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Widowhood and Depressive Symptoms Among Korean Elders: The Role of Social Ties

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Objectives. This study examines the impact of social ties on the relationship between widowhood and depressive symptoms among the older Korean population.

Method. Data were derived from the baseline survey of the Korean Longitudinal Study of Aging. The sample consisted of 1,953 men and 2,469 women aged ≥60 years who were married and had at least 1 child. The 10-item Center for Epidemiological Studies Depression Scale was the outcome measure. Multiple linear regression was used to evaluate the influence of social ties as the mediators and moderators on the relationship between widowhood and depressive symptoms.

Results. The quality of relationship between women and their children accounted for 51.52% of the difference in depressive symptoms between married and widowed women, but only 11.36% between married and widowed men. The interaction of widowhood and the quality of relationships with children was significant only among men, and the interaction of this status and cohabitation with married children was significant only among women.

Discussion. The quality of relationship with children plays an important mediating role in the relationship between widowed status and depressive symptoms among Korean men and women elders. Cohabitation with children may buffer mental distress for such women, and qualitatively good relationships with children may be important as moderators for the mental health of older Korean men after bereavement.

Key Words: Widowhood——Depressive symptoms—Older adults—Social ties.

THE death of a spouse is a significant life event that induces depression. In addition to the loss of the person, many life changes occur, often including financial insecurity, loneliness, or anxiety about managing household responsibilities (Lee & DeMaris, 2007; Lindemann, 1979). Many researchers have studied the adjustment of women to widowhood in terms of psychological well-being, life satisfaction, depression levels, or other outcomes of adjustment (Ferraro, Mutran, & Barresi, 1984; Lee & DeMaris, 2007; Miller, Smerglia, & Bouchet, 2004). Even if bereavement may be a common occurrence for both genders, its impacts differ in men and women (Miller et al., 2004; Stroebe & Schut, 1999; Umberson, Wortman, & Kessler, 1992). Previous studies have found that men may be more vulnerable than women to social and emotional isolation after bereavement; thus, social bonds may be more beneficial for men than for women in preventing depression following the loss of a spouse (Ferraro *et al*., 1984; Umberson et al., 1992).

Although many studies have discussed widowhood through death in terms of social support theory and gender differences in marital and social relationships (Levenson, Carstensen, & Gottman, 1993; Lopata, 1978; Ross & Mirowsky, 2002; Umberson et al., 1992), our knowledge of widowhood's relationship to depression is based on studies conducted in western developed societies (Bankoff, 1983; Carr et al., 2000; Stroebe, Stroebe, & Abakoumkin, 1999; van Baarsen, 2002). Relatively few studies have been undertaken in Asian countries, and these have been descriptive and have not been designed to test specific hypotheses. Social structures and cultural attributes differ considerably among societies, and the quantity and availability of community resources vary among individuals. For example, gender roles in a specific society may also influence choices and constraints (Ha, 2006). Gender differences in the impact of social ties on depressive symptoms associated with widowhood may be more pronounced in societies with more rigid gender roles, such as Korea. Although the importance of traditional Confucian values, which place women in strictly subordinate positions to men, has recently weakened, they persist in the culture of the older Korean population. For this reason, women who physically and emotionally support their husbands are often highly valued as "wise mothers and good wives"; these women are known as *hyun* (賢)-*mo* (母)-*yang* (良)-*cheo* (妻) in Korean. In such

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a male-oriented society like Korea, men are liable to take instrumental assistance from their wives as a matter of course, particularly in old age (Bergdahl, Allard, Alex, Lundman, & Gustafson, 2007). For example, about 70% of older Korean married women reported that they did not have sufficient time to socialize with close friends because they were obligated to care for their retired husbands (Kim, Kim, Baek, & Song, 2007).

Widowed women are more likely than widowed men to seek out alternative social ties such as children and close friends instead of remarriage (Kim & Han, 1996). Cohabitation with children is a natural phenomenon for Korean widows that leads them to enhance their social networks and may protect them from the mental distress associated with the death of their spouses, which is so-called filial responsibility. Exchange theory also provides an interpretation of a cohabitation tendency with a widowed mother. When the mother becomes frail and dependent, then support exchanges that are dependent on a past or anticipated future exchange become apparent and important (Lopata, 1996). In addition, in Korean society, older women not only feel more of an obligation to take care of their husbands and children but also must look after their grandchildren by the request of their working sons and/or daughters. In particular, for the latter reason, Korean older women more often choose to live together with their children (Jang et al., 2009; Jeon, Jang, Rhee, Kawachi, & Cho, 2007).

Meanwhile, the loss of a spouse may be more detrimental to men because they do not arrange for social support beyond that of their wives. Resourceful Korean widowers seek to remarry as quickly as possible because they are more likely to participate in partner-centered networks and to lack other social contacts including close friends and children. A survey of Korean adults (Kim & Han, 1996) revealed that fewer than 20% of widows wanted to remarry in comparison with more than 70% of older widowers. About 3.03 per 1,000 widowers aged 65 years or older remarry, compared with only 0.10 per 1,000 widows of the same age group (Korean National Statistics Office, 2006). Several qualitative studies among Korean elders who have lost their spouses (Choi & Lee, 2000; Kim & Han, 1996) have reported that widowers were more willing to remarry regardless of age, whereas widows >65 years of age were more eager to cohabit with their children for the rest of their lives. The children of the widow or widower may also affect, directly or indirectly, these gender differences. The children of widows tended to have negative or passive attitudes about the remarriage of their mothers, whereas those (especially daughters-in-law) of widowers were inclined to be actively involved in the remarriage of their fathers (or fathers-in-law), because daughters (or daughters-in-law) are reluctant to care for their fathers (or fathers-in-law) (Seo & Kim, 1998; Yoo, 1997). Thus, a relationship with children after spousal loss appears to become more difficult for widowers, but not for widows. These observations suggest that the relationships with children after spousal loss may be strained to a different extent between widowers and widows.

Although the reasons behind societal differences in marital and health patterns remain obscure, cultural variation in gender roles within households may provide insights into the gender differences found in Korea (Jang et al., 2009). The strict division of gender roles in Korean culture leads us to hypothesize that social ties (such as friends or intergenerational relationships) after bereavement would have different impacts on the health of men and women. Considering the Korean cultural background mentioned earlier, we investigated the extent to which the characteristics of social ties (i.e., contact with close persons, cohabitation, and relationships with children) mediated or moderated the impact of widowhood on depressive symptoms. Mediation as a mechanism explains WHY widowhood elevates depression and moderation explains WHEN widowhood elevates depression.

Under the mediation hypothesis, widowhood changes the quality of social relationships; that is, it erodes the support systems. Relationships with children seem the most obvious place erosion would occur. In contrast, cohabitation and contact with children might be expected to increase for widows and attenuate the effects of bereavement. Therefore, mediation is likely to occur in different directions depending on the nature of social ties.

In addition, we also hypothesized that the moderation effects of supportive social ties may be more psychologically advantageous in widowers and widows, with possible gender differences. Therefore, we tested the indirect effects separately between depressive symptoms and contact with close persons, the quality of relationship with children, and cohabitation with children, and there are gender differences.

Method

Design and Study Population

The data were drawn from the baseline survey of the Korean Longitudinal Study of Aging (KLoSA), which focused on Koreans aged ≥45 years living in households that were selected by a multistage, stratified probability sampling in order to provide national representation. A total of 10,254 individuals completed interviews conducted by trained interviewers. The household response rate was 70.7%, and the individual response rate within households was 75.4%. Computation of the KLoSA weight involved a sequence of three steps: (1) calculation of the design weight based on a two-stage sampling probability; (2) calculation of the non-response–adjusted weight to reduce the impact of non-responses; and (3) calculation of the benchmark weight to reflect changes in the general distribution of the population using demographic changes in census data, residence registration records, or other large-scale surveys. Additional details regarding the survey design and methods have been provided elsewhere (Jang et al., 2009).

In view of our aims, respondents who were younger than 60 years of age (n = 5,574) and were never married, divorced, or separated (n = 96), or were without children (n = 73), were excluded from the analyses. Consequently, a weighted population of 1,952 men and 2,470 women, aged 60 years or older, was used for the analysis.

Measures

Depressive symptoms outcome measure.—We used the 10-item short-form Center for Epidemiological Studies Depression (CES-D10) Scale, which is a brief screening instrument that assesses depressive symptoms experienced during the most recent week. The 10 items are divided into two parts: positive (feel pretty good and generally satisfied) and negative (loss of interest, trouble concentrating, feeling depressed, feeling tired or low in energy, feeling afraid, trouble falling asleep, feeling alone, and finding it hard to get going) experiences (Irwin, Artin, & Oxman, 1999; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). Each item was rated from 0 to 3: 0, *signified very rarely or less than once per day*; 1, *sometimes or 1–2 days during the past week*; 2, *often or 3–4 days during the past week*; and 3, *almost always or 5–7 days during the past week*. The summed scores of the 10 items, with scores reversed for the positively phrased items, served as the outcome measure. Higher scores indicated greater distress. The α coefficient for the CES-D10 was .79, which was comparable with the .80 obtained in previous reliability studies (Irwin et al., 1999).

Social tie measures.—Individuals have different social ties, each with a different association to health (Fiori, Antonucci, & Cortina, 2006; Okabayashi, Liang, Krause, Akiyama, & Sugisawa, 2004). Therefore, three variables (contact with close persons, cohabitation with married children, and relationships with children) were employed to represent social tie resources. Frequency of contact with close friends, relatives, or neighbors refers to the volume of contact, whereas the assessment of relationships with children is a subjective measure of the emotional connections that the respondent feels with his or her children. We initially obtained data about the frequency with which participants had contact with close persons, including friends, relatives, or neighbors, using a 10-point scale (*always*, *2–3 times per week*, *once per week*, *twice per month*, *once per month*, *5–6 times per year*, *3–4 times per year*, *1–2 times per year*, *hardly ever within a year*, and *never due to the absence of close relationships*) in response to the following questions: "Are you close to any persons, such as friends, relatives, or neighbors? If so, how often do you meet with them?" Responses were then classified into three categories: "more than once per month," "less than monthly," and "no close friends, relatives, or neighbors." Because these methods gave similar results, we used the simpler three categories in our study. The marital status and cohabitation status of the participants' first 10 children were also collected. Cohabitation status with children was classified into three categories: "cohabiting with married children," "cohabiting with unmarried children," and "not living with any children." Finally, participants rated the quality of relationships with their children on a scale from 0 (*worst relationship*) to 10 (*best relationship*) in response to the question, "How would you rate your relationship with your children?"

Other Covariates

To assess the influence of widowhood within each sex, we considered the possible covariates of depressive symptoms identified by the results of previous population-based studies, including age, education, income, experience with chronic diseases, disability, number of children, and social participation. The educational levels of respondents were divided into elementary school or less (1), middle school graduate (2), high school graduate (3), and college graduate and beyond (4). Equivalent household income was calculated as the total household income divided by the square root of the number of household members; these scores were then divided into quartiles. The number of chronic diseases was based on self-reported histories of having been diagnosed by a physician with one or more of eight conditions: hypertension, diabetes, cancer, lung disease, heart problems, stroke, arthritis, and gastrointestinal maladies. Because this variable did not approach normal distribution, participants were classified into three categories according to the total number of the above-mentioned physical conditions: 0, 1, and ≥2. Functional status was measured using the 10-item Korean Instrumental Activities of Daily Living Scale, which includes items about personal grooming, excursions for short distances, transportation use, making and receiving phone calls, managing money, performing household chores, preparing meals, shopping, taking medications, and doing laundry. This measure is widely used and has high internal consistency (α = .85). If respondents were dependent on others for one or more instrumental activities of daily living (IADL), they were categorized as having a disability (1); if they were able to perform all IADLs independently, they were classified as having no disability (0). We also included the following two variables to address social participation: participation in economic activity and participation in social activity. The economic activity of respondents was initially assessed with a question about whether they participated in the labor force. We divided respondents into three groups: employed (1), retired (2), and not employed or housewives (3). Participants also responded to questions about their participation in the following five social activities: religious activities, friendships, hobbies or leisure-time activities, school or hometown reunions, or clan or community activities. A "yes" answer for any social activity counted as

one activity, and the number of social activities ranged from 0 to 5. The number of social activities in which participants participated was grouped into three categories: 0, 1, and ≥2.

Analysis

We calculated the frequencies, weighted proportions, means, and standard deviations (*SD*s) of demographic characteristics by sex. Multiple-classification analysis and analysis of covariance were employed to examine the relationship between widowhood and social ties after adjusting for the other covariates. A multiple linear regression model was used to evaluate the relationship between widow and widower statuses and depressive symptoms and to examine the extent to which these relationships could be explained by factors related to social ties. To test for the mediating role of the latter, we performed the following three regression steps recommended by Baron and Kenny (1986). First, the mediator (social ties) was regressed on the independent variable (marital status) by multinomial logistic and multiple linear regressions (Table 3). Second, the dependent variable (depressive symptoms) was regressed on the independent variable (marital status) in Model 1 (Tables 4 and 5). Third, the dependent variable (depressive symptoms) was regressed on the mediator (social ties) in Models 2–4. Fourth, the dependent variable (depressive symptoms) was regressed on both the independent variable (marital status) and the mediator (social ties) in Models 5–7. In addition, we calculated the percentage change in the coefficient of widowhood [$100 \times (\beta_{\text{second equation (Model 1)}} - \beta_{\text{third equation (Model 2)}})/\beta_{\text{second equation (Model 2)}}$]. This method has been used in studies employing logistic regression analysis (van Oort, van Lenthe, & Mackenbach, 2005) to estimate the contributions of mediating factors. The Sobel test (Sobel, 1982) was performed to assess the indirect effect of the independent variable (widowed) on the dependent variable (depressive symptoms) via the mediators (social ties). We next examined the moderating effect of social ties by examining interaction terms (widowed × each characteristic of social ties) in Models 8–10 (Tables 4 and 5). Each social tie was centered before forming the interaction term to minimize the possibility of multicollinearity (Aiken & West, 1991). In order to confirm our results, we conducted logistic regression as a diagnostic follow-up to ordinary least squares (OLS) regression, given the skewed distribution of the depressive symptoms measure. The results of the logistic regression models mirrored the findings of the OLS regression analyses. All analyses were conducted separately for men and women.

Results

Table 1 presents descriptive statistics for the study sample. Proportions were weighted according to the sampling design. As expected, we found substantial differences between men and women in marital status; specifically, 44.2% of women were widows but only 6.3% of men were widowers. Women were more likely than men to have less education; in particular, 79.7% of women had an elementary school education or less. Men also reported higher average monthly income than women. Almost 20% of men and women reported having a disability, and women described more chronic diseases than men. Compared with men, women also appeared to have more children and significantly lower levels of economic and social activity. They also obtained significantly higher CES-D10 scores (8.08) than men (6.34; Table 1).

The study sample presents substantial differences in the number of subsamples between widowers (n = 124) and widows (n = 1,091). Table 2 shows the differences in social ties by marital status. Widows had significantly more frequent contact (i.e., more than once per month) with close persons (friends, relatives, or neighbors) than did married women. Both widowers and widows were more likely than those who were married to live with their married children. However, the ratings of relationships with children were lower among widows and widowers than among their married counterparts.

Table 3 shows the results of the regressions of social ties (mediator) on marital status (independent variable), which was the first step in testing for a mediating role. The independent variable of marital status was associated with two types of social ties (cohabitation with children and quality of relationship with children) in men and women. Widowers (odds ratio [OR]: 3.14, 95% confidence interval [CI]: 1.97–5.01) and widows (OR: 3.05, 95% CI: 2.39–3.90) were more likely to reside with married children than to live with no children. Widowed status was also negatively associated with the quality of the relationship with children in both men (β = −.53) and women (β = −.136).

The results of the multiple linear regression analysis of the associations of marital status and social ties with depressive symptoms according to sex are shown in Tables 4 and 5. Model 1 included the marital status variable and covariates (age, education, equivalent household income, at least one disability, number of chronic diseases, number of children, participation in economic activity, and number of social activities) as the second step in regressing depressive symptoms (dependent variable) on marital status (independent variable). As expected, widowhood was significantly associated with depressive symptoms among Korean men and women. However, the disadvantage of widowhood was much greater in men (β = .109) than in women (β = .082). In Model 1, the interaction of this status and sex was statistically significant (results not shown), suggesting that the impact of depressive symptoms differed between men and women. We could confirm that all three types of social ties (contact with close persons, cohabitation with married children, and relationships with children) were independently significant predictors of the depressive symptoms among both men and women in Models 2–4. In Models 5–8, the variables related to social ties were added to Model 1 as

Table 1. General Characteristics and Scores of 10-Item Short-Form Center for Epidemiological Studies Depression (CES-D) of Korean Men and Women Aged 60 Years or Older

Variables	Men (%)	Women (%)	Total (%)
N	1,953	2,469	4,422
Age (mean ± *SD*)	68.02 ± 6.78	69.77 ± 7.64**	69.00 ± 7.33
Marital status			
Married	93.7	55.8**	72.5
Widowed	6.3	44.2	27.5
Education			
College or more	13.7	1.9**	7.1
High school graduate	24.6	7.2	14.9
Middle school graduate	18.8	11.1	14.5
Elementary school graduate or below	42.9	79.7	63.5
Equivalent household income (mean ± *SD*)	933.97 ± 1320.19	773.03 ± 1024.87**	844.08 ± 1167.12
Equivalent household income[a]			
Highest 25%	27.3	22.9**	24.9
Second 25%	27.2	23.5	25.1
Third 25%	24.1	26.3	25.3
Fourth 25% (lowest)	21.5	27.3	24.7
IADL disability			
No	80.1	80.7	80.4
Yes[b]	19.9	19.3	19.6
Number of chronic disease (mean ± *SD*)	0.79 ± 0.90	1.07 ± 1.01**	0.95 ± 0.98
Number of chronic disease			
None	46.4	34.5**	39.7
1	33.5	35.6	34.6
2+	20.1	30.0	25.6
Number of children (mean ± *SD*)	1.43	1.6	1.54
Economic activity			
Employed	38.6	13.4**	24.5
Retired	38.6	17.5	26.8
Unemployed or housework	22.8	69.1	48.7
Number of social activity (mean ± *SD*)	1.02 ± 0.93	0.80 ± 0.76**	0.89 ± 0.85
Number of social activity			
None	32.1	38.0**	35.4
1	42.1	47.2	44.9
2+	25.8	14.8	19.6
Depressive symptom (mean ± *SD*)[c]	6.34 ± 4.89	8.08 ± 5.63**	7.31 ± 5.38

Notes. *N* = weighted sample size; % = weighted percentage; *SD* = standard deviation.
[a]Equivalent household income was adjusted for the number of people in the household and divided into quartiles.
[b]Respondents were categorized as having a disability if they were dependent with regard to one or more activities.
[c]Depressive symptoms were measured by scores on the CES-D10.
**$p < .01$ by chi-square statistics or *t*-statistics for testing difference between men and women.

Table 2. Covariates Adjusted Percentage for Social Ties[a] by Marital Status in Korean Men and Women Aged 60 Years or Older

	Men		Women	
Variables	Married (%)	Widowed (%)	Married (%)	Widowed (%)
N	1,829	124	1,378	1,091
Contact with close persons				
No close person	12.1	15.2	11.5	12.0**
Less than monthly	21.7	15.3	18.8	14.2
More than once per month	66.2	69.5	69.7	73.9
Cohabitation with				
None of any children	59.4	45.1**	62.9	43.7*
Unmarried children	28.3	24.6	17.8	23.3
Married children	12.3	30.3	19.2	33.0
Quality of relationship with children[b] (mean ± *SD*)	7.31 ± 1.89	6.69 ± 2.34**	7.35 ± 1.96	6.66 ± 2.35**

Notes. IADL = instrumental activities of daily living; *N* = weighted sample size; % = covariates adjusted percentage; *SD* = standard deviation.
[a]Percentage of social ties was adjusted for other covariates (age, education, equivalent household income IADL disability, number of chronic disease, number of children, economic activity, and number of social activities).
[b]Quality of relationship with children ranged from 0 (*worst relationship*) to 10 (*best relationship*).
*$p < .05$; **$p < .01$ for difference between married and widowed.

Table 3. Association of Social Ties with Widowed (Widowed → Social ties) Among Men and Women Aged 60 Years or Older

	Contact with close friends, relatives, or neighbors[a]		Cohabitation[a]		Quality of relationship with children[b]
	Less than monthly versus no close friends, relatives, or neighbors OR (95% CI)	More than once per month versus no close friends, relatives, or neighbors OR (95% CI)	Unmarried children versus none of any children OR (95% CI)	Married children versus none of any children OR (95% CI)	β (*p*-value)
Men					
Married	1	1	1	1	
Widowed	0.56 (0.28–1.12)	0.88 (0.50–1.58)	1.00 (0.59–1.71)	3.14 (1.97–5.01)	−.053*
Women					
Married	1	1	1	1	
Widowed	0.70 (0.49–1.01)	1.03 (0.75–1.40)	1.98 (1.57–2.51)	3.05 (2.39–3.90)	−.136***

Notes. OR = odds ratio; 95% CI = 95% confidence interval; β = standardized beta coefficient.

[a]Multinomial logistic regression adjusted for other covariates (age, education, equivalent household income IADL disability, number of chronic disease, number of children, economic activity, and number of social activities).

[b]Multiple linear regression adjusted for other covariates (age, number of children, education, equivalent household income IADL disability, number of chronic disease, economic activity, and number of social activities).

*$p < .05$; ***$p < .001$.

Table 4. Multiple Linear Regression for Depressive Symptoms[a] Among Korean Men Aged 60 Years or Older

	Widowed → Depression	Social ties → Depression			Mediating effect			Moderating effect		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
	β	β	β	β	B	β	β	β	β	β
Marital status										
Married	Ref.				Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Widowed	.109***				.110***	.117***	.097***	.129**	.152***	.085***
Contact with close persons										
No close persons		Ref.			Ref.			Ref.		
Less than monthly		−.056			−.050			−.051		
More than once per month		−.147***			−.144***			−.139***		
Cohabitation with										
None of any children			Ref.			Ref.			Ref.	
Unmarried children			.041			.040			.042	
Married children			−.036			−.052*			−.034	
Quality of relationship with children				−.241***			−.236***			−.214***
Widowed × contact with close persons less than once a month								.015		
Widowed × more than once per month								−.031		
Widowed × cohabitation with unmarried children									.005	
Widowed × cohabitation with married children									−.063	
Widowed × quality of relationship with children										−.069***
XF[b]					−.53	−6.81	11.36†			
Adjusted R^2	.18	.17	.14	.22	.19	.18	.23	.19	.18	.23

Notes. All coefficients were calculated after controlled for other covariates (age, number of children, education, equivalent household income, IADL disability, number of chronic disease, economic activity, and number of social activities). β = standardized beta coefficient.

[a]Depressive symptoms were measured by scores on the 10-item short-form Center for Epidemiological Studies Depression (CES-D).

[b]The explained fraction (XF) of the social network differential in the coefficient of depressive symptom for widowed elders was calculated by the following equation: (coefficient of Model 1 − coefficient of Model 2)/coefficient of Model 1.

*$p < .05$, **$p < .01$, ***$p < .001$; †$p < .05$ for Sobel test.

Table 5. Multiple Linear Regression for Depressive Symptoms[a] Among Korean Women Aged 60 Years or Older

	Widowed → Depression	Social ties → Depression			Mediating effect of social ties			Moderating effect of social ties		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
	β	β	β	β	B	β	β	β	β	β
Marital status										
Married	Ref.				Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Widowed	.082***				.086***	.095***	.040	.054	.145***	.038
Contact with close persons										
No close persons		Ref.			Ref.			Ref.		
Less than monthly		−.003			.000			.000		
More than once per month		−.079**			−.079**			−.100*		
Cohabitation with										
None of any children			Ref.			Ref.			Ref.	
Unmarried children			.054**			.044*			.059*	
Married children			−.081***			−.099***			−.022	
Quality of relationship with children				−.316***			−.311***			−.288***
Widowed × contact with close persons less than once a month								−.005		
Widowed × more than once per month								.043		
Widowed × cohabitation with unmarried children									−.031	
Widowed × cohabitation with married children									−.124***	
Widowed × quality of relationship with children										−.032
XF[b]					−4.43	−15.49	51.52‡			
Adjusted R^2	.13	.13	.14	.22	.14	.14	.22	.13	.15	.22

Notes. All coefficients were calculated after controlled for other covariates (age, number of children, education, equivalent household income, IADL disability, number of chronic disease, economic activity, and number of social activities). β = standardized beta coefficient.

[a]Depressive symptoms were measured by scores on the 10-item short-form Center for Epidemiological Studies Depression (CES-D).

[b]The explained fraction (XF) of the social network differential in the coefficient of depressive symptom for widowed elders was calculated by the following equation: (coefficient of Model 1 − coefficient of Model 2)/coefficient of Model 1.

*p < .05, **p < .01, ***p < .001; ‡p < .01 for Sobel test.

the fourth step in regressing depressive symptoms (dependent variable) on both marital status (independent variable) and social ties (mediator). Only the quality of the relationship with children reduced the significant path between the independent and dependent variable among both men and women. The impact of marital status on depressive symptoms was less pronounced in Model 7 than in Model 1 in both men (Model 1, β = .109; Model 7, β = .097) and women (Model 1, β = .082; Model 7, β = .040). These results demonstrate interesting gender differences. Quality of relationship with children accounted for 51.52% of the difference in depressive symptoms between married women and widows but for only 11.36% of this difference in widowers. Sobel test results also provided support for the indirect influence of widowhood (independent variable) on depressive symptoms (dependent variable) via quality of relationships with children. Finally, the moderating impacts of social ties were tested in Models 8–10. The interaction term of widowhood and quality of relationships with children was statistically significant only for men (β = −.069, p < .001; Model 10 of Table 4), and the interaction term of widowhood and cohabitation with married children was statistically significant only for women (β = −.124, p < .001; Model 9 of Table 5). We present Figures 1 and 2 for a more meaningful interpretation of the significant interaction terms. These results indicate that relationships with children had an impact on depressive symptoms only for widowers, whereas cohabitation with children had an impact on such symptoms only for widows. The interaction between widowhood and contact with close friends, relatives, or neighbors was not significant among either men or women. We also explored whether the moderating roles of the three types of social ties varied by sex by entering three-way interaction terms (e.g., widowed × cohabitation with married children × sex) into the model. The three-way interactions of widowed × cohabitation with married children × sex and of widowed × quality of relationships with children × sex were statistically significant (p < .05).

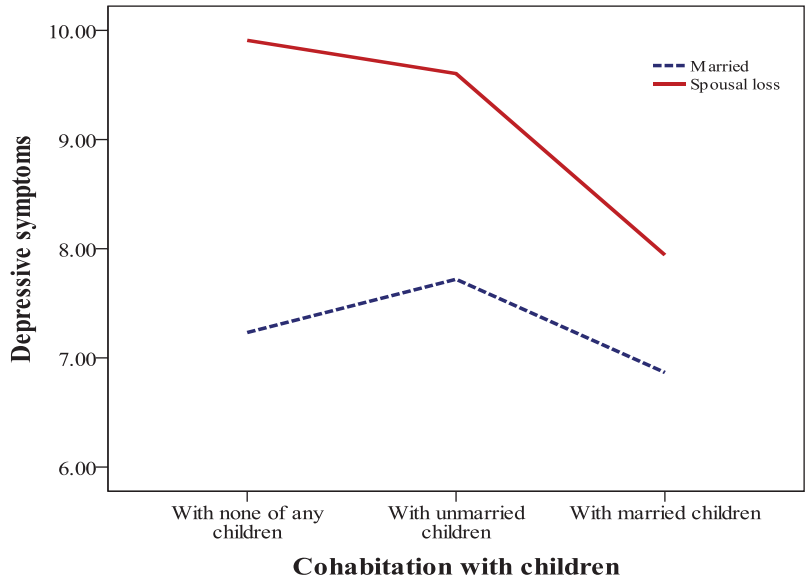

Figure 1. Impact of cohabitation with children on depressive symptoms among older women.

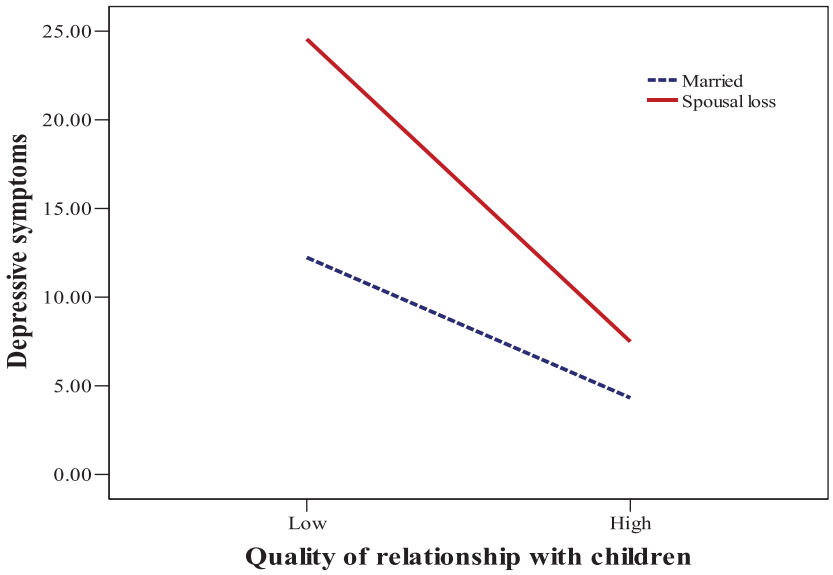

Figure 2. Impact of quality of relationship with children on depressive symptoms among older men.

Discussion

The present study examined the influence of social ties in the relationship between widowhood and depressive symptoms in older Koreans. Social tie to children is the most important factor exacerbating or ameliorating the impact of widowhood on depressive symptoms in Korean culture. The results of our analyses reveal two patterns associated with depressive symptoms among widowers and widows. The quality of relationship with children played an important mediating role for depression after bereavement. In addition, cohabitation with children moderated the mental distress among widows.

We found that the quality of relationship with children mediated the depression of both widows and widowers, similar to the findings of the study by Litwin and Shiovitz-Ezra (2011). The quality of relationship with children is the mediator for both men and women, but this contribution was higher among women than among men. Indeed, quality of relationship with children accounted for almost 51.52% of the effect of widowhood on depression in women, but only 11.36% of the difference between married men and widowers. Having tested the quality of relationship with children as a mediator, we initially found that widowed status was significantly associated with depressive symptoms.

Widowed status was also a significant predictor of the quality of relationship with children. Specifically, widowers and widows tended to have a lower quality of relationship with children. When we tested the relationship between widowed status and depressive symptoms in the presence of the quality of relationship with children, the strength of this previously significant relationship dropped significantly. We were able to conclude that the relationship between widowed status and depressive symptoms is mediated by the quality of relationship with children (widowed status → lower quality of relationship with children → depressive symptoms) and that a reduced quality of relationship with children may be one mechanism by which widowhood is linked with depressive symptoms of older Koreans.

Cohabiting with married children was a moderator for depressive symptoms in widows, whereas better relationships with children moderated depressive symptoms in widowers. Although several studies in Western countries have found that cohabitation with children can be detrimental to the psychological well-being of older people (Ferraro et al., 1984; Hughes & Waite, 2002), it has been considered to be "normal" in Asian cultures, which place great emphasis on traditional Confucian ideals of filial piety (Silverstein, Cong, & Li, 2006; Wang, Snyder, & Kaas, 2001). Children, particularly the eldest son, still have an obligation to respect and care for their elders in South Korea, although multigenerational cohabitation is no longer a standard living arrangement, because westernized nuclear lifestyles, which place greater value on privacy and independence, have become more popular. Moreover, the children of widows appear to be more willing to cohabit with their bereaved mothers, who can care for and nurture their grandchildren. Widows cohabiting with adult children can receive greater financial, instrumental, emotional, and physical support, which may buffer the distress associated with widowhood. Indeed, caring for grandchildren can provide older women with a sense of purpose and continued engagement with the family (Ferraro et al., 1984; Silverstein et al., 2006; Tiedt, 2010). Conversely, cohabitation may also cause a loss of privacy and autonomy, and the demands of caring for grandchildren may generate stress and other negative health effects (Grinstead, Leder, Jensen, & Bond, 2003). Based on our results, we conclude that living with children is more important in preventing depression in widows, whereas good relationships with children that do not necessarily involve cohabitation are more important for the mental health of widowers. If the quality of relationship with children could be confirmed as a moderator, strengthening good relationship with children for older widowers may be an important strategy to reduce depression after bereavement. However, we cannot rule out the possibility that the decision to cohabit may reflect a good relationship with children (Do & Malhotra, 2012). A variable that mediates negatively can be a positive moderator. Widowhood could induce depression, in part because it strains relationships with children, but good relationships with children can moderate by reducing depression more for widows than for married persons.

The results of this study must be interpreted with caution because other factors may have influenced the association between bereavement and depression. First, endogeneity remains the most serious threat to the validity of the findings with respect to social ties and depressive symptoms. Previous research addressing this issue has consistently confirmed the posited association between social networks and depressive symptoms. For example, longitudinal studies have concluded that social networks and social support are causal factors in several measures of health status, including psychological distress, cardiovascular diseases, chronic diseases, mortality, and quality of life (Berkman & Syme, 1979; Eng, Rimm, Fitzmaurice, & Kawachi, 2002; House, Landis, & Umberson, 1988; Seeman, Kaplan, Knudsen, Cohen, & Guralnik, 1987). Another problem is that mediation—in the way we used it—cannot be clearly differentiated from resource mobilization. Because widowhood may mobilize support systems to this state less immediately, harmful mobilization works at odds with the exogenous variable. Third, gender survival patterns (i.e., the life expectancy of women tends to be longer than that of men) should be considered. The possibility of widowhood is more common among women than among men: indeed, 44.2% of women but only 6.3% of men lost their spouses in this study. Thus, our sample also had a relatively small subsample of widowers. Finally, this study focused on social ties with close persons and children, but these represent only a portion of a person's social network. The mediating or moderating roles of more comprehensive social networks on depression among older individuals should be examined in the future.

In conclusion, social ties with children partially mediated and also moderated the relationship between widowhood and depressive symptoms in older Koreans. The magnitude and characteristics of this association differed according to gender. A lower quality of relationship with children play an important role in mediating the psychological distress associated with widowhood among both men and women. Among men, they function as mediators and have impacts as moderators, too. Among women, cohabitation is important as a moderator for widowhood and depressive symptoms, which means that older women were more likely than older men to benefit from cohabitation with children that may help mitigate depression.

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