

Caregiving Subgroups Differences in the Associations Between the Resilience Resources and Life Satisfaction

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Abstract

Using a model of resilience, this study compared the direct and indirect associations between resilience resources (sense of mastery, openness to experience, emotion regulation, and social support) and life satisfaction among caregiving subgroups (spouses, adult-children, and parents). Participants were included from the survey of Midlife in the United States (MIDUS II). Estimates of direct and indirect relationships between the resources and life satisfaction were calculated for each subgroup, and differences in the relationships between subgroups were tested. The direct positive relationships between sense of mastery and life satisfaction were significant and stronger for spouses and parents than for adult-children. In contrast, an indirect relationship through social support between the two variables was stronger for adult-children than for spouses. Openness to experience had a direct positive link to life satisfaction among spouses, and emotion regulation was directly related to life satisfaction among parents. We suggested targeted interventions for caregiving subgroups.

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Introduction

Caregiving can be a highly stressful experience (Pinquart & Sörensen, 2003), leading to negative consequences on mental and physical health among caregivers (Yap et al., 2010). Models of resilience, however, suggest that various resilience factors enhance successful adaptation to challenges of caregiving (Nijboer, Tempelaar, Triemstra, van den Bos, & Sanderman, 2001). Resilience refers to a positive adaptive process, that is, the maintenance or regaining of well-being under conditions of stress (Rutten et al., 2013; Ryff, 2012). Herrman et al. (2011) identified personal (e.g., personality traits) and environmental resources (e.g., social support) as resilience factors and suggested that interactions between those resources enhance resilience (the interactive model of resilience). Based on the resilience model, previous studies found that personal resources directly contribute to caregivers' mental and physical well-being, and personal factors also indirectly improve caregivers' well-being through support of the social network (Nijboer et al., 2001; Shirai, Koerner, & Kenyon, 2009). Given a critical role for resilience factors in generating a positive adaptation to caregiving, it is important to identify possible personal and environmental factors of resilience that may be related to mental and physical well-being among caregivers.

Some possible personal resources of resilience have been proposed by wisdom researchers. Previous studies have shown empirical direct and indirect relationships between resilience and wisdom (Bergsma & Ardel, 2012; Roharikova, Spajdel, Cvikova, & Jagla, 2013; Webster, 2009). Wisdom appears to be positively related to a number of indices that underlie resilience, such as life satisfaction, happiness, and ego-integrity (e.g., Ardel, 1997). High correlates between these two concepts might be due to the fact that they both are positive outcomes in response to life experiences (Mansfield, McLean, & Lilgendahl, 2010; Staudinger & Glück, 2011). Glück and Bluck (2014) suggested that certain personal resources interact with life challenges, and then eventually result in positive outcomes, such as the development of wisdom. They called those resources the MORE wisdom resources consisting of sense of mastery, openness to experience, reflective attitude, and emotion regulation. Given that caregiving is one of the most stressful life events in our lives (Pinquart & Sörensen, 2003), we expected that caregivers who bring those wisdom-related personal resources to bear in

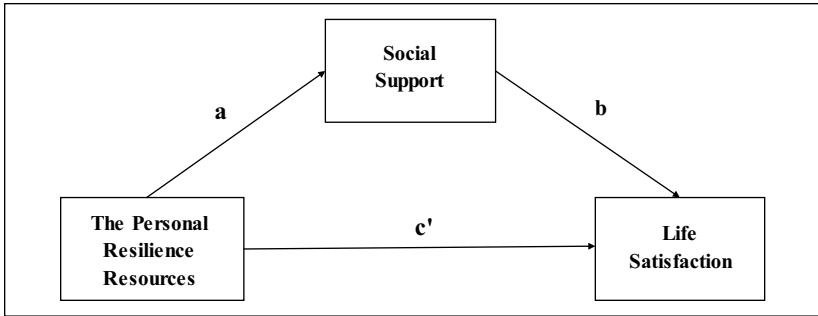


Figure 1. Illustration of the direct and indirect relationship between the personal resilience resources and life satisfaction.

Note. c = total association; c' = direct association; ab = indirect association.

facing their caregiving experience are more likely to report positive outcomes such as better life satisfaction.

To explore whether the three wisdom-related personal resources (sense of mastery, openness to experience, and emotion regulation) are possible personal resilience factors related to positive outcomes of caregivers, our previous work explored the association between the resources and spousal caregivers' life satisfaction (Kim & Knight, 2017). We found that the three resources were directly and indirectly associated with better life satisfaction among caregiving spouses. The study, however, only focused on caregiving spouses who are generally considered to be at particularly high risk of caregiving-related distress, and we compared caregiving spouses with matched non-caregivers. As it is widely acknowledged that there is heterogeneity across caregiving subgroups (Pinquart & Sörensen, 2011), it is important to compare the association between the three personal resources (sense of mastery, openness to experience, and emotion regulation) and life satisfaction among caregiving subgroups. In the current article, to expand our previous study, we analyzed the relationship between the three personal resources and life satisfaction across caregiving subgroups, comparing spouse caregivers with adult-children caring for parents and with parents caring for children with a chronic illness or a disability. Guided by the interactive model of resilience suggesting interactions between personal and environmental resources to increase resilience (Herrman et al., 2011), we explored direct associations between the three wisdom-related personal resources and life satisfaction and indirect associations between the resources and life satisfaction through social support across caregiving subgroups (see Figure 1).

Resilience Resources

Personal resources. Glück and Bluck (2014)¹ highlighted the importance of interactions between four resources (sense of mastery, openness to experiences, reflective attitude, and emotion regulation) and negative life experience in the development of personal wisdom. They suggest that the four resources are precursors to the development of wisdom because the resources influence what life challenges individuals encounter, how those challenges are dealt with, and what those challenges teach individuals, which provide more opportunities for individuals to develop wisdom (Glück & Bluck, 2014). In other words, sense of mastery, openness to experience, reflective attitude, and emotion regulation can be thought of as the wisdom-related personal resources because they are more likely to interact with life challenges, leading to positive outcomes. It is reasonable to expect that the resources are possible personal resilience factors that can be related to positive outcomes for caregivers who are dealing with that challenging life event.

Sense of mastery is the belief that one will be able to control and cope with life difficulties. Sense of mastery helps people to deal with life challenges actively or adapt to them (Glück & Bluck, 2014). The direct effect of sense of mastery on caregivers' mental health has been demonstrated in both cross-sectional and longitudinal studies (Adams, Smyth, & McClendon, 2005; Mausbach et al., 2007). Openness to experience is defined as the tendency to be interested in learning from new perspectives and experiences (Zoellner, Rabe, Karl, & Maercker, 2008). People who are more open to new experience are able to deal better with negative life experiences because they are interested in multiple perspectives and less afraid of life changes and new approaches (Maercker & Zoellner, 2004). Openness to experience was positively related with better quality of life among Parkinson's disease (PD) caregivers (Tew, Naismith, Pereira, & Lewis, 2013). Reflective attitude refers to the willingness to consider phenomenon in a broader and complex way (Glück & Bluck, 2014). Maercker and Zoellner (2004) argued that reflection is a growth-oriented effort by which people make meaning out of their present and past experiences. Emotion regulation is the ability to perceive one's own emotions accurately and manage them. Emotion regulation comprises reappraisal and suppression (Gross, 2001). Emotion regulation as a component of the wisdom-related resources is closer to positive reappraisal which is the process by which people change how they think about the situation to deal with negative life events. Emotion regulation has been proposed as central to the successful management of difficult life situations, and it was highly related to resilience after stressful life events (Glück, 2011; Mauss & McRae, 2016). Emotion regulation was associated with caregivers' better mental health in several studies (Folkman, 1997; Folkman & Moskowitz, 2000).

Environmental resources (social support). Social support is known as an environmental-systemic factor of resilience, because it may serve to maintain, protect, and improve well-being in the face of life challenges (Herrman et al., 2011). Therefore, social support has been considered as one of the key components determining caregivers' mental and physical well-being (e.g., Ahn, Hochhalter, Moudouni, Smith, & Ory, 2012). Literature has shown positive relationships between the wisdom-related personal resources and social support (Glück & Bluck, 2014). And interactions between the personal resources and social support were also associated with positive outcomes after caregiving (Shirai et al., 2009).

Differences in Mental and Physical Well-Being Among Caregiving Subgroups

Depending on their family relationship with the care recipient, each caregiver group (caregiving spouses, adult-children caring for parents, and parents caring for children with a chronic illness or a disability) reports different obligations and has different caregiver resources available (e.g., Chappell, Dujela, & Smith, 2014). They also significantly differ with regard to sociodemographic variables and caregiving-related stressors (Pinquart & Sörensen, 2011). Moreover, there are differences in perception of their caregiving experience. For example, although spouses view caregiving as part of their marital duties, adult-children view it as a change in both role and lifestyle (Conde-Sala, Garre-Olmo, Turró-Garriga, Vilalta-Franch, & López-Pousa, 2010).

This diversity in nature and needs among caregiver groups results in considerable differences in their mental and physical well-being (McPherson, Pentland, & McNaughton, 2000; Pinquart & Sörensen, 2003, 2011). Studies have found heterogeneity in outcomes of well-being among caregivers, and many of them found that caregiving spouses reported worse mental and physical well-being than other caregiving subgroups. McPherson et al. (2000) demonstrated that the overall perceived health status of caregiving spouses who provided care to a family member with brain injury was lower than that of caregiving parents. Pinquart and Sörensen (2003) found that differences in stress and depression between caregivers and non-caregivers were greater for caregiving spouses than for caregiving adult-children. In a meta-analysis, Pinquart and Sörensen (2011) also found that caregiving spouses reported poorer mental health outcomes and greater financial and physical burden than caregiving adult-children. Hoyert and Seltzer (1992) found that patterns of outcomes were similar for caregiving parents and caregiving adult-children while appearing to manifest in less negative caregiving outcomes

than caregiving spouses. These comparative studies have confirmed that we need to differentiate caregiving subgroups and draw group specific findings.

Although the association between the wisdom-related personal resources and outcomes of well-being among caregivers has been demonstrated in literature (Adams et al., 2005; Mausbach et al., 2007), the majority did not distinguish caregiving subgroups or compared only two caregiver groups (e.g., caregiving spouses vs. caregiving adult-children). For example, Simpson and Carter (2013) compared the association between sense of mastery and the level of stress between caregiving spouses and daughters. They found that the increased level of sense of mastery including global mastery and caregiver mastery was strongly related to lower level of stress for caregiving spouses than for caregiving daughters. Our previous study found that openness to experience was directly related to better life satisfaction, and sense of mastery and emotion regulation had indirect associations with life satisfaction through social support among caregivers; however, our sample was limited to caregiving spouses (Kim & Knight, 2017). Therefore, it is interesting to explore the relationship between the wisdom-related personal resources and life satisfaction in other caregiving subgroups. By identifying the family relationship between the caregiver and the care recipient, we may provide a more accurate account of the outcomes of caregiving and the relationship between the personal resources and life satisfaction among caregivers.

Present Study

The purpose of this study was to examine and compare the association between the wisdom-related personal resources and life satisfaction among caregiving subgroups. Based on a model of resilience, we explored both direct and indirect associations between the personal resources and caregivers' life satisfaction through social support and compared them between subgroups. In this study, three variables (sense of mastery, openness to experience, and emotion regulation) among the wisdom-related personal resources were considered as potential caregiver personal resources of resilience related to caregivers' life satisfaction. Reflective attitude was not included in this study because there was no measure that could assess the construct in the study.

To explain the heterogeneity of caregiving experiences among caregivers, the present study distinguished caregiving subgroups as caregiving spouses, caregiving adult-children, and caregiving parents. First, we predicted that the three wisdom-related personal resources (hereinafter referred to as "the personal resources") would be directly associated with life satisfaction. Specifically, higher scores on the personal resources will be related to higher levels of life satisfaction (Hypothesis 1). We also predicted indirect

associations between the personal resources and caregivers' life satisfaction through social support. The positive relationship between the personal resources and life satisfaction would be partially explained by social support (Hypothesis 2). Finally, we expected that the relationships between the personal resources and life satisfaction would be stronger for caregiving spouses than for other caregiving subgroups (Hypothesis 3). The last hypothesis was grounded on literature suggesting that the relationship between the personal resources and the lower level of caregiving stress is stronger for caregiving spouses than for other subgroups (e.g., Simpson & Carter, 2013). We assumed that the personal resources, by relieving caregiving stress, would have positive relationships with caregivers' life satisfaction.

Method

Data and Analytic Sample

We analyzed data from the study of Midlife in the United States (MIDUS), a longitudinal study of health and aging in the United States conducted by the MacArthur Foundation Research Network on Successful Midlife Development. The MIDUS study was initially conducted in 1995-1996 (MIDUS I). The original sample ($n = 7,108$) was a national probability sample of non-institutionalized, English speaking midlife adults (age range = 25-74) residing in the 48 contiguous states. Between 2004 and 2006, participants ($n = 4,963$) were asked to participate in a telephone interview and subsequent postal survey (MIDUS II) similar in content to MIDUS I. In MIDUS II, additional questions were added in selected areas (e.g., caregiving experience, cognitive functioning, optimism and coping, and stressful life events). The analytic sample includes a total of 4,963 participants who provided information on caregiving experiences at MIDUS II. Due to limitations in measuring caregiving experience at the first wave of MIDUS, we employed a cross-sectional study design in the current study. More detailed information regarding the dataset can be found elsewhere (Dienberg-Love, Seeman, Weinstein, & Ryff, 2010).

Caregiving Status

In the phone questionnaire, the participants were asked if during the last 12 months they have provided personal care for a period of 1 month or more to a family member or friend because of a physical or mental condition, illness, or disability at MIDUS II. Respondents who answered "yes" were asked to indicate to whom they gave the most personal care (relationship type: husband, wife, son, daughter, father, mother, brother, sister, grandfather, grandmother,

Table 1. Descriptive Characteristics and Distribution for All Analytic Variables Among Caregiving Subgroups.

Variables	Caregiving spouses (<i>n</i> = 114)		Caregiving adult-children (<i>n</i> = 275)		Caregiving parents (<i>n</i> = 73)		Non-caregivers (<i>n</i> = 4,330)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Demographics								
Age	62.96	11.63	52.81	9.52	55.75	13.09	54.56	12.69
Female (%)	65.80		61.50		74.30		47.80	
Education (% high school or greater)	94.70		95.60		85.10		92.50	
Ethnicity (Whites, %)	91.20		89.80		89.20		90.10	
The personal resources								
Sense of mastery	5.36	1.02	5.54	0.98	5.37	1.01	5.53	0.99
Openness to experiences	2.85	0.51	2.97	0.53	2.99	0.63	2.88	0.53
Emotion regulation	12.95	2.22	12.41	2.25	12.90	2.41	12.22	2.36
Social support (family)	3.31	0.45	3.16	0.49	3.14	0.63	3.26	0.48
Life satisfaction	7.74	1.21	7.75	1.17	7.33	1.40	7.77	1.24
Years of caregiving	5.29	5.68	4.81	4.21	10.76	12.37		

father-in-law, mother-in-law, and other [specify]). They also provided the year they started caregiving. In this study, caregiving status was coded into multiple categories including spouse care (*n* = 114), parent care (including parent-in-law care; *n* = 275), child care (*n* = 73), and others care (*n* = 165). Participants who answered “no” on the first question were categorized as non-caregivers (*n* = 4,330). Descriptive characteristics and distribution for all analytic variables among caregiving subgroups are presented in Table 1.

Measures

The personal resources

Sense of mastery. Sense of mastery was measured by a four-item Personal Mastery scale. This scale measures one’s sense of efficacy or effectiveness in carrying out goals (Lachman & Weaver, 1998). Participants in the survey were asked in the self-administered questionnaire to indicate the extent of agreement or disagreement with the four statements (e.g., “I can do just about anything I really set my mind to”). Response categories range from 1 to 7

(1 = *strongly agree*, 2 = *somewhat agree*, 3 = *a little agree*, 4 = *neither agree or disagree*, 5 = *a little disagree*, 6 = *somewhat disagree*, 7 = *strongly disagree*). The scale was constructed by calculating the mean of values of the four items in the scale. Scores ranged from 1 to 7 in this study. Items were reverse-coded so that high scores reflected higher standing in a sense of mastery. Cronbach's alpha of this scale in this sample (caregivers) was .75.

Openness to experience. Openness to experience was measured using the survey questionnaire in which the Big Five personality traits were assessed. Respondents were asked how much each of following adjectives described them: Creative, Imaginative, Intelligent, Curious, Broad-Minded, Sophisticated, and Adventurous. Items were rated on a 4-point Likert-type scale (1 = *a lot*, 2 = *some*, 3 = *a little*, 4 = *not at all*). The scale was constructed by calculating the mean of values of the seven items in the scale. Scores ranged from 1.14 to 4 in this study. Items were reverse-coded so that high scores reflected higher openness to experience. Cronbach's alpha of this scale in this sample was .77.

Emotion regulation. Emotion regulation was measured by a four-item Positive Reinterpretation and Growth scale, which is a subscale of a Problem-Focused Coping Index (Carver, Scheier, & Weintraub, 1989). Items of Positive Reinterpretation and Growth scale were rated on a 4-point Likert-type scale (1 = *a lot*, 2 = *a medium amount*, 3 = *only a little*, 4 = *not at all*). Respondents were asked "I try to grow as a person as a result of the experience," "I try to see it in a different light, to make it seem more positive," "I look for something good in what is happening," and "I learn something from the experience." The scale was constructed by calculating the sum of the values of four items in the scale. Scores ranged from 5 to 16 in this study. All items were reverse-coded so that high scores reflected higher standing in the scale. Cronbach's alpha of this scale in this sample was .79.

The environmental resources (social support). Based on findings from the literature that social influence on health outcomes varies by types of social relationship (Brooks et al., 2014; Robles & Kiecolt-Glaser, 2003), this study differentiated social support by relationship and operationalized social support as perceived emotional support from the family members (except spouse/partner). Family support was measured using a four-item self-administered questionnaire (Schuster, Kessler, & Aseltine, 1990). The family support index indicated the extent of perceived availability of emotional support from family (except spouse/partner). Participants were asked, "Not including your spouse or partner, how much do members of your family really care about

you?” “How much do they understand the way you feel about things?” “How much can you rely on them for help if you have a serious problem?” and “How much can you open up to them if you need to talk about your worries?” Items were rated on 4-point scales (1 = *a lot*, 2 = *some*, 3 = *a little*, 4 = *not at all*). The scale was constructed by calculating the mean of the values of the items in the scale. The scale was computed for cases that have valid values for at least one item on the scale. Scores were not calculated for cases with no valid items on the scale. Scores ranged from 1 to 4 in this study. Items were reverse-coded so that high scores reflected higher standing on family support. Cronbach’s alpha of the scale in this sample was .84.

Life satisfaction. Life satisfaction refers to overall assessments of one’s quality of life (Diener, 1984). Satisfaction with life was measured by a five-item self-administered questionnaire. Respondents were asked to rate their life overall, work, family (relationship with spouse/partner, and relationship with children), and health (“On a scale of 0 to 10 where 0 means *the worst* and 10 means *the best*, how would you rate your (e.g., satisfaction with work) these days?”; Prenda & Lachman, 2001). The scores for relationship with spouse/partner and relationship with children were averaged to create one “item,” which reflects satisfaction with the family relationships. Then, this score was used along with the remaining three items to calculate an overall mean score. Scores ranged from 1.67 to 10 in this study. High scores reflect higher levels of overall life satisfaction. Cronbach’s alpha of the scale in this sample was .66.

Data Analytic Plan

The PROCESS macro for SPSS (Hayes, 2013; Preacher & Hayes, 2004) was used to test the possible direct and indirect associations between the three personal resources and life satisfaction among caregivers. Simple mediation models were examined separately for caregiving subgroups. The procedure consists of (a) estimating the associations between the personal resources and social support (*a*); (b) estimating the associations between social support and life satisfaction, while controlling the personal resources (*b*); (c) calculating the indirect associations between the personal resources and life satisfaction through the social support (*ab*); (d) bootstrapping the sampling distribution of *ab* and deriving a confidence interval (CI) with the empirically derived bootstrapped sampling distribution (see Figure 1). The indirect association (*ab*) was analyzed using the bootstrapping procedure because we could not assume the normality of the sampling distribution of *ab* due to the small sample sizes (Bollen & Stine, 1990; Hayes, 2009; Preacher & Hayes, 2004).

Moreover, literature suggests that the bootstrapping approach improves the accuracy of confidence limits for the indirect association, leading to detection of true indirect associations (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; MacKinnon, Lockwood, & Williams, 2004). If the 95% bias-corrected CI for the parameter estimate did not contain zero, then the direct and indirect association was statistically significant (Mallinckrodt, Abraham, Wei, & Russel, 2006; Preacher & Hayes, 2008). We conducted three separate analyses to find the associations between the three personal resources and life satisfaction for each caregiving subgroup.² Bonferroni adjusted alpha levels of .017 were used for each set of tests (McDonald, 2014).³

To test whether the direct and indirect associations significantly differ among caregiving subgroups, point estimates for each direct (c') and indirect association (ab) were compared between caregiving subgroups (subgroup approach, Ryu, 2015). Specifically, the differences in the c' paths between caregiving subgroups were divided by the standard error of the estimate to form a Z statistic. The ab paths between caregiving subgroups were compared using the same analysis (Fairchild & MacKinnon, 2009).

Data were primarily missing due to item non-responses. The missing data were imputed using the multiple-imputations-by-chained equation (MICE) method (Royston & White, 2011), including all analytic variables (sense of mastery, openness to experience, emotion regulation, social support, and life satisfaction) under the assumption that missing values are missing at random (Rezvan, Lee, & Simpson, 2015; Rubin, 1976; Schafer & Graham, 2002). A total of 10 imputed datasets were generated using the "MICE" package in R (Rubin, 1987; White, Royston, & Wood, 2011).

Results

The Associations Between the Personal Resources and Life Satisfaction Among Caregivers

Table 2 presents the results of the direct relationships between the personal resources and life satisfaction and indirect relationships between the resources and life satisfaction through social (family) support across caregiving subgroups. We found direct links between the personal resources and life satisfaction in caregiving spouses and parents. First, the bootstrap analysis revealed direct associations between sense of mastery and life satisfaction among caregiving spouses ($B = .25$, $SE = .08$, 95% CI = [.09, .42]) and parents ($B = .32$, $SE = .12$, 95% CI = [.07, .57]). Sense of mastery was not directly related to life satisfaction among caregiving adult-children. Openness to experience showed a direct positive link to life satisfaction only among

Table 2. Direct and Indirect Associations Between the Wisdom-Related Personal Resources and Life Satisfaction Across Caregiving Subgroups.

	Direct: Sense of mastery and LS			Indirect: Sense of mastery and LS		
	B	SE	95% CI	B	SE	95% CI
Spouses	.25**	.08	[.09, .42]	.001	.01	[-.02, .04]
Adult-children	.05	.06	[-.06, .17]	.05*	.02	[.01, .10]
Parents	.32**	.12	[.07, .57]	.07*	.05	[.01, .20]
	Direct: Openness to experience and LS			Indirect: Openness to experience and LS		
	B	SE	95% CI	B	SE	95% CI
Spouses	.50*	.22	[.06, .93]	.01	.04	[-.07, .11]
Adult-children	.16	.13	[-.10, .43]	.02	.05	[-.07, .13]
Parents	.43	.27	[-.11, .96]	.17*	.10	[.03, .46]
	Direct: Emotion regulation and LS			Indirect: Emotion regulation and LS		
	B	SE	95% CI	B	SE	95% CI
Spouses	.11	.05	[-.001, .21]	.01	.01	[-.001, .04]
Adult-children	.08	.03	[-.02, .15]	.03	.01	[-.01, .06]
Parents	.14*	.07	[.002, .27]	.05	.03	[-.01, .13]

Note. Analyses control for age, sex, education, and ethnicity. LS = life satisfaction; B = unstandardized coefficient; CI = confidence interval.

* $p < .05$. ** $p < .017$ (Bonferroni correction).

caregiving spouses: $B = .50$, $SE = .22$, $95\% \text{ CI} = [.06, .93]$. Emotion regulation was directly related to life satisfaction among caregiving parents: $B = .14$, $SE = .07$, $95\% \text{ CI} = [.002, .27]$. Direct associations between emotion regulation and life satisfaction among other subgroups were not found.

Regarding indirect associations, we found indirect relationships between sense of mastery and life satisfaction through social support among caregiving adult-children ($B = .05$, $SE = .02$, $95\% \text{ CI} = [.01, .10]$) and caregiving parents ($B = .07$, $SE = .05$, $95\% \text{ CI} = [.01, .20]$). This finding suggests that sense of mastery might be partially positively related to life satisfaction through increasing social support. Openness to experience was indirectly linked to life satisfaction through social support among caregiving parents: $B = .17$, $SE = .10$, $95\% \text{ CI} = [.03, .46]$. No indirect relationships between

Table 3. Differences in Direct and Indirect Associations Between Sense of Mastery and Life Satisfaction Across Caregiving Subgroups.

Groups	Difference	Z	p value
Direct associations			
Spouses–Adult-children	0.20	2.00	.046
Spouses–Parents	–0.07	–0.48	.627
Parents–Adult-children	0.27	2.01	.045
Indirect associations			
Spouses–Adult-children	–0.049	–2.19	.029
Spouses–Parents	–0.069	–1.35	.176
Parents–Adult-children	0.02	0.37	.710

emotion regulation and life satisfaction through social support were found across the caregiving subgroups.

Differences in Direct and Indirect Associations Across Caregiving Subgroups

We compared the associations between the personal resources and life satisfaction between subgroups. The differences were found in the direct and indirect associations between sense of mastery and life satisfaction (see Table 3). Specifically, the direct relationship between sense of mastery and life satisfaction was significantly stronger for caregiving spouses and parents than for caregiving adult-children. We also found that indirect relationships between sense of mastery and life satisfaction through social support from family members were significantly different at $p < .05$ among caregiving subgroups. Sense of mastery had a stronger indirect association with life satisfaction through social support for caregiving adult-children than for caregiving spouses. We did not find statistically significant differences in the relationships between openness to experience and life satisfaction nor in the relationships between emotion regulation and life satisfaction among subgroups.

Discussion

Previous studies have emphasized differences in caregiving experience and mental and physical well-being among caregiving subgroups. The current study, however, is the first comparison study of the associations between the wisdom-related personal resources (sense of mastery, openness to experience, and emotion regulation) and life satisfaction among caregiving subgroups.

Our hypotheses were partially supported by the results. First, it was expected that the personal resources would be directly and indirectly related to life satisfaction among caregivers (Hypotheses 1 and 2). The current study revealed that the relationships between the resources and life satisfaction varied among caregiving subgroups. Specifically, there were direct links between sense of mastery and life satisfaction among caregiving spouses and parents, whereas there was an indirect link between sense of mastery and life satisfaction among caregiving adult-children. As we found in our previous study (Kim & Knight, 2017), openness to experience was directly related to life satisfaction among caregiving spouses. Also, emotion regulation had a positive relationship with life satisfaction among caregiving parents. Finally, we expected that the relationship between the personal resources and life satisfaction would be stronger for caregiving spouses than for other caregiving subgroups (Hypothesis 3). This was only supported by the direct association between sense of mastery and life satisfaction. Although the direct link between sense of mastery and life satisfaction was significantly stronger for caregiving spouses and parents than for caregiving adult-children, the indirect link between sense of mastery and life satisfaction through social support was stronger for caregiving adult-children than for caregiving spouses.

The Associations Between the Personal Resources and Life Satisfaction Among Caregivers

The finding of direct positive links between sense of mastery and openness to experience and life satisfaction among caregiving spouses simply duplicates the analyses reported in our previous article comparing caregiving spouses and matched non-caregivers. In the current comparison study, we did not find similar direct associations between openness to experience and life satisfaction in the other caregiver groups. One possible reason for this result is age differences between caregiving spouses and other caregivers. Caregiving spouses were the oldest group (M age = 63) among the three groups (M age = 53 for adult-children; M age = 56 for parents). Openness to experience has been demonstrated to be a protective factor for mental (Stephan, 2009), cognitive (Sharp, Reynolds, Pedersen, & Gatz, 2010), and physical health (Iwasa et al., 2008; Turiano, Spiro, & Mroczek, 2012) for older adults. These studies suggest that openness to experience may act as a buffer to stressors in the lives of older adults because older adults with high levels of openness to experience are more willing to try new approaches to stress management (Turiano et al., 2012). The current findings suggest that openness to experience is a beneficial source of caregivers' life satisfaction, especially for older groups such as caregiving spouses.

Although sense of mastery had direct links to life satisfaction for spouses and parents, the link was indirect through social support for adult-children caring for parents. For caregiving adult-children, the positive relationship between sense of mastery and life satisfaction was partially explained by social support. Given social support in this study refers to family support, sense of mastery might be positively related to life satisfaction by increasing support from family members. A possible reason for the significant differences in the associations between sense of mastery and life satisfaction among caregiving subgroups is that each group has a different perception of responsibilities and obligations in caregiving roles (Chappell et al., 2014; Pinquart & Sörensen, 2011). Spouses and parents view caregiving as clearly their marital and parental obligation and responsibility (Conde-Sala et al., 2010). They are less likely to consider their caregiving role within the larger family context (e.g., Simpson & Carter, 2013). However, adult-children tend to see their caregiving role toward their aging parent as part of a network of roles within the family system (Ron, 2009). There are likely to be more concerns about shared responsibility with siblings and also a stronger sense of role reversal when taking care of parents. When people regard their caregiving role within the family system context, they are more likely to expect support from family (Hequembourg & Brallier, 2005; Kwak, Ingersoll-Dayton, & Kim, 2012; Merrill, 1996). Our findings are in line with previous studies that have found that lack of support or presence of conflict from family relationships might lead to poor mental and physical well-being among caregiving adult-children (Ingersoll-Dayton, Neal, Ha, & Hammer, 2003; Lashewicz & Keating, 2009; Scharlach, Li, & Dalvi, 2006). For example, Kwak et al. (2012) found that family conflict was positively related to caregivers' stress among caregiving adult-children. Overall, our finding suggests that caregiving adult-children with high levels of sense of mastery might be more likely to receive social support from their families, and the well-being of caregiving adult-children might be more influenced by the relationships within their family systems than it would be for other caregiving subgroups. The current study found that scoring higher on emotion regulation was related to better life satisfaction among caregiving parents. This result may be due to the fact that caregiving parents spend relatively more years in caregiving for their children than other caregiving groups (Ourada & Walker, 2014). Actually, caregiving parents have spent almost double the duration of years ($M = 10.8$ years) in caregiving for their children than the other caregiving groups (caregiving spouses = 5.3, caregiving adult-children = 4.8) in this study. Thus, caregiving parents often face a commitment of responsibility for many years, and so stress from their caregiving experience is more chronic than others. To adjust to long-lasting cumulative stress, coping strategies such as emotion

regulation may be more effective than other resources. It has been demonstrated in several studies that caregiving parents who use coping strategies focusing on problem-solving showed better adjustment in terms of health outcomes (Abbeduto et al., 2004; Gavidia-Payne & Stoneman, 2006). In addition, Glidden, Billings, and Jobe (2006) found that emotion regulation (positive reappraisal) was positively related with subjective well-being among caregiving parents. It is also possible that a longer duration of caregiving among caregiving parents than caregiving spouses and adult-children is related to the long-term effect of emotion regulation. The effects of emotion regulation on stressful life events have been differentiated as short-term and long-term effects (Mauss & McRae, 2016). The short-term effect refers to generating positive emotion by emotion regulation skills, and the long-term effect refers to the effect of emotion regulation on resilience (better well-being) in the context of stressful life events (Mauss & McRae, 2016). Given the close relationship between life satisfaction and resilience (Abolghasemi & Varaniyab, 2010; Akbar et al., 2014), caregiving parents who have a relatively long duration of caregiving are more likely to be influenced by the long-term effect of emotion regulation leading to better life satisfaction. The caregiving experience of spouses and adult-children might not be long enough in duration to be related to enhanced life satisfaction.

Implications

Emerging evidence suggests that associations between resilience resources (personal and environmental) and positive outcomes in caregiving differ among caregiving subgroups (e.g., Simpson & Carter, 2013). The findings of this study confirmed that we should distinguish the type of caregivers in studies of caregiving. This is because there is heterogeneity in characteristics and caregiving experience across caregiving subgroups (Pinquart & Sörensen, 2011). When we combine subgroups, we may neutralize group-level effects. The finding that the associations between the three personal resilience resources and life satisfaction vary among caregiving subgroups suggests that we need to consider different types of interventions for each group. In a meta-analysis, Sörensen, Pinquart, and Duberstein (2002) found that the effectiveness of interventions differs by caregiving subgroups. Interventions may be effective if we strengthen the most useful resources for a particular type of caregiver.

The findings of the current study suggest that interventions focused on increasing sense of mastery may not be related to life satisfaction in the same way among caregiving subgroups. Although caregiving spouses and parents may benefit most from interventions targeted at strengthening sense

of mastery, caregiving adult-children may gain most from interventions increasing both sense of mastery and social support from their family members. For example, family interventions encouraging family members to provide support to primary caregivers might improve life satisfaction among caregiving adult-children. Our findings also suggest that an increasing level of openness to experience may be helpful when it comes to improving caregiving spouses' life satisfaction. Literature shows that openness to experience can be increased by experiences and training such as cognitive training (Jackson, Hill, Payne, Roberts, & Stine-Morrow, 2012). Therefore, interventions aimed at enhancing caregiving spouses' openness to experience through cognitive training (e.g., inductive reasoning training) may benefit life satisfaction among caregiving spouses (Kim & Knight, 2017). Finally, targeted toward strengthening emotion regulation skills will be likely to link to better life satisfaction among caregiving parents. Clinicians dealing with caregiving parents are suggested to assess coping mechanisms of parents and to educate and encourage them in the use of emotion regulation skills to improve life satisfaction.

Limitations

This study must be considered with the following limitations in mind. First, as the majority of respondents in the MIDUS sample were well-educated Caucasians, there may be limited generalizability. Second, this study included only family support among social support from various relationships. Thus, future studies should include social support from other relationships (e.g., friend support) to deepen our understanding on the role of social support on the relationship between the personal resources and caregivers' life satisfaction. Finally, this study used a cross-sectional design, which precludes the ability to draw causal inferences. Due to this limitation, we cannot rule out the possibility that rather than the personal resources protecting caregivers from negative effects of caregiving stress, it may be that caregiving experience facilitates the development of the personal resources. To explore this ordering, future studies should apply a longitudinal design.

Conclusion

Despite these limitations, this study has a number of strengths and makes an important contribution to the literature on the associations between psychosocial resources of resilience and caregivers' life satisfaction. This study contributed to a better understanding of the relationship between the personal resources (sense of mastery, openness to experience, and emotion regulation) and caregivers' life satisfaction by differentiating caregiving subgroups.

Overall, this study demonstrated the resources are possible personal resilience factors related to caregivers' life satisfaction and showed how the relationships between the personal resources and life satisfaction differ by caregiving subgroups. The study design also suggested group specific interventions that may be helpful to better life satisfaction among caregivers.

Authors' Note

The article was written while the first author was a doctoral candidate at the Davis School of Gerontology at University of Southern California.

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Notes

1. We applied the first version of the MORE Life Experience Model in this study.
2. Direct and indirect effects were calculated simultaneously in an analysis.
3. The critical value ($\alpha = .017$) for an individual test was calculated by dividing the familywise error rate (usually .05) by the number of tests for each of the personal resilience resources (.05 / 3).

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