Empirical Article

Grandparenting and Self-Rated Health Among Older Korean Women

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Abstract

An increasing number of older Korean women have played an important role in taking care of their grandchildren to help their adult children. This study investigates the effects of grandparenting on older women' health in South Korea. Using the Korean Longitudinal Study of Aging ($N = 3,092$), we estimated ordinal logistic regression models with lagged dependent variable to examine whether and how grandparenting type and transition and grandparenting intensity are associated with older women's self-rated health. Results show that grandmothers who provide long-term non-residential grandparenting have better self-rated health than grandmothers who are not engaged in grandparenting. Grandmothers caring for grand-children in skipped-generation households or multigenerational house-holds do not suffer from a deficit in health. Grandparenting intensity is not associated with grandmothers' health. Our findings suggest that the implications of grandparenting for older women's health may differ in dif-ferent social and cultural contexts.

Keywords

grandparent, caregiving, health, intergenerational relationship, the Korean Longitudinal Study of Aging

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Significant increases in life expectancy over the past decades have changed family structures and behaviors in many countries (Chen & Liu, 2012; Silverstein & Giarrusso, 2010). Intergenerational relationships and the changing role of older adults in aging families have drawn researchers' attention. During their longer later life, more and more older adults have been involved in caring for grandchildren (hereafter, grandparenting) as either custodial or temporary caregivers (Baker, Silverstein, & Putney, 2008; Silverstein & Giarrusso, 2010). The rapid growth of female labor-force participation and single-parent families of adult children are factors accelerating this trend (Hofferth, 1996). Accordingly, a growing number of studies on grandparenthood have explored the changing role of grandparents and its effect on older adults' well-being.

Older adults' grandparental role in later life has become an important issue in South Korea (hereafter, Korea) as in other countries. Korea has experienced a swift transition to an aging society as a consequence of improvements in modern medicine and standard of living. By 2014, those aged 65 years and older constituted 12.7% of the Korean population, and it is predicted that Korean society will be superaged, with those over 65 making up 37.4% of the population by 2050 (Statistics Korea, 2014). As healthy later life has been prolonged, more older adults are involved in unpaid family labor including grandparenting. Over half of the dual-income couples have asked their parents to care for grandchildren, especially newborn or toddler grandchildren (Korea Institute of Child Care and Education, 2012). Frequent intrafamily support based on traditional family values, combined with a lack of affordable day care centers, has played a crucial role in the increase in grandparenting. A unique feature of Korean grandparenting is that many older adults, particularly grandmothers, provide intensive grandparenting to support their dual-income adult children who do not coreside with them (Korea Institute of Child Care and Education, 2015).

Research has suggested that grandparenting, a role emerging in later life, may affect older adults' physical and psychological well-being (Goodman, 2003; Waldrop & Weber, 2001). However, there is a dearth of research on grandparenthood and its health implications in Korea. Moreover, although grandparenting by older adults has become common, most previous literature has focused on the negative caring experience of grandmothers in skipped-generation households (i.e., grandparent-headed households in which adult children are absent; M.-H. Kim & Kim, 2004; Lee & Han, 2008; C.-S. Park, 2010). Further comprehensive studies are needed to capture the various facets of the current experience of grandparenting (e.g., nonresidential or multigenerational) and its impacts on older adults' health.

In this article, we aim to investigate whether grandparenting affects self-rated health among Korean grandmothers who are mostly main caregivers. Using the Korean Longitudinal Study of Aging (KLoSA), a nationally representative survey, we address two research questions. First, does the transition in grandparenting type (i.e., nonresidential grandparenting, multigenerational household grandparenting, and skipped-generation household grandparenting) differentially affect older women's self-rated health? Second, is grandparenting intensity (i.e., grandparenting hours/week) associated with the self-rated health of grandmothers?

Background

Grandparenting and Older Adults' Health

Two theoretical perspectives have often been used in the literature on the health consequences of grandparenting. The role enhancement theory suggests that grandparenting may have protective effects on older adults' health. Holding multiple social roles increases individuals' well-being because the satisfaction they obtain from executing each role is compounded (Moen, Robison, & Dempster-McClain, 1995). Through carrying out an additional role as a caregiving grandparent and increasing their interactions with grandchildren and adult children, older adults experience greater self-efficacy, sense of purpose in life, feelings of reward, and life satisfaction (Pruchno & McKenney, 2002; Rozario, Morrow-Howell, & Hinterlong, 2004; Szinovacz & Davey, 2006). Moreover, being physically active while caring for grandchildren promotes older adults' physical and mental health (King, Rejeski, & Buchner, 1998).

The role strain theory, on the other hand, suggests that grandparenting can adversely affect older adults' health. Role strain is the difficulty that individuals experience in fulfilling role obligations, especially due to limited individual or situational resources including goods, time, energy, and emotions (Goode, 1960). For older adults who take care of grandchildren, managing the roles of grandparent, spouse, parent, and other social positions simultaneously may lead to role strain. Given that increasing role strain is a source of psychological distress (Barnett & Baruch, 1985; Pearlin, 1989), grandparents with overdemanding role obligations are likely to be under considerable stress, which has a negative effect on health. Furthermore, such role strain may result in intergenerational conflicts over child-rearing and less time with spouses and other family members, which could be additional stressors for caregiving grandparents. More intensive grandparenting may be

particularly harmful to health because grandparents may not have enough time to take care of their own health and enjoy leisure activities.

Empirical studies, mostly from the United States, Europe, and some Asian countries, are mixed: Grandparenting has both beneficial and detrimental effects on older adults' health depending on the caregiving type and intensity and the country context. Some studies in the United States and Europe have found that older adults who care for grandchildren have reported better health. For example, nonresidential babysitting is linked to a higher level of self-rated health and decline in depressive symptoms among grand-mothers, although grandparents' prior characteristics and health explain the relationship (Hughes, Waite, LaPierre, & Luo, 2007). Caregiving grandpar-ents enjoy better health in terms of the frailty index (Chen, Mair, Bao, & Yang, 2014) and cognitive functioning, particularly verbal fluency across all levels of care intensity compared to noncaregiving counterparts (Arpino & Bordone, 2014). Grandmothers who provide caregiving of medium intensity are more likely than noncaregiving grandmothers to experience fewer func-tional limitations and less depressive symptoms (Hughes et al., 2007). A moderate level of grandparenting on a regular basis is associated with lower rates of depression (Grundy et al., 2012).

On the other hand, some types of grandparenting are associated with poor adult health, consistent with the role strain theory. Prior studies in the United States have mainly focused on the negative health effects of grandparenting in skipped-generation households. Custodial grandparent caregivers in skipped-generation households, where adult children are involuntarily absent (because of, e.g., adult children's death, unemployment, divorce, incarcera-tion, or illness), are more likely than noncaregiving grandparents to report deteriorating health (M. Choi, Sprang, & Eslinger, 2016; Hayslip & Kaminski, 2005); findings have included worse self-rated health (Hughes et al., 2007), a higher frailty index for non-Hispanic Black grandparents (Chen et al., 2014), and depressive symptoms (Hughes et al., 2007; Szino-vacz, DeViney, & Atkinson, 1999). With respect to grandparenting intensity, especially for highly intensive grandparenting, most U.S. studies have not clearly differentiated custodial grandparenting in skipped-generation house-holds from other circumstances. Musil et al. (2011), however, found that switching to a higher grandparenting load over time has a significant asso-ciation with grandmothers' poorer physical health.

Studies of grandparenting in Asian contexts have been scant despite the changing roles and meanings of traditional grandparenthood over the past several decades (Mehta & Thang, 2012). Previous literature has often focused on grandparenting in multigenerational households, a more

traditional and common type of grandparenting in Asia compared to Western countries. In China, caregiving grandparents in multigenerational households experience faster declines in self-rated health over time than their noncaregiving counterparts. Furthermore, older adults in multigenerational households who provide highly intensive grandparenting experience faster health declines compared to those who do not care for grandchildren (Chen & Liu, 2012). However, the evidence from Taiwan reveals that grandparents offering long-term grandparenting in a multigenerational household report better self-rated health and lower rates of depressive symptoms, relative to noncaregivers and short-term caregivers (Ku et al., 2013). The reasons for the inconsistent results are not clear, although the findings in China and Taiwan are not directly comparable due to the different analytical approaches applied.

The mixed findings in the extant literature warrant new efforts to better understand the relationship between grandparenting and older adults' health. The majority of previous studies have focused on how grandparenting, specifically either grandparenting in a skipped-generation household or nonresidential babysitting, affects older adults' health in the United States (Hayslip, Blumenthal, & Garner, 2014). Among those studies that have discussed grandparenting within non-Western cultural contexts, most have focused on multigenerational households (Chen & Liu, 2012; Grundy et al., 2012).

Grandmothers in Korea

An increasing number of older adults in Korea, especially grandmothers, have taken care of grandchildren as a means to support their dual-earner adult children (Korea Institute of Child Care and Education, 2015). Nevertheless, few studies have examined the health implications of grandparenting for older women. While the findings from other cultural contexts have reported both positive and negative effects of grandparenting on older adults' health, recent Korean literature often shows that intensive grandparenting and skipped-generation household grandparenting are associated with poor health outcomes (Bae, 2007; Baek, 2009; E.-J. Kim & Seo, 2007; H.-O. Park, 2013).

Previous research has found that Korean grandmothers who provide highly intensive grandparenting (over 40 hr per week), compared to those who provide little or no grandparenting, report the highest incidence of lung disease, cardiac disorder, arthritis, and rheumatism and the highest degree of bodily pain (Baek, 2009; E.-J. Kim & Seo, 2007). Grandparents offering full-time grandparenting are more likely than their part-time counterparts to report a higher level of depression (Bae, 2007; Baek, 2009). Yet grandparents

who offer part-time grandparenting tend to report a higher level of life satisfaction than their full-time counterparts (Y. Choi & Cha, 2013).

Within the limited research on grandparenting and older adults' health in Korea, the majority of studies have focused only on the effect of grandparenting in skipped-generation households and its excessive caregiving demands (M.-H. Kim & Kim, 2004; Lee & Han, 2008; C.-S. Park, 2010). Korean grandparents in skipped-generation households often become caregivers of their grandchildren because their adult children are either absent or divorced and as such must have careers. They are more likely to be poor and face social stigma (M.-H. Kang, 2012). Caregiving grandparents in skipped-generation households, mostly grandmothers, tend to experience more depressive symptoms, stress, chronic diseases, and functional limitations (Bae, 2007; M.-H. Kang, 2012; H.-O. Park, 2013).

The skipped-generation household, however, is not common in Korea. Little is known about whether other types of grandparenting (i.e., nonresidential grandparenting and multigenerational household grandparenting) have positive or negative effects on health despite the recent report that a growing number of nonresidential grandparents and grandparents in multigenerational households care for younger grandchildren intensively (Korea Institute of Child Care and Education, 2015). Furthermore, the majority of previous studies have utilized either cross-sectional or regional (Bae, 2007; Baek, 2009; Y. Choi & Cha, 2013; Y. Kang, 2011) or qualitative data (E.-J. Kim & Seo, 2007). This study goes beyond those by using a nationally representative longitudinal survey to untangle the association between grandparenting and health among older women in Korea.

Taken together, our major goal is to examine the relationship between various types, transitions, levels of intensity of grandparenting, and older Korean women's self-rated health. Self-rated health is an important indicator of older adults' health, which predicts mortality despite the inclusion of other medical or behavioral risk factors (Idler & Benyamini, 1997). Based on the previous literature, our first hypothesis is that older women starting or continuing care for grandchildren in skipped-generation households and multigenerational households have a lower level of self-rated health than their noncaregiving counterparts. Second, we hypothesize that older women who start or continue nonresidential grandparenting have better self-rated health compared to noncaregiving grandmothers. The third hypothesis is that older women providing highly intensive grandparenting report worse self-rated health than their noncaregiving counterparts.

Method

Data and Sample

We used data from the KLoSA to examine the relationship between grand-parenting and older women's self-rated health. The primary purpose of the KLoSA is to collect data on older Korean adults' labor force participation, family life, financial status, retirement, health transitions, and social welfare since the country is aging rapidly. The KLoSA includes a nationally representative sample of 10,254 Koreans aged 45 and older. Face-to-face interviews were performed by interviewers who visited households with computer-assisted personal interviewing. Since 2006 (baseline), the KLoSA has been biennially conducted.

Waves 2 and 3 (2008 and 2010) of the KLoSA data were utilized in this study. We excluded Wave 1 (2006) because it did not provide detailed information on the members of respondents' households, which was necessary to measure grandparents' family structure and grandparenting type. Of the 8,688 respondents from Wave 2 in 2008, the analytic sample of this study contains 3,092 grandmothers who have had grandchildren since Wave 2 in 2008 and completed both waves of the survey.

Measures

Self-rated health in 2010. We used self-rated health as the dependent variable to assess older Korean women's health. Respondents were asked the following question: "How do you feel about your health: excellent, good, fair, poor, and very poor?" Using the item, we measured self-rated health on a 5-point scale ranging from $1 = very\ poor$ to $5 = excellent$.

Grandparenting characteristics. We created two main independent variables to characterize older Korean women's grandparenting: (1) grandparenting type and transition and (2) grandparenting intensity. First, we classified grand-mothers' various grandparenting experiences based on the continuity and transition in care arrangements between 2008 and 2010. We derived the information from 2 survey items: respondents' household members and grandparenting involvement (Did you take care of any of your grandchildren under the age of 10 last year?). The reference category of no grandparenting included those grandmothers who did not provide any grandparenting in both 2008 and 2010. Among grandmothers who had provided grandparenting, those living only with grandchildren in both 2008 and 2010 were categorized as the long-term skipped-generation household grandparenting type.

Caregiving grandmothers living with both adult children and grandchildren at both waves were categorized as the long-term multigenerational household grandparenting type. Grandmothers who cared for grandchildren but lived in a separate household at both waves were classified as the long-term nonresidential grandparenting type. Entry into skipped-generation household grandparenting, multigenerational household grandparenting, and nonresidential grandparenting categories included those who did not take care of grandchildren in 2008 but reported grandparenting activities in 2010. Grandmothers who offered any types of grandparenting in 2008 but stopped grandparenting in 2010 were categorized as stopping any grandparenting. We excluded other types of care transition (e.g., skipped generation household grandparenting to multigenerational household grandparenting and multigenerational household grandparenting to skipped-generation household grandparenting) due to an insufficient number of these transitions in the data.

Next, the grandparenting intensity variable was constructed to test how time spent grandparenting affects older women's health. We measured grandparenting intensity as a categorical variable in 2008 using the item "On average how many hours per week did you spend on caring for (grandchild's name) last year?" Grandmothers who did not care for grandchildren were identified as the no grandparenting group (reference category). Grandmothers were categorized as "part-time grandparenting" if they took care of grandchildren less than 40 hr per week. The "full-time grandparenting" category included grandmothers who provided grandparenting for 40 or more hr per week. Caregiving Korean grandparents have reported providing approximately 8 hr of grandparenting daily for over 5 days per week on average (Korea Institute of Child Care and Education, 2015). The average weekly time spent grandparenting in the KLoSA was also 44.9 hr for caregiving nonresidential grandmothers in 2008, despite living apart from their grandchildren (results not shown). Given the trend of highly intensive grandparenting among Korean grandmothers, the three-category measure of grandparenting intensity was reasonable. Unlike grandparenting type, we were unable to test transitions in grandparenting intensity due to sample size.

Control variables. All our control variables came from the 2008 wave. Age was constructed as a continuous variable. Marital status was a dummy variable (1 = *married*). In terms of health status, we controlled for self-rated health in 2008. We also controlled for having been diagnosed with one or more major chronic conditions such as high blood pressure, diabetes, cancer, lung disease, liver disease, cardiac disorder, cerebrovascular disease, or arthritis and

rheumatism ($1 = yes$), and functional limitations from the instrumental activities of daily living (IADL), ranging from 0 to 10.

On the basis of prior research on grandparenting and health, other covariates comprised three main groups. First, to capture socioeconomic characteristics, we included education, household income, employment status, and pension. Education referred to grandmothers' highest educational level, and its categories included elementary school or less (reference category), middle school, and high school diploma or more. Household income was adjusted as a logged continuous variable. Employment status was a dichotomous variable ($1 = working$). Pension receipt was a dichotomous variable indicating whether respondent received any income from public and private pension programs ($1 = yes$).

Second, our measures of health behaviors contain three sets of predictors: Exercise ($1 = currently exercising$), smoking ($1 = currently smoking$), and drinking ($1 = currently drinking$) were measured as dummy variables. Third, we included 3 items to measure social support: Social activity was coded as a binary variable using the question that asked how often respondents engaged in the activities of the organizations, clubs, or societies of which the respondent was a member ($1 = more than monthly$, $0 = less than monthly$). Financial or nonfinancial support from adult children and financial or nonfinancial support to adult children were dummy variables ($1 = yes$) utilizing the questions whether respondents and their spouse received from/gave children any gifts or monetary transfers such as pocket money, living expenses, or medical expenses.

Analytic Strategies

We first provided descriptive statistics for the analytic sample. Then, we estimated ordinal logistic regression models using lagged dependent variables to examine the effects of grandparenting type and transition and grandparenting intensity on older Korean women's self-rated health.

We carried out two sets of analyses containing four models each. First, we estimated how various grandparenting types and their continuity and transition influence older women's self-rated health. Model 1 included grandparenting type and transition, age, marital status, self-rated health in 2008, chronic diseases, and functional limitations. Model 2 added grandmothers' socioeconomic characteristics (i.e., education, household income, employment, and pension) to examine whether socioeconomic status accounted for the relationship between grandparenting type and older women's health.

Model 3 additionally controlled for health behaviors (i.e., exercise, smoking, and drinking), and Model 4, our full model, included all variables in Model 3 as well as three dimensions of social support (i.e., social activity and financial or nonfinancial support from/to adult children).

The second set of analyses assessed how grandparenting intensity affects older women's self-rated health. The same procedures used in the first analysis were applied. We first examined the association between grandparenting intensity and older women's self-rated health controlling for age, marital status, and health status. Grandmothers' socioeconomic characteristics, health behaviors, and social support were included sequentially. We used weights to adjust for the sampling design of the KLoSA data. Approximately 3% of the respondents in our data had one or more missing values, and missing values were imputed with multiple imputation by chained equations in Stata version 14.

Results

Descriptive Statistics

Table 1 reports the descriptive statistics for all measures from 2008 wave of KLoSA. Among caregiving grandmothers between 2008 and 2010, those who stopped any grandparenting in 2010 were the largest group (5.35% of all grandmothers), followed by grandmothers who provided long-term nonresidential grandparenting (1.36%) and those who started nonresidential grandparenting (1.08%). Long-term skipped-generation household grandparenting and long-term multigenerational household grandparenting accounted for 0.22% and 0.69%, respectively. In addition, caregiving grandmothers cared for grandchildren intensively. A slightly higher percentage of grandmothers (3.91% of all grandmothers) taking care of their grandchildren for over 40 hr per week (full-time) in the year before 2008 than that of grandmothers with part-time grandparenting (3.68%).

The average age of grandmothers was 66.60. 64.80% of grandmothers were married in 2008. In terms of socioeconomic status, almost 71.78% of grandmothers had elementary school or less education. The average household income of grandmothers was 6.97. 25.94% of grandmothers were currently employed and 10.31% received pension. As for health behaviors, grandmothers who currently exercise were 30.98%. The proportions of currently smoking and drinking were relatively low, 3.42% and 16.65%, respectively. In addition, 85.97% of grandmothers had social activities more than

Table 1. Descriptive Statistics for Grandmothers, Korean Longitudinal Study of Aging.

Variable	Mean or %	SD
Self-rated health in 2010	2.73	0.88
Grandparenting type and transition, 2008–2010		
No grandparenting (ref.)	90.77	
Long-term skipped-generation household grandparenting	0.22	
Long-term multigenerational household grandparenting	0.69	
Long-term nonresidential grandparenting	1.36	
Entry into skipped-generation household grandparenting	0.16	
Entry into multigenerational household grandparenting	0.36	
Entry into nonresidential grandparenting	1.08	
Stopped any grandparenting	5.35	
Grandparenting intensity in 2008		
No grandparenting (ref.)	92.41	
Part-time grandparenting	3.68	
Full-time grandparenting	3.91	
Age	66.60	9.12
Married (=1)	64.80	
Health status in 2008		
Self-rated health (1–5)	2.77	0.89
Chronic diseases (1 = yes)	64.74	
Functional limitations (IADL)	0.45	1.68
Socioeconomic characteristics in 2008		
Elementary school or less (ref.)	71.78	
Middle school	14.93	
High school diploma or more	13.29	
Household income (Ln)	6.97	1.36
Working (1 = yes)	25.94	
Pension (1 = yes)	10.31	
Health behaviors in 2008		
Exercise (1 = yes)	30.98	
Smoking (1 = yes)	3.42	
Drinking (1 = yes)	16.65	
Social supports in 2008		
Social activity (1 = more than monthly)	85.97	
Support from adult children (1 = yes)	82.90	
Support to adult children (1 = yes)	24.08	

Note. N = 3,092. All values are weighted. IADL = instrumental activities of daily living.

once a month. About 82.90% of grandmothers received financial or nonfinancial supports from adult children, and 24.08% gave financial or nonfinancial supports to adult children.

Multivariate Models of Grandparenting and Older Korean Women's Self-Rated Health

The results on the association between grandparenting type and transition and older women's self-rated health are shown in Table 2. The base model tested the relationship between our key independent variable, grandparenting type and transition, and self-rated health. We found that providing long-term nonresidential grandparenting had a significant positive effect on grandmothers' self-rated health in 2010, controlling for age, marital status, and health status in 2008. Specifically, nonresidential grandmothers who cared for grandchildren both in 2008 and 2010 were more likely than their noncaregiving counterparts to report better self-rated health (odds ratio [*OR*] = 2.108).

Next, when socioeconomic status-related variables (i.e., education, household income, employment, and pension) were added, long-term nonresidential grandparenting was still significantly associated with better self-rated health. When Model 3 incorporated health behaviors such as exercise, smoking, and drinking, the significant effect of long-term nonresidential grandparenting remained the same. The final model added social support including social activity and support from/to adult children, and the effect of long-term nonresidential grandparenting for grandmothers remained robust ($p < .05$). Therefore, we found that grandmothers who provided long-term nonresidential grandparenting reported a higher level of self-rated health than did grandmothers without any grandparenting experience between the 2-year interval, after controlling for all other covariates. However, other types of grandparenting including long-term skipped-generation household grandparenting, long-term multigenerational household grandparenting, entry into skipped-generation household grandparenting, entry into multigenerational household grandparenting, entry into nonresidential grandparenting, and stopped any grandparenting were not significantly linked to older women's self-rated health.

The results also revealed the significant effects of covariates on older women's health. Grandmothers tended to have a higher level of self-rated health in 2010 when they reported better self-rated health in the past, a higher level of education, higher household income, and financial or nonfinancial support from adult children. Yet being older, being married, currently smoking, suffering from chronic diseases, and/or functional limitations were related to grandmothers' worse self-rated health. These results are consistent with findings yielded from prior literature in Korea (Y. Choi & Cha, 2013; Jang et al., 2009).

Table 3 shows how grandparenting intensity affects the self-rated health of grandmothers. Model 1 examined the association between grandparenting

Table 2. The Odds Ratios From Ordinal Logistic Regression Models Predicting Self-Rated Health by Grandparenting Type and Transition Among Grandmothers, 2008–2010.

Variable	Model 1 OR	SE	Model 2 OR	SE	Model 3 OR	SE	Model 4 OR	SE
Long-term skipped-generation household grandparenting[a]	1.344	(0.937)	1.490	(1.033)	1.663	(1.082)	1.558	(1.010)
Long-term multigenerational household grandparenting	0.779	(0.315)	0.639	(0.264)	0.630	(0.263)	0.612	(0.257)
Long-term nonresidential grandparenting	2.108*	(0.696)	1.994*	(0.659)	1.996*	(0.652)	1.938*	(0.631)
Entry into skipped-generation household grandparenting	2.779	(3.050)	3.240	(3.794)	3.204	(3.832)	3.595	(4.249)
Entry into multigenerational household grandparenting	0.755	(0.407)	0.728	(0.353)	0.735	(0.352)	0.693	(0.333)
Entry into nonresidential grandparenting	1.197	(0.307)	1.169	(0.328)	1.159	(0.323)	1.143	(0.322)
Stopped any grandparenting	0.900	(0.144)	0.828	(0.131)	0.828	(0.130)	0.812	(0.129)
Age	0.962***	(0.005)	0.970***	(0.005)	0.970***	(0.005)	0.968***	(0.005)
Married (=1)	0.963	(0.081)	0.878	(0.075)	0.848	(0.073)	0.842*	(0.072)
Health status in 2008								
Self-rated health (1–5)	2.852***	(0.165)	2.650***	(0.156)	2.604***	(0.155)	2.589***	(0.155)
Chronic diseases (1 = yes)	0.591***	(0.049)	0.593***	(0.050)	0.586***	(0.049)	0.579***	(0.049)
Functional limitations (IADL)	0.889***	(0.022)	0.867***	(0.021)	0.867***	(0.022)	0.870***	(0.022)
Socioeconomic characteristics in 2008								
Middle school[b]			1.368**	(0.153)	1.342**	(0.150)	1.349**	(0.152)
High school diploma or more			1.678***	(0.207)	1.636***	(0.202)	1.684***	(0.210)
Household income (Ln)			1.189***	(0.035)	1.184***	(0.035)	1.188***	(0.035)
Working (1 = yes)			0.870	(0.078)	0.898	(0.083)	0.902	(0.087)
Pension (1 = yes)			0.847	(0.099)	0.814	(0.096)	0.806	(0.095)

(continued)

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Table 2. (continued)

Variable	Model 1 OR	Model 1 SE	Model 2 OR	Model 2 SE	Model 3 OR	Model 3 SE	Model 4 OR	Model 4 SE
Health behaviors in 2008								
Exercise (1 = yes)					1.137	(0.097)	1.122	(0.097)
Smoking (1 = yes)					0.510***	(0.093)	0.523***	(0.096)
Drinking (1 = yes)					0.975	(0.100)	0.973	(0.100)
Social support in 2008								
Social activity (1 = *more than monthly*)[c]							1.100	(0.127)
Support from adult children (1 = yes)							1.352**	(0.141)
Support to adult children (1 = yes)							0.988	(0.094)

Note. N = 3,092. IADL = instrumental activities of daily living; *OR* = odds ratio.
[a]The reference category for grandparenting type and transition is no grandparenting at both waves. [b]The reference category for education is elementary school or less. [c]The reference category for social activity is less than monthly.
p < .05. **p* < .01. ***p* < .001.

Table 3. The Odds Ratios From Ordinal Logistic Regression Models Predicting Self-Rated Health by Grandparenting Intensity Among Grandmothers, 2008–2010.

Variable	Model 1		Model 2		Model 3		Model 4	
	OR	SE	OR	SE	OR	SE	OR	SE
Part-time grandparenting in 2008[a]	0.949	(.191)	0.879	(.179)	0.869	(.175)	0.845	(.171)
Full-time grandparenting in 2008	1.097	(.194)	1.004	(.176)	1.021	(.179)	1.004	(.177)
Age	0.961***	(.005)	0.969***	(.005)	0.969***	(.005)	0.968***	(.005)
Married (=1)	0.964	(.081)	0.881	(.075)	0.851	(.073)	0.845*	(.072)
Health status in 2008								
Self-rated health (1–5)	2.850***	(.165)	2.650***	(.157)	2.604***	(.155)	2.589***	(.155)
Chronic diseases (1 = yes)	0.592***	(.050)	0.593***	(.050)	0.587***	(.049)	0.581***	(.049)
Functional limitation (IADL)	0.890***	(.022)	0.868***	(.022)	0.868***	(.022)	0.871***	(.022)
Socioeconomic characteristics in 2008								
Middle school[b]			1.357**	(.152)	1.330*	(.149)	1.337*	(.151)
High school diploma or more			1.677***	(.206)	1.636***	(.201)	1.683***	(.210)
Household income (Ln, 10,000 Won)			1.185***	(.035)	1.181***	(.035)	1.185***	(.035)
Working (1 = yes)			0.867	(.078)	0.896	(.083)	0.898	(.087)
Pension (1 = yes)			0.847	(.099)	0.814	(.096)	0.806	(.095)
Health behaviors in 2008								
Exercise (1 = yes)					1.135	(.097)	1.120	(.096)
Smoking (1 = yes)					0.512***	(.093)	0.525***	(.096)
Drinking (1 = yes)					0.969	(.099)	0.966	(.099)
Social supports in 2008								
Social activity (1 = *more than monthly*)[c]							1.099	(.126)
Support from adult children (1 = yes)							1.347**	(.140)
Support to adult children (1 = yes)							1.000	(.094)

Note. N = 3,092. IADL = instrumental activities of daily living; OR = odds ratio.
[a]The reference category for grandparenting type is no grandparenting at both waves. [b]The reference category for education is elementary school or less. [c]The reference category for social activity is less than monthly.
*p < .05. **p < .01. ***p < .001.

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intensity and self-rated health, net of age, marital status, and health status. We found no significant effect of grandparenting intensity on grandmothers' health. When socioeconomic characteristics, health behaviors, and social support were taken into account, respectively, no health advantage or disadvantage was found in any model. The patterns and significance of covariates were largely the same with the results of the first analysis with grandparenting type and transition.

Discussion

Little attention has been paid to grandparenting and its health implications for older adults despite the growing trend of grandparenting in contemporary aging families. Most prior studies have focused on grandparents in the United States or Europe, even though other racial/ethnic groups have different attitudes toward and patterns of grandparenting (Chen et al., 2014). To extend the existing literature, we examine how various (1) grandparenting type and transition as well as (2) levels of grandparenting intensity affect older Korean women's self-rated health.

As for our first hypothesis regarding the health disadvantages of skipped-generation household and multigenerational household grandparenting, we do not find any supporting evidence. This is consistent with results from recent papers that did not find harmful health effects of grandparenting in skipped-generation households in the United States (Hughes et al., 2007) and China (Chen & Liu, 2012). However, the result is still surprising in light of the negative health effects of grandparenting in skipped-generation households reported in many previous studies. The lack of significant evidence might be because the health of grandmothers who offer skipped-generation household grandparenting is not primarily a result of the caregiving experience. Grandparents' prior socioeconomic characteristics and health, rather than grandparenting, are related to older adults' health disadvantages (Hughes et al., 2007). Interestingly, we do not observe any significant impact of mutigenerational household grandparenting on the health of grandmothers, although this type of grandparenting has been central in grandparenthood studies in other Asian contexts (Chen & Liu, 2012; Ku et al., 2013; Mehta & Thang, 2012).

Our results instead show a positive relationship between nonresidential grandparenting and self-rated health among grandmothers. Grandmothers who take care of their grandchildren in the long term (i.e., at both waves), compared to noncaregiving grandmothers, report better self-rated health, net of other covariates including demographic characteristics, socioeconomic

status, health status and behaviors, and social support. The result supports our second hypothesis and is in line with prior studies that found some benefits of nonresidential grandparenting for older adults' health outcomes including self-rated health, depressive symptoms, frailty, and mobility limitations in the United States and Taiwan (Chen et al., 2014; Hughes et al., 2007; Ku et al., 2013).

The role enhancement theory may help explain the protective role of long-term nonresidential grandparenting for the health of grandmothers. According to role enhancement theory, individuals obtain more self-esteem and life satisfaction from carrying out multiple social roles (Moen et al., 1995). A grandparental role and increasing interactions with grandchildren and adult children may promote older adults' well-being (Pruchno & McKenney, 2002; Rozario et al., 2004; Szinovacz & Davey, 2006). Older Korean adults also report more life satisfaction from grandparenting, an important role in later life in Korean culture (Y. Choi & Cha, 2013). The positive consequences of grandparenting for self-image and self-efficacy, which can be extended to better mental well-being, presumably improve self-rated health. Furthermore, noncoresidence is currently the most common and preferred living arrangement for older Korean adults (Korea Institute for Health and Social Affairs, 2014), unless there are specific reasons for parent–child coresidence such as health problems or disadvantageous socioeconomic conditions. Nonresidential grandmothers may undergo less stress but benefit more from grandparenting than do grandparents with other living arrangements. Noncoresidence also allows grandmothers some respite from a caregiving role, whereas grandmothers in multigenerational households or skipped-generation households probably have more difficulties finding quiet time for themselves. The health advantage of nonresidential grandparenting would be more apparent among nonresidential grandmothers who have taken on grandparenting for a lengthy period of time, compared to nonresidential grandmothers who have only recently started grandparenting. The former group would be used to the consequential changes in daily life caused by grandparenting activities and enjoying the benefits of a stable intergenerational relationship with grandchildren and their parents, adult children.

The third hypothesis in our study is that intensive grandparenting is detrimental to older women's health. Surprisingly, we do not observe any significant association between grandparenting intensity and the health of grandmothers. We carry out sensitivity tests by running the models with varying levels of caregiving intensity, but the tests show the same results (results not shown). The prevailing findings of the previous literature, which demonstrate the negative impacts of highly intensive or full-time

grandparenting on health (Baek, 2009; Chen & Liu, 2012; E.-J. Kim & Seo, 2007), are not supported in this study. Some interaction terms between grandparenting intensity and individual characteristics, such as age, household income, and social support, are also tested to examine whether other factors moderate the association between grandparenting and health. None of the interactions show significant effects (results not shown).

Several limitations of this study should be noted. First, we have a relatively small sample of grandmothers who were actively involved in grandparenting. Some types of grandparenting transition were combined into one type (i.e., stopped any grandparenting) given the insufficient number of observations, although each category likely indicates different degrees of grandparenting experience thus leading to different health implications. It is also possible that we lack the statistical power to detect significant relationships between certain types of grandparenting and older women's health. Second, our study excludes grandfathers from analyses. Some prior research has suggested that there are gender differences in the impacts of grandparenting on older adults' health (Blustein, Chan, & Guanais, 2004; Christiansen, 2014; Hughes et al., 2007). Given the traditional patriarchal norm that emphasizes a nurturing and serving role as women's job (De Vos & Lee, 1993; Kamo, 1998), grandparenting experience might have different implications for Korean grandfathers. Yet we are unable to explore how grandparenting affects older men's self-rated health due to small sample size. Future research should take into consideration older men's experience to address gender variations in grandparenting.

Third, we lack information on the adult children who are the parents of grandchildren because of limitations in the data. Prior studies have suggested that involuntary grandparenting due to adult children's unfavorable circumstances, such as death, disease, and divorce (Hughes et al., 2007), and whether grandparents are from the paternal or maternal side (Chen & Liu, 2012) are factors that influence caregiving grandparents' health. Future research needs to examine how different conditions of adult children play a role in the health of older adults who care for grandchildren. Last, although we control for self-rated health and other health conditions at baseline (2008) in the model, we cannot entirely eliminate the potential bias that healthier grandparents may be more likely to continue grandparenting between the two waves compared to those who are not involved in grandparenting.

Our study contributes to the research on grandparenting despite these limitations. Very few studies have examined whether and how grandparenting, both grandparenting type and intensity, shape older women's health in different social and cultural contexts. Drawing from a nationally

representative longitudinal data set, we find the positive association between long-term nonresidential grandparenting and the self-rated health of grandmothers in Korea, which extends previous grandparenthood studies. We call for further research that incorporates diverse types and levels of intensity of grandparenting simultaneously to better understand older adults' grandparenting experience and its impacts on health. Furthermore, future studies should pay more attention to unique social and cultural contexts and how these conditions influence older adults' grandparenthood and well-being.

Declaration of Conflicting Interests

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