent can attachment be explored as a possible buffer between sources of stress and caregiving outcomes?

Attachment Orientation in the Context of Caregiving

According to a review of the literature, adult attachment is conceptualized in three different styles: avoidant-attached, anxious-ambivalent, and securely attached (Browne & Sholsberg, 2006). There is work to show that having a securely attached relationship characterized by partners being available and supportive of one another can serve to protect against psychological stress and trauma (Bowlby, 1988). Although research has focused on parent-child and romantic adult relationships (Bradley & Cafferty, 2001), there is a paucity of studies on caregiver and care-recipient relationships. Nevertheless, in a study on the relationships between caregiver and care-recipients living with dementia, the results indicated that pre-morbid secure attachment style (for the care-recipients with dementia) was related to self-reported positive affect and better emotional well-being for the caregiver (Magai et.al.,1997).

In contrast, another study found that early anxious and avoidant attachment related styles were associated with increasing paranoid thoughts and higher levels of anxiety for care-recipients living with dementia respectively (Magai & Cohen, 1998). One of the limitations of the previous two studies is that they did not assess carers and care-recipients simultaneously. In terms of aging adults living with comorbidities, attachment style is a viable framework for developing interventions to better facilitate better relationships between carers and care-recipients to promote successful aging.

A more recent study used attachment style to assess the relationship between carers and care-recipients living with mild to moderate dementia as well as measure the comorbid neuropsychological symptoms and quality of life (Nelis et al., 2012). In the end, the authors concluded that care-recipients living with dementia were more likely to be insecurely (dismissively attached). Care-recipients living with dementia who were securely attached tended to have more positive affect and less symptoms of anxiety. Carers’ attachment style was more closely associated with their psychological health (Nelis et al.,2012).

Finally, there were no significant differences between attachment style for carers and care-recipients living with dementia (and vice-versa). The authors recommend that future studies should devise a means of longitudinally comparing differences in attachment style over time. In a subsequent paper, researchers were interested in the relationship history of aging parent and adult child relationships (i.e., daughters) and their influence on caregiving outcomes. The results indicated that daughters who recalled more negative memories of their relationship with their parent as a child were more likely to experience stress and hold critical attitudes towards their aging parent (Chen & Bailey, 2018) Therefore, this suggests that attachment orientation of the daughter, the daughter’s recall of the earlier part of their relationship had significant relationship with their mental health and physical health outcomes. I explore the specifics of attachment orientation in the context of adult child/in law carer-care-recipient relationships in the next section.

Attachment Orientation in Adult Child Carers

A review paper on carer relationships, aging and attachment has indicated that a secure attachment (past and present-day attachment) can act as a protective buffer between caregiving stressors and manifestations of caregiving stress. In other words, carers who self-reported having a secure attachment with their caregiving recipient were more likely to report less feelings of stress and caregiver burden when it came to their caregiving role (Browne & Shlosberg, 2006). In a recent study on attachment quality on caregiving of a parent with dementia (Chen, Uzdawinis, Schölmerich, & Juckel, 2014)., the authors hypothesized that attachment quality would act as a moderator between caregiver stressors (e.g., behavioral problems, cognitive impairment of parent care-recipients, role strain for carers) and caregiving outcomes (e.g., caregiver distress, and caregiver satisfaction).

After completing a series of psychological batteries, it was found that contrary to the authors' hypotheses, adult children carers who reported having a secure present-day relationship with their care recipient parent was actually more likely to experience higher levels of depression and anxiety (i.e., caregiver burden). From this finding, the authors speculated that having a secure relationship with one's aging parent living with dementia may increase feelings of anxiety and depression in the caregiver because it may be difficult to see their parent regressing and becoming frail. This may also stem from the adult children recalling their parent as a self-sufficient individual who is able to care and provide for their children. (Chen et al., 2014).

As mentioned earlier in this manuscript, it was shown that familial carers are mostly likely to be daughters of the parent care-recipients. It is further asserted that the relationship history between adult child carers and parents with dementia would have predictive value on the current dynamics of these important relationships. Therefore, an additional study by the same authors was conducted to assess episodic memory (relationship history) and procedural memory (using secure base scripts) of daughters of care-recipients living with dementia and their associations with caregiving stress, relationship quality and burden (Chen & Bailey, 2018).

Specifically, the authors hypothesized that previous relationship history and unconscious procedural memory in the context of the current caregiving relationship would have differential effects on levels of caregiving stress, and caregiver burden for the adult daughter carers. Consistent with their hypotheses, it was shown that positive recollections of early relationship history between parents with dementia and daughters' unconscious procedural memory of the secure base script for caregiving were unrelated. In other words, when it comes to the caregiving relationship, daughters who self-reported having positive memories of their relationship with their parents were more likely to react to their parents dementia-related behavior with concern and care while daughters who recall having a more negative previous relationship were more likely to feel frustration and criticize their aging parent.

In terms of procedural knowledge, daughters who had lower levels of unconscious procedural knowledge were less equipped to handle the caregiving role and experienced more stress than the daughters who had higher levels of procedural knowledge (Chen & Bailey, 2018).

An aspect of the adult child parent relationship that was not discussed in the previous study is the notion of filial obligation (or in some cultures this is known as filial piety). Filial obligation is defined as the duty to care for aging parents. Another recent study was conducted assess how filial obligation related to attachment styles in adult female carers of patients living with severe dementia (Lee et al., 2018). It was hypothesized that adult child carers who scored high in levels of filial obligation, attachment avoidance would be negatively associated with caregiver burden. In contrast, it was hypothesized that carers low in levels of filial obligation, attachment avoidance will be associated with higher levels of caregiving burden (Lee et al, 2018).

The evidence from this study showed that worse patient daily functioning was associated with increased caregiver strain. Interestingly, it was shown that the frequency and severity of patients' behavior problems were associated with higher burden for the carers. In terms of filial obligation, the authors found that in general filial obligation was associated with more severe caregiver burden. Another key finding was higher levels of attachment anxiety was associated with greater burden. All in all, the results imply that filial obligation levels will affect overall levels of burden depending on the attachment relationship quality. More to the point, the authors believe that filial obligation may have a moderating effect on levels of caregiver burden. Thusly, if carers self-report having a lower filial obligation and avoidant attachment there was increased potential for higher caregiving burden (Lee et al, 2018).

And for carers who self-report having a higher filial obligation and an avoidant attachment style were more likely to self-report lower caregiving burden. All in all, the authors seem to conclude that when there's higher levels of filial obligation, there is increased caregiver stress, but this stress may dissipate if the caregiver has an avoidant attachment style. It should also be noted that this was a sample of female carers in Korea and therefore the results cannot be generalized toward a wider population of carers. However, this study does have merit in terms of providing a good framework for assessing the complexities of relationship quality between carers and their aging care recipient loved ones. More research is needed to assess the levels of filial obligation (or filial piety in some cultures) with the relationship quality for the caregiving dyads.

One criticism against attachment theory in the context of aging holds that there may be a construct validity issue in that self-report measures may not accurately assess the underlying issues in adult attachment. This is especially relevant because most attachment measures focus on the relationships between –parent-child and romantic partner. In one study it was found that older adults attachment with their mother did not predict attachment within other relationships (Ross & Spinner, 2001). A systematic review of the literature in attachment theory and aging within the past five years showed that more research is needed to devise more adequate instruments to measure the complexities of care-giving aging adult relationships (Karantzas, Romano & Lee, 2019)

It was further shown that attachment related anxiety was shown to be associated with poorer mental health, attachment insecurity (e.g., anxious attachment) was related to more carers reacting to their loved one's behaviors by being controlling and critical towards their loved ones. As for the care-recipients attachment. Attachment insecurity was correlated with higher levels of dementia symptoms and less feelings of security in their relationships to their carers (Karantzas et al., 2019).

One study showed that relationships between adult child caregiver and their aging parents are characterized by filial obligation (e.g., sense of duty towards one's parent) as well as attachment style (Kjallman, Norbergh & Hellzen, 2013). To elaborate, filial obligation is conceptualized as a sense of duty that adult children have towards their parent as their parent enters old age (Kjallman et al., 2013). Furthermore, there is research to suggest that these adult-child caregiver parent aging relationships can be shaped by the relationship adult children had with their parents during childhood. For exemplar, researchers have posited that the quality (positive or negative) of the relationship prior to the parent entering old age was associated with predicting more caregiver burden and role strain once the caregiving roles were reversed (Kazik et al., 2017).

One other study looked at the relationship between present day attachment as a moderator between caregiving stressors (e.g., behavioral problems and cognitive impairment of the aging parent care recipient) and caregiving distress (Chen, Uzdawinis & Scholmerich, 2014) The results indicated that attachment was only a partial mediator of the relationship between caregiving stressors and global distress. Moreover, it was also found that adult child carers with present day secure attachment ended up self-reporting more levels of caregiver stress. Lastly, there were no significant differences between securely attached and insecurely attached adult child carers and caregiving stress. It may be that there are other factors at work in understanding these findings (Chen et al., 2014). Perhaps, the present-day secure attachment may be associated with more distress because the adult children carers are coming to terms with seeing their parent care-recipient regress into increased dependency and the effect that it has on their present relationship in contrast to their previous parent-child relationship.

Stress Process and Attachment Theory

All in all, there is additional work needed for understanding the bridge between the Stress Process Model and Attachment Theory. It is important that understanding the particular nuances in caregiver-care recipient relationships are vital to advancing the success of these important relationships. As an exemplar, the mental health needs of carers is tantamount to their well-being in order to manage their many roles that make increasing demands on their time. For the Stress Process Model Theory, there needs to be a means of operationalizing interpersonal relationships as they can be thought of as a source of stress.

Another way that the Stress Process Model can be improved is by adding more intermediaries in terms of stress such as coping. How can various types of coping (e.g., practicing one's religion, mindfulness, meditation) be better measured as buffers of stress? Another means of improving the Stress Process Model is by extending the manifestations of stress. More specifically, what are the interpersonal outcomes related to the manifestations of stress? Moreover, could it be possible that interpersonal stressors would be affected by level of and satisfaction with social support? It may the case that there are important differences in terms of assessing the different facets of stress in an interpersonal context.

Another possible addition to the Stress Process Model is through the examination of perceptions of stress. Research in caregiving has shown that perceptions of stress can offset the levels of stress depending on the sense of obligation (filial obligation for adult children carers) a caregiver has towards their aging care recipient (Crispi et al, 1997; Chen. 2018).

To review, the population of aging adults aged 65 years or older is projected to total 73.1 million by 2030, the need for quality caregiving is imperative (Dilworth-Anderson et al., 2012). As such, aging adults who belong to minority groups (e.g., racial, gender, sexual orientation and the intersection of these identities for some) are more likely to experience barriers in access to care. Some barriers include living in more isolated rural communities, experiencing racial discrimination by healthcare providers , lower physician trust having lower levels of education, and having less financial resources (Dilworth-Anderson et al., 2002; Dilworth-Anderson et al., 2012).

Importantly, the quality of caregiving relationships is paramount to achieving successful aging as well as greater health and wellness for carers themselves. Caregiving requires time, patience, and energy to manage the everyday necessities of aging loved ones.

Overall, the main purpose of this dissertation project is to test the theories of the stress process model and attachment theory as a means to further examine the relationships between carer experiences and stress and carer health outcomes. Specifically, this dissertation will test attachment orientation of carer in terms of their appraisals of typical carer stress and whether attachment can be a viable buffer against caregiver burden, poorer quality of life, and depressive symptoms.

The Stress Process Model and Adult Attachment Theory potentiate a more thorough understanding of the caregiver dyad by providing a conduit to measure the sources and manifestations of stress while at the same time examining how the dynamic of the caregiver-care recipient relationship affects physical and mental health outcomes for the caregiver. In this next section, the specific aims and hypotheses of the dissertation research will be detailed and outlined.

Specific Aims & Hypotheses

Aim 1: Test the association of caregiver perceptions of ability with the care-recipients' ADLs and IADLs and observations of care-recipient loved one's memory and behavior problems with levels of caregiver burden, quality of life, and depressive symptoms

Hypothesis 1A: Individuals who self-report care-recipients having more difficulty to complete ADLs and IADLs and observations of care-recipient loved ones' memory and behavior problems will also report higher levels of caregiver burden and worse quality of life.

Hypothesis 1B: Individuals who self-report care-recipients having more difficulty to complete ADLs and IADLs and observations of care-recipient' loved one's memory and behavior problems will report higher levels of depressive symptoms.

Aim 2: Assess whether there are differences in caregiver mental and physical health outcomes across caregiver relationship to care recipient groups.

Hypothesis 2: Individuals who are caring for their parent will report higher levels of caregiver burden, poorer quality of life and more depressive symptoms. than carers who are taking care of their spouses.

Aim 3: Examine the relationships between caregiver buffers of stress and caregiver outcomes.

Hypothesis 3A: Individuals that self-report having an anxious or avoidant attachment orientation will report higher levels of caregiver burden, more depressive symptoms and poorer quality of life.

Hypothesis 3B: Individuals who utilize an approach coping style to manage caregiving duties will report lower caregiver burden, better physical and mental health quality of life, and less depressive symptoms compared to individuals who use an avoidant coping style. Hypothesis3C: Individuals who self-report higher levels of caregiving self-efficacy will report lower levels of caregiver burden, better quality of life and less depressive symptoms.

Aim 4: To determine whether caregiving buffers will moderate the relationship between caregiving stressors and caregiving outcomes of depressive symptoms, mental health and physical health components of quality of life, and caregiver burden.

Hypothesis 4A: Having a secure attachment orientation will moderate the relationships between caregiver sources of stress and caregiver mental and physical health outcomes (e.g., quality of life).

Hypothesis 4B: Having higher self-efficacy will moderate the relationship between caregiver sources of stress and caregiver mental and physical health outcomes.

Hypothesis 4C: Having more of an approach coping style will moderate the relationship between caregiver sources of stress and caregiver mental and physical health outcomes.

METHODOLOGY

Description of the Sample

This research recruited participants living in the continental United States (to provide a racially diverse sample) that provided care to an adult loved one at minimum five hours per week. All familial carers had to be unpaid and have a personal relationship with the care-recipient (e.g., a spouse, a partner, an adult child, sibling, close friend, or neighbor). Carers ranged between the ages of 23 to 75 years old. In order to eligible for participation, every care-recipient had to be at least 45 years of age. Care-recipients may need assistance with activities of daily living (e.g., bathing, walking, toileting, sitting), instrumental activities of daily living (e.g., balancing one's checkbook, transportation to clinic visits, meal preparation etc.) and or living with some kind of physical or mental health condition (e.g., being a stroke survivor, living with Alzheimer's Disease, living with memory and behavioral problems or living with diabetes mellitus).

Study Design

This research study was a cross-sectional survey research design. Recruitment took place via online social networking sites (e.g., Facebook, Twitter, Instagram) as well as local clinics, research universities, community colleges, hospitals, non-profits, and community centers via posted fliers and word of mouth. Participants were given the option of completing the survey via telephone or by using general web-link to the online survey of questionnaires using Qualtrics survey software. Participants who chose to complete the study online were then taken to a webpage where they were be briefed about the study procedures and then given an opportunity to electronically provide informed consent. Participants who opt to complete the study via telephone interview were directed to call the laboratory phone where a trained research assistant gave them information to learn more about the study and verbally provide informed consent to participate. At the time of data analysis, all participants (N=60) had chosen to complete the study themselves online.

Study participants then completed a battery of questionnaires to provide data on their caregiver care-recipient relationship and their experiences as a carer. On average, participants completed the survey between forty-five minutes and an hour. After completing the questionnaires, the participants were asked to provide their contact information and mailing address where their participant incentive (in the form of a gift card that a one-time payment of $20.00 was loaded onto it after research personnel confirmed participation and receipt of gift card) along with a list of carer and care-recipient resources was provided for their time and participation. All survey data including potentially personally identifying data were stored on secure password-protected computers in a research laboratory. Only the principal investigators and trained research personnel were given access to the data.

Carer Demographics

Participants self-reported on their ethnicity (e.g., 1=Hispanic or Latino or 2=Non-Hispanic, racial identity (e.g., 1= Black or African American, 2= White, 3= Asian, 4=American Indian or Alaska Native, 5= Native Hawaiian or Other Pacific Islander), sex at birth (i.e., male and female gender identity (e.g., cisgender man, cisgender woman, non-binary, transgender man, transgender woman, a gender), age in years, level of completed education (measured as 16=completed college, 18= completed a master's degree, 20= completed a doctoral degree), socioeconomic status (measured as income 1= <$19,999, 2 = $20-29,000, 3= $30-39,000 4= $40-49,999, 5= $50,-59.000 6 = > $60,000), their employment status (full time, part time, retired, or unemployed) and indicate their relationship to the care recipient (e.g., spouse, partner, adult child/ adult child in law, other relationship type carer). Participants will also provide information for how long they have been a caregiver in months and in years and how many hours a week they spend caring for a loved one (e.g., How many hours a week do you spend on caregiving responsibilities?).

Caregiving Stressors and Appraisal of Stress

Basic activities of daily living (The Katz Index of Independence in Activities of Daily Living) is a 6-item measure used to assess care recipient's capacity to independently complete activities of daily living such as bathing, dressing, personal hygiene, feeding, mobility and continence (Katz et al., 1963). Higher scores are associated with better ability to complete these tasks. Total scores ranged from 0 to 6 points. The scale ranges between zero indicating dependence (needing supervision, direction, personal assistance or total care) and one indicating independence (needing no supervision, direction or personal assistance) Cronbach's alpha, .85.

*Instrumental activities of daily living (*Lawton-Brody Instrumental Activities of Daily Living Scale) (Lawton & Brody, 1969) contains 8 items that range in summary score from 0 (low functioning) to 8 (high functioning). The scale is designed for carers to self-report on the extent to which care recipients handle daily but complex tasks such as: "1. Operates telephone on own initiative looks up and dials numbers and "3. Is not capable of dispensing own medication. This scale has good internal reliability, Cronbach's alpha .86."

Care-Recipient Disruptive Behaviors

Revised Memory & Behavior Problems Checklist (Teri et al., 1992) consists of 24 items designed to measure behavioral and memory problems of the care recipient. The questionnaire asks carers to state whether or not a problem has occurred within the past week and to what extent the behavior was stressful to the carers using a 5-point Likert scale ranging from 0= not at all to 4 extremely stressful. The scale asks about problems such as "Asking the same question over and over" and "Comments about feeling worthless or being a burden to others". The scores for the frequency of observed behavioral problems range from 0 to 96 with higher reaction scores indicating feeling extremely bothered by the care-recipient's behavior.

Caregiver Burden

The Zarit Burden Interview (ZBI)(Zarit, Orr, & Zarit, 1985) is a 22-item questionnaire designed to assess objective and subjective levels of burden associated with providing care to a loved one. It asks questions such as "Do you feel your health has suffered because you are caring for your relative?" and "Do you feel strained when you are around your relative?" The items in this questionnaire use a 5-point Likert rating scale ranging from 0= "never" to 4= "nearly always". Scores range between 0-88 with scores ranging from 0-21 little or no burden, 21-40 mild to moderate burden, 41-60 moderate to severe burden and 61-88 severe burden This scale has excellent reliability, Cronbach's alpha, .95.

Caregiving Buffers

*Revised Experiences in Close Relationships Scale*s is an 18-item questionnaire (Collins & Read, 1996) designed to assess attachment orientation in close but not necessarily romantic relationships. The scale assesses attachment style across 3 dimensions (e.g., secure, anxious and avoidant). It uses a 5 point-Likert rating scale with 1= Not at all characteristic of me to 5= Very characteristic of me. The scale asks questions such as "I find it relatively easy to get close to others" and "I find it difficult to trust others completely". Higher scores on close and depend scales indicate secure attachment-higher scores on anxiety subscale and moderate scores on close and depend subscales indicate anxious attachment and low scores on close, depend, and anxiety subscales indicate avoidant attachment. For clarity, the questionnaires ask participants to think about their close relationships in general and not necessarily the relationship they have with their cared for loved one.

The scale contains three subscales (each subscale corresponds to six items): "close", "depend" and "anxiety" The close subscale measure assesses the degree that an individual is comfortable with closeness and intimacy. The depend subscale indicates the degree to how confident the individual feels about being able to depend on others when they need to. Finally, the anxiety subscale refers to how much an individual fears that they will be rejected and unloved by others (Collins & Read, 1996).

Coping

The Brief Approach/Avoidance Coping Questionnaire (BACQ) (Finset, Steine, Haugli, Steen, & Laerum, 2002) is a 12-item questionnaire designed to look at approach versus avoidant coping. The items use a 1 to 5 Likert scale with 1 indicating disagree completely and 5 indicating agree completely. The scale includes items across six domains such as “I say so if I am angry or sad” and “I withdraw from other people when things get too difficult”. The scores range from 12 (low approach high avoidance) to 60 (high approach low avoidance).

There are three subscales for this particular measure. They are approach, diversion, and resignation. For the approach subscale, it includes items such as “active effort to find solution” and “believing problems will decrease”. For the diversion subscale, it includes items such as “trying to forget problems” and “burying myself in work”. For resignation-withdraw scale, it includes items such as “withdrawing from other people” and “on the way towards giving up”. The approach-avoidance scores exist on a continuum which means that the total scores will indicate an individual having more of an approach style or more of an avoidant style.

Caregiver Self-Efficacy

The Revised Scale for Caregiving Self-Efficacy (Steffen, McKibbin, Zeiss, Gallagher-Thompson, & Bandura, 2002) is a 1 to 5-item measure utilized to assess the construct of self-efficacy for carers of aging adults. The scale includes three four subscales (e.g., obtaining self-efficacy for respite, self-efficacy for responding to patient behaviors, self-efficacy for controlling upsetting thoughts, and self-efficacy for completing physical tasks). The scores range from 0 to 100 with 0 indicating "cannot do at all" and 100 indicating "certain can do".

Caregiving Health Outcomes

Depressive Symptoms

Center for Epidemiologic Studies Depression Scale (CES-D)(Radloff, 1977) is a 20 item questionnaire designed to access levels of depression in non-clinical populations (i.e., carers) It asks questions such as "My sleep was restless" and "I had crying spells." The items in this questionnaire use a 4-point Likert rating scale ranging from 0 "None of the time" 1 Some or Little of the Time, 2= Moderately or Much of the time, 3= Most or Almost All the Time "Most of the time. The scores range between 0 to 60 with a score of 16 suggesting that the person is at risk for clinical depression. This measure has good reliability, Cronbach's alpha, .82.

Quality of Life.

SF-36. Mental health component score and a physical health component score (Ware Jr & Sherbourne, 1992). The Short Form 36 (SF-36) is a globally valid measure to assess physical health and well-being within the past month. It consists of 8 dimensions with scores ranging from 0-100 with higher scores indicating better quality of life. The scale uses a 5-point Likert scale with 1 =all the time and 5= none of the time.

For this study, only physical health component quality of life and mental health quality of life are being tested, Cronbach's alpha .85 and Cronbach's alpha .80. The measurement asks questions such as "During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework" and "During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (e.g., visiting friends, relatives, etc.) ?"

Data Analysis

SPSS Version 27 was used to analyze the data. Descriptive statistics including means and frequencies for each study variable were assessed across the final sample (N=56 individuals) and then for each racial group (Blacks, n=33 and Whites = 22). Analyses to assess statistical assumptions of normality (including tests for skewness and kurtosis, homogeneity of variance, multicollinearity, and linearity were conducted. Racial group statistics were compared using independent sample t-tests for each continuous variable (such as Center for Epidemiological Studies-Depression Scale) and chi-square tests for independence for categorical variables such as racial group, caregiver relationship type, and carer education level.

One participant in the sample had a missing response to an item from the Memory and Behavioral Problems Scale that asked them to rate the severity of the behavior because on the previous question they answered yes to observing a particular behavior with their cared for loved one. Therefore, the mean of the rest of their stressfulness responses (a score of 2) was taken to replace the missing data which is a technique typically employed with dealing with issues of missingness in research practices.

Age of caregiver, caregiver gender, income difficulty, and race were utilized as covariates in this research project. A series of correlations were run between caregiver stressors and health outcome variables. To test the first hypothesis that posited that caregiver stressors (i.e., caregiver self-reported care recipient memory and behavioral problems; caregiver self-report of their loved one's abilities to complete daily living activities (e.g., moving across the room, sitting and bathing) and instrumental activities of daily living (using the telephone and preparing a meal) were associated with mental health outcomes a series of multiple linear regressions were run with the health outcomes (i.e., physical health quality of life, mental health quality of life, caregiver burden and depressive symptoms) as the dependent variable. This was done if the bivariate associations between the proposed stressors and health outcomes were significant.

To the test the second hypothesis that caregiver health outcomes differed by caregiver relationship type, specifically that adult children caregivers will have worse health outcomes than spousal/partner caregivers, analysis of covariance (ANCOVA) was run to test the relationship. Before running the ANCOVA, a series of bivariate, One-Way ANOVA (analysis of variance) were run with each of the caregiver health outcomes. As it turned out, the only outcome that indicated a caregiver relationship group difference was caregiver burden. Therefore, a single ANCOVA was run which included age, gender, income difficulty, and race as covariates and post hoc analyses were utilized to assess the specific contrasts between caregiver burden by relationship type.

For the third aim (hypotheses 3A and 3B) that tested whether caregiving buffers (i.e., caregiving self-efficacy, attachment orientation and approach avoidance coping) were negatively associated with caregiver burden and depressive symptoms, but positively associated with better mental health quality of life, bivariate correlations were examined and then multiple linear regressions were run with the significant bivariate associations.

For the fourth aim (hypotheses 4A and 4B) that tested if the relationship between stressors (memory and behavioral problem severity) and mental health outcomes of depressive symptoms, caregiver burden and mental health quality of life, differed based on caregiver's levels on potential buffers of stress, a series of multiple regressions were run to test those individual interactions (moderation). To perform, each of the potential moderators and the predictor were standardized and an interaction was created for each of the nine regression models (i.e., three outcomes and three moderators).

STUDY RESULTS

There was a total of 431 attempts to complete the study survey at the time of data analysis. Due to the study utilizing electronic recruitment techniques such as social media and email communication using list-serves many potential participants were screened out because the data were created by someone using “bots” (i.e., manufactured unidentified individuals with false personal information that may have attempted to generate fake responses for the study for various purposes such as stealing information or using the study as training practice to create algorithms to access other studies to obtain money incentives, or possibly corrupt the data of the present study. Other potential participants were screened out due to not providing five hours of care per week.

After thorough examination of the survey responses by trained research personnel (contacting participants by their listed phone numbers and looking for phony data such as a responses created by a “bot” indicating that their reason for caring for their loved one was due to “Because they me”(a statement that does not make sense and likely not one that a real participant would type up) .

To obtain the percentages of “bots” versus real participants, I created a variable where I coded the cases as either 0 (human participant with completed data), 1 (human participant with incomplete data/screened out for not meeting study criteria) and 2 (bot/non-human participant). The percentages are as follows: completed human participants (n= 60 or 13.9 percent) incomplete human participants/screened out (n= 264 or 61.3%) and bot (n= 107 or 24.8 percent). Therefore, it was determined that the number of real completed participants was N =60. Additionally, the sample of sixty completed participants was reduced to fifty-six participants as four participants did not identify as either Black or White as race was included as a covariate in the analyses for this investigation.

Markedly, after testing the assumptions of normality, linearity, and multicollinearity, it was determined the mental health outcomes of depressive symptoms, and physical health component of quality of life were non-normal. However, evidence supports that multiple linear regressions such as these are actually statistically robust against normality violations and that transformations of the variables may actually lower statistical power and bias otherwise valid interpretations (Schmidt & Finan, 2018).

All of the study variables were found to be internally reliable in accordance with the standards of Cronbach's alpha where it was appropriate to assess internal consistency (a reliability of .70 or higher indicates good reliability). The statistics for the testing of these assumptions and for the reliability of the measures can be found in the Appendices section of the dissertation document in Table 1: "Tests of Assumptions of Caregiver Health Outcomes".

Table 1.

Tests of Assumptions of Caregiver Healthcare Variables

Variable	Normality (Shapiro - Wilk) (*p*)	Reliability (Cronbach 's *a*)	Homogeneity of Variances (Levene's *p*)	*Other*
Age	.42		.16	
Income Difficulty	<.001		.16	Nonnormal
ADL Total	<.001	.82		Nonnormal
IADL Total	.017	.86		Nonnormal
MBPCFREQ	.449			Normal
MBPCSEV	.004			Nonnormal
CSE PHYS	<.001**			Nonnormal
CSE RESP	<.001			Nonnormal
CSE UPS	<.001**			Nonnormal
CSE DISR	<.001**			Nonnormal
CLOSE	.288			Normal
DEPEND	.539			Normal
ANXIETY	.002			Nonnormal
CLOSDEP	.430			Normal
BACQAPP	.294			Normal
BACQDIV	.439			Normal
BACQTOT	.020			Nonnormal
Quality of Life (Phys)	<.01	.85	.85	Nonnormal
Quality of Life (Mental)	.310	.80	.32	Normal
Caregiver Burden	.240	.95		Normal
Depressive Symptoms	<.05	.82	.71	Nonnormal

Note: * $p < .05$, ** $p < .01$, *a* significance given is for Fisher's exact test due to cell sizes < 5. MBPCFREQ = frequency of care-recipient disruptive behaviors; MBPCSEV=severity of care-recipient disruptive behaviors, ADL= total score activities of daily living, IADL= total score instrumental activities of daily living, CSE PHYS=caregiver self-efficacy physical, CSE RESP = caregiver self-efficacy for obtaining respite, CSE UPS =caregiver self-efficacy for controlling upsetting thoughts, BACQAPP=approach avoidance subscale (approach) BACQDIV=approach avoidance subscale (seeking diversion)

In terms of the general sample of caregiving participants (N=56), participants were 33 (58%) were Black and 23 (42%) were White. The mean age of caregiver participant was 50 years old which is consistent with the caregiver ages described in the research literature. Also, consistently with other studies, a large majority of the sample 51 (91.1%) were women.

On average, participants estimated that they devoted 44 hours per week to caring for their loved one living with difficulties. There were 9 participants (16.1%) who indicated that their income was not enough to make ends meet, 10 participants (17.9%) stated that they made "just enough to get by," 19 (33.9%) answered that their income "keeps them comfortable but provides no luxuries", and 18 (32.1%) reported that their income "more or less allowed them to do what they want".

Accordingly, participants were also asked to report on how long they have been taking care of their loved one. Three participants (5.4%) stated that they had been caring for their loved one between 0-6 months, 7 (12.5%) participants reported to that they were caring for their loved one between six months to a year, 12 (21.4%) participants indicated that they were providing care for their loved one between 1 to 2 years, 11 (19.6%) participants reported caring for their loved ones for a length of 2 to 5 years and 23 (41.1%) participants self-reported providing care for their loved one for five years.

Although this statistic may be alarming given the limited sample size, it does fit in accordance with previous projections that length of caring for aging loved one increasing as quality healthcare is allowing aging adults to live longer (even while some are living with difficulties) than their grandparents did in previous generations.

In terms of education level, on average, participants reported that they had at least a bachelor's degree (or approximately 16 years of education). Most of the participants in this study identified as an adult child/ in law (n=28), followed by other relationship (e.g., a sister, a neighbor, a friend, or a grandchild (n =18) and then with 10 participants identifying themselves as the spouse/partner of their cared for loved one. Lastly, 28 of the 56 participants were asked about their marital status due to the question not being included in the original Qualtrics programming and of those 18 participants reported that they were married.

In terms of the study sample, Black and White caregivers did not differ greatly in the demographics of age, sex at birth, income difficulty, education level, relationship to their care-recipient loved one hours per week spent caregiving of length of time caring for their loved one (all *p*'s >.05). It should be noted that although recruitment was attempted nationwide, many participants were recruited around a mid-size research university where the majority of the population has higher educational level and income than the national average. A good number of participants were holders of a master's degree or a doctoral degree. The statistics for the independent sample t-tests on descriptive statistics for stressors, potential caregiving buffers, as well as study covariates can be found on Table 2 "Sample Descriptive Statistics of Stressors by Race and Table 3 "Sample Descriptive Statistics of Caregiving Buffers by Race" respectively. Table 4 "Caregiver Relationship Type by Race" and Table 5 "Level of Caregiver Education by Race" show the results of the chi-square test for independence for these variables across participant racial group respectively.

Table 2.

Sample Descriptive Statistics of Stressors & Health Outcomes by Race

Variable	All (N=56) Mean (std)/	White (n=23) Mean (std)/	Black (n=33) Mean (std)/	*t or* (χ^2)	*p*
Age	50.35 (12.96)	49.09 (14.21)	51.12 (11.96)	-.58	.57
Income Difficulty	2.85 (1.04)	2.70 (.93)	2.91(1.16)	-.74	.47
Hours Spent Carting	44.07 (43.35)	39.35 (36.41)	47.24 (47.26)	-.67	.50
Length of Care	3.76 (1.26)	3.87 (1.36)	3.73 (1.21)	.41	.68
Care-recipient ADL Total	4.20 (2.39)	4.61(1.78)	3.91 (2.17	1.28	.21
Care-recipient IADL Total	4.20 (2.39)	4.43 (2.39)	4.03(2.42)	.62	.54
Frequency of Disruptive Behaviors	7.95 (3.84)	8.61 (3.27)	7.48 (4.18)	1.08	.29
Severity of Disruptive Behaviors	13.75 (10.16)	16.70 (8.89)	11.70 (10.61)	1.85	.07
Quality of Life (Physical)	45.92 (6.96)	45.51(8.49)	46.34 (5.69)	-.44	.66
Quality of Life (Mental)	43.19 (7.24)	40.78 (6.30)	44.28 (7.90)	-1.77	.08
Depressive Symptoms	17.00 (10.67)	19.13 (10.57)	16.30 (11.52)	.93	.35
Caregiver Burden	34.00 (17.20)	43.35 (14.11)	27.48 (17.03)	3.67	$<.01^{**}$

Note: * *p* < .05, ** *p* < .01, *a* significance given is for Fisher's exact test due to cell sizes < 5

ADLs refer to care-recipients' abilities to perform activities of daily living as self-reported by their caregivers. IDADLs refer to care-recipients' abilities to perform instrumental activities of daily living as self-reported by their caregivers.

Table 3.

Sample Descriptive Statistics for Caregiving Buffers by Race

Variable	All (N=56) Mean (std)/	White (n=23) Mean (std)/	Black (n=33) Mean (std)	*t or* (χ^2)	*p*
CSE PHY	68.52 (22.85)	68.42(24.64)	68.58(21.61)	-.025	.980
CSE RESP	59.15(32.90)	49.39(34.40)	65.96(30.49)	-1.897	.063
CSE_UPS	67.20 (29.58)	63.47(29.76)	69.78(29.63)	-.783	.437
CSE_DISR	72.96 (24.82)	39.35 (36.41)	47.24(47.26)	-1.253	.216
CLOSE	3.74 (.75)	3.87 (1.36)	3.73 (1.21)	-1.082	.284
DEPEND	2.85 (.87)	2.71(.87)	2.94 (.87)	-.960	.341
ANXIETY	2.21(.99)	2.41 (.83)	2.08(1.08)	1.280	.206
CLOSDEP	3.29(.71)	3.16 (.73)	3.39(.69)	-1.164	.249
BACQTOT	37.85(4.89)	38.22 (4.09)	37.61 (5.42)	.457	.649
BACQAPP	21.89(3.40)	20.87(2.88)	22.61(3.58)	-1.930	.059
BACQDIV	9.29 (2.81)	10.27(2.05)	8.61(3.10)	2.243	.029
BACQRES	6.68 (3.00)	7.09(2.63)	6.39(3.25)	.847	.401

Note: * $p < .05$, ** $p < .01$, *a* significance given is for Fisher's exact test due to cell sizes < 5

Table 4.

Caregiver Relationship by Race

Race	Spouse/Partner	Adult Child/In Law	Other	Total	(χ^2)	*p*
White	5	12	6	23	.812	.666 (n.s)
Black	5	16	12	33		
Total	10	28	18	56		

Note: Familial carer relationship is broken down by spouse/partner (i.e.., being married or having a romantic relationship with care-recipient loved one), adult child/in law (i.e., being the child or daughter in law of the care-recipient parent) and other (i.e., having another familial relationship with care-recipient loved one such as being the grandchild, being the sibling, or being a close neighbor).

Table 5.

Level of Caregiver Education by Race

Race	9	12	13	14	16	18	19	20	Total	(χ^2)	*p*
White	1	2	1	2	10	3	1	3	23	7.326	.396
Black	0	5	0	4	9	7	0	8	33		
Total	1	7	1	6	19	10	1	11	56		

Note: 9=Some High School; 12=High School Completed; 13=Some College; 14=Associate's Degree; 16=Bachelor's Degree; 18=Master's Degree, 20=Ph.D

Results of the Correlations

Pearson's r bivariate correlations indicated that the score for the predictor variable frequency of memory and behavior problems was significantly correlated with mental health component of quality of life (*r* =-.36), caregiver burden (*r* = .59), and depressive symptoms (*r* = .47). For the severity of participant self-reported care recipient memory and behavior problems they were correlated with mental health quality of life, *r* = .51, and caregiver burden respectively, *r* =.67. There were no significant correlations between activities of daily living score as well as instrumental activities of daily living score with any of the caregiver health outcomes.

Therefore, only the frequency and severity of care-recipient memory and behavior problems were used as predictors in multiple regression models. A detailed list of these specific bivariate correlations can be found in Table 6 "Correlation Matrix of Covariates, Stressors & Health outcomes". To reiterate, higher levels of frequency and severity of memory and behavioral problems were associated with lower scores on the component of mental health quality of life, and with higher levels of caregiver burden and higher levels of depressive symptoms.

Notably, the physical health component quality of life was found to not be significantly associated with any of the predictor variables or the potential buffer variables and as such were not used in the later series of linear regressions.

In terms of the bivariate correlations for the potential buffer variables (i.e., attachment orientation, approach avoidance resignation, and caregiving self-efficacy, having a secure attachment orientation was significantly negatively correlated with depressive symptoms (*r* = -.42), caregiver burden (*r* = -.52) and positively correlated with the mental health component quality of life (*r* =. 56).

Caregiving self-efficacy for respite (one of the four subscales of the caregiving self-efficacy measure) was significantly negatively correlated with caregiver burden (*r* = -.60), significantly negatively correlated with depressive symptoms (*r* = -. 56) and positively correlated with mental health component of quality of life (*r* =.50).
As for approach avoidance coping resignation, (a subscale of the approach avoidance measure), coping was significantly negatively correlated with depressive symptoms (*r* =. -61) and negatively associated with mental health quality of life (*r* =-56).

All correlations for the potential buffer variables are listed in Table 7 “Correlation Matrix of Buffers on Health Outcomes” . In line with what was found in the correlation matrix of the predictor variables (Table 6) , there were no statistically significant relationships between the buffer variables and physical quality of life (all *p*-values were greater than >.05).

Table 6.

Correlation Matrix of Covariates, Stressors & Health Outcomes

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	1											
2. Income Difficulty	.10	1										
3. Hours Spent Caring	.34*	.15	1									
4. Length of Care	.25	.22	.28*	1								
5. Activities of Daily Living	-.06	-.03	-.05	.30	1							
6. Instrumental Activities of Daily Living	-.30*	-.12	-.37	.03	.54**	1						
7. Frequency of Disruptive Behaviors	.11	-.05	.28*	.19	-.03	-.23	1					
8. Severity of Disruptive Behaviors	-.01	-.22	.19	.25	-.02	-.04	.76**	1				
9.Quality of Life (Phys)	.04	-.02	.08	.09	.07	-.03	-.13	-.18	1			-
10. Quality of Life (Mental)	.19	.14	.19	-00	.09	-.02	-.36*	-.51**	-.02	1		
11.Caregiver Burden	.13	-.11	.32**	.30*	.05	-.18	.59**	.67**	-.06	-.60	1	
12. Depressive Symptoms	-.14	-.27*	-.00	.06	-.01	.03	.47**	.62**	-.27*	-.71	.61**	1

Note: * *p* < .05, ** *p* < .01, *a* significance given is for Fisher's exact test due to cell sizes < 5

Table 7.

Correlation Matrix of Buffers On Health Outcomes

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. CSE Physical	1															
2. CSE Upset	$.35^{*}$	1														
3. CSE Disruptive	.36*	.36*	1													
4. CSE Respite	.17	.21	$.68^{**}$	1												
5. BACQ Approach	.12	.07	.27	$.33^{*}$	1											
6. BACQ Div	.-04	-.21	-.17	-.16	-.14	1										
7. BACQ Res	-.30	.05	$-.33^{*}$	$-.26^{*}$	$-.41^{*}$	$-.37^{*}$	1									
8. BACQ Total	.04	-.04	-.11	-.02	$.37^{*}$	$.71^{**}$	.55	1								
9. CLOSE	-.06	-.10	$.43^{*}$	$.36^{*}$	$.25^{*}$	-.08	$-.47^{**}$	-.16	1							
10. DEPEND	.08	.00	$.40^{*}$	$.40^{*}$	-.31	-.30	$-.57^{**}$	$-.30^{*}$	.53	1						
11. ANXIETY	-.05	-.00	$-.34^{*}$	-.14	-.21	$.42^{**}$	$.68^{**}$	$.51^{*}$	$-.42^{**}$	$-.57^{**}$	1					
12. CLOSE+DEPEND	.02	-.60	$.47^{**}$	.43	$.32^{*}$	-.23	$-.60^{**}$	$-.27^{*}$	$.85^{**}$	$.89^{**}$	$-.57^{**}$	1				
13. Caregiver Burden	-.20	-.13	$-.58^{**}$	$-.60^{**}$	$-.35^{*}$	.17	$.39^{*}$	.09	$-.37^{*}$	$-.54^{**}$	$.31^{*}$	$-.52^{**}$	1			
14. Depressive Symptoms	-.09	-.02	$-.50^{**}$	$-.56^{**}$	$-.35^{*}$	.19	$.61^{**}$	$.\underline{24}$	$-.42^{**}$	$-.59^{**}$	.54	$-.58^{**}$	.61	1		
15. SF PCS	$.29^{*}$	.04	-.04	-.13	.21	-.21	$-.33^{*}$	-.18	-.08	.12	$-.\underline{25}$	.03	-.06	$-.27^{*}$	1	
16. SF MCS	.02	.09	$.55^{**}$	$.50^{**}$	$.32^{*}$	-.19	$-.56^{**}$	$\underline{-.23}$	$.56^{**}$	$.57^{**}$	-43^{**}	$.65^{**}$	$-.60^{**}$	$-.71^{*}$	-.02	1

Note: * *p* < .05, ** *p* < .01, *a* significance given is for Fisher's exact test due to cell sizes < 5

As previously stated, a series of multiple linear regressions were run testing each potential buffer that was significantly related to caregiver outcomes in bivariate analyses to see if the relationship remained after controlling for the covariates. It was found that secure attachment orientation, approach-avoidance resignation and caregiver self-efficacy for respite did predict caregiver burden, mental health component of quality life and depressive symptoms, p's < .05.The results for these series of linear regressions can be found in Tables 8A ("Linear Regression Models with Frequency of Disruptive Behaviors As Predictor of Health Outcomes") 8B (Linear Regression Models with Severity of Disruptive Behaviors As Predictor of Health Outcomes".

Table 8A.

Linear Regression Models with Disruptive Behaviors as a Predictor of Health Outcomes

	Mental Health Quality of Life			Depressive Symptoms			Caregiver Burden		
Variable	*b*	*SE b*	*β*	*b*	*SE b*	*β*	*b*	*SE b*	*β*
Age	.12	.07	.21	-.15	.10	-.17	.14	.14	.11
Female Gender	3.24	3.41	.13	-5.20	4.77	-.13	-1.63	6.59	-.03
Income Difficulty	.51	.88	.07	-2.26	1.23	-.22	-.91	1.70	-.06
Race	2.06	1.92	.14	.02	2.69	.001	-13.14	3.71	-.37
Freq of Disruptive Behaviors	-.76	.26	$-.39^{**}$	1.51	.36	$.52^{**}$	2.41	.50	$.52^{**}$

Notes: b = unstandardized beta, *β* = standardized beta. * $p < .05$, ** $p < .01$

Table 8B

Linear Regression Models with Disruptive Behaviors As A Predictor of Health Outcomes

	Mental Health Quality of Life			Depressive Symptoms			Caregiver Burden		
Variable	*b*	*SE b*	*β*	*b*	*SE b*	*β*	*b*	*SE b*	*β*
Age	.10	.07	.18	-.11	.09	-.13	.21	.13	.15
Female Gender	3.25	3.15	.13	-4.75	4.32	-.12	-.46	6.01	-.008
Income Difficulty	-.08	.85	-.01	-1.20	1.16	-.12	.67	1.62	.04
Race	1.21	1.84	.08	1.43	2.52	.06	-11.17	3.51	-.32
S Disruptive Behaviors	-.38	.09	-.51**	.69	.13	.63**	1.05	.18	.60**

Notes: b = unstandardized beta, *β* = standardized beta. * $p < .05$, ** $p < .01$

For the next hypothesis, first bivariate, one-way ANOVAs were conducted to test if there were significant differences by type of caregiver relationship (e.g., spouse/partner, adult child/in law, and other relationship on caregiver outcomes. Then, ANCOVAs were conducted on any variables were the bivariate association between caregiver relationship with care recipient and caregiver outcomes were significant. In the end, of the four ANOVAS run, only the outcome of caregiver burden indicated significant differences between the three carer relationship types F (2, 53) = 7.34, p <. 05.

The ANCOVA yielded a statistically significantly result between carer relationship type with caregiver burden, F (2, 53) = 6.66, p <.05. Therefore, post hoc analyses for pairwise comparisons (using Bonferroni correction) indicated that there were no significant differences in terms of ZBI score between adult child caregivers (M =38.44, SE = 4.85) and spouse/partner caregivers (M =40.04, SE =2.80) but both adult child and spouse/partner scores were statistically significantly higher than other carers (M =23.72, SE =3.60) η^2 .210. In essence, carer relationship group ended up explaining about 21% of the variance in caregiver burden score and that carers who are spouse/partner and adult children may experience more burden than other type carers (e.g., a friend, a sibling or a neighbor) who may not have as close a relationship with their loved ones and are less likely to be the primary carer. The results of this analysis of covariance can be found in Table 9 “Analysis of Covariance with Relationship Type By Covariates on Caregiver Burden”.

Table 9.

Analysis of Covariance With Relationship Type by Covariates on Caregiver Burden

Source	*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*Sig*	$\eta^2 p$
Corrected Model	4102.423	5	820.485	3.163	.015	.240
Intercept	2336.804	1	2336.804	9.007	.004	.153
age	120.807	1	120.807	.466	.498	.009
fem_gender	71.036	1	71.036	.274	.603	.005
income difficulty	230.715	1	230.715	.889	.350	.017
RelationCare	3455.080	2	1727.540	6.659	.003*	.210
Error	12971.577	50	259.432			
Total	81810.000	56				
Corrected Total	17074.000	55				

Note: $^*p < .05$, $^{**}p < .01$

Next, series of multiple linear regressions were run to test whether specific potential caregiver buffers of secure attachment, approach avoidance resignation (a subscale of Brief Approach- Avoidance coping measure) and caregiver self-efficacy for seeking respite (a subscale of Caregiver Self-Efficacy measure) predicted mental health outcomes. The results indicated that these potential buffers did significantly predict the three health outcomes, all *p'*s <.05. These findings can be found in Tables 10-12 ("Linear Regression Models with Secure Attachment as Buffer of Health Outcomes", "Linear Regression Models with Approach Avoidance Resignation as Buffer of Health Outcomes" and "Linear Regression Models with Caregiving Self-Efficacy for Respite as Buffer of Health Outcomes" respectively.

To determine whether secure attachment, caregiving self-efficacy for respite and approach-avoiding resignation would buffer the effects of memory and behavior problem severity score on the outcomes of depression, caregiver burden, and mental health quality of life a series of moderation analyses were conducted while controlling for the covariates of age, gender, income difficulty and race.

Table 10.

Linear Regression Models with Secure Attachment as a Buffer of Health Outcomes

	Mental Health Quality of Life			Depressive Symptoms			Caregiver Burden		
Variable	*b*	*SE b*	*β*	*b*	*SE b*	*β*	*b*	*SE b*	*β*
Age	.04	.07	.08	-.04	.11	-.05	.31	.16	.23
Female Gender	-.08	2.98	-.003	1.25	4.90	.03	8.65	6.97	.14
Income Difficulty	-.08	.83	-.01	-1.81	1.36	-.17	-.25	1.93	-.02
Race	2.29	1.75	.15	-1.26	2.87	-.06	-15.22	4.09	-.43
Secure	5.23	1.20	.53**	-5.39	2.00	-.36**	-.8.32	2.80	-.35**

Notes: b = unstandardized beta, *β* = standardized beta. * $p < .05$, ** $p < .01$

Table 11.

Linear Regression Models with Approach-Avoidant Resignation as a Buffer of Health Outcomes

	Mental Health Quality of Life			Depressive Symptoms			Caregiver Burden		
Variable	*b*	*SE b*	*β*	*b*	*SE b*	*β*	*b*	*SE b*	*β*
Age	.005	.07	.009	.06	.97	.07	.42	.15	.30
Female Gender	-3.45	3.04	-.13	7.07	4.29	.18	15.67	6.68	.26
Income Difficulty	.12	.81	.02	-1.64	1.14	-.16	-.29	1.77	-.02
Race	2.73	1.72	.18	-1.43	2.42	-.06	-15.73	3.77	-.44
BACQ-Res	-1.41	.31	$-.57^{**}$	2.39	.43	$.65^{**}$	2.91	.68	$.50^{**}$

Notes: b = unstandardized beta, *β* = standardized beta. * $p < .05$, ** $p < .01$

Table 12.

Linear Regression Models with Caregiving Self-Efficacy Respite as a Buffer of Health Outcomes

	Mental Health Quality of Life			Depressive Symptoms			Caregiver Burden		
Variable	*b*	*SE b*	*β*	*b*	*SE b*	*β*	*b*	*SE b*	*β*
Age	.12	.07	.21	-.14	.10	-.16	.17	.14	.12
Female Gender	.38	3.07	.02	.60	4.47	.02	7.65	6.28	.13
Income Difficulty	-.15	.86	-.02	-1.23	1.25	-.12	.63	1.75	.04
Race	1.43	1.84	.10	.67	2.68	.03	-12.29	3.76	-3.46
CSE_Respite	.11	.03	.49**	-.18	.04	-.54**	-2.77	.06	-.52**

Notes: b = unstandardized beta, *β* = standardized beta. * $p < .05$, ** $p < .01$

Moderation with Depressive Symptoms as the Outcome Variable

For the model looking at the outcome of depressive symptoms with caregiving self-efficacy as the moderator, there was a significant main effect of memory and behavioral problem severity on depressive symptoms and a significant main effect of caregiving self-efficacy for respite on depression. However, there was no significant interaction between caregiving self-efficacy and memory and behavioral problems on depression.

For the model looking at the outcome of depressive symptoms with secure attachment as the moderator, there was a significant main effect of secure attachment on depression but there was no significant interaction between secure attachment and memory and behavioral problems on depression.

For the model looking at the outcome of depressive symptoms with approach-avoidant resignation there was a significant main effect of memory and behavioral problems on depressive symptoms and a significant main effect of approach-avoidant resignation on depressive symptoms. However, there was no significant interaction between approach-avoidant resignation and memory and behavioral problems on depression. These results are tabled in Table 13 “Individual Linear Regression Models with Potential Buffers Moderating Effect of Severity of Disruptive Behaviors on Depressive Symptoms”.

Table 13.

Individual Linear Regression Models with Potential Buffers Moderating the Effect of Memory & Behavior Problems Severity on Depressive Symptoms

	Depressive Symptoms		
Moderator	*b*	*SE b*	*β*
Caregiving Self Efficacy for Respite	-1.02	1.22	-.09
Secure Attachment Orientation	-1.26	1.15	-.13
Approach Avoidance Resignation	1.36	1.09	.14

Notes: b = unstandardized beta, *β* = standardized beta. Each model represented here was a separate multiple linear regression model with the variable in the left column as an interaction effect with negative interaction and depressive symptoms as the outcome. Predictors, moderators, and covariates were all standardized to have a mean of 0 and standard deviation of 1 as they were on different scales. * $p < .05$, ** $p < .01$, *** $p < .001$

Moderation with Caregiver Burden as the Outcome

For the model looking at the outcome of caregiver burden with caregiving self-efficacy for respite as the moderator, there was a significant main effect of memory and behavioral problems on depressive symptoms and a significant main effect of caregiving self-efficacy for respite on caregiver burden. There was no significant interaction between memory and behavioral problems and caregiving self-efficacy for respite on caregiver burden.

For the moderation looking at the outcome of caregiver burden with secure attachment as the moderator, there was a significant main effect of memory behavioral problems on caregiver burden, there was a trending main effect of secure attachment. However, there was no significant interaction between memory and behavioral problems on.

For the moderation looking at the outcome of caregiving burden with approach avoidance for resignation as the moderator, there a significant main effect of memory and behavioral problems on caregiver burden, and no significant main effect of approach avoidance for resignation on caregiver burden. There was no significant interaction between memory and behavioral problems and approach avoidance for respite on caregiver burden. The results for this model can be found in Table 14 “Individual Linear Regression Models With Potential Buffers Moderating Effect of Severity of Disruptive Behaviors on Caregiver Burden”.

Table 14.

Individual Linear Regression Models with Potential Buffers Moderating the Effect of Memory & Behavior Problems Severity Interaction on Caregiver Burden

	Caregiver Burden		
Variable	*b*	*SE b*	*β*
Caregiving Self Efficacy for Respite	.17	1.67	.009
Secure Attachment Orientation	.18	1.60	.01
Approach Avoidance Resignation	-1.69	1.62	-.11

Notes: b = unstandardized beta, *β* = standardized beta. Each model represented here was a separate multiple linear regression model with the variable in the left column as an interaction effect with negative interaction and depressive symptoms as the outcome. Predictors, moderators, and covariates were all standardized to have a mean of 0 and standard deviation of 1 as they were on different scales. * $p < .05$, ** $p < .01$, *** $p < .001$

Moderation on Mental Health Quality of Life

For the model looking at the outcome of mental health quality of life with caregiving self-efficacy for respite there was a significant main effect of memory and behavioral problems on depressive symptoms, there was a significant main effect of caregiving self-efficacy for respite on depressive symptoms. There was also no significant interaction between memory and behavioral problems on depressive symptoms.

For the moderation looking at the outcome of mental health quality of life with secure attachment there was a significant main effect of memory and behavioral problems severity on mental health quality of life, there was a significant main effect of secure attachment on mental health quality of life. There was no significant interaction between memory and behavioral problems and secure attachment on mental health quality of life.

For the moderation looking at the outcome of mental health quality of life with approach avoidance for resignation there was no significant main effect of memory and behavioral problems on mental health quality life, there was a significant main effect of approach avoidance resignation mental health quality of life. Details on the results can be found in Table 15 " Individual Linear Regression Models with Potential Buffers Moderating Effect of Severity of Disruptive Behaviors on Mental Health Component of Quality of Life" in the appendices of this document.

Table 15.

Individual Linear Regression Models with Potential Buffers Moderating the Effect of Memory & Behavior Problems Severity Interaction on Mental Health Quality of Life

	Mental Health Quality of Life		
Variable	*b*	*SE b*	*β*
Caregiving Self Efficacy for Respite	-.33	.91	.04
Secure Attachment Orientation	.57	.77	.09
Approach Avoidance Resignation	-.22	.82	-.03

Notes: b = unstandardized beta, *β* = standardized beta. Each model represented here was a separate multiple linear regression model with the variable in the left column as an interaction effect with negative interaction and depressive symptoms as the outcome. Predictors, moderators, and covariates were all standardized to have a mean of 0 and standard deviation of 1 as they were on different scales. * $p < .05$, ** $p < .01$, *** $p < .001$

DISCUSSION

Overall, these findings are consistent with extant literature that posits that providing carework is affected by a carer's ability to manage household and health responsibilities (financial and personal) as needed for their care-recipient aging loved one who may or may not be living with difficulties (e.g., living with memory and behavioral problems, diabetes mellitus, traumatic brain injury, dementia, cancer, and arthritis) while also meeting their own personal needs (Aloweni et al, 2019; Feast et al., 2016; Gerain & Zech, 2019) .

As evidenced in the study sample statistics, participants on average are spending approximately the equivalent of a forty-hour work week to provide care for their loved one even if they have to reduce their hours of employment or resign from their position altogether which may result increased income difficulties. Although a majority of this particular sample have more salaried careers rather than part-time jobs there may still be limitations when it comes to asking for additional paid time off or taking an extended lease to care for their loved ones as needed and especially if the difficulties (e.g., cancer or stroke) that they are living with increase (Lahaie Earle & Heymann, 2013; Pope et al., 2017).

Moreover, the majority of study participants self-reporting that they have been taking care of their aging loved ones for as much as five years or longer. As previously iterated, this occurrence makes sense because of advanced medicine and the increased availability of healthcare enabling people to live longer. However, this also means that familial carers are having to expend their financial, social, and emotional resources to accommodate their care recipient love ones needs (Sun et al.,2009; Mudrazija, 2019).

Thusly, this long-term depletion of resources may result in severe consequence to carer's physical and mental health as well as their financial future (e.g., reducing income, paying high insurance premiums for health care). Many carers are more at risk for developing hypertension, high blood pressure, diabetes mellitus, and may experience increased depressive symptoms, and feelings of isolation that may be exacerbated by increased caregiver burden (Chang et al., 2010; Conde-Sala et al, 2010; Doty& Janus, 2018).

The results of this research study indicate that viable coping mechanisms such as caregiver self-efficacy, approach-avoidance coping, and attachment orientation may be potentially protective against carer negative mental health outcomes when dealing with stressors such as care-recipient loved one's disruptive behaviors (e.g., asking the same questions over and over again, refusal to bathe and get dressed, asking for food when they forgot that their carer has just fed them, etc.)

In terms of the stressors as predictors of caregiving mental health outcomes it was found that carer participant's self-report of their loved ones abilities to complete activities of daily living (e.g., bathing, sitting, dressing, and toileting) and instrumental activities of daily living (preparing meals, balancing a checkbook and household expenses) were not significantly related to caregiver health outcomes. Therefore, the hypothesis that stated that care-recipient's ability to complete everyday tasks would negatively affect carer's health outcomes was not supported.

Possibly, this null finding may due to the study's limited sample size (lower statistical power to find effects) or, it may be due to carer's perception that aging loved ones will need increased assistance as they age and that assisting their aging loved ones is very much part of their normal responsibilities as carers.

In other words, carers may perceive little difficulty in helping their loved one to move across the room, or talk to someone on the telephone but may perceive greater difficulty and frustration if they have to constantly keep their loved one from wandering onto a busy street or having to fight with them in order to put on clothes to travel for a doctor's visit. As a result, it makes sense that carer's self-report of the frequency of care-recipient loved one's disruptive behaviors as well as the severity of those behaviors was positively associated with increased caregiver burden, lower mental health quality of life, and increased depressive symptoms.

Another factor that may influence carer's perceptions of stress may be their relationship. type. There is research to show that familial carers of aging loved ones are more likely to be either the spouse/partner or the adult child/in law as they tend to have a closer relationship than family or friends outside of the immediate family (Brown et al., 2013; Brown et al., 2016).

Although it is beyond the scope of this work, in countries with more communal cultures like China, Mexico, or Haiti, there is the cultural expectation that children will grow up to care for their aging parents in a tradition called filial piety (for Asian cultures) and familismo for Latinx(a) carer relationships (Lee et al., 2018; Liu et al., 2017). On the other hand, it may be more common practice in individualistic cultures like the United States or the United Kingdom that adult children will opt to place their parents in a nursing home or an assisted living care facility rather than have their parents live with them at home and care for them there (Lightfoot & Moon, 2020).

However, in today's times, there are more adult children/in law who fulfilling the role of primary caregiver of their aging parent (either caring for them in their home or traveling to their parent's home to care for them) while also managing the care of their young children. Originally this population was conceived as the "sandwich generation" because adult child caregivers felt immense pressure from pivoting between caring for both their parents and children all the while managing the pressures of career and maintaining a household (Solberg et al., 2014).

More currently, the term multigenerational caring has been coined to be more culturally inclusive to better accommodate more diverse family structures (e.g., blended families; three different generations living in the same household). Importantly, previous literature may not have taken into account that caring responsibilities can be shared between and within the generations of the family (Boyczuk et al., 2016, Cohen et al, 2019; Drentea, 2019). In other words, in exchange for the grandparents providing care for their young grandchildren, their adult children care for them and shoulder the financial responsibilities (Drentea, 2019).

Thusly, the hypothesis that a familial carer's perception of carer responsibilities and appraisals of stress differs by relationship type was partially supported. To elaborate, there were no statistically significant differences in ratings between spouse/partners and adult children/in law, however it was revealed that there were differences between in appraisals of burden between spouse/partner, adult children/in law and other carers.

It may that other type familial carers may report lower appraisals of stress compared to spouses/partners and adult children because it is more likely that they are not the primary caregiver of their aging loved one and in fact may be sharing in caregiver responsibilities and thusly lessening their load and stress level. One emerging population of first-time carers are younger "Millennial and Generation- Z individuals who may be caring for their grandparents as a way to offer respite to their grandparent's spouse (i.e., their other grandparent) or adult child (i.e., their parent(s)) (Flinn, 2018; Reed et al, 2020).

Firstly, in terms of the findings with potential buffers against negative mental health outcomes for carers, there was support that having a secure attachment relationship orientation was associated with having less perceived caregiver burden, better mental health quality of life and fewer depressive symptoms. Having a secure attachment orientation means that an individual will likely be better at assessing their own needs when problems arise in their relationships (both platonic and romantic) and are more likely to seek out social support resources (Bowlby 1982; Chen et al., 2018).

Therefore, when it comes to carers feeling secure in their relationship to seek support or respite (e.g., asking another trusted family member or neighbor to stay with their loved one while they run some personal errands or travel to a doctor's appointment) there is more potential to notice and address problems or obstacles for the care-recipient, and or, the carer before they escalate and become psychologically overwhelming.

It is also understandable that caregiver self-efficacy has been found to be another potential buffer against negative health outcomes for carers. Familial carers who feel confident that they can manage the care for their loved ones have also been found to be better at controlling negative thoughts (e.g., such as feeling frustrated or wishing that someone else was caring for their loved one living with Alzheimer’s Disease who may constantly wander, curse at their carers and be physically aggressive towards them) and were better at seeking support, self-care, and respite when they needed to (Hausler et al., 2018; Hopps, et al., 2017).

Lastly, carers who took an approach avoidant resignation style (erring on more of an avoidant style) were also found to have higher scores on seeking respite likely because taking a more avoidant style (approach-avoidance exists on a continuum) may enable familial carers to compartmentalize their carework stress until they are able to seek respite once their carework duties end. All in all, more work should be done to further explore these viable buffers which perhaps may turn into important interventions such as holding focus groups where a panel of carers could discuss strategies for protecting their mental health and increasing healthy aging for themselves and their loved ones who they care for.

Finally, the fourth aim hypotheses that carer buffers (caregiving self-efficacy for respite, secure attachment orientation, and approach avoidance coping for respite) would moderate the levels of carer stressors (memory and behavioral problems severity) were not supported. None of the interactions for each of the individual regression models were statistically significant. However, there were several models in the analyses (as described in the results section) where there were significant main effects for both the stressor and the potential buffer variables.

These several significant main effects might indicate that memory and behavioral problem severity and the three potential buffers seem to be individually explaining a good percentage of the variance in the mental health outcomes. The implication may be that if the sample size were to increase there may be a substantial amount of statistical power to better detect significant interactions.

Importantly, it is necessary to talk about lessons learned from the recruitment. Although there were attempts to collect a nationally represented and racially diverse sample, most of the participants who completed the study resided in the southeastern region of the United States (i.e., the majority of population in these states are either Black or white). The recruitment took place during the height of the global Covid-19 pandemic when many individuals were quarantined and working remotely.

Therefore, in the interest of safety as well as practicality, most of the recruitment took place online via research personnel's (a majority of whom are Black) social and professional networks (e.g., academic listservs, emailing local nonprofits such as Alzheimer's of Central Alabama, as well as community centers, churches, fraternities and sororities).

Going forward, it has been proposed that an additional question will be added to the existing study questionnaires (where the data for this dissertation project came from) so that participants can indicate where they learned about the study (e.g., an academic listserv, their local church, a clinic, or word of mouth). Based on these results, it will be easier to improve and expand our recruitment strategies to drastically increase and diversify our sample once we can better examine the relationship between participant race and what was the most popular recruitment source recruitment strategy (e.g., physical flyer for younger individuals, church announcements for aging individuals).

Secondly, there may have been more missed opportunities to recruit familial carers who work hourly jobs outside of the home and may live in more rural areas with less access to the internet and other resources. These situations likely made for more hardship and stress for these individuals during the height of the Covid-19 pandemic. As the United States starts to open up again as more people are able to get vaccinated, it is important that recruitment efforts target individuals who are living in these remote areas. For example, research personnel may decide to have in-person meetings with community leaders in these areas to better facilitate culturally sensitive recruitment and participation.

Additionally, the study flyer will be adapted so that participants will be able to have their own individual study link after providing us with their name and email address. This should discourage individuals from creating “bots” to obtain sensitive information or use the study as practice to infiltrate larger studies in order to get a monetary incentive and or corrupt the data.

Research Limitations

The first limitation of this study was the data are cross-sectional and therefore no direct conclusions about causations with the predictors and the outcomes can be made. Another important limitation was the low sample size (N=56). Although there were about four hundred attempted responses to the online survey which provided the data for this project only about 60 were identified as real human respondents and not “bots” that anonymous individuals created to possibly corrupt the study data or steal sensitive information. Consequently, having the small sample size meant less statistical power to detect additional relationships (some of these were trending instead of significant) between the variables and perform more complex analyses which may have given us additional insight about the participating familial carers experiences.

A third limitation of the study that has already been described in this dissertation work is that our particular sample lacked external validity as our participants had higher income level and education compared to the national average. Thusly, these carer participants differed very little in terms of income difficulty and support (e.g., financial such as having long-term care insurance, and or, social: having family nearby to share in caring responsibilities with the primary caregiver) that may have also been protective resources against experiencing worse mental health outcomes that may have been associated with having fewer financial resources.

The final sample (N=56) only comprised of Black and White racial groups. It is likely that Black participants were over-sampled as most participants resided in the Deep South region of the United States. Additional research will have to be done to assess these realities in a more racially diverse context (How does the perception of familial carer responsibilities and experiences differ by people who identify as Asian-American, Asian-Pacific Islander and or Latinx?) especially Latinx(a) Americans are the fasting growing racial group in the United States. How might the practice of “familismo” affect the relationship dynamics between adult child/in law and their aging parent loved ones?

Due to the sample majority identifying as a woman (n=51), no viable comparisons between women and men’s experiences as familial carers could be made. It may be interesting to see how men approach carer responsibilities in the coming decades as we are seeing more men of younger generations normalize men becoming nurturers by sharing more in the responsibilities of housework and caring for their young children with their partners.

This dissertation research was limited because participants were interviewed by completing a survey online rather than meeting with research personnel face to face to talk about their experiences. As seen in similar studies, there is always potential for participants to fall prey to responder bias (participants may have self-reported information according to what they believe would be favorable to the investigators of this study).

Also, participants may not have answered as honestly as they could (i.e., self-report bias) because perhaps they did not fully understand some of the questions that were being asked, or may have felt that answering a battery of questionnaires even though compared to other studies was a lot less involved may have been too much of a time commitment for them so a few participants may have just tried to answer everything as quickly as possible to complete the study and receive their participant incentive.

Notwithstanding, it was impossible to draw inferences about participants appraisals of carer stressors based on the reason their care-recipient loved ones needed care. Though participants were asked about the reason their loved ones needed care, the question was constructed as a fill in the blank response so it would be difficult to ascertain modes of central tendency to quantify these differences among participants. It was also observed that some participants responses were vague and difficult to categorize (e.g., “They are very sick, or “They live all by themselves). In other words, if I was able to quantify this data it may have provided insights into number of hours per week caring (i.e., being more than twice the average reported in the literature) as well as length of care. So, this is another limitation of this research.

Finally, another important limitation is that the statistically significant results described in the results section of this dissertation should be interpreted with caution. Given that these data come from a limited sample size and there were multiple analyses run with each study hypothesis there is an understandable risk of committing Type I Error. However, if this study were able to be re-run with a much larger sample size one should still see similar outcomes.

Implications & Future Directions

Despite these limitations (most of which are typical for a cross-sectional, survey research design) the findings of this dissertation work have potential seeds for growing large contributions to existing caregiving and the attachment literature.

One of the strengths of this research is that the construct of attachment orientation has potentially been introduced a novel addition to the buffer component of the Stress Process Model which served as the study's framework. How carers conduct themselves in their previous personal relationships has implications for how they manage their carer relationships with their care-recipient loved ones especially when matters become stressful (e.g., increasing health complications with their care-recipient loved ones, or having to make swift financial decisions to support their care-recipient's physical and psychological difficulties) .

One possible next step is to add a component to examine the past and present of the long-term relationship in relation to familial carer's attachment orientation. More specifically, in the context of aging adult caregiving relationships, it would be interesting to see if there were complications in the caregiver -care recipient relationship before the onset of comorbidities and illnesses. In other words, how might past relationships with the care recipient predict current relationship or lack thereof with the care recipient? Another possible component to add to attachment theory is to include a measure of relationship stress.

Therefore, how might relationship stress influence the vitality of the caregiver – care recipient relationships? Could one's ability to handle relationship stress affect attachment and relationship satisfaction? Or, is it the case that attachment style affects the ways one handles relationship stress? Taken together, it seems that attachment style combined with the stress process model theory will be able to better assess the nuances of the important caregiver- care recipient relationships. As the U.S population of aging adults continues to increase it is now more important than ever to promote health and wellness for both the caregiver and the care recipient. Future research should look at the history of attachment as well as the dynamics of stress to better promote successful aging and potentiate more quality relationships between aging adults and their loved ones.

Secondly, another strength of this research is that the data were broken down by carer relationship type. Much of the aging literature largely focuses on adult child/in law and spouse/partners carer experiences a lot more than "other"carer-care-recipient relationship (e.g., a sibling, grandchild, a close friend, or neighbor) individual who may also be significantly contributing to the care of their aging loved ones. For our study, the “other” carer relationship type ended up being the second largest participant group after adult child/in law. This implication may reflect the recent trend of caring becoming a shared responsibility and the notion that adult-child/in law and spouse-carers may not always serve as the primary carer.

A third possible strength of this carer research is that carers completing these series of questionnaires may have allowed themselves the opportunity to reflect on their experiences, challenges, mastery of caring through self-efficacy and personal needs as carers for their loved ones. In the larger parent study from where the data of this project came, participants were also asked questions about their satisfaction with their social support as well their experiences as carers during the Covid-19 pandemic and were asked to reflect on these important changes.

In addition to receiving their participant incentive, all participants received a list of resources (financial, psychological, and social). One participant remarked (while research personnel were processing their incentive) that being provided these resources made them feel more supported and seen because carework is often thankless.

Thusly, a noted strength of this research is that the purpose was ultimately to obtain information about carer mental health and wellness to use as leverage in future directions that will hopefully continue this work as more of a mixed methods design that will include questionnaires that are both quantitative and qualitative to better probe carers about their experiences.

More work needs to be done to further explore the changing realities of carework (there is an influx of younger millennial and generation Z carers caring for their parents, and or, in some cases, grandparents while also trying to navigate the economy and obtain employment opportunities in the aftermath of a global pandemic) and come to terms with the reality that if they are not caring for a loved one now, they will likely know someone their age who is already or will be a carer.

As previously stated, in approximately ten short years, the population of aging adults will outnumber their adult children for the first time implying that there great concerns about whether there will be enough people to properly care for these individuals for a longer time than previously experienced by people from previous generations (e.g., “The Silent Generation: people typically born between the Great Depression and before the end of World War 2).

This is important because familial carework continues to save the United States economy hundreds of millions of dollars (as opposed to utilizing resources such as government hospitals and hospices).

Therefore, in order to ensure better health and vitality for familiar carers and their aging loved ones, more research should be conducted to further develop interventions that provide support and resources to carers through strategies to strength mental health in order for healthy aging to be more of a possibility for familial carers and the loved ones they care for.

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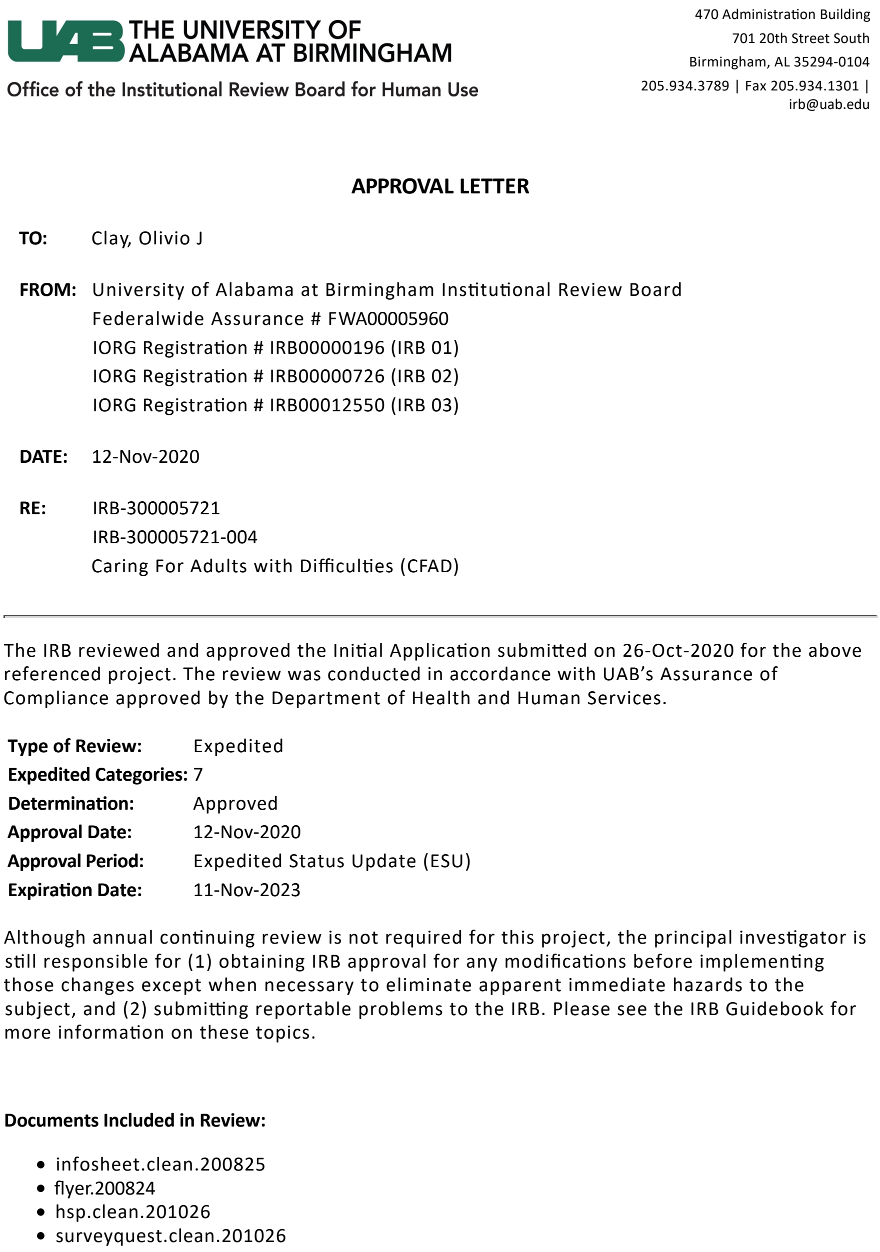
APPENDIX A

APPROVAL LETTER



THE UNIVERSITY OF
ALABAMA AT BIRMINGHAM
Office of the Institutional Review Board for Human Use

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701 20th Street South
Birmingham, AL 35294-0104
205.934.3789 | Fax 205.934.1301 |
irb@uab.edu

APPROVAL LETTER

TO: Clay, Olivio J

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance # FWA00005960
IORG Registration # IRB00000196 (IRB 01)
IORG Registration # IRB00000726 (IRB 02)
IORG Registration # IRB00012550 (IRB 03)

DATE: 12-Nov-2020

RE: IRB-300005721
IRB-300005721-004
Caring For Adults with Difficulties (CFAD)

The IRB reviewed and approved the Initial Application submitted on 26-Oct-2020 for the above referenced project. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services.

Type of Review:	Expedited
Expedited Categories:	7
Determination:	Approved
Approval Date:	12-Nov-2020
Approval Period:	Expedited Status Update (ESU)
Expiration Date:	11-Nov-2023

Although annual continuing review is not required for this project, the principal investigator is still responsible for (1) obtaining IRB approval for any modifications before implementing those changes except when necessary to eliminate apparent immediate hazards to the subject, and (2) submitting reportable problems to the IRB. Please see the IRB Guidebook for more information on these topics.

Documents Included in Review:

- infosheet.clean.200825
- flyer.200824
- hsp.clean.201026
- surveyquest.clean.201026

- pptletter.201026
- phonescript.201026

To access stamped consent/assent forms (full and expedited protocols only) and/or other approved documents:
1. Open your protocol in IRAP.
2. On the Submissions page, open the submission corresponding to this approval letter. NOTE: The Determination for the submission will be "Approved."
3. In the list of documents, select and download the desired approved documents. The stamped consent/assent form(s) will be listed with a category of Consent/Assent Document (CF, AF, Info Sheet, Phone Script, etc.)