THE FAMILY AND INTIMATE PARTNER – HEALTH PATHWAYS OF FILIAL CAREGIVING

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DEDICATION

For Mom and Dad,

Thank you for always believing in me when I didn't always believe in myself. I could not have accomplished this journey without your constant love and encouragement.

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As I close this chapter of my life and look back and reflect on my time in graduate school, I cannot help but be overcome with gratitude for the relationships I have had the opportunity to build along the way. This process would not have been possible without the support of the many amazing people I have been able to meet and learn from over the last few years.

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ABSTRACT

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This study examines the associations between the quality of adult filial caregivers' family and intimate partner relationships and caregivers' health behaviors, mental health, and physical health. Structural equation modeling was used to test mediating pathways connecting filial caregivers' close family and intimate partner relationship quality and physical health outcomes. Secondary data from the National Survey of Midlife Development in the United States (Ryff et al., 2012) were used to examine the health outcomes of adult respondents (n = 275) who experienced caregiving for a parent or parent-in-law in the last 12 months. Results included a significant mediation effect of close family and intimate partner relationship quality and physical health, through mental health; health behaviors did not produce a significant mediation effect. Clinical implications and recommendations for future research are presented for family therapists and other family professionals who work with filial caregivers, emphasizing the potential benefits of incorporating family and couple therapy into treatment.

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CHAPTER I

INTRODUCTION

Within the United States, approximately 65.7 million individuals serve as a caregiver to a family member (National Alliance for Caregiving & American Association of Retired Persons, 2009), and about 90% of the long-term care of family members is provided by unpaid, informal caregivers (Institute on Medicine, 2008). Of these family caregivers, 36% report caring for a parent and 8% report caring for a parent-in-law (National Alliance for Caregiving & American Association of Retired Persons, 2009). As individuals are continuing to live longer, the number of individuals who serve as filial caregivers, specifically for a parent or parent-in-law, will likely continue to increase (McCarty, Hendricks, Hendricks, & McCarty, 2013).

Research has found that the act of caregiving for a family member, including a parent, can lead to negative health effects, such as increased levels of stress, depression, and caregiving burden (Lin, Chen, & Li, 2013), as well as lead to caregivers engaging in behaviors that can be detrimental to their health (Gallant & Connell, 1997; Vitaliano, Zhang, & Scanlan, 2003). Further, the filial caregiving experience is a family issue, affecting not only the relationship between the caregiver and care recipient, but also the relationship between the caregiver and their own families and spouses (Wittenberg & Prosser, 2016). The quality of these relationships can affect the caregiver's health and their ability to effectively carry out their role of caring for a family member (Wittenberg & Prosser, 2016).

While research has found that family and marital relationships can affect the experience and health of the individual providing care (e.g., Kang & Marks, 2016; Marks, Lambert, Jun, & Song, 2008; Quinn, Clare, & Woods, 2009; Scharlach, Li, & Dalvi, 2006; Wittenberg & Prosser, 2016; Zehner Ourada & Walker, 2014), research has tended to focus less on caregivers' relationships other than those with the care recipient. For example, research has often failed to include caregivers' relationships with intimate or long-term partners, focusing instead on spousal caregivers (Bastawrous, Gignac, Kapral, & Cameron, 2015). One of the most highly cited studies in the area of family caregiving belongs to Schulz and Beach (1999), and focuses solely on spousal caregivers. In addition, the caregiving literature has lacked a focus on the effects of filial caregiving relationships on caregivers' own health processes (Bastawrous et al., 2015).

Broadly, existing research has failed to identify the causal mechanisms by which family relationships affect health (Carr & Springer, 2010). This is additionally true for the literature exploring health outcomes for filial caregivers (Kang & Marks, 2016). These mechanisms are especially important for filial caregivers as adult child caregivers have been found to focus less on taking care of their own health when caring for a parent, when compared to their peers who are not serving in a caregiving role (Vitaliano et al., 2003).

The present study aims to address these gaps in the literature, specifically how the quality of adult child caregivers' family and intimate partner relationships are associated with caregivers' health behaviors, mental health, and physical health. Findings from the proposed study could potentially lead to improved intervention by family therapists and other family professionals working with individuals caring for a parent or parent-in-law.

The results could also potentially point to the value in emphasizing to filial caregivers the importance of maintaining healthy family and spousal/partner relationships, as well as positive health behaviors, throughout the caregiving process in order to maintain their own health and ability to deliver quality care to the care recipient.

Statement of the Problem

Approximately four million individuals provide informal care to older adults in the United States (National Alliance for Caregiving & American Association of Retired Persons, 2004), and it is expected that the demand for these caregivers will have increased by about 85% between the years of 2000 and 2050 (Department of Health and Human Services and Assistant Secretary for Planning and Evaluation, 2003). Among individuals providing care, the stress of caregiving can lead to their engaging in unhealthy behaviors, with these health behaviors serving as an influencer of caregivers' overall health (Gallant & Connell, 1997; Vitaliano et al., 2003). In addition, while it is known that the relationship the caregiver has with the care recipient, as well as their spouse, affects the caregiver's health (Fauth et al., 2012; Kang & Marks, 2016; Marks et al., 2008; Quinn et al., 2009), less is understood about how other close relationships in a caregiver's life may affect their health as they care for a parent (Bastawrous et al., 2015). It is therefore important to better understand how caregivers' health behaviors aid in explaining the effects of close family relationships on health for caregivers. This is especially important in order to provide more effective mental health support for caregivers and their families, specifically since it is known that these caregivers tend to experience more mental and physical health problems than their non-caregiving peers (Pinquart & Sorensen, 2003). Despite this knowledge, though, the information that

medical providers give these caregivers about the effects their role can have on their health is often limited (Roth, Fredman, & Haley, 2015). A change in this trend is necessary in order to prepare the increasing number of upcoming caregivers to better manage their health.

Overall, the family lens is often used when discussing the experience of placing a family member in hospice care, but less so in other experiences of adulthood, such as caregiving at times other than at the end of life (Wittenberg & Prosser, 2016). As the number of filial caregivers increases, it will be important to explore the relationship between the broader family system and the health outcomes of the caregiver, as well as how the health behavior choices caregivers make may explain associations between close family relationships and health outcomes for this population. The current study aims to add to the literature in this area by investigating caregivers' family and intimate partner relationships in order to take into consideration the effect of the broader family system on the filial caregiving process.

Purpose of the Study

The purpose of the present study is to investigate how the quality of adult filial caregivers' family and intimate partner relationships is associated with caregivers' health behaviors, mental health, and physical health. The following research question was used to guide this study: Do filial caregivers' health behaviors mediate the effects of close family and intimate partner relationship quality on their health outcomes?

Based on the existing literature, the researcher hypothesizes the following mediation pathways (see Figures 1 and 2 in Appendix A):

1. A significant, direct pathway between close family and intimate partner relationship quality and health behaviors;
2. A significant, direct pathway between health behaviors and health outcomes;
3. A nonsignificant pathway between close family and intimate partner relationship quality and health outcomes, whereby a significant indirect pathway is hypothesized between close family and intimate partner relationship quality and caregiver health outcomes, as mediated by caregivers' health behaviors.

In summary, the present study hypothesizes an indirect, mediation relationship, whereby health behaviors mediate the relationship between close family and intimate partner relationship quality and the mental and physical health of filial caregivers.

CHAPTER II

LITERATURE REVIEW

Filial Caregiving

As parents grow older, their adult children often take on more of a primary role in their health, often taking on the role of filial caregiver (Umberson, Crosnoe, & Reczek, 2010). Filial caregivers are defined as adults who are providing care for a parent or parents (McCarty et al., 2013). According to data collected in 2009, 36% of the individuals in the United States currently in a family caregiving role reported caring for a parent (National Alliance for Caregiving & American Association of Retired Persons, 2009), while data collected in 2010 showed that about 44% of caregiving Americans were caring for a parent (Connidis, 2010). While it has often been daughters who provided the majority of care to parents in the past, men are increasingly becoming more involved in the caregiving process (McCarty et al., 2013). This is primarily due to being their parents' only child, not having any sisters, or being the sibling living closest to their parents (Campbell & Martin-Matthews, 2003).

The role of filial caregiver can be a complex one with unique issues stemming from the distinct dynamic between parent and child, including the shared history and life experiences that inevitably accompany the relationship (Given, Kozachik, Collins, DeVoss, & Given, 2001). Furthermore, many of the adults taking on filial caregiving roles are in middle or late adulthood (Lashewicz, 2014) and must learn to balance the stress of raising their own family with their time spent caring for their parent (Umberson & Montez, 2010).

Health Outcomes for Family/Filial Caregivers

There have been mixed, sometimes contradictory, results on the health effects of providing care for a family member. There has also been a lack of studies focusing specifically on the relationship between health habits and the caregiving experience (Schulz & Sherwood, 2008). In general, there are two overall opposing hypotheses that are used to investigate the health impact of caregiving on caregivers. One hypothesis is the healthy caregiver hypothesis, which points to the idea that individuals who become caregivers are healthier prior to taking on the role and maintain physical activity, and therefore, their health, through their caregiving role (Fredman, Doros, Ensrud, Hochberg, & Cauley, 2009). A caregiver may also work to keep themselves healthy so that they can carry out their role effectively. The second hypothesis is that of the caregiver-stress hypothesis, which asserts that caregivers experience declines in their health due to the stress that comes with the caregiving role, with this stress increasing with the more caregiving activities that the caregiver engages in (Fredman et al., 2009).

Negative Health Outcomes

The role of caregiving, whether for a parent or another family member, is often accompanied by stress. For example, adult caregivers display higher levels of stress and depression, lower levels of subjective well-being and self-efficacy, and worse physical health than their peers who are not caregiving (Pinquart & Sorensen, 2003). It has been reported that somewhere between 40% and 70% of family caregivers experience clinically significant symptoms of depression (Zarit, 2006). In addition, many adult caregivers report experiencing a decline in health as a result of caregiving, with the number of individuals reporting this experience doubling when they have been caregiving

for 5 or more years (National Alliance for Caregiving & American Association of Retired Persons, 2009). Approximately 11% of family caregivers report that being in a caregiving role has led to declines in their physical health (Center on Aging Society, 2005). In a highly cited study, it was found that caregivers of spouses experienced higher rates of mortality as a result of the strain that comes with the role (Schulz & Beach, 1999). The negative impacts on a caregiver's health have been found to vary based on the specific ailment the care recipient is suffering from. For example, caring for an individual with dementia has been found to lead to more depression and distress for the caregiver than caring for an individual without dementia (Ory & Hoffman, 1999).

Adults who are caregiving for their parents experience an increased risk for psychological and mental health issues compared to non-caregivers (Amirkhanyan & Wolf, 2006). In addition, as one's caregiving burden increases, so does their level of depression (Lin et al., 2013). For instance, while transitioning into a caregiving role for a spouse, parent, or child, caregivers experience increasing levels of symptoms of depression (Marks, Lambert, & Choi, 2002). Moreover, many middle-aged individuals, specifically a large number of females, often deal with the stress of caregiving for a parent while simultaneously coping with the stress of taking care of children and a spouse (Umberson & Montez, 2010).

In addition to the stress that caregivers experience, caregivers may also focus less on taking care of their own health than non-caregiving adults. In a study of spousal caregivers, it was found that caregivers engage in unhealthy behaviors, such as attending fewer of their own medical appointments and eating less healthily (Burton, Zdaniuk, Schulz, Jackson, & Hirsch, 2003). It has also been found that the stress of caregiving for

a parent during middle adulthood can lead to increased engagement in unhealthy behaviors, including spending more time being sedentary, consuming greater amounts of alcohol, and smoking (Gallant & Connell, 1997; Vitaliano et al., 2003).

Fredman et al. (2009) conducted a study with a sample of elderly female caregivers, finding that the caregivers engaged in lower intensity care activities experienced more decline in their physical functioning than non-caregivers, while the caregivers engaged in higher intensity care activities experienced higher levels of stress but higher levels of physical functioning. The authors interpreted these results as supporting the healthy caregiver hypothesis, or the idea that individuals who become caregivers are healthier prior, and as a result, maintain their health as they provide care (Fredman et al., 2009).

Positive Health Outcomes

While much of the past caregiving research has focused on the negative health outcomes for family caregivers, there has been a recent shift towards focusing on the positive health outcomes that can result from providing care to a family member (Roth, Dilworth-Anderson, Huang, Gross, & Gitlin, 2015). For example, researchers have found that many family caregivers report experiencing positive health effects as a result of providing care, such as finding meaning and purpose through the experience (Wittenberg & Prosser, 2016). Marks et al. (2002) found that when transitioning into a caregiving role for a parent, women reported experiencing an increase in life purpose. It has also been found that self-efficacy may account for caregivers' experiencing of positive caregiving experiences (Semiatin & O'Connor, 2012), as well as that different demographic groups

experience varying amounts of positive caregiving activities when caring for a family member (Roth, Dilworth-Anderson, et al., 2015).

A recent study by Roth, Haley, Hovater, Perkins, Wadley, and Judd (2013) posits that individuals providing care for a family member may actually live longer than individuals who do not provide care for a family member. Research focused on the mortality rates of caregivers in general compared to non-caregivers found that caregivers experiencing high stress and non-caregivers had a higher mortality risk than caregivers experiencing lower levels of stress (Fredman, Cauley, Hochberg, Ensrud, & Doros, 2010). Furthermore, the caregivers who reported lower levels of stress experienced a significantly lower mortality risk than non-caregivers. The authors of the study point to these results when proposing that mortality risk in caregivers could possibly be due to the level of stress experienced by caregivers, rather than the act of caregiving itself. O'Reilly, Rosato, Maquire, and Wright (2015) similarly found that a sample of family caregivers experienced a lower mortality risk than participants in the study who were not caregivers or who reported having any chronic health issues. Furthermore, one study of women caregivers found that caring for a parent and caring for a spouse in one's home was not associated with mortality, while caring for someone outside of one's home was related to a lower mortality risk for caregivers (Caputo, Pavalko, & Hardy, 2016).

Summary: Health Outcomes

Roth, Fredman, and Haley (2015) emphasized the importance of beginning to focus on conducting research with a focus on being more realistically balanced between negative and positive health effects for family caregivers. As the need for family caregivers increases, family members need to be effectively informed about the complex

experience of caring for a family member (Roth, Fredman, et al., 2015). Some of these areas that need more research in order to best educate filial caregivers include the mental and physical health outcomes of serving as a caregiver (Pinquart & Sorensen, 2003), as well as the impact that close family relationships (Wittenberg & Prosser, 2016) and unhealthy behaviors, which filial caregivers have been found to be at risk of engaging in (Gallant & Connell, 1997; Vitaliano et al., 2003), can have on these health outcomes.

Impact of Family Relationships on Health of Family Caregivers

Caregivers' relationships can affect their health as they provide care for a family member. Specifically, the relationship between the caregiver and the care recipient can affect the caregiver's health (Wittenberg & Prosser, 2016). Other family relationships, including those with intimate partners and family members other than the care recipient, are not considered as often, but can affect the caregiver's health as well.

Relationship with Caregiving Recipient

The relationship between the caregiver and care recipient is bidirectional, with the health of the recipient affecting the health of the caregiver, which in turn affects the caregivers' ability to provide effective care (Wittenberg & Prosser, 2016). When looking at the impact of relationship quality between the caregiver and care recipient prior to the caregiving process on the caregiver's health outcomes, mixed findings have been reported. Marks et al. (2008) found that female filial caregivers who reported having lower relationship quality with their parent prior to caring for them experienced lower levels of self-esteem and lower self-reported physical health over time than their peers who had higher relationship quality with their parent prior to caring for them.

Interestingly, it was found in the same study that female filial caregivers who reported having lower relationship quality with their parent prior to caring for them might experience a buffering effect in terms of depression (Marks et al., 2008). For the male filial caregivers in the study, it was found that having lower relationship quality with their parent prior to caring for them experienced lower psychological wellness than their peers who reported having higher relationship quality with their parent prior to caring for them (Marks et al., 2008).

Fauth et al. (2012) found that in a sample of caregivers of individuals with dementia, for the caregivers who reported having a more positive relationship with the recipient prior to caregiving, their levels of depression were lower in the beginning, but that their mental health scores decreased the longer the caregiving process went on. It was also found in this study that many caregivers may go through a process of becoming less close to the recipient as the dementia progressed, which led to more positive mental health effects and lower levels of physical health for caregivers over time, pointing to a potential disengaging process that may take place in the caregiving process (Fauth et al., 2012).

In a review of the literature looking at how relationship quality can affect the health of caregivers of patients with dementia, Quinn et al. (2009) concluded that relationship quality between the caregiver and recipient prior to the caregiving process can affect the caregiver's health and wellbeing. In addition, caregivers who reported having a closer relationship and higher relationship satisfaction with the care recipient before becoming a caregiver reported experiencing lower levels of caregiver burden during the caregiving process (Steadman, Tremont, & Davis, 2007). It has also been

found that caregivers who reported experiencing higher levels of rewards in the relationship with the care recipient before caring for them experienced fewer symptoms of depression as a caregiver (Williamson & Shaffer, 2001). In addition, having a less positive relationship with the care recipient before caring for them is associated with the caregiver experiencing higher levels of depression and lower quality of life (Kramer, 1993).

Relationships with Other Family Members

The family members of the caregiver, besides the caregiving recipient, are impacted by the family caregiving experience and can be important to understanding the caregiving experience (Wittenberg & Prosser, 2016). Therefore, it is important to consider these relationships and how their mental and physical health is affected as well (Wittenberg & Prosser, 2016). Scharlach, Li, and Dalvi (2006) found that among a sample of caregivers caring for a family member with mental impairment, the perceived level of family conflict within the caregiver's family was found to mediate the impact of the care recipient's mental impairment on the caregiver's level of caregiver strain. The authors of this study pointed to this result as evidence that when working with family caregivers, it may be important to use interventions that are family-focused.

Negative Family and Intimate Partner Relationships

Various studies have investigated the impact of negative marital relationships on the caregiving experience. Kang and Marks (2014b) found that marital strain could increase the risk of experiencing negative health outcomes among parents caring for a child with special needs. Kang and Marks (2016) also conducted a study investigating the effects of marital strain on the physical health outcomes of adult children providing care

for a parent using the National Survey of Midlife Development in the United States (MIDUS) II dataset. The authors found that when filial caregivers reported higher levels of marital strain, they also reported experiencing lower levels of physical health, specifically lower levels of self-rated health, increased functional limitations, increased number and frequency of physical health symptoms, and more chronic conditions. For filial caregivers who reported experiencing lower levels of marital strain, they also experienced a decrease in all of the previously mentioned physical health effects, sometimes having more positive physical health compared to individuals who were not in a caregiving role (Kang & Marks, 2016). While these studies included marital strain, they failed to include the element of family strain, as well as strain from other long-term intimate partner relationships besides those of marriage.

Few studies have focused on the effects of family strain on filial caregivers. A study using the MIDUS II dataset compared adults caring for a parent with adults caring for a parent-in-law. The results of the study showed that adults caring for a parent experienced more family strain and more mental health issues, such as symptoms of depression, while adults caring for a parent-in-law experienced less family strain (Strauss, 2013). Another study using the MIDUS dataset found that perceived family demands were related to the number of chronic health conditions for both parent and adult children caregivers (Zehner Ourada & Walker, 2014).

Summary: Impact of Family Relationships on Health of Family Caregivers

In summary, based on previous research that shows that family and marital strain can affect caregivers, the present study investigated this relationship more specifically by looking at the impact of family and intimate partner strain specifically within a sample of

filial caregivers. Family support will be included as a variable as well in order to better understand the complex details of family and intimate partner relationships.

Theoretical Framework

Biopsychosocial Model

The biopsychosocial model (Engel, 1977) was used as a lens through which to carry out the proposed study. This model considers the interaction between biological, psychological, and social factors that affect an individual's health (Engel, 1977). Further, the model considers the importance of understanding human health and illness by taking all pieces of a person's context and experience into consideration (Engel, 1977). The biological factors include elements of physical health, while the psychological factors include elements of emotional health. The social factors include relationships that may affect the individual's health. The biopsychosocial model is based on foundational ideas of general systems theory, including the emphasis on the hierarchical organization of systems and circular causality (Wood, 2012). The model also emphasizes the importance of considering the interrelationships among different systems, as well as parts of systems, which is another hallmark of general systems theory (Wood, 2012).

When applied specifically to family caregiving, the interactions of the biopsychosocial factors are critical when assessing the health of the individual providing care because the role can have negative effects on one's mental, physical, and emotional health (Colvin & Bullock, 2016). Research has been conducted in the area of caregiving through a biopsychosocial lens to look at the relationship between couple relationship quality, physical functioning, and depression in couples dealing with a multiple sclerosis

diagnosis (McPheters & Sandberg, 2010) and to compare the physical and emotional health of cancer and AIDS family caregivers (Stetz & Brown, 2004).

Summary: Theoretical Framework

Overall, the present study considered how the process of providing care for a parent or parent-in-law could negatively and positively affect the various factors that make up an individual's health experience. The biopsychosocial model (Engel, 1977) takes into consideration the various contexts that an individual's health takes place within, aiding in answering the research question regarding how the family, health behavior, and mental health contexts can impact the physical health of adult children as they provide care for a parent or parent-in-law.

Summary

Overall, mixed results have been found in terms of the positive and negative effects that filial caregiving can have on caregivers' physical and mental health. There has also been a lack of family caregiving research focusing on other types of family caregivers besides spousal caregivers, specifically on adult children caregivers (Bastawrous et al., 2015). The present study aimed to combine these two little-researched areas of caregiving by investigating whether filial caregivers' health behaviors play a mediating role between family and intimate partner relationship quality and their health outcomes.

CHAPTER III

METHODOLOGY

The purpose of this study was to investigate how the quality of adult filial caregivers' close family and intimate partner relationships is associated with caregivers' health behaviors and health outcomes, including aspects of both mental and physical health.

Sample

The present study includes data from the longitudinal, nationally representative MIDUS dataset (Ryff et al., 2016). The first wave of MIDUS data collection, conducted by the MacArthur Midlife Research Network, took place from 1995 to 1996, with the purpose of better understanding mental and physical health differences in Americans based on various behavioral, psychological, and social factors. MIDUS I included more than 7,000 participants in the United States between the ages of 25 and 74 years (Ryff et al., 2016). In 2004, a second wave of the study (MIDUS II) was conducted with support from the National Institute on Aging. This wave of data collection recruited the same participants as the first wave and asked additional questions regarding biomarkers and neuroscience (Ryff et al., 2016).

The data used for the current study are from the MIDUS II dataset. The subsample used consists of 275 participants who reported engaging in filial caregiving; specifically, they reported caring for either a parent or parent-in-law in the last 12 months. The present study tested six mediation models reflective of the above hypotheses: the first 3 investigating close family relationship quality using the full sample

of filial caregivers (n = 275), and the second 3 investigating close intimate partner relationship quality, using a subsample of filial caregivers who reported being in a committed intimate partner relationship (i.e., married or cohabiting; n = 224).

Measures

Close family and intimate partner relationship quality. Fincham and Rogge (2010) recommend assessing close relationships using both positive and negative measures to reflect each dimension, suggesting research strongly supports the connected but distinct nature of both negative and positive relationship experiences. Therefore, the present study will examine the quality of filial caregivers' close family relationships using four distinct measures, assessing positive and negative aspects of family and intimate partner relationships.

Family strain. Family strain was measured using four items that asked participants to rate how often the members of their family, excluding their spouse or partner, do various items, such as "do they make too many demands on you?," on a scale from 1 (*often*) to 4 (*never*; Ryff et al., 2012). Each item was reverse coded so that higher scores represented experiencing greater family strain. Participants' answers were averaged to calculate an overall score. Prior research demonstrates adequate internal reliability for the scale for the entire MIDUS II sample (α = .79; Ryff et al., 2012), and reliability tests for the current sample of filial caregivers showed adequate reliability as well (α = .81).

Family support. Family support was measured using four items that asked participants to rate how much the members of their family, excluding their spouse or partner, do various items, such as "How much can you rely on them for help if you have a

serious problem?," on a scale from 1 (*a lot*) to 4 (*not at all*; Ryff et al., 2012). Each item was reverse coded so that higher scores represent experiencing greater family support. The overall scale score for family support was found by calculating the mean of participants' answers. This family support measure demonstrates adequate internal reliability for the entire MIDUS II sample (α = .84; Ryff et al., 2012), and reliability tests for the current sample of filial caregivers showed adequate reliability as well (α = .82).

Intimate partner strain. Intimate partner strain was assessed with six items that asked participants to rate how often their partner does various items, such as "how often does your spouse or partner make too many demands on you?" on a scale from 1 (*often*) to 4 (*never*; Ryff et al., 2012). The scores for each item were reverse-coded so that higher scores represented experiencing greater intimate partner strain. The mean of the participants' responses to the six items was used to calculate their overall scale score. Reliability tests for the entire MIDUS II sample suggested adequate internal reliability for the scale (α = .87; Ryff et al., 2012), and reliability tests for the current sample of filial caregivers showed adequate reliability as well (α = .88).

Intimate partner support. Intimate partner support was assessed with six items that asked participants to rate how often their partner does various items, such as "how much do you rely on him or her for help if you have a serious problem?" on a scale from 1 (*a lot*) to 4 (*not at all*; Ryff et al., 2012). The scores for each item were reverse-coded so that higher scores represented experiencing greater intimate partner support. The mean of the participants' responses to the six items was used to find their overall scale score. Reliability tests for the entire MIDUS II sample suggested adequate internal reliability for

the scale (α = .90; Ryff et al., 2012), and reliability tests for the current sample of filial caregivers showed adequate reliability as well (α = .92).

Replicating prior research investigating families-health pathways using MIDUS data (e.g., Priest et al., 2015) and to reflect both positive and negative aspects of close family relationships as recommended (e.g., Fincham & Rogge, 2010), the above variables were used to construct two latent constructs. Specifically, for the full filial caregiving sample, a latent close family relationship quality construct was specified, using the family strain and support measures described above. For the partnered filial caregivers subsample, the intimate partner strain and support measures were used to construct an intimate partner relationship quality latent independent variable.

Health behaviors. Three distinct health behaviors were tested as part of the present hypotheses. The first mediating health behavior variable in the study is whether the participant reports regularly smoking cigarettes. Participants were asked "Do you smoke cigarettes regularly now?" and they were asked to respond with either Yes, No, or Don't Know (Ryff et al., 2012).

The next mediating variable is whether the participant qualifies for having had any alcohol-related problems in the past 12 months. This was measured with four questions, such as "Did you have any emotional or psychological problems from using alcohol, such as feeling depressed, being suspicious of people, or having strange ideas?" If the participant answered yes to any of the four questions, they were coded as having had an alcohol-related problem in the past 12 months (Ryff et al., 2012).

The third mediating variable included in the study is the participants' average frequency of moderate physical activity. According to the items in MIDUS, participants

are asked to respond regarding moderate leisure activity. According to the questionnaire, moderate leisure activity is defined as "moderate physical activity, that is not physically exhausting, but it causes your heart rate to increase slightly and you typically work up a sweat"; with examples given such as light tennis, light swimming, brisk walking, and mowing the lawn (Ryff et al., 2012). Participants were asked to rate themselves for both summer and winter using the scale of 1 (*several times a week*) to 5 (*less than once a month*; Ryff et al., 2012). The items were reverse coded so that higher scores indicated a higher frequency of moderate leisure activity. The author combined the mean of answers for both summer and winter to create a new variable of average frequency of moderate physical activity, which was then used when testing the models in this study.

Health outcomes. Caregivers' health outcomes were assessed using indicators of both mental and physical health. The aim of the present study is to calculate health outcomes as a latent variable, using the observed variables of psychological distress, anxiety, self-evaluated physical health, and number of chronic conditions.

Mental health. The variable of mental health is represented in the present study using the observed variables of psychological distress and anxiety. The psychological distress variable was measured using six items taken from the K6 (Kessler et al., 2002), a measure used to assess symptoms of psychological distress. The measure includes the items of "so sad nothing could cheer you up," "nervous," "restless or fidgety," "hopeless," "everything was an effort," and "worthless," for which participants' were asked "During the past 30 days, how much of the time did you feel…?" Participants rated each item from 1 (*all of the time*) to 5 (*none of the time*). The items were reverse coded so that higher scores indicated a higher level of psychological distress (Ryff et al., 2012).

Participants' overall level of psychological distress score was calculated by taking the mean score of the six items. Reliability tests for the entire MIDUS II sample suggested adequate internal reliability for the scale (α = .85; Ryff et al., 2012), and reliability tests for the current sample of filial caregivers showed adequate reliability as well (α = .86).

Participants' scores on the anxiety disorder scale were also used. These scores were gathered with 10 items that asked participants to rate how often they had experienced symptoms in the past 12 months, such as "were restless because of your worry" (Ryff et al., 2012). The answer choices were 1 (*most days*), 2 (*about half the days*), 3 (*less than half the days*), and 4 (*never*). The number of "most days" responses were then summed to calculate scale scores, ranging from 0 (*lowest anxiety score*) to 10 (*highest anxiety score*) Reliability tests suggested adequate internal reliability for the scale for the entire MIDUS II sample (α = .86; Ryff et al., 2012), and reliability tests for the current sample of filial caregivers showed adequate reliability as well (α = .86).

Physical health. Physical health was measured using the variables of self-evaluated physical health and number of chronic conditions. Participants' self-evaluated physical health was collected by asking participants "In general, would you say your physical health is excellent, very good, good, fair, or poor?" Participants rated this question from 1 (*excellent*) to 5 (*poor*), and responses were reverse-coded so that higher scores represented experiencing more positive physical health (Ryff et al., 2012).

The second physical health variable that was included was the number of chronic conditions that participants have experienced in the past 12 months. This total was calculated by asking participants to answer yes to each chronic condition given in a list that they have experienced in the last year, including such conditions as asthma,

bronchitis, or emphysema, lupus or other autoimmune disorders, arthritis, high blood pressure or hypertension, migraine headaches, and stroke. All "yes" responses were added up to give a total score (Ryff et al., 2012).

Analysis Plan

For this study, MPlus, Version 7 (Muthén & Muthén, 2012) was used to conduct structural equation modeling. Due to this study including some dichotomous and non-normal variables, maximum likelihood with robust standard errors was used instead of maximum likelihood, as it is robust to non-normality and non-independence (Asparouhov, 2005). Replicating methods presented in Priest et al. (2015) using MIDUS II data and structural equation modeling; each model was first tested with the categorical mediators presented above. The models were then run with the mediators as continuous variables in order to produce model fit statistics and tests of mediation. Comparisons between both were made in order to determine the appropriateness of using categorical mediators in each model.

The first step of analysis was to conduct preliminary statistical tests. First, descriptive statistics of the variables and the reliability of the scales were conducted for the present subsample. Following these tests, a confirmatory factor analysis (CFA) was conducted to examine health outcomes as a latent variable. Each observed variable representing mental and physical health was included in the CFA in order to assess whether these measures loaded onto a latent variable of health outcomes. The model was then analyzed for goodness-of-fit (Byrne, 2012), specifically, each variable should have a loading of .32 or higher in order to be included as part of the latent variable in the model

(Tabachnick & Fidell, 2013). The higher the loading is, the better the variable measures the factor of overall health (Tabachnick & Fidell, 2013).

Following these preliminary analyses (and pending the results of the CFA), structural equation modeling was conducted to test six models reflecting the project's hypotheses, including (a) close family relationships (n = 275) and (b) intimate partner relationships (n = 224) as independent variables, and the three health behaviors as mediating variables. In order to determine model fit, multiple indicators were used.

Specifically, the χ^2 value should be small and nonsignificant. Also, the comparative fit index (CFI) value should be greater than .95 (Hu & Bentler, 1999), the Tucker–Lewis index (TLI) value should be greater than 0.90 (Kline, 2011), the root mean square of error (RMSEA) should be less than .05 (Kline, 2011), and the standardized root mean square residual (SRMR) should be less than .10 (Hu & Bentler, 1999). In addition, model trimming was used to develop a parsimonious model that best fit the existing data (Kline, 2011). Any variables that did not fit the model were in effect removed from the model.

Summary

In summary, a subsample of 275 filial caregivers from the MIDUS II dataset who reported caring for either a parent or parent-in-law in the last 12 months was used to test the present hypotheses. Data were used to test six mediation models using structural equation modeling in order to examine the research question of whether filial caregivers' health behaviors mediate the effects of family and intimate partner relationship quality on their health outcomes.

CHAPTER IV

RESULTS

Demographics

The sample used for the present study included 275 participants from the 2004 second wave of the MIDUS II dataset (Ryff et al., 2012). Specifically, this subsample included participants who reported having served as a filial caregiver in the last 12 months (e.g., caring for either a parent or parent-in-law due to a physical or mental condition, illness, or disability). Three mediation models were tested using the full sample of filial caregivers (n = 275; see Figure 1 in Appendix A), and a subsample of filial caregiving participants who were in an intimate partner relationship (n = 224; see Figure 2 in Appendix A) were used to test three additional, otherwise identical, mediation models, reflecting the study's hypotheses.

The full filial caregiving sample was 61.5% female (n = 169), with an average age of 52.81 years (SD = 9.52; 34 to 84 years). The majority of these caregivers reported being heterosexual (n = 214) and having completed some college (n = 68), and 68% reported being currently employed (15.6% were retired, while another 3% were unemployed). Specific to their caregiving, 59.3% reported caring for a mother (n = 163), 20.4% of the sample reported caring for a father (n = 56), 13.8% reported caring for a mother-in-law (n = 38), and 6.5% reported caring for a father-in law (n = 18).

Results

Preliminary Tests

First, preliminary statistical tests were conducted for the data. Descriptive statistics, including means and standard deviations (see Table 1 in Appendix C), and correlations (see Table 2 in Appendix C) of the variables were conducted for the present sample. In addition, tests of normality were conducted, including finding the skewness and kurtosis for the variables (see Table 1 in Appendix C). Because this study included some dichotomous and non-normal variables, maximum likelihood with robust standard errors was used instead of maximum likelihood, as it is robust to non-normality and non-independence (Asparouhov, 2005).

Confirmatory Factor Analysis

Following the preliminary tests, a CFA was performed to test health outcomes as a latent construct; specifically, to test whether each mental and physical health measure served as a significant and meaningful contributor to an overall health latent variable. Therefore, each observed variable representing mental health (i.e., psychological distress and anxiety) and physical health (i.e., self-evaluated physical health and number of chronic conditions) was included as part of the CFA in order to assess whether these measures would load onto the latent variable of overall health.

The full overall health outcomes model was analyzed for goodness-of-fit using the fit statistics presented above for use with structural equation modeling (SEM; Byrne, 2012). Results indicated the specified loading structure was not a good fit to the data (x^2 = 18.88, p = .00, SRMR = .06, CFI = .84, TLI = .52, RMSEA = .18). As a result, separate CFAs were used to test separate mental health and physical health latent constructs.

Results indicated the model was a good fit, such that each observed variable loaded significantly onto each latent variable (x^2 = .60, p = .44, SRMR = .02, CFI = 1.00, TLI = 1.02, RMSEA = 0.00). Therefore, further modeling to test the present study's hypotheses used distinct mental and physical health latent variables, entered separately into the model.

Structural Equation Modeling: Family Models

Each of the following models were tested using the full filial caregiver sample (n = 275) and the close family relationship quality latent construct described above. Each model therefore reflects testing individual health behaviors as mediating variables.

Model 1 - Smoking. The first model tested the effects of close family relationship quality (family strain and family support) on filial caregivers' mental and physical health, as mediated by smoking cigarettes (see Figure 3). Results demonstrate that the proposed model is a good fit for the data (x^2 = 9.82, p = .46, SRMR = .04, CFI = 1.00, TLI = 1.00, RMSEA = 0.00) Specifically, as the quality of close family relationships improved (i.e., family strain decreased and family support increased), caregivers reported fewer mental health symptoms (i.e., psychological distress and anxiety); conversely, as the caregivers' number of reported mental health symptoms increased, their physical health worsened (i.e., increased number of chronic conditions and worse self-evaluated health). Furthermore, the results showed that as the quality of close family relationships increased, the less likely the caregiver was to report smoking. Contrary to the present hypotheses, however, smoking was not significantly related to caregivers' physical health.

Mediation results. The results of the mediation testing showed that the direct effect of close family relationship quality on physical health was significant. While the indirect effect of close family relationships on physical health, through the mediating variable of smoking cigarettes, was found to be non-significant, the indirect effect of close family relationships on physical health, through the mediating variable of mental health, was found to be significant (see Table 3 in Appendix C).

Model 2 – Alcohol. The second model for the full filial caregiving sample tested the effects of close family relationship quality on filial caregivers' mental and physical health, mediated by alcohol-related problems (see Figure 4 in Appendix B). The goodness-of-fit indices showed the proposed model is a good fit (x^2 = 5.57, p = .85, SRMR = .03, CFI = 1.00, TLI = 1.06, RMSEA = 0.00). Similar to Model 1, as close family relationship quality increased, the fewer mental health symptoms caregivers reported, and as the caregivers' number of mental health symptoms increased, their physical health worsened. Contrary to the hypothesized pathways, no relationship was found between the quality of close family relationships and problematic alcohol use; however, a significant negative relationship was found between having an alcohol-related problem and physical health, such that problematic alcohol use was related to better overall physical health (i.e. both number of chronic conditions and self-evaluated physical health scores increased).

Mediation results. The results of the mediation testing showed that the direct effect of close family relationship quality on physical health was significant. While the indirect effect of close family relationship quality on physical health, through the mediating variable of having an alcohol-related problem, was found to be non-significant,

the indirect effect of close family relationships on physical health, through the mediating variable of mental health, was found to be significant (see Table 3 in Appendix C).

Model 3 – Average moderate physical activity. The third model for the full filial caregiving sample tested the effects of family relationship quality on filial caregivers' mental and physical health, mediated by the third health behavior, average moderate physical activity Due to issues regarding convergence, this model was unable to be run, and therefore, no results are reported for this specific model.

Structural Equation Modeling: Intimate Partner Models

Model 4 – Intimate partners. The first model tested the effects of close intimate partner relationship quality (intimate partner strain and intimate partner support) on filial caregivers' mental and physical health, as mediated by smoking cigarettes. While results demonstrate that the proposed model is a good fit for the data (x^2 = 7.19 p = .71, SRMR = .03, CFI = 1.00, TLI = 1.04, RMSEA = 0.00), the output specified an issue with the residual covariance matrix. Due to this issue, as well as concerns regarding having adequate power for the model due to using a smaller subsample (Kline, 2011), both intimate partner strain and support were tested as observed variables (i.e., separate models were run for strain and support for each health behavior).

Model 5 - Smoking. The fourth model tested the effects of intimate partner strain on filial caregivers' mental and physical health, as mediated by smoking cigarettes (see Figure 5 in Appendix B). Upon consulting the goodness-of-fit indices, the results showed that the proposed model is a good fit for the data (x^2 = 4.74, p = .28, SRMR = .03, CFI = 1.00, TLI = 1.03, RMSEA = 0.00). According to the model, as intimate partner strain increased, the more mental health symptoms caregivers reported, and as the caregivers'

number of reported mental health symptoms increased, the worse they reported their physical health to be. Smoking was found to be unrelated to intimate partner strain, and contrary to the present hypotheses, smoking was not significantly related to caregivers' physical health.

Mediation results. The results of the mediation testing showed that the direct effect of intimate partner strain on physical health was significant. While the indirect effect of intimate partner strain on physical health, through the mediating variable of smoking cigarettes, was found to be non-significant, the indirect effect of intimate partner strain on physical health, through the mediating variable of mental health, was found to be significant (see Table 4 in Appendix C).

Model 6 - Alcohol. This model for the intimate partner subsample tested the effects of intimate partner strain on filial caregivers' mental and physical health, mediated by the second health behavior, having an alcohol-related problem (see Figure 6 in Appendix B). The goodness-of-fit indices showed the proposed model is a good fit (x^2 = 8.23, p = .22, SRMR = .03, CFI = .99, TLI = .97, RMSEA = 0.05). In the model, as intimate partner strain increased, the more mental health symptoms the caregivers reported, and as the caregivers' number of mental health symptoms increased, the worse their physical health was. No relationship was found between intimate partner strain and having an alcohol problem, but a significant negative relationship was found between having an alcohol-related problem and physical health, specifically that when caregivers reported having problematic alcohol use, they were more likely to have better physical health (i.e., both number of chronic conditions and self-evaluated physical health scores increased).

Mediation results. The results of the mediation testing showed that the direct effect of intimate partner strain on physical health was significant. While the indirect effect of intimate partner strain on physical health, through the mediating variable of having an alcohol-related problem, was found to be non-significant, the indirect effect of intimate partner strain on physical health, through the mediating variable of mental health, was found to be significant (see Table 4 in Appendix C).

Model 7 – Average moderate physical activity. The sixth model for the intimate partner subsample tested the effects of intimate partner strain on filial caregivers' mental and physical health, mediated by the third health behavior, average moderate physical activity (see Figure 7 in Appendix B). The goodness-of-fit indices showed the proposed model is a good fit (x^2 = 4.65, p = .59, SRMR = .03, CFI = 1.00, TLI = 1.03, RMSEA = .00). According to the model, as intimate partner strain increased, the more mental health symptoms caregivers reported, and as the caregivers' number of reported mental health symptoms increased, their physical health worsened. Furthermore, the results showed no relationship between intimate partner strain and average moderate physical activity, but a significant relationship was found between average moderate physical activity and physical health, specifically that the higher the average moderate physical activity the caregiver reported engaging in, the better they reported their physical health to be.

Mediation results. The results of the mediation testing showed that the direct effect of intimate partner strain on physical health was significant. While the indirect effect of intimate partner strain on physical health, through the mediating variable of average moderate physical activity, was found to be non-significant, the indirect effect of

intimate partner strain on physical health, through the mediating variable of mental health, was found to be significant (see Table 4 in Appendix C).

Model 8 - Smoking. This model tested the effects of intimate partner support on filial caregivers' mental and physical health, mediated by smoking cigarettes (Figure 8). Upon consulting the goodness-of-fit indices, the results showed that the proposed model is a good fit for the data (x^2 = 2.19, p = .90, SRMR = .03, CFI = 1.00, TLI = 1.12, RMSEA = 0.00) According to the model, as intimate partner support increased, the less mental health symptoms caregivers reported, and as the caregivers' number of reported mental health symptoms increased, worse they reported their physical health to be. Contrary to the proposed hypotheses, however, smoking was not significantly related to caregivers' physical health.

Mediation results. The results of the mediation testing showed that the direct effect of intimate partner support on physical health was significant. While the indirect effect of intimate partner support on physical health, through the mediating variable of smoking cigarettes, was found to be non-significant, the indirect effect of intimate partner support on physical health, through the mediating variable of mental health, was found to be significant (see Table 5 in Appendix C).

Model 9 - Alcohol. This model tested the effects of intimate partner support on filial caregivers' mental and physical health, mediated by having an alcohol-related problem (Figure 9). The goodness-of-fit indices showed the proposed model is a good fit (x^2 = 2.16, p = .90, SRMR = .02, CFI = 1.00, TLI = 1.10, RMSEA = 0.00). In the model, as intimate partner support increased, the less mental health symptoms the caregivers reported, and as the caregivers' number of mental health symptoms increased, the more

their physical health worsened. No relationship was found between intimate partner support and having an alcohol problem, but a significant relationship was found between having an alcohol problem and physical health, specifically that as one reported having problematic alcohol use, the better their physical health was found to be (i.e., both number of chronic conditions and self-evaluated physical health scores increased).

Mediation results. The results of the mediation testing showed that the direct effect of intimate partner support on physical health was significant. While the indirect effect of intimate partner support on physical health, through the mediating variable of having an alcohol-related problem, was found to be non-significant, the indirect effect of intimate partner support on physical health, through the mediating variable of mental health was found to be significant (see Table 5 in Appendix C).

Model 10 – Moderate physical activity. The final model tested the effects of intimate partner support on filial caregivers' mental and physical health, mediated by average moderate physical activity (see Figure 10 in Appendix B). The goodness-of-fit indices showed the proposed model is a good fit (x^2 = .85, p = .99, SRMR = .01, CFI = 1.00, TLI = 1.16, RMSEA = .00). According to the model, as intimate partner support increased, the less mental health symptoms caregivers reported, and as the caregivers' number of reported mental health symptoms increased, the worse their physical health was. No relationship was found between intimate partner support and average moderate physical activity, or between average moderate physical activity and physical health.

Mediation results. The results of the mediation testing showed that the direct effect of intimate partner support on physical health was significant. While the indirect effect of intimate partner support on physical health, through the mediating variable of

average moderate physical activity, was found to be non-significant, the indirect effect of intimate partner support on physical health, through the mediating variable of mental health, was found to be significant (see Table 5 in Appendix C).

Summary

While the results of the present structural equation modeling demonstrate support for alcohol-related problems and physical activity as contributing to caregivers' physical health outcomes, the results do not support their serving as a mediating pathway between close family and intimate partner relationship quality and health outcomes. However, pathways between close family and intimate partner relationship quality and mental and physical health were significant, as hypothesized. Beyond this, tests of indirect effects supported mental health serving as a significant construct, mediating the association between close family and intimate partner relationship quality and physical health, for both family relationships and intimate partner relationships, for family caregivers.

CHAPTER V

DISCUSSION

The number of informal caregivers, including adult children taking care of a parent or parent-in-law, in the United States continues to rise, with this need specifically expected to increase by about 85% by the year 2050 (Department of Health and Human Services and Assistant Secretary for Planning and Evaluation, 2003). Therefore, it is important that the experience of being a filial caregiver is studied further to better understand the experience of caring for a parent. The results of the present study support the hypothesized connection between filial caregivers' close family and intimate partner relationship quality and mental and physical health but do not support the hypothesis that health behaviors serve as significant mediators between filial caregivers' close family and intimate partner relationship quality and health outcomes, Beyond this, the results of the structural equation modeling highlight that mental health actually serves as a significant mediator between filial caregivers' close family and intimate partner relationship quality and physical health. Specifically, as close family and intimate partner relationship quality increased, their number of mental health symptoms decreased. In addition, as the number of mental health symptoms increased, the worse caregivers' physical health symptoms were.

These mediation results reflect previous research using the biobehavioral family model (Wood, 1993), which theorizes how individual family members' mental health and psychobiological reactivity mediates the relationship between family emotional climate and physical health outcomes (Wood, 1993). In addition, these results add more specific

details regarding past findings about the relationship between serving as a filial caregiver and increased risk of mental and physical health symptoms (Kang & Marks, 2014a; Marks et al., 2002). These results also elaborate on past findings that have shown that stressed partner relationships can amplify health issues in filial caregivers, specifically that more marital strain is related to worse physical health (Kang & Marks, 2016), which was also seen in the results for the intimate partner subsample in the present study.

Additional results from the present study show a variety of relationships between the quality of close relationships and health behaviors, and health behaviors and physical health. First, the results showed that close family relationship quality predicted smoking. Also for both the full filial caregiver sample and the subsample of caregivers with intimate partners, a significant negative relationship was found between having an alcohol problem and number of physical health symptoms. In addition, for the intimate partner strain model, it was found that the higher the average moderate physical activity the caregiver reported engaging in was, the better their physical health was. These varying results point to the complexity of the health outcomes for filial caregivers, as well as that family relationships may have different effects on caregivers' health when compared to intimate partner relationships.

Clinical Implications

The biopsychosocial model (Engel, 1977) was used as a lens to guide this study, pointing to the importance of considering multiple contexts of an individual's life when examining their health. The results of the present study support the assumptions of the biopsychosocial model by highlighting how the biological, psychological, and social contexts of a filial caregiver's life can affect their health, which may thereby affect their

caregiving experience. Specifically, the results of this study demonstrate that mental health mediates the effects of close family and intimate partner relationship quality on physical health, specifically in a sample of middle adulthood caregivers caring for either a parent or parent-in-law. Therefore, for filial caregivers, as for all people as specified by the biopsychosocial model (Engel, 1977), the quality of their physical health (bio-) is impacted by their depression and anxiety (psycho-) and their relationship quality with family members and intimate partners (social).

Although prior research has highlighted the impact of caregivers' social networks on their caregiving experiences (Etters, Goodall, & Harrison, 2008), and the impacts of caregiving on caregivers' own health (Pinquart & Sorensen, 2003), biopsychosocial pathways between caregivers' relationships, mental health, health behaviors, and physical health had not been tested. Specific to the provision of mental health for caregivers, present results emphasize the need to consider relational therapies for these individuals.

Specifically, for caregivers whose close family and intimate partner relationships were more strained and less supportive, they reported more psychological distress and anxiety, and subsequently, worse physical health. Therefore, the results of the study point to the potential benefits of including family and couple therapy as part of a treatment approach for filial caregivers. Since the quality of close family and intimate partner relationships were found to be significantly related to mental health outcomes, incorporating family and couples therapy into treatment could help enhance these relationships (increasing support and decreasing strain), ultimately improving the caregiver's mental health, as well as their ability to be an effective caregiver. While research has widely shown that decreased mental health can be an outcome of being a

filial caregiver (Amirkhanyan & Wolf, 2006; Marks et al., 2002), the models tested in this study define this relationship more specifically by showing that mental health can have a mediating effect on filial caregivers' relationship quality and health, pointing to the necessity to address this piece through intervention with filial caregivers.

The results of this study also point to the importance of forming treatment for filial caregivers and their families based on the previously stated ideas. For example, the results of the study point to the importance of educating about and suggesting the importance of attending to mental health throughout the process of caring for a parent or parent-in-law. Treatment providers should emphasize to caregivers the importance of seeking mental health services throughout the caregiving process and educate them about how working on their own mental health can enhance their relationship quality, physical health, and ability to be an effective caregiver. In addition, this study's results point to the importance of considering the variety of effects that health behaviors can have on a caregiver's health. As the results show, a one-size-fits-all approach may not be the most effective when working with filial caregivers when it comes to their health outcomes. As a result, incorporating education about the effects of various health behaviors may be an important piece in addressing all contexts of a filial caregivers' experience.

Limitations and Future Directions

Although the present study addresses multiple gaps the extant literature, including the lack of research regarding caregivers' family relationships other than spousal relationships (Bastawrous et al., 2015), various limitations of the project also exist. First, while using secondary data provides many benefits, this process also creates limitations. An important limitation includes that the author had no control over which measures and

variables were included in the project. More specifically, the specific items that made up the scales that were used were also chosen by the MIDUS researchers, rather than the present author. This included a limited use of continuous measures of health behaviors (e.g., assessing intensity level or frequency of use), as cigarette smoking and having an alcohol-related problem were both dichotomous variables. The present study may have been able to give a more adequate picture of the complexities of the relationship between health behaviors and health had these measures more thoroughly assessed the nuances of health behaviors specific to quality of engagement, daily or longitudinal use, or behaviors used specifically as coping mechanisms.

Another limitation of this study is that the majority of the filial caregivers identified as Caucasian and heterosexual in middle adulthood. This limits the generalizability of this study's results to the general population. Since the number of adults caring for a parent is expected to significantly increase in the near future (Department of Health and Human Services and Assistant Secretary for Planning and Evaluation, 2003), it is important that future research focuses on studying filial caregiving with samples that more accurately represent the general public, so as to help treatment providers better tailor their treatment for caregivers. Another area that lacked diversity within the present sample is that the majority of caregivers reported caring for their mother, rather than their father, mother-in-law, or father-in-law. More research is needed to specifically look at the experience of caring for each of these, in addition to mothers, in order to explore whether there are important differences based on which one an adult child is caring for.

Another limitation for the present study is the fact that the number of participants who reported having an alcohol-related problem was small, limiting the generalizability of the results of the models using this variable. Another limitation is that this study was conducted cross-sectionally due to its exploratory nature. This is a limitation because it only shows the participants at a specific point in time, as well as that some participants may have been caregiving for years prior while some may have just begun serving as a caregiver. Finally, the fact that the data for this study was collected from singe reporters. The results may have differed had the data been collected from both the caregiver and the care recipient or caregiver's spouse or partner.

Based on the results of the present study, various future directions can be taken to better understand the experience of serving as a filial caregiver. First, it may be important to further explore how close family and intimate partner relationships and health behaviors prior to caregiving affects the physical and mental health outcomes for filial caregivers throughout and after the caregiving process. In addition, it may also be important to explore how family support and strain, as well as intimate partner support and strain, impact the mental and physical health outcomes for filial caregivers throughout the caregiving process, specifically whether these outcomes change in various stages of the caregiving experience. Both of these could be studied using longitudinal methods. Furthermore, in order to better tailor treatment for filial caregivers, it could be helpful to explore whether people with certain family relationship quality and health behaviors are more or less likely to serve as filial caregivers. This could potentially aid in creating interventions better targeted to the specific types of individuals who tend to serve as a caregiver for their parent or parent-in-law.

The variety of results found in regards to the health behaviors also warrants further investigation to better understand how these affect caregivers' health in more detail. In addition, two of the health behaviors were categorical variables, which did not allow participants to report any varying levels or frequency of engagement. Rerunning the proposed models with a variety of different health behaviors that measure varying levels of use could potentially aid in better explaining the results of this study and provide better insight into how to educate caregivers about the importance of engaging in healthy behaviors as caregivers.

Summary

While it has been found that serving as a caregiver can increase one's risk for mental and physical health outcomes (Kang & Marks, 2014a; Marks et al., 2002), as well as engaging in unhealthy health behaviors (Gallant & Connell, 1997; Vitaliano et al., 2003), much knowledge is still needed in terms of the complexities of these relationships and how they impact the caregiver's health and ability to effectively provide care. The present study aimed to continue this process of better understanding the complex relationship between filial caregivers' close relationships, health behaviors, and overall health. The results demonstrate that mental health serves as a significant mediating variable between close family and intimate partner relationship quality and physical health, pointing to the importance of intervening regarding filial caregivers' mental health, specifically in the form of couple and family therapy. Family therapists and other family professionals should consider this relationship when intervening with caregivers and their families, and researchers should continue to explore the complexities of these

relationships and how they may affect the health outcomes for filial caregivers, as well as the overall caregiving process.

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APPENDIX A

Hypothesized Models

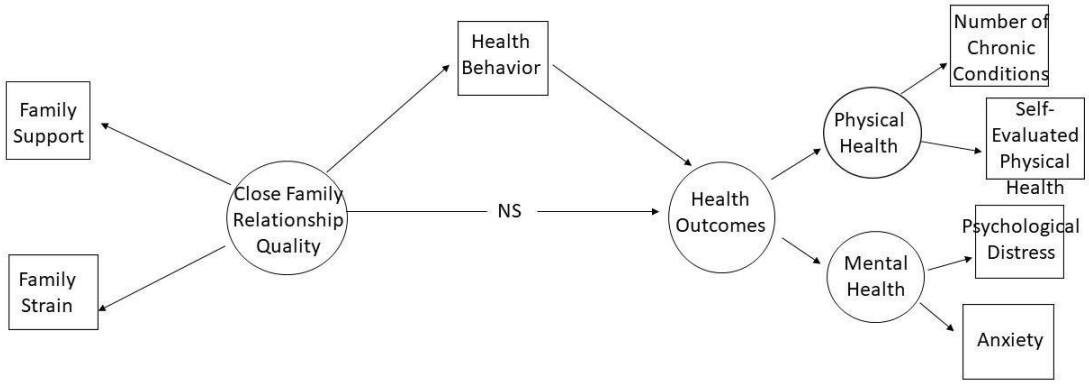


Figure 1. Hypothesized family mediation model, NS = Nonsignificant.

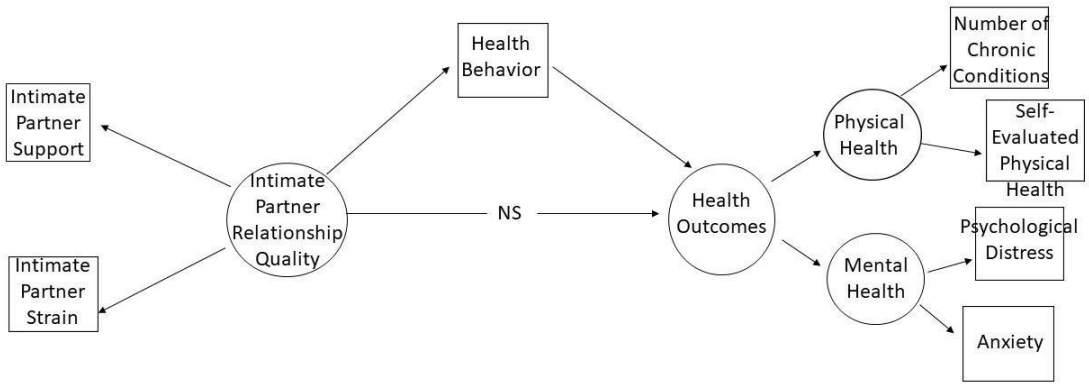
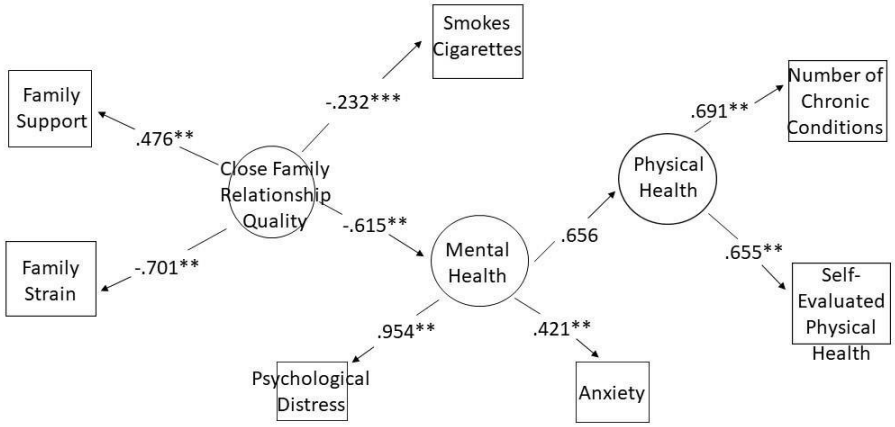


Figure 2. Hypothesized intimate partner mediation model, NS = Nonsignificant.

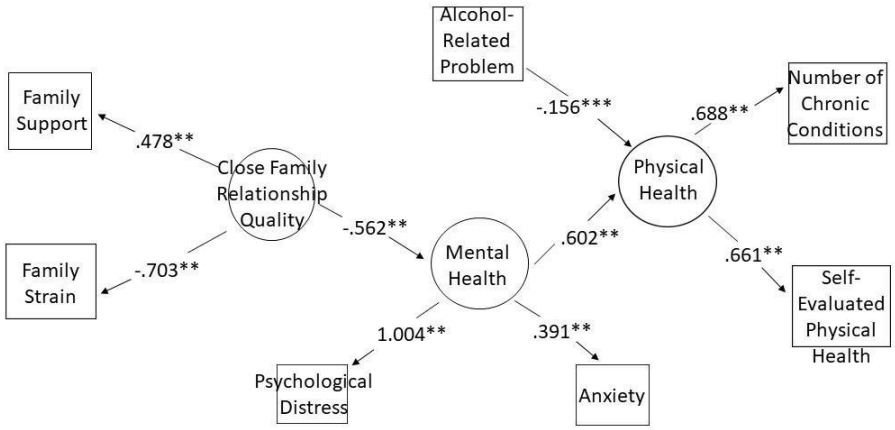
APPENDIX B

Model Results



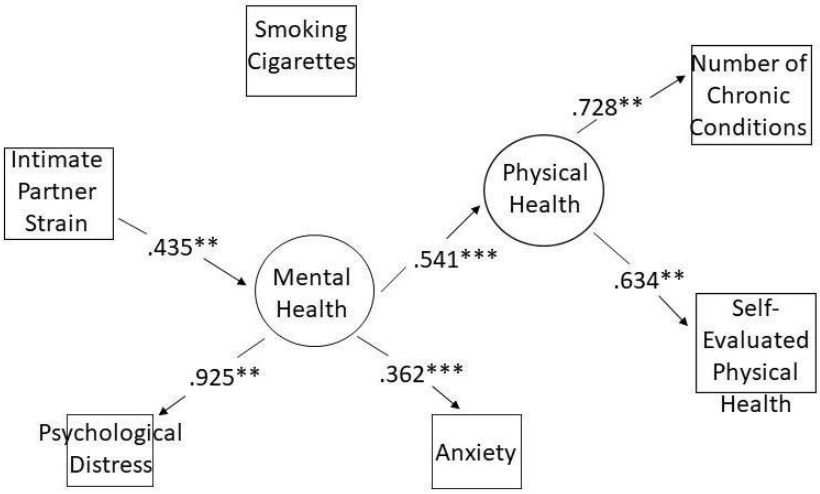
x^2 = 9.82, p = .46, SRMR = .04, CFI = 1.00, TLI = 1.00, RMSEA = 0.00

Figure 3. Model 1 tested with close family relationship quality and smokes cigarettes. **p < .001. ***p < .05.



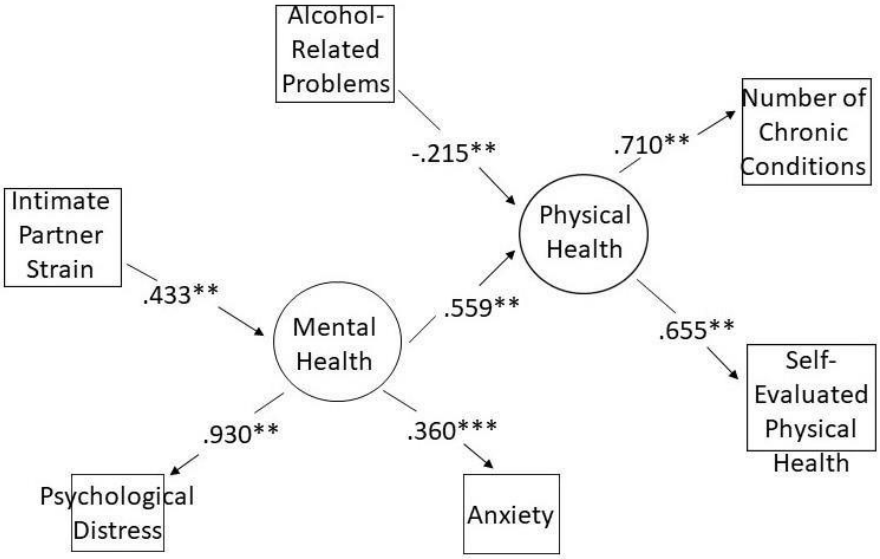
x^2 = 5.57, p = .85, SRMR = .03, CFI = 1.00, TLI = 1.06, RMSEA = 0.00

Figure 4. Model 2 tested with close family relationship quality and alcohol-related problem. **p < .001. ***p < .05.



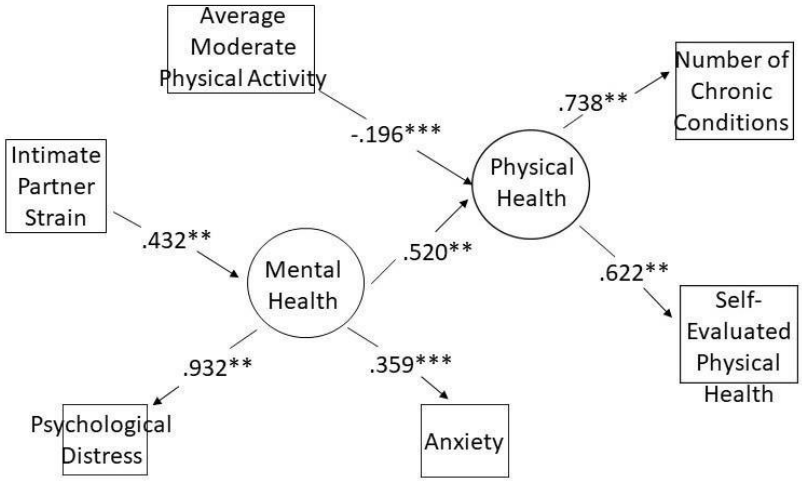
x^2= 4.74, p = .28, SRMR = .03, CFI = 1.00, TLI = 1.03, RMSEA = 0.00

Figure 5. Model 5 tested with intimate partner strain and smoking cigarettes. **p < .001. ***p < .05.



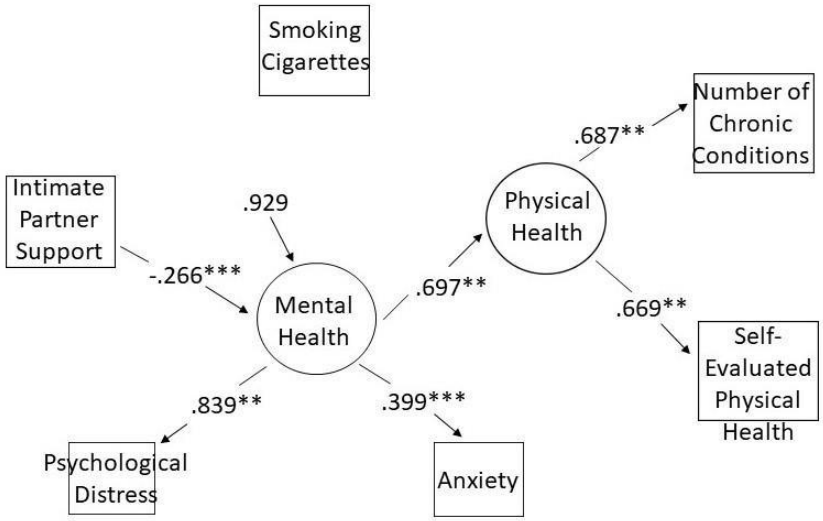
x^2 = 8.23, p = .22, SRMR = .03, CFI = .99, TLI = .97, RMSEA = 0.05

Figure 6. Model 6 tested with intimate partner strain and alcohol-related problems. **p < .001. ***p < .05.



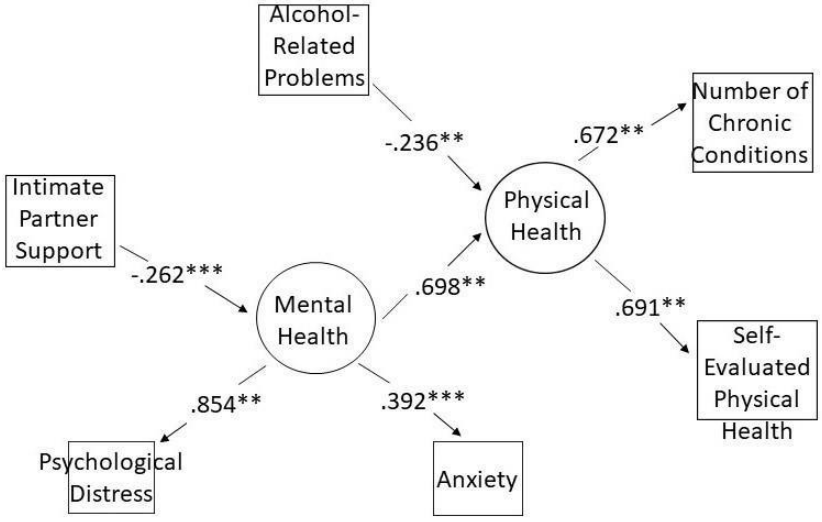
x^2 = 4.65, p = .59, SRMR = .03, CFI = 1.00, TLI = 1.03, RMSEA =.00

Figure 7. Model 7 tested with intimate partner strain and average moderate physical activity. **p < .001. ***p < .05.



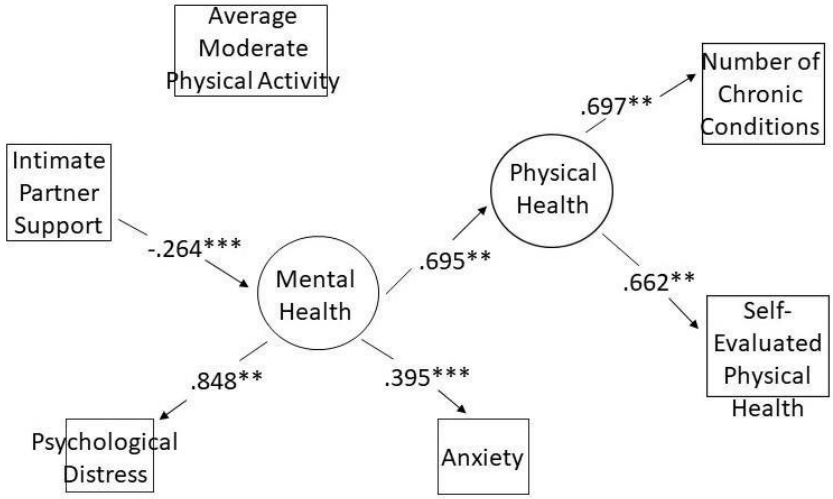
x^2 = 2.19, p = .90, SRMR = .03, CFI = 1.00, TLI = 1.12, RMSEA = 0.00

Figure 8. Model 8 tested with intimate partner support and smoking cigarettes. **p < .001. ***p < .05.



x^2 = 2.16, p = .90, SRMR = .02, CFI = 1.00, TLI = 1.10, RMSEA = 0.00

Figure 9. Model 9 tested with *Intimate Partner Support and Alcohol-Related Problems*. **p < .001. ***p < .05.



x^2 = .85, p = .99, SRMR = .01, CFI = 1.00, TLI = 1.16, RMSEA = .00

Figure 10. Model 10 tested with intimate partner support and average moderate physical activity. **p < .001. ***p < .05.

APPENDIX C

Tables

Table 1

Means, Standard Deviations, Skewness, and Kurtosis for Study Variables (n = 275)

Variable	*Mean*	*SD*	*Skewness*	*Kurtosis*
Family Strain	2.22	0.66	0.33	-0.39
Family Support	3.55	0.56	-2.00	4.52
Intimate Partner Strain	2.18	0.61	0.25	-0.08
Intimate Partner Support	3.60	0.58	-2.12	4.52
Smoking Cigarettes	1.31	0.47	0.81	-1.37
Alcohol-Related Problems	0.05	0.22	4.16	15.43
Average Frequency of Moderate Leisure Activity	4.14	1.68	-0.50	-0.97
Psychological Distress	1.57	0.59	1.48	1.94
Anxiety	0.20	1.15	6.17	39.15
Self-Evaluated Physical Health	2.46	0.96	0.36	-0.25
Number of Chronic Conditions	2.72	2.46	1.31	2.07

Table 2

Variables in MIDUS II Dataset: Correlations (N = 275)

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Family Strain	–										
2. Family Support	-.34**	–									
3. Intimate Partner Strain	.43**	-.23**	–								
4. Intimate Partner Support	-.35**	.41**	-.52**	–							
5. Smoking Cigarettes	.14	.00	.14	.00	–						
6. Alcohol-Related Problems	.10	-.02	-.02	-.06	-.02	–					
7. Average Frequency of Moderate Leisure Activity	.15*	.09	.07	.10	-.24**	-.13*	–				
8. Psychological Distress	.38**	-.27**	.41**	-.22**	.13	.10	-.07	–			
9. Anxiety	.15*	-.15*	.12	-.11	.23**	-.04	-.04	.31**	–		
10. Self-Evaluated Physical Health	.14*	-.09	.25**	-.15	.18*	-.08	-.12	.40**	.16**	–	
11. Number of Chronic Conditions	.17*	-.16*	.37**	-.15	.08	-.05	-.14*	.42**	.10	.46**	–

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table 3

Family Models Standardized Mediation Results

Fam → PhysHlth	*Estimate*	*Standard Error*	*p*
Total			
Indirect	-.36	.14	.008
Fam → Smokes → PhysHlth	-.02	.03	.39
Fam → MentHlth → PhysHlth	-.40	.19	.03
Direct			
Fam → PhysHlth	.07	.20	.74
Total			
Indirect	-.34	.14	.01
Fam → Alcohol → PhysHlth	.02	.02	.22
Fam → MentHlth → PhysHlth	-.34	.16	.04
Direct			
Fam → PhysHlth	-.02	.18	.90

Fam = Close Family Relationships, PhysHlth = Physical Health, MentHlth = Mental Health, Smokes = Smokes Cigarettes, Alcohol = Alcohol=Related Problem

Table 4

Intimate Partner Strain Models Standardized Mediation Results

IPStra → PhysHlth	*Estimate*	*Standard Error*	*p*
Total			
Indirect	.46	.10	.00
IPStra → Smokes → PhysHlth	.02	.02	.48
IPStra → MentHlth → PhysHlth	.24	.11	.03
Direct			
IPStra → PhysHlth	.21	.15	.16
Total			
Indirect	.46	.10	.00
IPStra → Alcohol → PhysHlth	.00	.02	.84
IPStra → MentHlth → PhysHlth	.24	.10	.02
Direct			
IPStra → PhysHlth	.21	.15	.14
Total			
Indirect	.47	.09	.00
IPStra → PhysAct → PhysHlth	-.01	.02	.47
IPStra → MentHlth → PhysHlth	.23	.10	.02
Direct			
IPStra → PhysHlth	.26	.14	.06

IPStra = Intimate Partner Strain, PhysHlth = Physical Health, MentHlth = Mental Health, Smokes = Smokes Cigarettes, Alcohol = Alcohol=Related Problem, PhysAct = Average Moderate Physical Activity

Table 5

Intimate Partner Support Models Standardized Mediation Results

IPSupp → PhysHlth	*Estimate*	*Standard Error*	*p*
Total			
Indirect	-.21	.11	.06
IPSupp → Smokes → PhysHlth	.00	.01	.96
IPSupp → MentHlth → PhysHlth	-.19	.08	.02
Direct			
IPSupp → PhysHlth	-.03	.11	.80
Total			
Indirect	-.21	.11	.06
IPSupp → Alcohol → PhysHlth	.01	.03	.60
IPSupp → MentHlth → PhysHlth	-.18	.08	.02
Direct			
IPSupp → PhysHlth	-.04	.10	.67
Total			
Indirect	-.21	.11	.06
IPSupp → PhysAct → PhysHlth	-.02	.02	.32
IPSupp → MentHlth → PhysHlth	-.18	.08	.02
Direct			
IPSupp → PhysHlth	-.01	.11	.90

IPSupp = Intimate Partner Support, PhysHlth = Physical Health, MentHlth = Mental Health, Smokes = Smokes Cigarettes, Alcohol = Alcohol=Related Problem, PhysAct = Average Moderate Physical Activity