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The Relationship between Intimate Partner Relationship Quality and Health Outcomes for Filial Caregivers

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ABSTRACT

This study examines the associations between the quality of adult filial caregivers' intimate partner relationships and health behaviors, mental health, and physical health using structural equation modeling. Secondary data from the National Survey of Midlife Development in the United States were used to examine the health outcomes of adults ($n = 224$) who reported caregiving for a parent or parent-in-law in the past 12 months. Results indicated a significant mediation effect of close intimate partner relationship quality and physical health, through mental health; health behaviors did not produce a significant mediation effect.

KEYWORDS

Caregiving; marriage/couple relationship functioning; family relationship quality

Introduction

In 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). Of these 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, this number of filial caregivers is expected to increase (McCarty, Hendricks, Hendricks, & McCarty, 2013).

Statement of the problem

Research has found that the act of caregiving for a family member, including a parent, can lead to negative health effects, such as increased stress, depression, and caregiving burden (Lin, Chen, & Li, 2013), as well as engagement in unhealthy behaviors (Gallant & Connell, 1997; Vitaliano, Zhang, & Scanlan, 2003). Further, the 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 (Wittenberg & Prosser, 2016), including with their intimate

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partners. Although broadly, research has failed to identify the causal mechanisms by which family relationships affect health (Carr & Springer, 2010), the caregiving literature has also lacked a focus on the causal mechanisms and effects of caregiving relationships on caregivers' health (Bastawrous, Gignac, Kapral, & Cameron, 2015). These mechanisms are especially important for filial caregivers, as they have been found to focus less on their own health when caring for a parent (Vitaliano, et al., 2003).

The present study aims to address these gaps in the literature, specifically how the quality of adult child caregivers' intimate partner relationships is associated with caregivers' health behaviors and mental and physical health. Findings from this study could potentially improve couple and family therapy intervention for adult children caregivers, as the information that medical providers give caregivers regarding the effects their role can have on their own health is often limited (Roth, Fredman, & Haley, 2015).

Literature review

Being a caregiver, including a filial caregiver, has been found to affect various areas of a caregiver's life. The following sections present existing information regarding these effects, including in regard to health and relationships.

Filial caregiving

Filial caregivers are adults who are providing care for a parent (McCarty et al., 2013). According to 2009 data, 36% of family caregivers in the United States reported caring for a parent (National Alliance for Caregiving & American Association of Retired Persons, 2009), whereas data collected in 2010 showed that about 44% of caregiving Americans were caring for a parent (Connidis, 2010). The filial caregiving role is a complex one with unique issues stemming from the distinct dynamic and shared history between parent and child (Given, Kozachik, Collins, DeVoss, & Given, 2001).

Many of these caregivers are in middle or late adulthood (Lashewicz, 2014) and must balance the stress of raising their own family as well (Umberson & Montez, 2010). These caregivers are often described as being part of the "sandwich generation," a name that describes the experience of providing care, including emotional support, for both their children and parents or parent-in-laws (Steiner & Fletcher, 2017). An element of this group of caregivers that has also been described is that of middle-aged women's experience of being pulled between the family caregiving role and career demands (Perrig-Chiello & Höpflinger, 2005). Another element that

filial caregivers must often deal with is a lack of support, including from siblings, leading them to carry a disproportionate weight of the caregiving responsibility (Conway, 2019). In addition to caring for the care recipient, filial caregivers may also need to provide emotional support to their parent or parent-in-law who is not the care recipient, serving in a role of 'secondary caregiver' as well (Steiner & Fletcher, 2017).

Health outcomes for family/filial caregivers

Family caregivers often display higher levels of stress and depression and lower levels of subjective well-being and physical health than their non-caregiving peers (Pinquart & Sorensen, 2003). Many caregivers also report a decline in health as a result of caregiving, with this number doubling when they have been caregiving for 5 or more years (National Alliance for Caregiving & American Association of Retired Persons, 2009). Filial caregivers specifically experience an increased risk for mental health issues (Amirkhanyan & Wolf, 2006), and as one's caregiving burden increases, so does their level of depression (Lin et al., 2013). The stress of caring for a parent can also lead to increased engagement in unhealthy behaviors, including being sedentary, drinking alcohol, and smoking cigarettes (Gallant & Connell, 1997; Vitaliano et al., 2003). Filial caregivers also describe how they neglect their own self-care to make time for taking care of their parent, including neglecting taking care of their own health as they had before becoming a caregiver (Conway, 2019).

Although much of the past caregiving research has focused on the negative health outcomes for family caregivers, there has been a recent shift toward focusing on the positive health outcomes that can result from providing care (Roth, Dilworth-Anderson, Huang, Gross, & Gitlin, 2015), such as finding meaning and purpose (Marks, Lambert, & Choi, 2002; Wittenberg & Prosser, 2016). Roth, Haley, Hovater, Perkins, Wadley, and Judd (2013) posit that family caregivers may actually live longer than individuals who do not provide care for a family member. Similarly, O'Reilly, Rosato, Maquire, and Wright (2015) found that a sample of family caregivers experienced a lower mortality risk than participants who were not caregivers or who reported having any chronic health issues.

Impact of family relationships on health of family/filial caregivers

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). It has been found that filial caregivers who reported having

lower relationship quality with their parent before caring for them experience lower levels of self-esteem and self-reported physical health over time (Marks, Lambert, Jun, & Song, 2008), as well as greater depression and lower quality of life (Kramer, 1993), than their peers who had higher relationship quality with their parent before caring for them. In contrast, caregivers who had a closer relationship with the care recipient prior have reported less caregiver burden (Steadman, Tremont, & Davis, 2007) and fewer symptoms of depression (Williamson & Shaffer, 2001).

The family members and partners of the caregiver, besides the caregiving recipient, are impacted by the family caregiving experience, and it is important to consider these relationships and how their health is affected as well (Wittenberg & Prosser, 2016). Scharlach, Li, and Dalvi (2006) found that perceived level of family conflict mediated the impact of care recipients' mental impairment on family caregivers' level of caregiver strain. Strauss (2013) found that adults caring for a parent experienced increased family strain, whereas adults caring for a parent-in-law experienced less family strain. Specifically regarding intimate partner relationships, Kang and Marks (2016) found that filial caregivers who reported more marital strain also reported worse physical health, including lower self-rated health and increased number and frequency of physical health symptoms and chronic conditions. Caregivers who reported experiencing less marital strain reported better physical health, sometimes having better physical health compared with non-caregivers (Kang & Marks, 2016).

Theoretical framework

The biopsychosocial model (Engel, 1977) was used as a lens through which to carry out the present study. This model considers the interaction between biological, psychological, and social factors that impact an individual's health (Engel, 1977), as well as considers the importance of understanding human health and illness by considering all pieces of a person's context and experience (Engel, 1977). When applied specifically to family caregiving, the interactions of the biopsychosocial factors are critical when assessing the health of the caregiver because the role can have negative effects on one's mental and physical health (Colvin & Bullock, 2016). Prior caregiving research has used 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), as well as to compare the physical and emotional health of cancer and AIDS family caregivers (Stetz & Brown, 2004).

Present study

This report resulted from a study with the purpose of further exploring how the quality of adult filial caregivers' family and intimate partner relationships are associated with caregivers' health behaviors, mental health, and physical health. For the purpose of this paper, only the results focusing on intimate partner relationships will be presented. The following research question was used: Do filial caregivers' health behaviors mediate the effects of close intimate partner relationship quality on their health outcomes? Existing research has shown there to be a connection between the caregiving experience and physical and mental health (Amirkhanyan & Wolf, 2006; Pinquart & Sorensen, 2003), as well as engagement in unhealthy behaviors, such as smoking and drinking alcohol (Gallant & Connell, 1997; Vitaliano et al., 2003) and neglecting one's health (Conway, 2019). Based on this existing literature, the researcher hypothesized the following pathways, which reflect a mediation relationship:

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

Methodology

The following sections provide information about how this study was constructed, including the sample and methods used. Details are also provided regarding how each variable used was measured.

Sample

The sample includes data from the National Survey of Midlife Development in the United States (MIDUS) dataset (Ryff et al., 2016). The first wave of MIDUS data collection took place from 1995 to 1996, with the purpose of better understanding mental and physical health differences in Americans, and 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 the same participants and asked additional questions regarding biomarkers and neuroscience (Ryff et al., 2016).

The data used in the present study are from the MIDUS II dataset (Ryff et al., 2012). The overall sample used consisted of 275 participants who reported caring for a parent or parent-in-law due to a physical or mental condition, illness, or disability in the past 12 months. A subsample of filial caregiving participants who were in an intimate partner relationship ($n = 224$), either married or cohabiting, were used to test three models, the results of which are presented in the following sections. The subsample of filial caregivers who reported being in an intimate partner relationship was 63.4% female ($n = 142$), with an average age of 53.87 years ($SD = 9.47$; 34 to 84 years). Of the participants, 88.8% identified as White ($n = 199$), 3.6% identified as Black and/or African American ($n = 8$), 0.9% identified as multiracial ($n = 2$), 0.9% identified as Asian or Pacific Islander ($n = 2$), 2.7% identified as Other ($n = 6$), and 3.1% of the respondents did not have data for race ($n = 7$). The majority of these caregivers reported being heterosexual ($n = 214$) and having graduated from either a 2-year, 4-year, or 5-year college ($n = 64$), and 64.7% reported being currently employed. Specific to caregiving, 60.3% of the sample reported caring for a mother ($n = 135$), 18.8% reported caring for a father ($n = 42$), 13.4% reported caring for a mother-in-law ($n = 30$), and 7.6% reported caring for a father-in law ($n = 17$).

Measures

Close intimate partner relationship quality

Fincham and Rogge (2010) recommend assessing 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, this study examined the quality of filial caregivers' close intimate relationships using two distinct measures, assessing both positive and negative aspects.

In addition, replicating prior research investigating families-health pathways using MIDUS data (e.g., Priest et al., 2015) and to reflect both positive and negative aspects, a latent construct was created. For the partnered filial caregivers, intimate partner strain and support measures were used to construct an intimate partner relationship quality latent variable.

Intimate partner strain and support

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 suggested adequate internal reliability for the scale for the entire MIDUS II sample ($\alpha = .87$) (Ryff et al., 2012) and the current sample of all filial caregivers ($\alpha = .88$).

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, and the mean of the responses were used to find their overall score. Reliability tests suggested adequate internal reliability for the entire MIDUS II sample ($\alpha = .90$) (Ryff et al., 2012) and for the current sample of all filial caregivers ($\alpha = .92$).

Health behaviors

Existing literature points to the increased risk in caregivers of engaging in less exercise, as well as smoking cigarettes and drinking alcohol at greater rates (Gallant & Connell, 1997; Vitaliano et al., 2003). Therefore, smoking cigarettes, having an alcohol-related problem, and average frequency of moderate physical activity were chosen as the health behavior variables in this study. The first mediating health behavior variable is whether the participant reports regularly smoking cigarettes. Participants were asked "Do you smoke cigarettes regularly now?" and 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 variable 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 is the participants' average frequency of moderate physical activity. Participants were asked to respond regarding moderate leisure activity, which the questionnaire 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" (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

The aim of the present study was to calculate health outcomes as a latent variable, using the following observed variables.

Mental health

Mental health is represented using the observed variables of psychological distress and anxiety. Psychological distress 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 items such as "so sad nothing could cheer you up," "restless or fidgety," and "hopeless," for which participants were asked "During the past 30 days, how much of the time did you feel … ?," rating 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. Overall scores were calculated by taking the mean of the six items. Reliability tests for the entire MIDUS II sample ($\alpha = .85$) (Ryff et al., 2012) and the current sample of all filial caregivers ($\alpha = .86$) showed adequate reliability.

Participants' scores on the anxiety disorder scale 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 ($\alpha = .86$) (Ryff et al., 2012) and the current sample of all filial caregivers ($\alpha = .86$).

Physical health

Physical health was measured using the variables of self-evaluated physical health and number of chronic conditions. Self-evaluated physical health was collected by asking "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 better physical health (Ryff et al., 2012). The number of chronic conditions experienced in the past 12 months 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, arthritis, and high blood pressure. "Yes" responses were totaled for a final score (Ryff et al., 2012).

Analysis

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 (MLR) was used instead of maximum likelihood (ML), as it is robust to non-normality and nonindependence (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 earlier. The models were then run with the mediators as continuous variables to produce model fit statistics and tests of mediation. Comparisons between both were made to determine the appropriateness of using categorical mediators in each model.

The first step of analysis was to conduct preliminary statistical tests. Next, 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 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 0.32 or higher to be included as part of the latent variable in the model (Tabachnick & Fidell, 2013). The higher the loading, 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 overall 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 0.95 (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 0.05 (Kline, 2011), and the standardized root mean square residual (SRMR) should be less than 0.10 (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.

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

Results

To begin the analysis, preliminary tests were conducted that included running descriptive statistics and tests of normality (Table 1), as well as correlations (Table 2), of the variables for the full sample of filial caregivers ($n = 275$). Because some dichotomous and non-normal variables were included in this study, maximum likelihood with robust standard errors (MLR) was used instead of maximum likelihood (ML), because it is robust to non-normality and nonindependence (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 in the CFA 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 ($\chi^2 = 18.88$, $p = .00$, SRMR = 0.06, CFI = 0.84, TLI = 0.52, RMSEA = 0.18). As a result, separate CFAs were used to test separate mental health and physical health latent constructs. Results indicated that this model was a good fit, such that each observed variable loaded significantly onto each latent variable ($\chi^2 = 0.60$, $p = .44$, SRMR = 0.02, CFI = 1.00, TLI = 1.02, RMSEA = 0.00). Therefore, further modeling to test the study's hypotheses used distinct mental and physical health latent variables, entered separately into each model. The next section presents the results of these models for the sample of filial caregivers who reported being in intimate partner relationships ($n = 224$).

Table 2. Variables in MIDUS II dataset: correlations ($n = 275$).

Variables	1	2	3	4	5	6	7	8	9	10	11
• Family strain											
• Family support	−0.34**										
• Intimate partner strain	0.43**	−0.23**									
• Intimate partner support	−0.35**	0.41**	−0.52**								
• Smoking cigarettes	0.14	0.00	0.14	0.00							
• Alcohol-related problems	0.10	−0.02	−0.02	−0.06	−0.02						
• Average frequency of moderate leisure activity	0.15*	0.09	0.07	0.10	−0.24**	−0.13*					
• Psychological distress	0.38**	−0.27**	0.41**	−0.22**	0.13	0.10	−0.07				
• Anxiety	0.15*	−0.15*	0.12	−0.11	0.23**	−0.04	−0.04	0.31**			
• Self-evaluated physical health	0.14*	−0.09	0.25**	−0.15	0.18*	−0.08	−0.12	0.40**	0.16**		
• Number of chronic conditions	0.17*	−0.16*	0.37**	−0.15	0.08	−0.05	−0.14*	0.42**	0.10	0.46**	

**Correlation is significant at the .01 level (2-tailed). *Correlation is significant at the .05 level (2-tailed).

Structural equation modeling: Intimate partner models

The first intimate partner model tested the effects of close intimate partner relationship quality on filial caregivers' mental and physical health, as mediated by smoking cigarettes. While the proposed model was a good fit for the data ($\chi^2 = 7.19$, $p = .71$, SRMR = 0.03, 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 with the smaller subsample (Kline, 2011), both intimate partner strain and support were tested as observed variables (i.e., separate models) for the rest of the study.

Intimate partner strain

All intimate partner strain models, including the health behaviors of smoking ($\chi^2 = 4.74$, $p = .28$, SRMR = 0.03, CFI = 1.00, TLI = 1.03, RMSEA = 0.00), alcohol ($\chi^2 = 8.23$, $p = .22$, SRMR = 0.03, CFI = 0.99, TLI = 0.97, RMSEA = 0.05), and average moderate physical activity ($\chi^2 = 4.65$, $p = .59$, SRMR = 0.03, CFI = 1.00, TLI = 1.03, RMSEA = 0.00), were found to be good fits for the data. For all three models, as intimate partner strain increased, mental health worsened, and as number of mental health symptoms increased, the worse caregivers' physical health was.

Smoking (Figure 1) was found to be unrelated to both intimate partner strain and physical health. No relationship was found between intimate partner strain and having an alcohol problem (Figure 2), 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 had better physical health. The results also showed no relationship between intimate partner strain and average moderate physical activity (Figure 3), but a significant relationship was found between average moderate physical activity and physical health.

The results of the mediation testing for all three intimate partner strain models 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 each of the health behaviors, was nonsignificant, the indirect effect of intimate partner strain on physical health, through mental health, was found to be significant (Table 3).

Intimate partner support

The three intimate partner support models, specifically those that included the health behaviors of smoking ($\chi^2 = 2.19$, $p = .90$, SRMR = 0.03, CFI = 1.00, TLI = 1.12, RMSEA = 0.00), alcohol ($\chi^2 = 2.16$, $p = .90$, SRMR = 0.02, CFI = 1.00, TLI = 1.10, RMSEA = 0.00), and average moderate physical activity

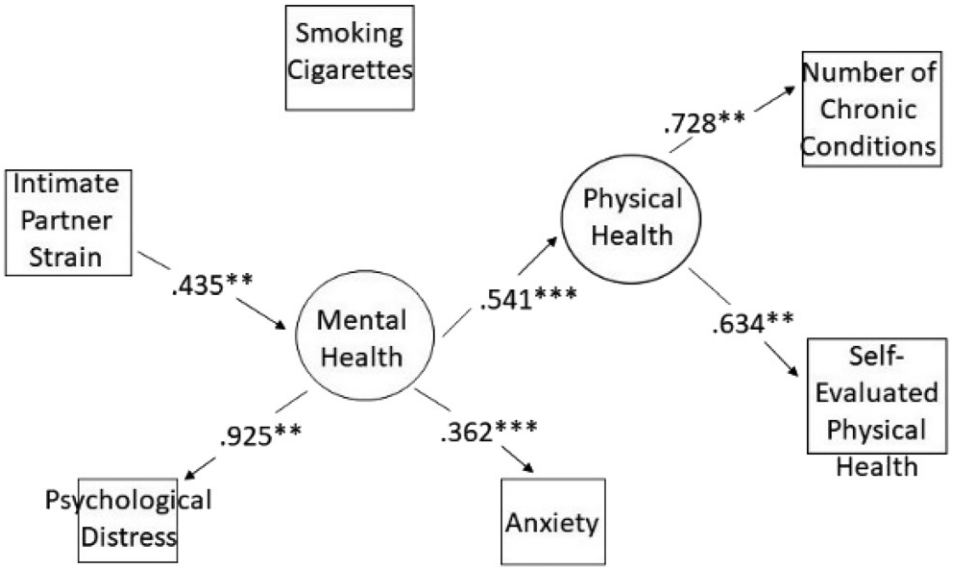

Figure 1. Model tested with intimate partner strain and smoking cigarettes. $\chi^2 = 4.74$, $p = .28$, SRMR = 0.03, CFI = 1.00, TLI = 1.03, RMSEA = 0.0. $^{**}p < .001$. $^{***}p < .05$.

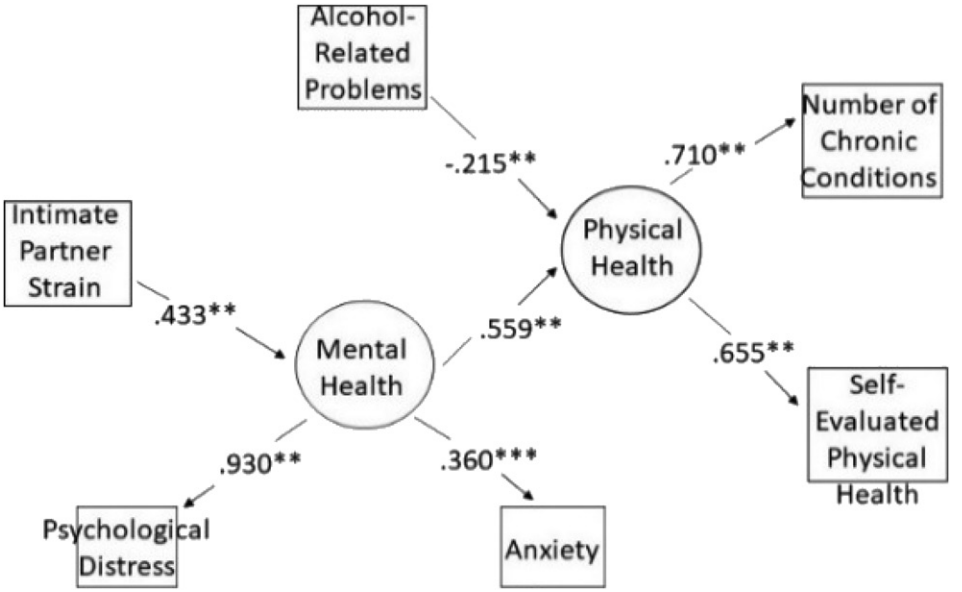

Figure 2. Model tested with intimate partner strain and alcohol-related problems. $\chi^2 = 8.23$, $p = .22$, SRMR = 0.03, CFI = 0.99, TLI = 0.97, RMSEA = 0.05. $^{**}p < .001$. $^{***}p < .05$.

($\chi^2 = .85$, $p = .99$, SRMR = 0.01, CFI = 1.00, TLI = 1.16, RMSEA = 0.00), were found to be good fits for the data. All three models showed that 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 they reported their physical health to be.

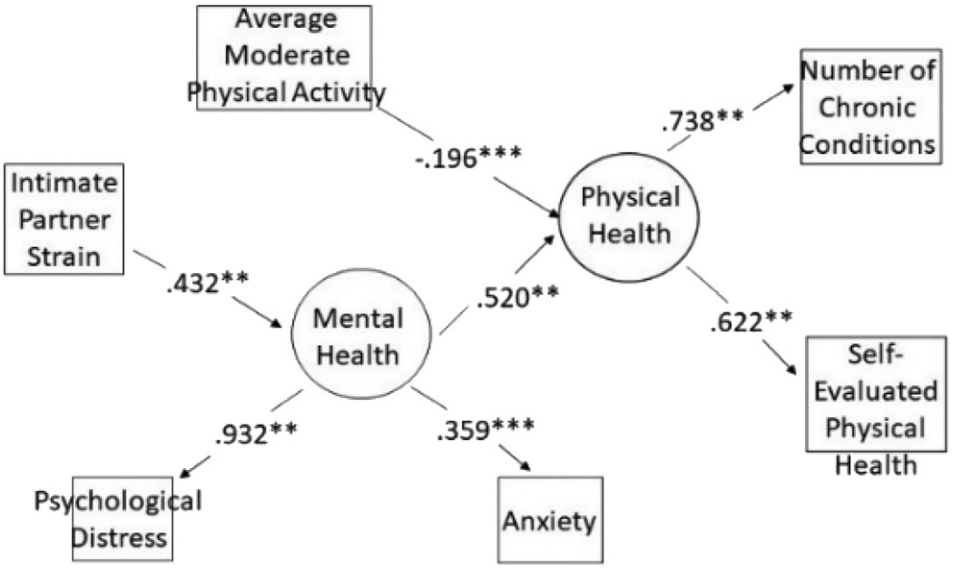

Figure 3. Model tested with intimate partner strain and average moderate physical activity. $\chi^2 = 4.65$, $p = .59$, SRMR = 0.03, CFI = 1.00, TLI = 1.03, RMSEA = 0.00. $^{**}p < .001$. $^{***}p < .05$.

Table 3. Intimate partner strain models standardized mediation results.

IPStra PhysHlth	*Estimate*	*Standard Error*	*p*
Total Indirect	0.46	0.10	.00
IPStra Smokes PhysHlth	0.02	0.02	.48
IPStra MentHlth PhysHlth	0.24	0.11	.03
Direct			
IPStra PhysHlth	0.21	0.15	.16
Total Indirect	0.46	0.10	.00
IPStra Alcohol PhysHlth	0.00	0.02	.84
IPStra MentHlth PhysHlth	0.24	0.10	.02
Direct			
IPStra PhysHlth	0.21	0.15	.14
Total Indirect	0.47	0.09	.00
IPStra PhysAct PhysHlth	−0.01	0.02	.47
IPStra MentHlth PhysHlth	0.23	0.10	.02
Direct			
IPStra PhysHlth	0.26	0.14	.06

IPStra = intimate partner strain, PhysHlth = physical health, MentHlth = mental health, Smokes = smokes cigarettes, Alcohol = alcohol-related problem, PhysAct = average moderate physical activity.

Smoking was unrelated to caregivers' physical health (Figure 4), and no relationship was found between intimate partner support and having an alcohol problem (Figure 5). Despite this result, a significant relationship was found between having an alcohol problem and physical health, specifically that as one reported having problematic alcohol use, the better they reported their physical health to be. Finally, no relationship was found between intimate partner support and average moderate physical activity (Figure 6), nor between average moderate physical activity and physical health.

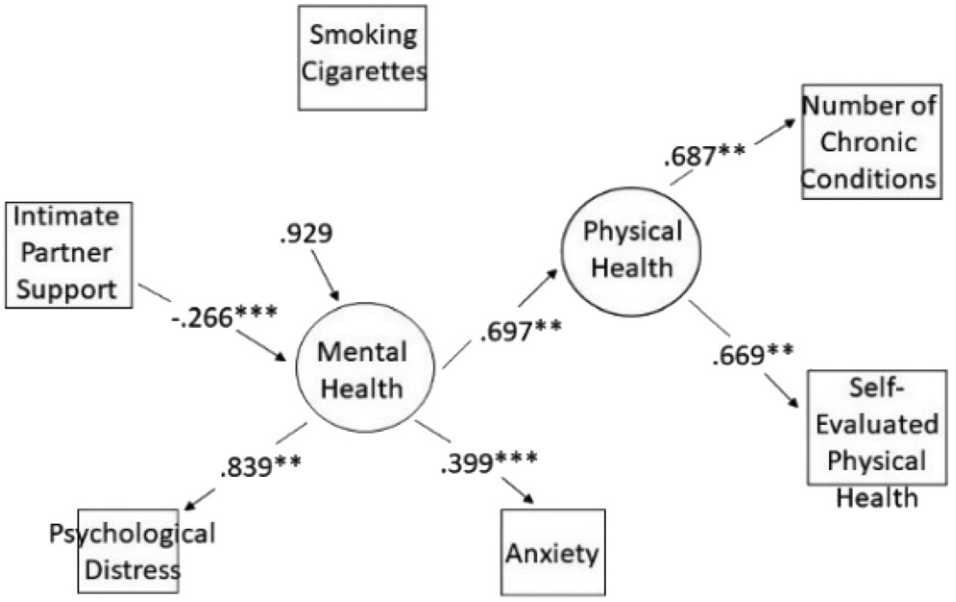

Figure 4. Model tested with intimate partner support and smoking cigarettes. $\chi^2 = 2.19$, $p = .90$, SRMR = 0.03, CFI = 1.00, TLI = 1.12, RMSEA = 0.00. $^{**}p < .001$. $^{***}p < .05$.

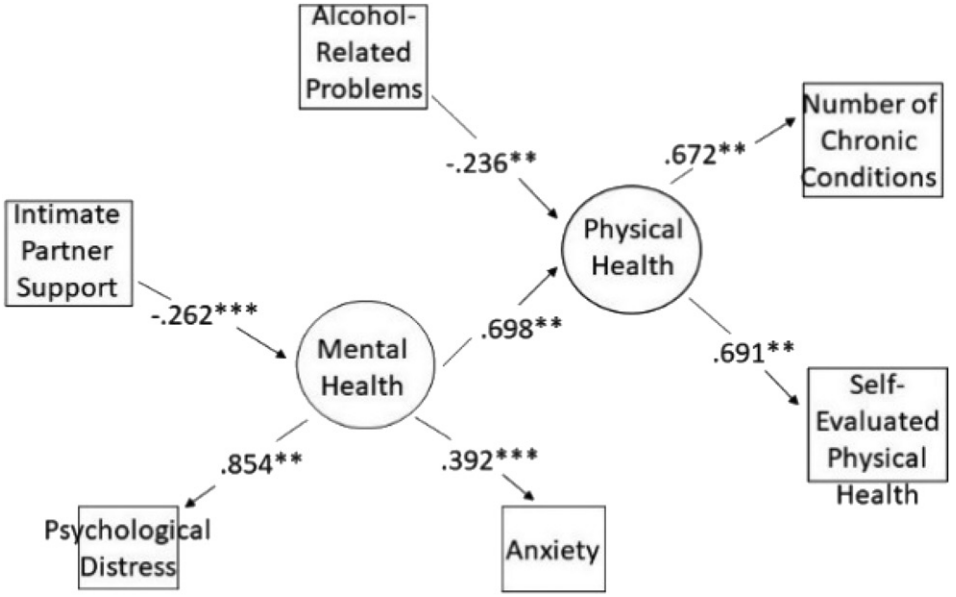

Figure 5. Model tested with intimate partner support and alcohol-related problems. $\chi^2 = 2.16$, $p = 0.90$, SRMR = 0.02, CFI = 1.00, TLI = 1.10, RMSEA = 0.00. $^{**}p < .001$. $^{***}p < .05$.

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 each of the health behavior mediating variables, was nonsignificant, the

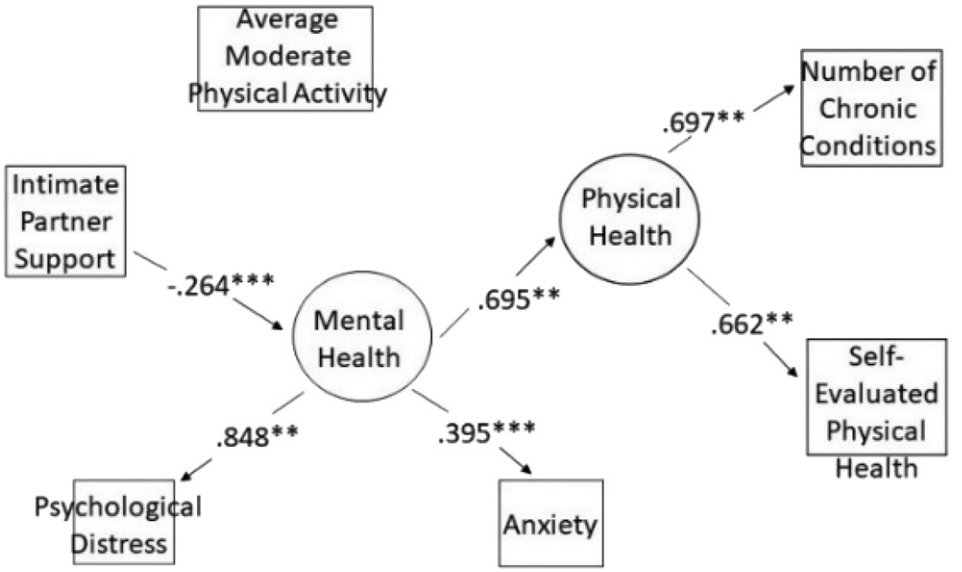

Figure 6. Model tested with intimate partner support and average moderate physical activity. $\chi^2 = .85$, $p = .99$, SRMR = 0.01, CFI = 1.00, TLI = 1.16, RMSEA = 0.00. $^{**}p < .001$. $^{***}p < .05$.

Table 4. Intimate partner support models standardized mediation results.

IPSupp PhysHlth	*Estimate*	*Standard Error*	*p*
Total Indirect	−0.21	0.11	.06
IPSupp Smokes PhysHlth	0.00	0.01	.96
IPSupp MentHlth PhysHlth	−0.19	0.08	.02
Direct			
IPSupp PhysHlth	−0.03	0.11	.80
Total Indirect	−0.21	0.11	.06
IPSupp Alcohol PhysHlth	0.01	0.03	.60
IPSupp MentHlth PhysHlth	−0.18	0.08	.02
Direct			
IPSupp PhysHlth	−0.04	0.10	.67
Total Indirect	−0.21	0.11	.06
IPSupp PhysAct PhysHlth	−0.02	0.02	.32
IPSupp MentHlth PhysHlth	−0.18	0.08	.02
Direct			
IPSupp PhysHlth	−0.01	0.11	.90

IPSupp = intimate partner support, PhysHlth = physical health, MentHlth = mental health, Smokes = smokes cigarettes, Alcohol = alcohol-related problem, PhysAct = average moderate physical activity.

indirect effect of intimate partner support on physical health, through the mediating variable of mental health, was found to be significant (Table 4).

Discussion

The results of the present study provide important information regarding the experience of serving as a filial caregiver. These results further illuminate how mental and physical health are impacted by serving in the filial

caregiving role, as well as how the relationship quality of the caregiver plays a role in this process. Clinical implications and proposed future directions for research based on these results are presented in the following sections.

Conclusions

Despite the fact that intimate partner strain and support ended up being tested separately, the results of the present study still support the hypothesized connection between filial caregivers' close intimate partner relationship quality and mental and physical health, but do not support the hypothesis that health behaviors serve as significant mediators between close relationship quality and health outcomes. Although the hypothesized mediation pathway was that there would be a direct significant pathway between intimate partner relationship quality and health outcomes (including both mental and physical health), the results of the structural equation modeling highlight that mental health actually serves as a significant mediator between filial caregivers' close intimate partner relationship quality and physical health. Specifically, as intimate partner strain increased, the number of mental health symptoms increased, and as intimate partner support increased, the number of mental health symptoms decreased. Furthermore, as the number of mental health symptoms decreased, the better caregivers' physical health was. These relationships between relationship quality, mental health, and physical health are similar to findings in other research, specifically that as marital strain increases for filial caregivers, the worse their health is reported to be (Kang & Marks, 2016).

These mediation results reflect previous research using the Biobehavioral Family Model (Wood, 1993), which theorizes how individual family members' mental health and psychobiological reactivity mediate the relationship between family emotional climate and physical health outcomes (Wood, 1993). These results also 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, 2014; Marks et al., 2002), as well as findings that stressed that partner relationships can amplify health issues in filial caregivers (Kang & Marks, 2016).

Despite existing research that shows filial caregivers to engage in unhealthy behaviors (Gallant & Connell, 1997; Vitaliano et al., 2003) and have decreased physical health (National Alliance for Caregiving & American Association of Retired Persons, 2009; Pinquart & Sorensen, 2003), the results of this study show a variety of relationships between the quality of close relationships and health behaviors, as well as health behaviors and physical health. First, a direct relationship between intimate partner strain was not found with any of the

three health behaviors tested. The same result was found for intimate partner support and health behaviors, as well. In addition, a significant negative relationship was found between having an alcohol problem and number of physical health symptoms for both the strain and support models. For the intimate partner strain model, it was found that the higher the caregiver's average moderate physical activity was, the better their physical health was. These varying results point to the complexity of health outcomes that exist for filial caregivers and warrant further exploration. The author hypothesizes that this variety of results, some that may be unexpected (i.e., the significant negative relationship between having an alcohol problem and number of physical health symptoms), may be due to the lack of consideration of the nuances of the health behaviors in the measurement of variables. For example, existing research shows that filial caregivers may begin neglecting their own health (Conway, 2019) and engaging in unhealthy behaviors as a result of serving in the caregiving role (Vitaliano et al, 2003). The variables used in this study did not take into consideration how long the participants may have been engaging in them (i.e., were they engaging in these behaviors before they began caregiving or did they start after they began caregiving as a coping mechanism to deal with the stress of their new role?). Had these details been measured as well, including when these behaviors began and if the amount of engagement changed with the start of the caregiving role, the results may have presented different conclusions.

Clinical implications

This study's results support the assumptions of the biopsychosocial model (Engel, 1977) by highlighting how the biological, psychological, and social contexts of a filial caregiver's life can impact their health. The results demonstrate that mental health mediates the effects of intimate partner relationship quality on physical health, specifically in a sample of middle adult filial caregivers in intimate partner relationships. 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 psychological distress and anxiety (psycho-) and their relationship quality with intimate partners (social).

Caregivers whose close intimate partner relationships were more strained and less supportive reported higher psychological distress and anxiety, and subsequently, worse physical health. These results point to the potential benefits of including couples therapy as part of a treatment approach for filial caregivers. Since the quality of close relationships were found to be significantly related to mental health outcomes, incorporating 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 serving as a filial caregiver (Amirkhanyan & Wolf, 2006; Marks et al., 2002), the models in this study define this relationship more specifically by showing that mental health can have a mediating effect on caregivers' intimate partner relationship quality and physical health. Couples therapy can be a safe place for caregivers to learn how to communicate to their partner about their experience as a caregiver and for partners to learn how they can best support their partner as they provide care. Couples therapists are specially trained to deliver interventions that could be helpful for couples where one or both partners are serving as caregivers for a parent or parent-in-law. For example, therapists can teach couples communication tools to help them have open, transparent, and safe conversations about the many aspects of the caregiving experience, both good and bad. Partners can also learn how to provide support to the caregiver in ways that fit for them both. An additional intervention systemically trained therapists can provide is the completion of a genogram with the couple focused on their roles and rules, as well as family messages and beliefs about health, caregiving, and navigating the health care system (Campbell, McDaniel, & Cole-Kelly, 2005), which could be insightful for the partners to learn more about how the caregiving experience is impacting their relationship and health.

The results also point to the importance of educating about the impact of attending to mental health throughout the caregiving process. Treatment providers, including couples therapists, should emphasize to caregivers the importance of seeking mental health services throughout the caregiving process and provide psychoeducation about how working on their own mental health can enhance their intimate partner relationship quality, physical health, and ability to be an effective caregiver.

Limitations and future directions

Although the present study addresses multiple gaps in the extant literature, limitations exist. First, while using secondary data provides many benefits, it brought a limitation in that the scale items included limited use of continuous measures of health behaviors, as cigarette smoking and problematic alcohol use were both dichotomous. Future research could give a better picture of the complexities of health behaviors and outcomes with measures that assess the nuances of health behaviors, such as quality and frequency of use, as well as behaviors used specifically as coping mechanisms.

Another limitation is that the majority of the sample identified as Caucasian, heterosexual, in middle adulthood, and caring for a mother. Future research should study samples that more accurately represent the general public. Also, 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, only showing the participants at a specific point in time, and not taking into consideration that some participants may have been caregiving for years prior while some may have just begun. Future research should further explore how close relationships, strain and support, and health behaviors before caregiving impact the health outcomes of filial caregivers throughout and after the caregiving process. This could be studied using longitudinal methods, as well as could include data collected from both the caregiver and the care recipient or caregiver's spouse or partner. Finally, due to characteristics of the data used for this study, intimate partner strain and support had to be run separately. It could be helpful to attempt to run these together as one latent variable with a data set more conducive to this statistical test to better understand the complex interaction of these two variables.

Conclusion

The present study demonstrates how the quality of a filial caregiver's intimate partner relationship can impact their mental health, and as a result, their physical health as well. Overall, these results point to the need for more research on the complexities of the role and relationships of filial caregivers, especially because the number of adults taking on this role is expected to continually increase (McCarty, Hendricks, Hendricks, & McCarty, 2013). Furthermore, the results point to how the quality of the relationship a caregiver has with their partner can either provide a benefit to or hinder their mental and physical health as they serve as a caregiver. Couples therapists are uniquely qualified to help effect change in filial caregivers' health through helping to strengthen their relationships with their significant other. Therefore, couples therapy can be an important element to include in the process of providing care to a parent or parent-in-law.

Notes on contributors

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Erica has presented the results of this study as a poster at the 2018 Texas Association for Marriage and Family Therapy Annual Conference.

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