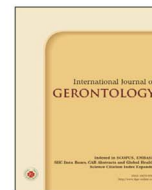




# International Journal of Gerontology

journal homepage: <http://www.sgecm.org.tw/ijge/>



## Original Article

# Factors Associated with the Interpersonal Needs of Older Women

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### ARTICLE INFO

Accepted 6 April 2023

#### Keywords:

aging,  
depression,  
interpersonal relations,  
women,  
community support

### SUMMARY

**Background:** This study aims to confirm the relationship between depressive symptoms, attitude toward aging, sense of community, and interpersonal needs, as well as identify factors that affect the interpersonal needs of older women aged over 60 years.

**Methods:** This is a cross-sectional study based on a participant-reported survey. We employ the Short Form Geriatric Depression Scale, Attitude to Aging Questionnaire, Sense of Community Questionnaire, and Interpersonal Needs Questionnaire to measure the main variables. Participants were recruited using convenience sampling by visiting two community centers from December 2018 to June 2019. Hierarchical multivariate linear regression was used to investigate the factors that affect older women's interpersonal needs.

**Results:** The mean and standard deviation of attitudes toward aging, sense of community, and interpersonal needs were  $63.18 \pm 9.85$  out of 75,  $25.78 \pm 10.36$  out of 91, and  $69.61 \pm 11.65$  out of 105, respectively. Socio-demographic characteristics, depressive symptoms, attitude toward aging, and sense of community explained 39.4% of interpersonal needs ( $F = 7.188, p = .008$ ). Among the main variables, attitude toward aging was the most influential on interpersonal needs ( $\Delta R^2 = 0.401, F = 40.213, p < .001$ ).

**Conclusions:** The findings could provide evidence to support the expansion of depression prevention interventions, successful aging programs, and community-based social activities for older women to prevent frustrated interpersonal needs.

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## 1. Introduction

It is estimated that by the year 2050, one-fifth, or 20%, of the world's population will be over the age of 65 years.<sup>1</sup> South Korea has become an aging society, with older people (65 years old and over) accounting for more than 15% of the total population in 2020.<sup>2</sup> As individuals grow older, their social circle or network shrinks due to factors such as retirement, their children's marriages, and bereavement.<sup>3</sup> The interpersonal-psychological theory of suicide<sup>4</sup> associates a sense of belonging with suicidal thoughts through two psychological factors, namely thwarted belongingness (TB) and perceived burdensomeness (PB), which can be viewed as an interpersonal problem where individuals lack an appropriate sense of belonging in their relationships with people and hold incorrect perceptions about their own importance.<sup>5</sup> Specifically, older adults are vulnerable to experiencing TB and PB due to high retirement, and impaired functioning.<sup>6</sup> The way individuals perceive their interpersonal relationships is influenced by the relationships that exist among people. Since the industrial revolution, rapid urbanization and a reduced sense of community have contributed to increased social disconnection among older adults.<sup>7</sup> The isolation can be an obstacle to meeting their interpersonal needs (INs).

Social capital refers to the characteristics of social connections

or organizations — participation — that allows people to collaborate for mutual gain within society.<sup>8</sup> It is significantly linked to depression and may help prevent depression among older adults.<sup>9</sup> However, the tendency to consider older women's depressive symptoms (DS) as a part of aging has resulted in older women's INs being overlooked in the context of social problems.<sup>7</sup>

Positive attitudes toward aging (ATA) positively affect cognitive function, life satisfaction, and overall well-being.<sup>10</sup> However, the concept of successful aging in the West, which has traditionally emphasized an individual's health and social activities in previous studies, may not fully account for cultural differences, as it fails to encompass collective values or human relationships that are highly valued by the elderly in Confucian cultural society.<sup>11</sup> Therefore, in Korean society, which places emphasis on relationship-focused culture, it is crucial to investigate all aspects of successful aging, including relationships that were not previously considered.<sup>10</sup>

The sense of community (SOC) is a core construct in community psychology, and it has been observed that women tend to have a high SOC and sense of belonging.<sup>12</sup> While men typically describe themselves as independent and competitive, women tend to describe themselves as sociable, dependent, and less assertive.<sup>13</sup> Previous studies have uncovered that significant gender differences exist in terms of social support, revealing that greater social support reduces the risk of experiencing mental disorders, particularly among women.<sup>14</sup>

Several studies have investigated the link between INs and psychopathology.<sup>15</sup> However, there is no empirical evidence examining

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how social factors affect the INs of older women. Therefore, the present study aims to identify the significantly affected factors associated with the INs of older women. We hypothesized that DS, ATA, and SOC would be associated with INs after adjusting for general socio-demographic characteristics.

## 2. Methods

### 2.1. Study design

This is a cross-sectional and correlational study that is designed to identify the factors that affect INs in older women.

### 2.2. Sampling and data collection

This study was conducted as part of the data collection to identify the factors that affect ATA in community-dwelling older men and women in South Korea.<sup>16</sup> Detailed information regarding recruitment has been provided in a separate study.<sup>16</sup> For this study, two community centers were selected and visited by researchers to collect data. This study selected individuals aged 65 or above using community centers as participants. However, only the data collected from older women was used in this study. The study's purpose was explained to the potential participants, and the questionnaire was distributed to those who consented. Participants were informed of the study's confidentiality and their right to withdraw from it at any time. The data collection period for this study was from December 2018 to June 2019. We used G-Power 3.1 software to calculate the required sample size for this study. We selected an F-test using multiple linear regression with a fixed model and an  $R^2$  increase for post hoc analysis, with an effect size  $f^2$  of 0.15, a  $p$ -value of .05, a total sample size of 155, three test predictors, and eight total predictors. The calculated minimum sample size was 146, and our study had 155 responses, indicating an adequate sample size.

### 2.3. Measurement

#### 2.3.1. General socio-demographic characteristics

The general socio-demographic characteristics were age, education level, marital status, perceived economic status, and health problems (Yes = the presence of one or more health problems; No = none).

#### 2.3.2. Depressive symptoms

The DS was measured using the Short Form Geriatric Depression Scale (SGDS),<sup>17</sup> modified into the Geriatric Depression Scale-Korea<sup>18</sup> to measure DS in older Korean adults. The scale comprises 15 questions measuring subjective DS (0 = symptom absent, 1 = symptom present). The total score ranged from 0–15, with a higher score indicating greater DS. The Cronbach's  $\alpha$  of the Korean version of the tool<sup>18</sup> was .89 and .82 in this study.

#### 2.3.3. Attitude toward aging

This study used the Attitude to Aging Questionnaire (AAQ) from Laidlaw, Power, and Schmidt,<sup>19</sup> which comprises 21 items. It was validated and translated by Kim and Kim<sup>20</sup> for older Korean adults. This questionnaire consists of three subscales: psychological loss (five items), social loss (four items), and change and growth in body and mind (12 items). Responses are rated on a five-point Likert scale ranging from "not at all" to "very strongly." The total score ranged from 21–105, with a higher score indicating a positive ATA. The Cronbach's  $\alpha$  was .91 in Kim and Kim's study<sup>20</sup> and .94 in this study.

#### 2.3.4. Sense of community

The concept of a SOC was developed by Shin.<sup>21</sup> The questionnaire comprises 15 items across three domains: attributive (six items), interchangeability (five items), and attachment (four items). A five-point Likert scale — with options ranging from "not at all" to "very strongly". The total score ranged from 15 to 75, with higher scores indicating a stronger SOC. The internal consistency reliability estimated by Cronbach's  $\alpha$  was .91 in Shin.<sup>21</sup> The Cronbach's  $\alpha$  was .94 in this study.

#### 2.3.5. Interpersonal needs

INs were measured using a measure based on the 15-item INs Questionnaire.<sup>22</sup> It was modified by Lee, Lee, and Oh<sup>22</sup> into a 13-item version to create the Korean INs Questionnaire (K-INQ), the subscales of which include PB (six items) and TB (seven items) rated on a seven-point Likert scale. This study measured interpersonal needs by combining TB and PB based on a previous study.<sup>5</sup> The total score ranged from 13 to 91, with higher scores reflecting greater demand for interpersonal needs. In Lee et al.,<sup>22</sup> the internal consistency reliability (Cronbach's  $\alpha$ ) for all items was .75, whereas the reliability coefficient for this study was .78.

### 2.4. Statistical analysis

The data were analyzed using version 26 of SPSS Statistics. Participant characteristics and the included factors were examined using descriptive statistical analysis. The differences in INs according to socio-demographic characteristics were examined using independent t-tests and one-way ANOVA. The Scheffé test was used with post hoc comparisons in ANOVA. Pearson's correlation coefficients were used to analyze the relationships among DS, ATA, SOC, and INs. Hierarchical multivariable linear regression was used to investigate the significantly affected factors associated with INs. For the hierarchical regression analysis, a significance level of 0.05 was used, and results with a  $p$ -value less than 0.05 were considered statistically significant in this study.

### 2.5. Ethical approval

The Institutional Review Board of Chung-Ang University approved the data collection process. Additionally, the data analysis conducted in this study received a review waiver from the Institutional Review Board (Number 1041078-202106-HR-170-01).

## 3. Results

### 3.1. General characteristics and differences in interpersonal needs

Table 1 displays the socio-demographic characteristics and differences in INs. The study involved 155 participants, with 63 being married (40.6%) and 128 reporting at least one health problem (82.6%). Statistically significant differences in health problems ( $t = -2.426, p = .021$ ), education level ( $F = 5.377, p = .002$ ), and perceived economic status ( $F = 7.496, p = .001$ ) based on INs were found.

### 3.2. Characteristics of depressive symptoms, sense of community, attitude toward aging, and interpersonal needs

Table 2 presents the mean scores of SGDS, ATA, SOC, and frustrated INs. The SGDS mean score was  $3.92 \pm 3.50$ , the ATA mean

**Table 1**  
Participants' characteristics and differences in interpersonal needs (n = 155).

Variables	Categories	n (%) or M ± SD	Interpersonal needs <sup>a</sup>		
			M ± SD	t or F	p
Age (year)		79.54 ± 6.98			
Marital status	Married	63 (40.6)	1.96 ± 0.78	-0.286	.775
	Single	92 (59.4)	2.00 ± 0.81		
Health problems	Yes	128 (82.6)	1.90 ± 0.74	-2.426	.021
	No	27 (17.4)	2.37 ± 0.95		
Education level	≤ Elementary school	90 (58.1)	1.83 ± 0.70	5.377	.002 <sup>b</sup>
	Middle school	28 (18.1)	2.21 ± 0.87		
	High school	26 (16.7)	2.41 ± 0.88		
	College	11 (7.1)	1.66 ± 0.74		
Perceived economic status	High	12 (7.7)	1.53 ± 0.57	7.496	.001 <sup>c</sup>
	Middle	86 (55.5)	1.85 ± 0.73		
	Low	57 (36.8)	2.28 ± 0.84		

Abbreviations: M = mean; SD = standard deviation.

<sup>a</sup> Higher scores on interpersonal needs indicates greater frustrated interpersonal needs.

<sup>b</sup> *Post hoc*, Scheffe, significant difference compared to High school and College groups.

<sup>c</sup> *Post hoc*, Scheffe, significant difference compared to High and Low groups.

**Table 2**  
Descriptive statistics of depressive symptoms, attitude toward aging, sense of community and Interpersonal needs (n = 155).

Variables	Min	Max	M ± SD	Skewness	Kurtosis
Depressive symptoms	0.00	13.00	3.92 ± 3.50	0.75	-0.46
Attitude toward aging	33.00	99.00	69.61 ± 11.65	0.05	0.24
Sense of community	30.00	75.00	63.18 ± 9.85	-0.99	0.53
Interpersonal needs	13.00	54.00	25.78 ± 10.36	0.79	-0.31

Abbreviations: M = mean; SD = standard deviation.

score was 69.61 ± 11.65, and the SOC mean score was 63.18 ± 9.85. Furthermore, the INs mean score was 25.78 ± 10.36.

**3.3. Correlations between interpersonal needs, depressive symptoms, and sense of community**

Table 3 displays the statistically significant results of correlational analyses between DS, ATA, SOC, and frustrated INs. DS showed a significant positive correlation with INs ( $r = 0.213, p = .008$ ). ATA was significantly and negatively correlated with INs ( $r = -0.495, p < .001$ ). Lastly, SOC exhibited a significant negative correlation with INs ( $r = -0.352, p < .001$ ).

**3.4. Factors associated with interpersonal needs**

A four-stage hierarchical regression analysis was performed to identify the significantly affected factors associated with the INs of older women (Table 4). Using independent t-tests and one-way ANOVA, only socio-demographic characteristics that were significantly correlated with INs ( $p < .100$ ) were entered into the hierarchical regression models. The assumption of linearity and normality in the linear regression analysis was tested and found to be satisfied. The Durbin-Watson statistic was 1.841, thus eliminating the auto-

correlation problem. Tolerance was 0–1, and VIF was 1.052–4.083, which was lower than 10. Therefore, there was no multicollinearity.

Regression Model 1, which contained the socio-demographic characteristics, was statistically significant ( $F = 6.138, p < .001$ ) and explained approximately 16.7% of the variance. Education level (ref = college graduation), economic level (ref = low), and health problem (ref = no) were coded as dummy variables. Compared to college graduates, participants who were high school graduates had significantly higher INs ( $\beta = 0.290, p = .021$ ).

The DS factor was entered in Model 2, which was significant ( $F = 7.080, p = .009$ ) and explained 20.0% of the variance, 3.7% higher than Model 1. Among the factors, DS was found to have a statistically significant impact on INs ( $\beta = 0.204, p = .009$ ).

ATA was entered in Model 3, and it was found to be statistically significant ( $F = 40.213, p < .001$ ), and the percentage of variance explained increased to 36.8%, 16.5% higher than Model 2. In Model 3, ATA ( $\beta = -0.469, p < .001$ ) was statistically significant.

Lastly, the SOC was entered in Model 4, and the Model was significant ( $F = 7.188, p = .008$ ). The final percentage of variance explained increased to 39.4%, an increase of 2.8% over model 3. The SOC was found to be negatively related to increasing INs ( $\beta = -0.186, p = .008$ ).

**4. Discussion**

The purpose of this study was to identify the factors that significantly affect the INs of older women. The results indicated that the relationship between major factors like DS significantly affected INs in older women. This is consistent with the results of prior research indicating that depression can adversely affect an individual's ability to form and maintain social relationships, which can result in loneliness and a sense of social isolation.<sup>8</sup> Moreover, the study suggested that experiencing frustrated INs can contribute to the development

**Table 3**  
Correlations between depressive symptoms, attitude toward aging, sense of community and Interpersonal needs (n = 155).

Variables	Depressive symptoms	Attitude toward aging	Sense of community	Interpersonal needs
	r (p)			
Depressive symptoms	1			
Attitude toward aging	-0.436 (< .001)	1		
Sense of community	-0.065 (< .419)	0.148 (.067)	1	
Interpersonal needs	0.213 (.008)	-0.495 (< .001)	-0.495 (< .001)	1

**Table 4**  
Factors influencing interpersonal needs (n = 155).

Variables	Model 1			Model 2			Model 3			Model 4		
	b	$\beta$	t (p)	b	$\beta$	t (p)	b	$\beta$	t (p)	b	$\beta$	t (p)
(Contrast)	2.296		8.518 (< .001)	2.124		7.809 (< .001)	4.538		10.064 (< .001)	5.183		10.307 (< .001)
Education level (ref = college)												
Elementary school	0.118	0.073	0.500 (.618)	7.809	0.050	0.344 (.334)	-0.121	-0.075	-0.580 (.563)	0.010	0.006	0.049 (.961)
Middle school	0.449	0.218	1.703 (.091)	0.377	0.183	1.452 (.149)	0.199	0.096	0.855 (.394)	0.315	0.153	1.359 (.176)
High school	0.617	0.290	2.336 (.021)	0.647	0.304	2.495 (.014)	0.508	0.239	2.199 (.029)	0.531	0.250	2.343 (.020)
Economic status (ref = low)												
Middle	-0.597	-0.0201	-2.554 (.012)	-0.490	-0.165	-2.103 (.037)	-0.380	-0.128	-1.833 (.069)	-0.339	-0.114	-1.660 (.099)
High	-0.384	-0.240	-3.043 (.003)	-0.308	-0.193	-2.430 (.016)	-0.164	-0.103	-1.428 (.155)	-0.149	-0.093	-1.319 (.189)
Health problem (ref = no)	-0.372	-0.177	-2.352 (.020)	-0.408	-0.195	-2.623 (.010)	-0.331	-0.158	-2.391 (.018)	-0.267	-0.128	-1.998 (.054)
Depressive symptoms				0.696	0.204	2.661 (.009)	0.088	0.026	3.520 (0.725)	0.053	0.015	0.214 (.831)
Attitude toward aging							-0.674	-0.469	-6.341 (< .001)	-0.630	-0.438	-5.972 (< .001)
Sense of community										-0.225	-0.186	-2.681 (.008)
R <sup>2</sup>		0.199			0.236			0.401			0.429	
Adj. R <sup>2</sup>		0.167			0.200			0.368			0.394	
$\Delta R^2$		0.199			0.037			0.165			0.028	
F (p)		6.138 (< .001)			7.080 (.009)			40.213 (< .001)			7.188 (.008)	

or deterioration of DS, which in turn can have a greater impact on INs. Previous research also suggests that older women are more likely to report social isolation due to DS.<sup>23</sup> Given the high value placed on social harmony and collectivism in Korean society, a social connection may help mitigate the risk of DS among older women.<sup>16</sup> Therefore, older women must establish satisfactory relationships with people, including friends and neighbors.

The ATA had a statistically significant impact on INs. This result can complement the findings of previous research, which showed that the higher the positive subjective ATA, the lower the likelihood of suicide accidents.<sup>24</sup> Older people with positive ATA are likelier to interact actively with others, participate in social activities, and maintain close relationships.<sup>25</sup> Participation in diverse social activities has a positive effect on INs.<sup>26</sup> However, negative stereotypes were associated with aging, particularly for women, who may be viewed as having less social value.<sup>27</sup> Moreover, women showed significantly more signs of anxiety about aging than men.<sup>28</sup> Therefore, it is essential to help older women maintain positive ATA and interpersonal relationships.

This study confirmed that a SOC is important for older women to meet their INs. This is consistent with prior research findings that the sense of belonging formed through a SOC affects emotional stability by satisfying social needs through mutual interaction with community members.<sup>29</sup> Older women use public care services and leisure facilities better than older men.<sup>30</sup> Therefore, it is necessary to actively promote welfare for senior citizens or intervention programs to enhance the SOC, especially for women. It is important to note that SOC can vary depending on the region and cultural characteristics of different countries. Individuals in Taiwan reported a strong SOC owing to their culture of living in large families.<sup>31</sup> Therefore, it is essential to understand and consider each country's cultural context and background when developing interventions to promote SOC in older adults.

Based on the study's findings, specific practical methods are proposed for meeting the INs of older women. The first is to focus on enhancing the health and welfare status of older individuals in nations with rapidly aging populations and to prioritize the development of "age-friendly cities" that promote physical activity.<sup>32</sup> In Korea, public health centers are administered regionally, and community psychiatric nurses provide various mental health improvement activities for local residents. Psychiatric approaches for older women

who experience difficulties related to INs should include interventions to improve their DS, ATA, and SOC. Second, as part of a formal social welfare policy, a social environment in which the community can systematically and actively work to support older women must be created.

Although significant, the study has a few limitations. TB and PB were combined to measure INs, while previous research indicates that TB does not significantly influence suicidal thoughts in older adults.<sup>33</sup> Accordingly, the significantly affected factors may differ between TB and PB. Conducting a detailed path analysis of the effects of SOC on INs may provide fundamental insights into the theory of suicide and guide the development of effective interventions for older women in future studies.

## 5. Conclusion

This study identified factors that influence the INs of older women, who are significantly influenced by social relationships in collectivist cultures, such as those in Asian countries. The results demonstrate that DS, ATA, and SOC significantly influence the INs of older women, with ATA having the greatest impact. Therefore, expanding community-based social participation and engagement programs for older women for DS, ATA, and SOC can enhance the sense of community belonging and improve mental health.

## Acknowledgments

None.

## Declaration of any potential financial and non-financial conflicts of interest

The authors declare no conflict of interest.

## Funding

This study was not funded by any organization.

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