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Will the Pain of Losing a Husband Last Forever? The Effect of Transition to Widowhood on Mental Health*

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Guided by the marital resource model and the crisis model, we investigated the effect of continuity and changes in marital status on the mental health of Korean elderly women, particularly focusing on the transition to widowhood. We also examined whether and the extent to which such impact is explained by economic resources and social environment. By using data from the 2008 and 2011 Survey of Living Conditions and Welfare Needs of Korean Older Persons (N=5,704), we compared the depression scores across three groups: continually married, continually widowed, and recently widowed. The result indicates that, compared to others, those experiencing a recent bereavement are more likely to have higher levels of depression. This finding provides a strong ground for the crisis model. In addition, economic resources and social environment alleviate some of the negative impact of the transition to widowhood on mental health.

Keywords: *depression, transition to widowhood, martial disruption, elderly women*

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Introduction

Married people, on average, have better mental health than their unmarried counterparts (Lillard and Waite 1995; Ross, Mirowsky and Goldsteen 1990; Schoenborn 2004). The marital resource model explains that this health advantage comes from the social and economic benefits of being married (Hemström 1996; Lillard and Waite 1995; Rogers 1995; Umberson 1992). Meanwhile, the crisis model argues that the health disadvantages of the unmarried are mostly due to transient strains of marital dissolutions (Booth and Amato 1991; Williams, Takeuchi and Adair 1992). Most previous studies in the U.S. revealed that marital status differences in health are more likely to reflect the strains of marital dissolution than any benefits of marriage (Booth and Amato 1991; Ferraro 1985; Williams and Umberson 2004).

As more people in South Korea have experienced marital dissolutions (Kim 2005), a handful of studies in Korea have examined the influence of continuity and changes in marital status on health among elderly (Lee 2014; Son and Han 2012). Although these studies make valuable contributions toward current literature by emphasizing transient strains of marital dissolutions, we would like to refine and extend these studies further through examining the marital resource model and the crisis model more extensively. In doing so, our study will help us better understand the association between marriage and health and to shift our attention to the importance of marital history rather than marital status at one point in time.

First, instead of considering the elderly experiencing marital dissolutions as a homogeneous group (Son and Han 2012), we differentiate the unmarried by the reasons for being unmarried and pay a special attention to transient strains of a spousal death. The reason we focus on widowhood is that widowhood is the primary means of marriage dissolution among the older population and the death of a spouse is strongly related to subsequent health outcomes (Sasson and Umberson 2014; Umberson, Wortman and Kessler 1992; Wilcox et al. 2003). Unlike widowhood, divorce among the elderly is still rare in South Korea (KOSTAT 2014)[1], so it is likely that the elderly who are divorced after age 65 might be a highly selective group. In addition, it is well-known that the influence of divorce on health differs from that of

[1] The average divorce age in 2013 was 46.2 and 42.4 for men and women respectively. Only 3 out of 1000 men ages 60 and above were divorced in 2013, and the corresponding number for women was 1 (KOSTAT 2014).

widowhood (Pudrovska and Carr 2008).

Second, we compare mental health across three marital status groups: continually married, continually widowed, and recently widowed. Although Lee (2014) reported the negative influence of the transition to widowhood on depression, she only compared the mental health of continually married and the recently widowed. She did not consider the depression status of the continually widowed. Thus, it is not clear whether differences in the mental health of the married and the widowed are due to the benefits of marriage or due to stress of transitioning out of marriage among the widowed.

Losing a spouse is associated with adverse mental health outcomes for both men and women (Sasson and Umberson 2014; Umberson et al. 1992; Wilcox et al. 2003). This seems particularly true for women. Widowhood is widely regarded as an older women's issue since a much larger proportion of widowhood is observed among elderly women than elderly men (Carr and Bodnar-Deren 2009).[2] In addition, women are more likely to experience the death of a spouse at earlier ages than men due to women's longer life expectancies (Sasson and Umberson 2014). According to a life course perspective, spousal death at an early age is more likely to be unexpected and has more severe consequences for the psychological adjustment and well-being of the remaining spouse (Carr and Utz 2001; Sasson and Umberson 2014). Therefore, instead of examining mental health for both men and women, we focus on the effects of bereavement on elderly women's mental health.

Built on previous studies, this study aims to examine whether marital status differences in mental health of elderly Korean women are attributable to strains of martial dissolutions as suggested by the crisis model, or to the benefit of being married, as the argued by the marital resource model. It approaches this aim by focusing on marital dissolution by a spousal death among elderly women and comparing the mental health of three marital status groups: continually married, continually widowed, and recently widowed. In doing so, the study examines the extent to which the effect of the transition to widowhood on mental health is explained by economic resources and social environment while taking into account health-related and socio-demographic factors.

[2] In 1995, the proportion widowed among old men ages 65 and above was 15.8, and the corresponding number for old women was 73 (Carr and Bodnar-Deren 2009).

Background

As previously stated, it is widely known that married people enjoy better mental health than their counterparts (Hemström 1996; Lillard and Waite 1995; Rogers 1995; Ross et al. 1990). There have been two explanations for health differences due to marital status. The marital resource model emphasizes social, emotional, instrumental, and economic support that marriage can provide (Ross et al. 1990). According to this model, married people are more likely to feel that they have someone who cares about them and their problems, and this emotional support decreases the risk of developing mental disorders (Pearlin et al. 1981). In addition, the married have higher household incomes than the unmarried, and such economic benefits of marriage have a large effect on mental health (Ross et al. 1990). Upon or after losing a spouse, the widowed cannot enjoy these marriage benefits anymore. For these reasons, the married will have better mental health than the widowed. Thus, it is expected that the married will enjoy health advantages compared with those recently widowed or those have been widowed for a longer time.

One of the critiques on the marital resource model is that it hardly makes distinctions between the immediate effects and long-term consequences of transitions out of marriage on health (Carr and Bodnar-Deren 2009). This point has been raised by the crisis model. Mental health differences by marital status are not due to marriage benefits, as the marital resource model argues. Rather, differences come from the strains of recent marital dissolution, which negatively influence health. Moreover, these negative effects of recent marital dissolutions on health do not last long, but dissipate over time (Booth and Amato 1991; Williams et al. 1992).

It is widely believed that major life events, such as marital dissolutions, are associated with a disruption in one's everyday life and therefore one will usually encounter subsequent increases in stress (Holmes and Rahe 1967; Parkes and Prigerson 2013). Widowhood is considered one of the most distressing life events (Holmes and Rahe 1967; Parkes and Prigerson 2013), because it is not a choice people are able to make, and a spousal death usually occurs unexpectedly (Wade and Pevalin 2004). More importantly, right after a spousal death, the remaining spouse faces a set of adjustments; the newly widowed must cope with the loss of a meaningful relationship and establish a new identity as a widowed person (Carr et al. 2001; Carr and Utz 2001; Utz et al. 2004). Thus, recently bereaved people may have high levels of stress,

TABLE 1
Hypotheses Guided by the Marital Resource Model and the Crisis Model

Model Comparisons	Marital Resource Model (MR)	Crisis Model (CM)
MR=CM	*H1*: Recently Widowed < Continually Married	*H1*: Recently Widowed < Continually Married
MR≠CM	*H2*: Recently Widowed ≅ Continually Widowed	*H4*: Recently Widowed < Continually Widowed
MR≠CM	*H3*: Continually Widowed < Continually Married	*H5*: Continually Widowed ≅ Continually Married

Note.—A < B refers that A has worse mental health than B. A ≅ B refers to mental health status of A that does not differ from B

increasing the chances of developing a mental disorder (Umberson et al. 1992; Wade and Pevalin 2004).

According to the crisis model, high levels of stress due to recent spousal bereavement remain for a few years and then eventually return to levels similar to those of people who are continually married. Although the death of a spouse is a painful experience, a bereaved spouse needs to adapt to her new life as a widow. Indeed, previous studies found that the psychological consequences of widowhood remain strong for 1 to 2 years after a spousal death. With the passage of time, once the widowed has become adjusted, long-term consequences are usually minimal (Burns, Browning and Kendig 2015; Ferraro 1985; McCrae and Costa 1988; Sasson and Umberson 2014).

Informed by the marital resource and the crisis model, we set up the following hypotheses as Table 1, for three marital status groups (continually married, continually widowed, and recently widowed). If hypotheses 1-3 are all true, the marital resource model is more valid for explaining mental health differences due to marital status. In the case that hypotheses 1,4, and 5 are true, mental health differences due to marital status are mainly explained by the crisis model.

While examining which model is better at explaining the association between marriage and health, the marital resource or the crisis model, we also aim to examine whether economic resources and social environment alleviate the negative influence of a transition into widowhood on mental health. Widowhood is accompanied by not only losing a loved one but also by restrictions on financial and social resources. This may trigger a chain of

secondary stressors that have either direct or combined effects on a widowed woman's mental health (Carr and Bodnar-Deren 2009). Thus, the negative influence of widowhood on mental health might depend on the extent to which individuals are able to maintain economic and social resources.

More specifically, upon widowhood, older women have a higher risk of experiencing economic hardship (Angel, Jimenez and Angel 2007; Choi 2005; Lee, Willetts and Seccombe 1998; Lillard and Waite 1995; Seok and Lim 2007; Smith and Zick 1996; Umberson et al. 1992), which is a risk factor for mental health (Vinokur, Price and Caplan 1996). Older generations, particularly in South Korea, tend to retain traditional gender roles throughout their lives. Wives take primary responsibility for domestic work and child rearing while husbands are responsible for the family's financial support. (Carr and Bodnar-Deren 2009). Thus, the death of a husband might bring economic hardship for the remaining wife (Lee et al. 1998; Umberson et al. 1992). Even worse, because of insufficient social welfare and an underdeveloped public pension scheme in South Korea, elderly women are vulnerable to poverty without financial support from their children (Choi and Ryu 2003; Dodge 1995; OECD 2013).[3] To capture the effect of economic resource changes upon widowhood, this study will take into account not only the absolute levels of household income but also household income changes upon widowhood.

Besides economic hardship, widowed women also experience changes in social environment. Social environment includes both a social network (the web of social relationships surrounding an individual) and social support (the instrumental and emotional aid provided by a social network) (Goldman, Korenman and Weinstein 1995; Ross et al. 1990). Many studies addressed the fact that all forms of social support provided by a social network enhance mental health and reduce the risk of mortality (Blazer 1982; Bondevik and Skogstad 1998; Hanson et al. 1989; Newsom and Schulz 1996; Turner and Noh 1983).

Although the benefits of a social network and social support might depend on the quality of marriage (Mirowsky 1985), the death of a spouse means the absence of a social network and social support previously provided by a spouse. In this case, social support from their children and other social networks helps widowed women recover from bereavement (Umberson et al. 1992). Indeed, frequent contact with children or co-residency with children is

[3] Indeed, South Korea has the highest rate of impoverished elderly among developed countries: about half of older populations in South Korea live below the poverty line (Jeong 2009; OECD 2013).

critical to enhance widowed women's mental health (Cha 2007). Social networks beyond family members also help improve the mental health of the widowed since these networks provide social support and other helpful resources (Berkman and Glass 2000; Han, Kim and Kim 2003; Seeman 1996).

Methods

The data comes from the Survey of Living Conditions and Welfare Needs of Korean Older Persons (hereafter SLCK). The SLCK contains a nationally representative sample of the elderly population ages 60 and above in South Korea[4] and has been collected every 3 or 4 years since 1994 (Jung et al. 2012). The SLCK covers various issues affecting the elderly, including health, family, social network, economic status, social environment, and satisfaction status with life and the welfare system (Jung et al. 2012).

Unlike other survey years, the 2008 and 2011 SLCK are designed as panel data, yielding the opportunity to examine changes in life for the given years. Another advantage of using the SLCK lies in the size of the sample. About 10,000 elderly men and women aged 60 and above in 2008 were surveyed both in 2008 and 2011 (Total N=10,003, Female N=5,993, Male N=4,010). Thus, the SLCK provides a sufficient number of cases who experienced the transition to widowhood within three-year windows, which will increase the possibility of reliable estimations on the effect of marital dissolutions. One critical limitation of a previous study (Son and Han 2012) was that it included only 76 cases of men and women experiencing any marital transitions within time intervals for the analysis. The SLCK includes about 280 elderly women who experienced the death of a husband during the given period.

This study limits the analysis to women, given our interests in their mental health status. Among 5,993 women, this study excluded women on whom we did not have information on mental health in 2011 (n=73) or those who were never married, divorced, or separated in 2008 (n=187). Next, this study excluded elderly women who experienced any marital transitions besides widowhood (i.e., divorce) between 2008 and 2011. These exclusions result in a total, final sample size of 5,704 women.[5]

[4] Korea Institute for Health and Social Affairs has collected the SLCK, and this data is publicly available survey data, so our study did not bring us in contact with living people or identifying private data about living people.

[5] This study also aimed to examine the influence of widowhood on mental health among old

Mental health is measured with a short version of the Geriatric Depression Scale (GDS-SF), which contains 15 survey items. The GDS is used for identifying depression, specifically for an older population (Yesavage et al. 1983). Respondents were asked to respond by answering yes or no in reference to how they felt over the past week: satisfied, bored, happy etc. Its ranges are between 0 and 15. Higher scores indicate that a respondent has ailing mental health.[6] We used the GDS as a continuous variable to examine changes in the degree of depression due to marital transition.[7] Marital continuity and change between 2008 and 2011 is measured using variables of marital status both from 2008 and 2011. If a respondent maintains the same marital status between two time periods, she is categorized as either continually married or continually widowed, depending on her marital status. If a "currently married" respondent in 2008 experienced a marital status change into widowhood in 2011, she is categorized as recently widowed.

The SLCK contains information that allows us to measure several aspects of the respondent's social network and social support, including living arrangements, frequency of contact with non-resident children, and participation in social activities. We use 2011 information to examine whether social environments lessen the negative consequences of the transition to widowhood on mental health. Living arrangement is measured with a binary variable indicating whether the respondent is co-resident with adult children (1=yes, 0=no). Frequency of contact with non-resident adult children consists of six categories: almost every day, two or three times per week, once a week, one or two times per month, one or two times per 3 months or less, and missing/not valid. Elderly without non-resident adult children are categorized as missing/not valid. Participation in any social activities is measured with a binary variable to show whether a respondent is involved in any of following social activities: informal social gathering, club, a political organization, volunteering, etc.

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men, but there are not many old men who experienced widowhood between 2008 and 2011. This study also planned to examine other types of transitions out of marriage such as divorce, but as we already mentioned in the introduction, only a few elderly people were divorced within three-year windows.

[6] Scores of 0-4 are considered as normal; 5-8 indicates mild depression; 9-11 indicates moderate depression; and 12-15 indicates severe depression. The SLCK recommends considering respondents with scores of 8-15 as being depressed.

[7] The SLCK recommends considering respondents with the GDS scores of 8-15 as being depressed, so we also examined the influence of marital changes on mental health by using the GDS as a dichotomous outcome (whether depressed or not), and the substance of findings is robust.

Economic resources consist of three components: the absolute levels of household incomes, declines in household incomes between 2008 and 2011, and ownership of the house. We use the log of household income in 2008 to measure the absolute level of economic status before experiencing marital status changes. We also measure whether household incomes have decreased or not between two time periods to estimate the negative influence of changes in marital status on economic resources.

To control socio-demographic variables that might influence both marital status changes and mental health in 2011, we include baseline information on age, educational attainment (no school, elementary school, middle and high school, and college and above), employment status (1=employed; 0=unemployed), and residential area (1=urban; 0=rural). We also include health-related variables that might influence 2011 mental health status: 2008 mental health and 2011 self-assessed general health.

For the analysis, we employed ordinary least squares (OLS) regressions with lagged dependent variables. The strength of this method is that we can examine the influence of marital status changes between 2008 and 2011 on mental health in 2011without concerning time order issues between independent and dependent variables. By employing this method, we can also control for confounding factors that might affect both subsequent marital status changes and 2011 mental health, including the health-related information and socio-demographic background at baseline survey. To examine our hypotheses guided by the marital resource and the crisis models, we made comparisons of the mental health status of three groups. Firstly, we compared the mental health of the continually married with the recently widowed to test hypothesis 1 (see the left column of Table 4). Secondly, we made a comparison of the mental health of the recently widowed with the continually widowed to test hypotheses 2 and 4 (see the middle column of Table 4). Lastly, we examined the mental health of the continually widowed and the continually married to test hypotheses 3 and 5 (see the right column of Table 4).

To examine the extent to which the relationship between transition to widowhood and mental health is alleviated by economic resources, social environment, and socio-demographic factors, we conducted a series of regression analyses. Model 1 includes marital status continuity and changes, socio-demographics, health-related variables, and mental health status in 2011. Model 2 adds variables for social environment to examine the extent to which social environment explains the relationship between marital status and mental health. Model 3, instead of social environment as in Model 2,

includes economic resource variables to see whether economic resources explain some of the influence of marital status on mental health. Model 4 includes all the variables to see whether there are any mental health differences by marital status. All the analyses use sample weights that are provided by the SLCK.

Results

Table 2 describes the distribution of the sample by marital status. First, about half of older women were continuously married between 2008 and 2011. As of 2011, about 47% of them lived without a spouse. This implies that widowhood is not rare among elderly women. Moreover, about 6% of elderly women experienced transitions out of marriage due to widowhood within three-year windows.

Next, the mental health (GDS-SF) of elderly women, on average, was 5.31 in 2011, which implies a stage of mild depression. If we consider the GDS-SF scores of 8-15 as being depressed, according to the SLCK user manual, about 32% of elderly women suffered from depression in 2011. This shows that depression is one of the most common mental illnesses among older populations in South Korea. The GDS-SF scores are also differed by elderly women's marital status. Continually married women have, on average, the lowest, and recently widowed women have the highest GDS-SF scores both in 2008 and 2011. Besides mental health, the general health status of elderly women was relatively poor: about 50% of elderly women reported their general health as very poor or poor in 2011.

Elderly women aged 60 and above tend to share disadvantaged socio-demographic background at the baseline. For example, about 80% of them did not have the opportunity to attend secondary school or higher. In terms of social environment in 2011, elderly women seemed to have frequent contact with their children. More specifically, about 80% of them had a contact with their non-co-resident children at least once a week, and approximately 3 out of 10 elderly women are co-residing with their children. Interestingly, the percentage of co-residence with adult children differs by women's marital status: widows in 2011 are more likely to live with their children than those still in a marital relationship in the same year. This implies that experiencing widowhood might motivate elderly women to live with their children, which increases the chance of receiving financial and emotional support from adult children. Lastly, elderly women do not have

TABLE 2
Weighted Descriptive Tables for Main Variables for Women by Marital Status

	Total (n=5704)	Continually Married (n=2551)	Continually Widowed (n=2873)	Recently Widowed (n=280)
	Percent (Mean)	Percent (Mean)	Percent (Mean)	Percent (Mean)
Marital Status and Transition between 2008 and 2011				
Continually Married	53.59			
Continually Widowed	40.57			
Recently Widowed	5.83			
Health Variables				
Mental Health in 2011	5.31	4.65	6.01	6.62
Mental Health in 2008	5.15	4.31	6.06	6.47
Self-reported General Health in 2011				
Very Poor	7.32	6.79	8.15	6.45
Poor	41.88	41.38	42.23	43.95
Fair	22.97	22.56	24.20	18.23
Good	26.57	27.60	24.70	30.22
Excellent	1.26	1.67	0.72	1.14
Socio-Demographic Variables				
Age in 2008	70.60	67.90	73.96	72.11
Educational Attainment in 2008				
No School	36.31	22.50	54.03	39.95
Elementary School	43.65	49.80	35.66	42.78
Middle & High School	17.38	23.68	9.19	16.57
College and Above	2.66	4.02	1.13	0.69
Residential Area (Urban)	66.62	67.82	65.29	64.87
Employed in 2008	29.42	33.61	24.47	25.41
Social Environment				
Living with Children in 2011	30.86	24.53	39.04	39.44
Frequency of Contact with Non-Co-residential Adult Children in 2011				

TABLE 2
(CONTINUED)

	Total (n=5704)	Continually Married (n=2551)	Continually Widowed (n=2873)	Recently Widowed (n=280)
	Percent (Mean)	Percent (Mean)	Percent (Mean)	Percent (Mean)
Almost Everyday	24.68	28.13	19.87	26.54
Two or Three Times per Week	33.17	35.23	29.82	37.47
Once a Week	23.99	24.13	24.62	18.39
One or Two Times per Month	11.13	9.06	13.77	11.84
One or Two Times per 3 Months and less	3.48	2.02	5.31	4.23
Missing/Not Valid	3.55	1.44	6.61	1.53
Participating in any Social Activities in 2011 (i.e., informal social gathering, club, a political organization, volunteering)	36.34	44.71	26.60	27.12
Economic Resources				
Ownership of the House in 2011	72.37	83.17	58.82	67.39
Household Income in 2008 (per 10,000 won)	1654.74	1810.00	1468.00	1527.15
Household Income Decreases between 2008 and 2011	31.20	29.31	32.51	32.15

sufficient economic resources at the baseline (i.e., the average household income in 2008 was 1,654,000 won (about 15,000 US dollars)), and furthermore, about 30% of them experienced a decrease of household incomes between 2008 and 2011.

Table 3 presents zero-order correlations of main variables and mental health to show bivariate relationships between main variables and mental health. Since higher scores on the depression measures equate to ailing mental health, positive correlations imply that a variable is negatively related to good mental health. As seen from Table 3, if elderly women stay married, are employed, have frequent contact with their children, and have high levels of education and a decent income, they are more likely to have good mental health. Similarly, continually widowed, recently widowed, poor general health, and age are positively correlated with compromised mental health.

TABLE 3
Zero-order Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Mental Health in 2011	1																		
Continually Married	-0.13*	1																	
Continually Widowed	0.11*	-0.91*	1																
Recently Widowed	0.05*	-0.20*	-0.23*	1															
Mental Health in 2008	0.38*	-0.20*	0.18*	0.04*	1														
General Health in 2011	-0.48*	0.02	-0.02	0.00	-0.29*	1													
Age	0.20*	-0.40*	0.39*	0.01	0.21*	-0.11*	1												
No school	0.19*	-0.32*	0.31*	0.00	0.23*	-0.10*	0.37*	1											
Elementary	-0.09*	0.17*	-0.18*	0.01	-0.11*	0.02	-0.21*	-0.74*	1										
Middle and High School	-0.12*	0.19*	-0.18*	-0.01	-0.15*	0.09*	-0.22*	-0.35*	-0.34*	1									
College and above	-0.07*	0.05*	-0.05*	-0.01	-0.09*	0.08*	-0.05*	-0.10*	-0.10*	-0.05*	1								
Employed	-0.09*	0.11*	-0.11*	0.01	-0.15*	0.06*	-0.18*	0.01	0.09*	-0.11*	-0.06*	1							
Urban	-0.04*	0.05*	-0.04*	-0.02	-0.05*	0.06*	-0.08*	-0.18*	0.03	0.19*	0.09*	-0.36*	1						
Household Income	-0.14*	0.11*	-0.10*	-0.01	-0.10*	0.10*	-0.10*	-0.15*	0.03*	0.13*	0.12*	-0.04*	0.12*	1					
Household Income Decrease	0.03*	-0.01	-0.01	0.03*	-0.05*	-0.01	-0.04*	-0.04*	0.04*	-0.00	0.00	0.09*	-0.03*	0.32*	1				
Ownership of the House	-0.14*	0.26*	-0.25*	-0.02	-0.21*	0.08*	-0.18*	-0.13*	0.08*	0.06*	0.02	0.09*	-0.04*	0.14*	0.02	1			
Living with Children	-0.01	-0.14*	0.13*	0.01	0.01	0.02	0.04*	0.03*	-0.03*	0.00	-0.00	-0.15*	0.17*	0.35*	-0.02	0.11*	1		
Frequency of Contact with Children	0.19*	-0.09*	0.1*	-0.01	0.11*	-0.10*	0.11*	0.12*	-0.07*	-0.07*	-0.04*	-0.04*	0.01	-0.06*	0.01	-0.05*	0.11*	1	
Participating in any Social Activities	-0.29*	0.17*	-0.16*	-0.02	-0.23*	0.19*	-0.31*	-0.27*	0.13*	0.17*	0.09*	0.04*	0.09*	0.12*	-0.01	0.14*	-0.03*	-0.11*	1

NOTE.—* $p<0.05$, (1) Mental health in 2011; (2) Continually married; (3) Continually widowed; (4) Recently widowed; (5) Mental health in 2008; (6) General health in 2011; (7) Age; (8) No school; (9) Elementary school; (10) Middle and high school; (11) College and above; (12) Employed; (13) Urban; (14) Household income; (15) Household income decrease; (16) Owning a house; (17) Living with Children; (18) Frequency of contact with Children; (19) Participation in any social activities.

TABLE 4
OLS Regressions Estimating the Effects of Continuity and Changes in Marital Status between 2008 and 2011 on 2011 Mental Health

	Recently Widowed vs. Continually Married	Recently Widowed vs. Continually Widowed	Continually Widowed vs. Continually Married
	Hypothesis 1	Hypotheses 2 &4	Hypotheses 3 & 5
Marital Status Continuity and Changes	0.83* (0.321)	0.93** (0.297)	0.01 (0.146)
Hypotheses Test Results	Hypothesis 1 (O)	Hypothesis 2 (X) Hypothesis 4 (O)	Hypothesis 3 (X) Hypothesis 5 (O)

Note.—Robust standard errors in parentheses. Full model includes health-related, socio-demographic, social environment, and economic resources variables.

*** $p<0.001$, ** $p<0.01$, * $p<0.05$, ~ $p<0.1$

Table 4 shows the effect of marital status continuity and changes on mental health for its different combinations. The coefficients in Table 4 are drawn after controlling for all other variables of socio-demographic and health-related background, social environment, and economic resources. The first column reveals that recently widowed women have higher levels of depression than continually married women. This supports the expectation (hypothesis 1) both from the marital resource and the crisis model. The second column refers to the effect on mental health of being widowed in recent years compared to the continually widowed. The depression score is significantly higher for those recently widowed than those continually widowed (hypothesis 4). This result provides a solid basis for the validity of the crisis model. Lastly, the third column compares the depression status of the continually widowed with that of the continually married. There are no significant differences in depression scores between these two groups (hypothesis 5). Thus, the results are consistent with the expectation from the crisis model, not from the marital resource model. In sum, since hypotheses 1,4, and 5 are all true, mental health differences between married and widowed women in South Korea are more likely to reflect the strain of the transition to widowhood than the benefits of marriage.

To examine intervening influences of social environment and economic resources on the associations between transitions to widowhood and mental

TABLE 5
Estimating the Intervening Effects of Social Environment and Economic Resources on the Associations between the Transition to Widowhood and Mental Health (n=2831)

	M1	M2	M3	M4
Changes in a Marital Status				
Recently Widowed (ref. continually married)	0.98**	0.94**	0.87**	0.83*
	(0.326)	(0.317)	(0.329)	(0.321)
Health Status				
Mental Health Status in 2008	0.26***	0.24***	0.24***	0.22***
	(0.023)	(0.023)	(0.024)	(0.023)
Self-assessed Health in 2011	-1.73***	-1.63***	-1.73***	-1.64***
	(0.092)	(0.093)	(0.091)	(0.093)
Socio-demographic Variables				
Age in 2008	0.07***	0.05**	0.06***	0.05**
	(0.017)	(0.017)	(0.017)	(0.017)
Educational Attainment (ref. no school) in 2008				
Elementary School	-0.59**	-0.36~	-0.53*	-0.33
	(0.219)	(0.219)	(0.218)	(0.219)
Middle and High School	-0.89***	-0.58*	-0.76**	-0.48~
	(0.267)	(0.268)	(0.270)	(0.273)
College and Above	-0.98~	-0.5	-0.58	-0.16
	(0.500)	(0.512)	(0.500)	(0.514)
Employed in 2008	-0.14	-0.14	-0.13	-0.11
	(0.200)	(0.197)	(0.198)	(0.196)
Residential Area (urban) in 2011	0.06	0.11	0.07	0.09
	(0.197)	(0.197)	(0.195)	(0.195)
Social Environment				
Live with Children		-0.05		0.21
		(0.198)		(0.201)
Frequency of Contact with Non-Co-residential Adult Children in 2011 (ref. almost everyday)				
Two or Three Times per Week		0.05		0.02
		(0.208)		(0.206)
Once a Week		0.53*		0.48*
		(0.229)		(0.225)
One or Two Times per Month		0.97**		0.82*
		(0.321)		(0.324)
One or Two Times per 3 Months and less		1.56**		1.39*
		(0.603)		(0.599)
Missing/not Valid		1.98*		1.68~
		(0.987)		(1.012)

TABLE 5
(CONTINUED)

	M1	M2	M3	M4
Participating in any Social Activities in 2011		-1.06***		-0.99***
		(0.180)		(0.180)
Economic Resources				
Household Income in 2008 (log)			-0.42***	-0.38***
			(0.107)	(0.110)
Household Income decrease in 2008-2011			0.70***	0.62**
(ref. income increase)			(0.201)	(0.196)
Ownership of the house in 2011			-0.51*	-0.39
			(0.235)	(0.236)
Constant	4.15**	5.09***	7.96***	8.23***
	(1.320)	(1.302)	(1.485)	(1.502)
R-squared	0.34	0.36	0.35	0.37

Robust standard errors in parentheses
*** $p<0.001$, ** $p<0.01$, * $p<0.05$, ~ $p<0.1$

health, we compare the mental health of the recently widowed and the continually married. We start our analysis from a base model, which includes socio-demographic and health-related variables. In model 1, recently widowed women are more likely to have higher scores of depression than continually married women, even after controlling for these background variables. On top of model 1, we add variables for social environment (model 2) to examine the alleviating effect of social environment. The influence of the transition to widowhood is partially explained by social environment, including contact with children and participation in social activity. More specifically, recently widowed women who have frequent contact with non-co-resident adult children suffer less from depression, as do those participating in social activities. However, recently widowed women are still more likely to have poor mental health compared with continually married women.

In model 3, we add variables for economic resources instead of social environment. As shown, economic resources and changes in these resources within three-year widows explain some of the impact of the transition to widowhood on mental health. More specifically, women whose household income is low and/or has decreased within two time periods are more likely to suffer from poor mental health. This shows the importance of economic

resources in buffering the negative effects of the transition to widowhood among elderly women in South Korea.

In the full model, we include all variables and found that recently widowed women are still more likely to have poor mental health compared with continually married women. This implies that strains due to a spousal loss undermine the mental health of elderly women even when they share similar socio-demographic backgrounds and economic and social resources with continually married women.

Discussion and Conclusions

We have investigated the influence of marital status continuity and changes in mental health to examine the marital resource and the crisis models, paying particular attention to the transition to widowhood in South Korea. By comparing the mental health of three groups separately—recently widowed, continually widowed, and continually married—our results provide three central conclusions. First, mental health differences between married and widowed women are mainly due to the ailing mental health status of recently widowed group. Second, this negative influence of the transition to widowhood does not last long, and dissipates over time, so that eventually mental health status returns to a level similar to the continually married. Lastly, the negative influence of the transition to widowhood is partially explained by social environment and economic resources. Overall, our findings highlight that marital status differences in mental health among elderly women in South Korea are more likely to be related to the strains of marital transitions (crisis model), rather than any benefits of marriage (marital resource model).

Depression is one of the most common mental illnesses among the elderly, and widows are at greater risk for depressive symptoms right after the death of their husband. To reduce distress and accelerate recovery from loss, it is recommended that widows receive social support from their family, friends, community, and society as early as possible following a spousal death. Like in Japan, the availability and receipt of any support from adult children is frequently addressed as a way to reduce the negative influence of bereavement in Korea (Cha 2007; Tiedt, Saito and Crimmins 2015). Beyond informal support from family and friends, formal support should be provided to recently widowed women, especially those suffering from more implicated forms of grief. Formal support includes better and easy access to

trained bereavement counselors, mutual support groups, or self-help groups (Osterweis, Solomon and Green 1984; Raphael 1977; Schut et al. 2001). By participating in these programs, widows have a chance to express grief, to share the normality of grief with other people, and to start discovering new directions for their life (Parkes and Prigerson 2013).

Like other studies, our study also has limitations. First, the SLCK does not provide the exact timing of widowhood within three-year windows, so we cannot use exact timing information in our study. If we were to include the exact duration of widowhood in our models, we would be able to test the long-term influence of widowhood. Second, because of small sample sizes for other types of marital transitions within three-year windows, we cannot examine the influence of marital transitions besides widowhood. Third, for the same reason, we included women only. However, it would be interesting to examine whether mediating factors in adjustment to widowhood varies by gender within the Korean context, where exist strong traditional gender norms. Fourth, although stress is one of the main mechanisms to explain the negative influence of marital transition on health, we could not include this variable in the model since the SLCK does not provide any information regarding stress levels. Lastly, due to data limitations, we could not extensively examine the mediating effect of economic resources and social support and control for time since widowhood. If we have panel data with three or more time points, we would be able to consider changes in economic resources and social support due to a transition to widowhood and examine how these changes affect mental health. We plan to examine these further once a three or more time points panel becomes available.

Despite these limitations, this study contributes to current literature on marriage and health by examining marital transitions and their effect on mental health. To better understand the association between marriage and health, scholars emphasize the importance of marital history rather than marital status at one point in time. Unlike three or four decades ago, more people in South Korea experience marital transitions over the course of life due to increases in divorce rates and remarriage rates (Kim 2005), so the importance of examining marital history becomes more critical. We believe that our study is a beginning step to show the importance of changes in marital status in examining the relationship between marital status and health in South Korea.

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