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## **Gender Differences in Depressive Symptoms Among Older Korean American Immigrants**

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*Despite consistent reports over many years of a greater prevalence of depression among women, mechanisms underlying the gender difference remain unclear. Mechanisms relevant to immigrant elderly populations are virtually unexplored. The present study examined gender variations in depressive symptoms using a community sample of 230 older Korean American immigrants ( $M_{age} = 69.8$ ; standard deviation = 7.05) in Florida. We were interested in examining not only mean differences but gender differences in the impact of demographic variables (age, marital status, and education), health constraints (chronic conditions and functional disability), and personal resources (sense of control, social network, and acculturation) on depressive symptoms. Consistent with previous literature, women scored higher on depressive symptoms than men. In a hierarchical regression model, women and those with more chronic conditions, greater functional disability, and lower sense of control were found to have more depressive symptoms. The interaction of gender-by-chronic conditions was found to be significant, and further analysis indicated that the associ-*

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*ation of chronic conditions with mental well-being was stronger for women. The findings suggest that among older Korean immigrants, women are at particular risk of declining psychological well-being in the face of physical health problems and call attention to the need for interventions designed to promote their physical and mental health.*

**KEYWORDS** *Depressive symptoms, gender differences, older Korean American immigrants*

## INTRODUCTION

One of the most widely replicated findings in mental health literature is the greater prevalence of depression among women than men (Blazer, Kessler, McGonagle, & Swartz, 1994; Kessler, 2003). Regardless of the method of assessment (e.g., symptom inventories and diagnostic interviews), women consistently have been found to manifest more signs and symptoms of depression (Blazer, Landerman, Hays, Simonsick, & Saunders, 1998; Kessler; Nolen-Hoeksema, Larson, & Grayson, 1999). The finding holds true not only for non-Hispanic Whites in the United States but for other racial and ethnic groups throughout the world (e.g., Li, Liang, Toler, & Gu, 2005; Zunzunegui, Béland, Llácer, & León, 1998).

Despite the global consensus on the high vulnerability of women to depression, mechanisms underlying the gender difference remain unclear. Potential explanations for the differences have been sought in biological, genetic, sociodemographic, psychosocial, and behavioral characteristics; however, no definite answer has emerged. There has been, for example, research on the role of sex hormones in depression, with no empirical support found (Kessler, 2003; Piccinelli & Wilkinson, 2000). According to gender-role and feminist theories, limited social power and status among women may contribute to their higher rates of depression (Nolen-Hoeksema et al., 1999). Particularly in the later years, widowhood and poverty among older women may increase the risk of mental health problems. Some researchers hypothesize that gender difference in depression may be due to response biases arising from women's greater willingness to express emotions and admit to negative feelings than men (Piccinelli & Wilkinson). Another line of literature suggests that personality attributes (e.g., neuroticism) and coping styles (e.g., rumination) may contribute to the gender difference in depression (Nolen-Hoeksema et al.).

The assessment of gender differences in depression is particularly important in research on older racial/ethnic minority adults. In earlier gerontological literature, life situations of older minority adults have been described in terms of a double jeopardy (Dowd & Bengtson, 1978), wherein the dual

experience of growing old and being a member of a minority group lead to greater difficulties and challenges than faced by majority groups. Combined with the aforementioned female vulnerability to depression, the double jeopardy hypothesis suggests that particular attention needs to be paid to older minority women. In the present study, we assessed gender issues in depressive symptoms among Korean American elders. Korean Americans constitute one of the largest and fastest growing segments of Asian Americans, representing an increase of more than 1,500% since 1970 (U. S. Bureau of the Census, 2000). Despite their continuous demographic growth, Korean Americans have been understudied.

The conceptual framework and analytic procedures we followed were based on prior research. It is generally recognized that certain sociodemographic characteristics (e.g., advanced age, female gender, unmarried status, and low education) and health constraints (e.g., chronic conditions and functional disability) contribute to depressive symptoms (Blazer et al., 1998; Bruce, 2001). In addition, increasing attention has been paid to the positive effects of psychosocial resources on mental health. For example, older individuals with a strong sense of control and a large social network not only enjoy mental well-being but fare well in the face of stressful situations such as health declines (Jang, Haley, Small, & Mortimer, 2002; Zarit, Pearlin, & Schaie, 2003). The beneficial roles of sense of control and social network have been found also in studies with older Koreans (e.g., Jang, Poon, Kim, & Shin, 2004; Noh & Avison, 1996).

Another variable of relevance to elderly immigrant populations is acculturation (Chiriboga, Black, Aranda, & Markides, 2002; Myers & Rodriguez, 2003). Knowledge about and familiarity with a host culture may serve as coping resources that facilitate one's adaptation to changes with aging and other life situations.

Despite a general consensus on the risk and protective factors for depressive symptoms, little is known about the specifics with regard to gender variations. Tests of interaction effects of gender have provided a useful tool to investigate gender variations in the impact of predictive factors. For example, Aneshensel, Rutter, and Lachenbruch (1991) found that the relationship of marital status and depression was modified by gender: Being married was beneficial for men in reducing the odds of affective or anxiety disorders but was not in women. They also found a significant interaction between gender and financial strain, showing that the detrimental effect of financial strain was greater for women than men. Such findings suggest that men and women not only have different levels of resources and exposures to risk but that the impact of those variables on depressive symptoms would vary across the gender groups.

Using a community sample of older Korean Americans, the present study examined gender differences in the effects of sociodemographic characteristics, health constraints (chronic conditions and functional disability),

and personal resources (sense of control, social network, and acculturation) on depressive symptoms. The identification of common and gender-specific risk/protective factors in an immigrant sample should prove useful both for considering the generalizability of existing findings and for developing more effective prevention and intervention programs.

## METHODS

### Participants

With approval from the institutional review board at the University of South Florida, a survey of older Korean American immigrants was conducted during the fall of 2003 in Tampa and Orlando, Florida. To minimize selective bias in sampling, participants were recruited through a variety of sources including local Korean churches, senior centers, and elderly associations. Special efforts were made to identify and recruit socially isolated elders through the use of referrals. Participants were required to be 60 years old or older and to have sufficient cognitive ability to understand and complete the survey. The interviews were conducted by trained bilingual interviewers; all interviews were in the Korean language. Structured questionnaires used in data collection were developed using a back-translation method and pre-tested with 20 potential subjects. Consent forms were signed after the purpose of the study and use of the data were explained to the participants. Data collection was conducted in locations convenient to the participants, such as their homes, churches, and senior centers. Respondents were paid \$10 for their participation.

### Measures

#### DEPRESSIVE SYMPTOMS

The short form of the Center for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977) was used to assess depressive symptoms. The 10 items rate on a four-point scale how often symptoms, such as loneliness, feelings of fearfulness, and restless sleep, were experienced during the past week. The CES-D has been translated into the Korean language, and its psychometric properties have been validated (e.g., Cho, Nam, & Suh, 1998). Internal consistency for the scale in the present sample was satisfactory ( $\alpha = .80$ ).

#### HEALTH CONSTRAINTS

Chronic conditions were measured with a checklist of nine conditions (e.g., arthritis, stroke, heart problems, diabetes, and cancer) with a yes/no format. A summated score was used for the analysis.

Functional disability was assessed with a composite measure of the Physical Activities of Daily Living (PADL; Fillenbaum, 1988); the Instrumental Activities of Daily Living (IADL; Fillenbaum); the Physical Performance Scale (Nagi, 1976); and the Functional Health Scale (Rosow & Breslau, 1966). Participants were asked whether they could perform each activity. The responses were coded as 0 (without help), 1 (with some help), or 2 (unable to do). Responses for individual items were summed for total scores, which ranged from 0 (no disability) to 40 (severe disability). In the present sample, internal consistency for the measure was satisfactory ( $\alpha = .89$ ).

#### PERSONAL RESOURCES

Sense of control was measured with Pearlin's seven-item Mastery Scale (Pearlin & Schooler, 1978). Respondents described their feelings about each item (e.g., "I cannot solve my problems" and "My future mostly depends on me") on a four-point scale ranging from 1 (strongly disagree) to 4 (strongly agree). Responses to negatively worded items were reverse-coded. Summary scores ranged from 7 (low sense of control) to 28 (high sense of control). Internal consistency for the scale in the present sample was acceptable ( $\alpha = .69$ ).

Social network of relatives and friends was measured with six items from the Lubben's Social Network Scale (1988). Items included the number of relatives or friends seen at least once a month (0 to 9 or more), the frequency of contact (less than monthly to daily), and the number of relatives or friends the subject felt close to (0 to 9 or more). Internal consistency was satisfactory ( $\alpha = .77$ ).

Level of acculturation was assessed with six items: self-reported English proficiency; languages used in conversations with family; preferred languages for TV or video; preferred languages for book or newspaper; food preference; and ethnicity of close friends. The items were adopted from a measure widely utilized in research on Hispanic populations (Hazuda, Stern, & Haffner, 1988). Each response was coded from 1 to 5, with a higher score indicating greater levels of acculturation. Internal consistency based on the six items was good ( $\alpha = .86$ ).

#### SOCIODEMOGRAPHIC CHARACTERISTICS

Demographic information included age (in years), gender (1 = male, 2 = female), marital status (1 = unmarried, 2 = married), and educational attainment (1 = < high school, 2 =  $\geq$  high school).

#### Analytic Strategies

Gender differences in the mean or frequency level of the study variables were tested using a *t* test or a Chi square. To understand underlying associations

among study variables, bivariate correlations were first assessed. A hierarchical regression model of depressive symptoms was then tested by sequentially entering the following independent blocks of predictors: (1) gender, (2) other demographic information (age, marital status, and education), (3) health constraints (chronic conditions and functional disability), and (4) personal resources (sense of mastery, social network, and acculturation). In addition to the main effect model, interaction terms between gender and other predictive variables (eight terms) were entered in a final model. Centered scores were used in producing interaction terms, and each interaction term was entered independently to maintain a sufficient ratio between the number of predictor variables and the sample size.

## RESULTS

### Descriptive Characteristics of the Sample

Table 1 summarizes descriptive characteristics of the sample. The sample consisted of 230 older adults (94 men and 136 women). Most had spent a number of years in the United States ( $M_{\text{year}} = 22.9$ ; standard deviation = 10.9; range = 1–49). The mean age was approximately 70 years for both men and women. Women were less likely to be married and educated. The number of chronic conditions was significantly higher for women, but no difference was found in functional disability. Women scored significantly lower on sense of control and on level of acculturation, but no gender difference was obtained in social network. Consistent with previous research, the level of depressive symptoms was significantly higher for women than for men. The difference

**TABLE 1** Descriptive Information of the Sample and the Study Variables

Study variable	M/SD (%)		$t (\chi^2)$
	Male ( $n = 94$ )	Female ( $n = 136$ )	
Age	69.8/6.42	69.9/7.48	-.01
Married	(93.5)	(59.6)	(32.7***)
≥High school education	(77.4)	(44.1)	(23.5***)
Chronic conditions	1.10/0.97	1.54/1.17	-2.93**
Functional disability	1.28/3.56	1.94/3.48	-1.38
Sense of control	20.3/3.07	18.7/3.24	3.70**
Social network	17.5/5.83	18.8/5.87	-1.47
Acculturation	12.3/4.17	10.9/4.57	2.23*
Depressive symptoms	7.01/4.69	8.97/5.66	-2.63**

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

remained significant after the effect of age, marital status, and education were controlled ( $F [4, 203] = 4.91; p < .01$ ).

### Correlation Among Study Variables

Table 2 shows correlations among study variables. At the bivariate level, being a woman was found to be associated with unmarried status, lower education, more chronic conditions, lower levels of sense of control, and less acculturation. Higher levels of depressive symptoms were observed among women and those with more advanced age, unmarried status, lower education, more chronic conditions, greater functional disability, lower sense of control, and less acculturation. As might be expected, the correlation between the number of years in the United States and acculturation was high ( $r = .65; p < .001$ ; not shown in the table). Because of issues concerning multi-collinearity, the number of years in the United States was not included in the predictive model.

### Regression Models of Depressive Symptoms

Table 3 summarizes the results of hierarchical regression models of depressive symptoms. Being a woman was a significant risk factor when gender was entered independently; however, its significance disappeared when age, marital status, and education were introduced in the second model. The demographic variables, including gender, explained 7% of the variance of depressive symptoms. Health constraints (chronic conditions and functional disability) explained an additional 13% of the variance. Those who had more chronic conditions and a greater functional disability were significantly more likely to have depressive symptoms. After controlling for the demographic and health-related variables, personal resources explained an additional 19% of the variance. At the individual variable level, those with lower levels of sense of control were found to report more depressive symptoms. The total variance explained by the main effect model was 39%.

As a final step, a series of interaction terms for gender with other variables were independently entered. Among eight possible terms, only the interaction of gender and chronic conditions was found to be significant. The significant interaction implies gender variations in the effect of chronic conditions on depressive symptoms. To further analyze the effect, the total sample was divided into men ( $N = 94$ ) and women ( $N = 136$ ), and the correlation coefficients between chronic conditions and depressive symptoms were compared across the groups. Women had a stronger association between chronic conditions and depressive symptoms ( $r = .42; p < .001$ ) than men ( $r = .16; p > .05$ ), and the difference in level of association was statistically significant ( $t = 2.10; p < .05$ ). The finding suggests that the detrimental effect of chronic conditions on mental well-being is greater for women than men.



**TABLE 2** Correlations Among Study Variables ( $N = 230$ )

	1	2	3	4	5	6	7	8	9	10
Gender (female)										
Age	.00									
Marital status (married)	-.37***	-.25***								
Education ( $\geq$ high school)	-.32***	-.26***	.26***							
Chronic conditions	.19**	.14*	-.17**	-.07						
Functional disability	.09	.33***	-.27***	-.15*	.28***					
Sense of control	-.24***	-.23**	.20**	.22**	-.22**	-.38***				
Social network	.10	-.18**	.06	.17*	.02	-.18**	.09			
Acculturation	-.15*	-.36***	.25***	.43***	-.07	-.23**	.41***	.17*		
Depressive symptoms	.17**	.14*	-.23***	-.20**	.36***	.34***	-.55***	-.11	-.29***	

*Note.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**TABLE 3** Hierarchical Regression Models of Depressive Symptoms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5	
	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$	$\beta$	$t$
Gender	.16	2.38*	.08	1.09	.03	.38	-.04	-.72	-.03	-.45
Age			.09	1.23	-.01	-.16	-.08	-1.23	-.07	-1.14
Marital status			-.10	-1.37	-.11	-1.61	-.03	-.44	-.01	-.21
Education			-.12	-1.55	-.07	-1.01	-.06	-.99	-.07	-1.08
Chronic conditions					.28	4.22***	.25	4.19***	.20	3.25**
Functional disability					.21	3.07**	.07	1.03	.07	1.19
Sense of control							-.45	-6.74***	-.44	-6.75***
Social network							-.05	-.92	-.05	-.79
Acculturation							-.08	-1.20	-.08	-1.15
Gender $\times$ chronic conditions									.13	2.12*
$R^2$	.03*		.07**		.20***		.39***		.40***	
$\Delta R^2$	.03*		.04*		.13***		.19***		.01*	

Note. Interaction terms of gender with other study variables were independently tested. Only significant term is presented in the table.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

## DISCUSSION

The present study examined gender differences in depressive symptoms using a community sample of 230 older Korean Americans in Florida. We were interested in exploring not only mean differences but gender variations in the impact of demographic variables, health constraints, and personal resources on depressive symptoms.

Consistent with previous literature on gender and depression (e.g., Blazer et al., 1994; Kessler, 2003; Nolen-Hoeksema et al., 1999), women were found to score higher on depressive symptoms than men. Women were also likely to have disadvantaged social status (unmarried status and lower education), more health problems (more numbers of chronic conditions), and a lack of personal resources (lower levels of sense of control and acculturation). The findings are parallel to previous research showing the general lack of social, physical, and personal resources among women (e.g., Sonnenberg, Beekman, Deeg, & van Tilburg, 2000).

Significant correlates of depressive symptoms at the bivariate and multivariate level generally supported past research. Significant correlates at the bivariate level included being a woman, advanced age, unmarried status, lower education, more chronic conditions, greater functional disability, lower sense of control, and less acculturation. In the initial regression model, female gender was a significant risk factor for depressive symptoms; however, its significance disappeared when other demographic variables were entered in the second model. Given that gender in its non-biological manifestation is a “carrier” variable, this vitiation of effect makes sense. Usually its association with social factors such as education and occupation provides gender with some of its predictive power.

Like gender, age, marital status, and education were strongly associated with depressive symptoms in the bivariate analysis, but none of them remained significant in the multivariate analysis. Their individual contributions were reduced when they were introduced to the regression model simultaneously.

Again consistent with past research, chronic conditions and functional disability were found to pose significant risks to mental health. The existence of chronic conditions and interference in physical activities have been widely recognized as major stressors in later years of life, and their detrimental effects on mood and emotional well-being have been well documented (e.g., Beekman, Kriegsman, Deeg, & van Tilburg, 1995; Blazer et al., 1998; Bruce, 2001). Among personal resources, sense of control remained significant in the multivariate analysis. Independent of sociodemographic characteristics and physical health conditions, individuals with a strong sense of control enjoyed good mental health. The centrality of sense of control in enhancing quality of life and well-being has been consistently found in studies with diverse populations (e.g., Jang et al., 2002; Zarit et al., 2003). The beneficial roles of

feelings of control become particularly important in the later years of life because control provides psychological resilience to the negative changes often associated with aging (Jang et al., 2002; Zarit et al.). Inconsistent with previous literature (e.g., Turner, 1994), our study showed no gender difference in the size of social network. The lack of gender differences in network may result from the fact that all study participants were immigrants. Immigration presumably is a major force for change in the size and consistency of social networks. Some support for this hypothesis is evident in the data: The size of social network decreased with lower levels of acculturation ( $r = .17; p < .05$ ; Table 2) and shorter lengths of stay in the United States ( $r = .25; p < .001$ ; not shown in the table). It is also notable that these associations were stronger for women than men, indicating that elderly women who are newly arrived in the United States and/or have not been acculturated to the new society and culture are at particular risk for a reduced social network or even social isolation. The potential immigration effect on social network is a phenomenon that deserves further exploration as it suggests that, when working with immigrant populations, service providers should not count on women having a robust social network to draw upon. It also highlights the importance of investigating how well integrated an immigrant or immigrant family is within the referent cultural groupings and within the larger host society.

Perhaps reflecting the previously noted immigration effect and its attendant disruptive influence on networks, we also found no significant bivariate or multivariate association of social network and depressive symptoms. This is unusual, as social resources are typically predictive of positive mental health (Thoits, 1995). The size and function of social networks among older Korean Americans need to be further explored in conjunction of gender and marital status, with special attention to the actual utilization of social network (e.g., transaction of various types of support) and qualitative aspects (e.g., perceived satisfaction with support).

Gender variations in the impact of predictive variables on depressive symptoms were of particular interest. The interaction term of gender-by-chronic conditions was found to be significant. Further analysis showed gender difference with regard to the impact of chronic conditions in that women tended to become more depressed as the number of chronic conditions increased. Our findings on the greater vulnerability of women to depressive symptoms in the context of chronic conditions provide implications for prevention and intervention strategies for immigrant elderly populations. Given the particular risk of declining mental well-being among chronically ill older Korean women, special attention is needed for this group to protect and enhance their physical and mental health. Along with preventive efforts, interventions designed to assist disease management will be beneficial for them to achieve optimal mental health.

Some limitations to the present study need to be noted. Because the sample in the study is nonrepresentative, generalizability of the finding is

limited. In addition, owing to the cross-sectional design, caution must be exercised in drawing causal inference from the data. Another limitation is that all measures employed in the present study were based on self-reports. The objective testing for health conditions would add strength to the study in addressing the connection between physical and mental health. Given the nature of the study, our findings are only suggestive and await further investigation on the issue with a more representative sample. Future studies should also include longitudinal follow-ups and utilize more refined measures for health and personal resources.

Despite the aforementioned limitations, our study contributes to the literature as gender differences associated with physical and mental health status in elderly immigrant populations have been generally unexplored. Like many studies of non-Hispanic Whites and African Americans, older Korean women were found to be at greater risk of depressive symptoms than men. Their greater vulnerability in the face of chronic illness is a gender difference that has not been reported in the literature. In addition, the seeming non-significance of their social networks suggests that the mechanisms underlying depressive symptomatology in this immigrant group may be different from those found in populations born and raised in the United States. Overall, the findings suggest that Korean American elders may benefit from interventions targeted to facilitate adaptation to health decline and to foster personal resources.

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