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Social Capital and Self-Rated Health Among Older Adults Living Alone: The Mediating Role of Depression

Se-Hui KIM[1]

1. First Author Professor. Department of Lifelong Education & Social Welfare, Naju University, Email: kimsh@naju.ac.kr

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Abstract

Purpose: This study examines the relationship between social capital and self-rated health among older adults living alone and investigates the mediating role of depression. **Research design, data and methodology:** Using cross-sectional data from the 2024 Korea Welfare Panel Study (N = 2,060), we analyzed a nationally representative sample of adults aged 65 and older living in single-person households. Social capital was constructed as a composite index including trust, reciprocity, and social participation. Depression was measured using an 11-item CES-D scale (Cronbach's α = .984). Hierarchical regression and bootstrapped mediation analyses were conducted while controlling for demographic and socioeconomic factors. **Results:** Social capital was positively associated with self-rated health and negatively associated with depressive symptoms. Depression was strongly associated with poorer self-rated health (β = −.353). Mediation analysis indicated that depression partially mediated the relationship between social capital and self-rated health (indirect effect = 0.075, 95% CI [0.051, 0.099]). **Conclusions:** Social capital is linked to better perceived health both directly and indirectly through reduced depressive symptoms. Strengthening psychosocial resources may represent an important strategy for promoting healthy aging among older adults living alone.

Keywords : Social Capital; Self-Rated Health; Depression; Older Adults Living Alone; Healthy Aging

JEL Classification Code : I10, I12, I18

1. Introduction[1]

Population aging has accelerated rapidly in South Korea, accompanied by a substantial rise in single-person elderly households. Older adults living alone are more likely to experience limited family support, reduced social interaction, and increased psychological vulnerability compared to those living with others. As social isolation and mental health risks intensify in later life, identifying determinants of health among older adults living alone has become an important academic and policy priority. Self-rated health has been widely validated as a strong predictor of morbidity and mortality across diverse populations (Idler & Benyamini, 1997). Unlike objective clinical indicators, self-rated health reflects a comprehensive evaluation of physical, psychological, and social well-being, making it particularly useful for capturing multidimensional health status in aging populations. Among the various social determinants of health, social capital has received considerable scholarly attention. Social capital generally

refers to resources embedded in social networks characterized by trust, reciprocity, and social participation (Putnam, 2000). From a theoretical perspective, social capital can influence health through multiple pathways, including the provision of emotional support, the facilitation of health-related information, and the reinforcement of social norms that promote well-being. The stress-buffering model suggests that social relationships can mitigate the negative effects of stress by providing psychological and emotional resources, thereby protecting individuals from adverse health outcomes. Empirical evidence supports these theoretical perspectives. Previous studies have consistently shown that higher levels of social capital are associated with better self-rated health and lower mortality (Kawachi et al., 1999; Kim et al., 2006). A systematic review further confirmed a robust positive association between social capital and various health outcomes (De Silva et al., 2005). However, much of this research has focused on general adult populations, with relatively limited attention to older adults living alone. In this group, the absence of immediate family support may increase reliance on community-based social resources, potentially amplifying the importance of social capital. In addition to its direct effects, social capital may also influence health indirectly through psychological mechanisms. Depression is highly prevalent among socially isolated older adults and has been strongly associated with poorer self-rated health and functional decline (Moussavi et al., 2007). Prior research suggests that social capital can reduce depressive symptoms by enhancing emotional support, strengthening social integration, and fostering a sense of belonging (De Silva et al., 2005). In turn, lower levels of depression are associated with more positive health perceptions (Han & Jylhä, 2006). Despite the theoretical plausibility of this mechanism, empirical studies explicitly examining depression as a mediator between social capital and self-rated health remain limited, particularly in rapidly aging East Asian contexts. Moreover, few studies have utilized nationally representative data to test this mediation framework among older adults living alone. To address these gaps, the present study examines the relationship between social capital and self-rated health among older adults living alone and tests whether depression mediates this association using data from the 2024 Korea Welfare Panel Study. By identifying modifiable psychosocial mechanisms, this study contributes to a more nuanced, process-oriented understanding of how social capital influences health and provides policy-relevant insights for promoting healthy aging.

2. Literature Review

2.1. Older Adults Living Alone and Health Vulnerability

The rapid increase in single-person elderly households has drawn attention to the health vulnerability of older adults living alone. Living arrangements are a critical social determinant of health in later life. Compared to older adults living with family members, those living alone are more likely to experience social isolation, limited emotional support, and reduced access to informal caregiving resources (Courtin & Knapp, 2017). Social isolation has been linked to adverse physical and mental health outcomes, including increased mortality risk (Holt-Lunstad, Smith, Baker, Harris, and Stephenson, 2015). In particular, older adults living alone often face heightened risks of depressive symptoms and poor subjective health perceptions (Dean, Kolody, Wood, and Matt, 1992). Without regular interpersonal interaction, they may lack opportunities for emotional exchange and social engagement, both of which are important for maintaining psychological well-being. Importantly, the vulnerability associated with living alone suggests that social and psychological resources may play a crucial role in buffering adverse health outcomes. Therefore, identifying protective factors that can mitigate depressive symptoms and enhance perceived health among older adults living alone is of both theoretical and practical importance.

2.2. Social Capital and Self-Rated Health

Social capital has been widely discussed as a key social determinant of health. Conceptually, social capital refers to resources embedded within social networks that are characterized by trust, reciprocity, and participation (Putnam, 2000). It is often categorized into structural social capital (e.g., social participation, organizational involvement) and cognitive social capital (e.g., interpersonal trust, perceived reciprocity). Empirical evidence consistently supports a positive association between social capital and health outcomes. Higher levels of social trust and civic engagement have been linked to lower mortality and better self-rated health (Kawachi et al., 1999; Kim et al., 2006). A systematic review also found that individuals with greater social capital generally report better physical and mental health (De Silva et al., 2005). Social capital may promote health by facilitating access to emotional support, health-related information, and community resources, as well as by fostering a sense of belonging. However, most prior studies have focused on general adult populations. Less is known about how social capital operates among older adults living alone, whose social networks may be narrower yet potentially more meaningful. Moreover, while the direct association between social capital and self-rated health has been widely documented, the psychological processes underlying this

relationship remain insufficiently examined.

2.3. Depression as a Psychological Mechanism

Depression is one of the most prevalent mental health conditions among older adults and is particularly common among those experiencing social isolation. Depression has been shown to significantly influence health perceptions, functional limitations, and overall well-being (Moussavi et al., 2007). Individuals with depressive symptoms tend to evaluate their health more negatively, even after controlling for objective health conditions. The stress-buffering model suggests that social resources can mitigate psychological distress by providing emotional reassurance and coping assistance. In this context, social capital may reduce depressive symptoms by enhancing perceived support and social integration (De Silva et al., 2005). Empirical studies have demonstrated that greater social participation and higher interpersonal trust are associated with lower levels of depression (Santini et al., 2015). Furthermore, improvements in depressive symptoms have been associated with better self-rated health among older adults (Han & Jylhä, 2006). Taken together, these findings suggest that depression may function as a key psychological pathway through which social capital influences self-rated health. However, empirical studies explicitly testing this mediating mechanism among older adults living alone remain limited. Therefore, examining depression as a mediator in this specific population is necessary to clarify the psychosocial processes linking social capital to health perceptions.

2.4. Research Gap and Conceptual Framework

Although previous research has established associations between social capital and health, and between depression and health, relatively few studies have empirically examined depression as a mediating mechanism between social capital and self-rated health, particularly among older adults living alone. Existing studies often rely on general population samples or focus primarily on direct effects without systematically investigating the underlying psychological pathways. Moreover, the majority of prior research has been conducted in Western contexts and nationally representative data have rarely been used to test this mediation framework within rapidly aging East Asian societies. Given the distinctive demographic transformation occurring in South Korea characterized by both accelerated population aging and a sharp increase in single-person elderly households examining these mechanisms in this context is especially important. By explicitly testing depression as a mediating mechanism, this study extends prior research in three ways. First, it moves beyond simple association models to clarify the psychological process linking social capital to health perceptions. Second, it focuses on older adults living alone, a population that is particularly vulnerable to social isolation and mental health risks. Third, it utilizes nationally representative data from the Korea Welfare Panel Study, thereby enhancing the generalizability of the findings. Based on prior theoretical and empirical findings, this study proposes a mediation model in which social capital is associated with self-rated health both directly and indirectly through depression.

2.5. Research Model

Drawing upon prior theoretical and empirical literature, this study proposes a mediation framework in which social capital influences self-rated health both directly and indirectly through depression. Previous research has consistently shown that social capital is positively associated with health outcomes (Kawachi et al., 1999; Kim et al., 2006), while depression is negatively associated with perceived health (Moussavi et al., 2007). Furthermore, social capital has been found to reduce depressive symptoms by enhancing emotional support and social integration (De Silva et al., 2005). Integrating these strands of literature, this study assumes that social capital—conceptualized as structural and cognitive components—contributes to lower levels of depression, which in turn are associated with better self-rated health. In addition to this indirect pathway, social capital is expected to exert a direct effect on self-rated health, reflecting broader psychosocial and resource-based mechanisms. Accordingly, the conceptual model of this study is illustrated in Figure 1.

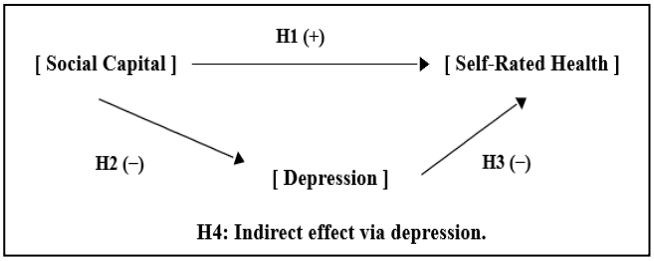

Figure 1: Conceptual Model

Based on the proposed research model, the following hypotheses are established.

H1. Social capital is positively associated with self-rated health among older adults living alone.

H2. Social capital is negatively associated with depression among older adults living alone.

H3. Depression is negatively associated with self-rated health among older adults living alone.

H4. Depression mediates the relationship between social capital and self-rated health.

3. Research Methods and Materials

3.1. Data and Sample

This study utilized cross-sectional data from the 19th wave (2024) of the Korea Welfare Panel Study (KOWEPS), a nationally representative longitudinal survey jointly conducted by the Korea Institute for Health and Social Affairs and Seoul National University. The Korea Welfare Panel Study employs a stratified multistage probability sampling design and provides comprehensive information on socioeconomic status, health, and psychosocial characteristics of Korean households. The analytic sample for this study consisted of individuals aged 65 years and older who were living in single-person households at the time of the survey. Respondents with missing values on key variables—including social capital, depression, and self-rated health—were excluded using listwise deletion. After applying these criteria, the final analytic sample included N = 2,060 older adults living alone with complete information on all study variables. Although the Korea Welfare Panel Study is longitudinal in design, the present analysis is based on cross-sectional data from the 2024 wave. Therefore, the findings should be interpreted as associative rather than strictly causal.

3.1.1. Model Specification

To examine the mediating role of depression in the relationship between social capital and self-rated health, a series of hierarchical regression models were estimated following the procedure proposed by Baron and Kenny. First, self-rated health was regressed on social capital and control variables to estimate the total effect (c). Second, depression was regressed on social capital and control variables to estimate Path a. Third, self-rated health was regressed on both social capital and depression, along with control variables, to estimate the direct effect (c′) and Path b. The indirect effect of social capital on self-rated health through depression was calculated as the product of Path a and Path b (a × b). In addition, mediation analysis was conducted using PROCESS Macro Model 4 with 5,000 bootstrap resamples to obtain bias-corrected 95% confidence intervals for the indirect effect. The indirect effect was considered statistically significant when the confidence interval did not include zero.

3.1.2. Estimation Procedure

Ordinary Least Squares (OLS) regression was employed to estimate the specified models. Because self-rated health was treated as a continuous variable, OLS was considered appropriate for parameter estimation. Although self-rated health (SRH) is measured on an ordinal scale, prior research frequently treats it as a quasi-continuous variable when five or more response categories are used. Under such conditions, OLS estimates have been shown to closely approximate those obtained from ordered logistic or probit models. Supplementary analyses using ordered logistic regression yielded substantively similar results, supporting the robustness of the findings. Before conducting the regression analyses, diagnostic tests were performed to ensure model validity. Multicollinearity was assessed using the Variance Inflation Factor (VIF), and all values were below the commonly accepted threshold of 10. Homoscedasticity and normality of residuals were examined through residual plots and statistical tests. Robust standard errors were applied where necessary. To enhance representativeness, sampling weights provided by the Korea Welfare Panel Study were applied in all regression analyses. Mediation analysis was conducted using the PROCESS macro (Model 4) for IBM SPSS Statistics 29.0 with 5,000 bootstrap resamples to estimate indirect effects and their 95% confidence intervals. All statistical analyses were conducted using IBM SPSS Statistics 29.0. Statistical significance was determined at the level of $p < .05$.

3.2. Measures

3.2.1. Dependent Variable: Self-Rated Health

Self-rated health was measured using a single-item question asking respondents to evaluate their overall health status. Responses were recorded on a five-point Likert scale ranging from 1 (poor) to 5 (excellent), with higher scores indicating better perceived health. Self-rated health has been widely validated as a reliable indicator of overall health and a strong predictor of morbidity and mortality (Idler & Benyamini, 1997). Although the measure is ordinal, it was treated as a continuous variable in the regression analyses, consistent with prior research demonstrating that such treatment yields robust and unbiased estimates.

3.2.2. Independent Variable: Social Capital

Social capital was conceptualized as a multidimensional construct encompassing both structural and cognitive components, consistent with prior theoretical frameworks (e.g., Putnam, 2000; Harpham et al., 2002). In line with this perspective, social capital in the present study was operationalized using three indicators: social participation, interpersonal trust, and perceived reciprocity. Social participation represents the structural dimension of social capital and was measured by a single item assessing the respondent's involvement in social, religious, volunteer, or community organizations. Interpersonal trust and perceived reciprocity reflect the cognitive dimension, capturing generalized trust in others and expectations of mutual support within the community, respectively. Each of these constructs was measured using a single-item indicator,

consistent with prior large-scale survey studies utilizing secondary data (e.g., Kim & Kawachi, 2006; Norstrand & Xu, 2012). To construct the composite index, each item was standardized (z-scores) to ensure comparability across different scales and distributions. The standardized scores were then averaged to create an overall index of social capital, with higher values indicating greater levels of social capital. The decision to apply equal weighting to each component was based on both theoretical and practical considerations. Theoretically, prior research has conceptualized social capital as a composite construct consisting of multiple distinct yet complementary dimensions, without strong empirical justification for differential weighting across components. Practically, given the use of single-item indicators and the absence of validated latent constructs in the dataset, equal weighting provides a parsimonious and transparent approach that avoids imposing arbitrary assumptions about the relative importance of each dimension. Furthermore, this index was treated as a formative composite rather than a reflective scale, as the indicators are assumed to jointly define the construct rather than reflect an underlying latent variable. In formative measurement models, the components are not necessarily expected to be highly correlated, and therefore internal consistency reliability measures such as Cronbach's α are not appropriate (Diamantopoulos & Winklhofer, 2001). Instead, the validity of the construct is supported through its theoretical grounding and consistency with prior empirical research.

3.2.3. Mediating Variable: Depression

Depression was measured using the 11-item version of the Center for Epidemiologic Studies Depression Scale (CES-D). Each item was rated on a four-point scale ranging from 0 (rarely or none of the time) to 3 (most of the time). The total score was calculated by summing across all items, resulting in a range of 0 to 33, with higher scores indicating greater depressive symptoms. Prior to analysis, all items were carefully examined, including reverse-coded items, to ensure correct coding and consistency. No coding errors were identified. The CES-D is a widely used and validated instrument for assessing depressive symptoms, particularly among older adults. In the present study, the scale demonstrated a very high level of internal consistency (Cronbach's α = .984). Although this value appears higher than typically reported, such a result may reflect the high inter-item correlations observed in this sample, which consists of a relatively homogeneous population of older adults living alone. Previous studies have noted that Cronbach's α can be inflated in cases where items are highly correlated or when the sample is homogeneous. Therefore, the high reliability coefficient observed in this study is interpreted as reflecting strong internal consistency rather than a measurement error. This interpretation is further supported by the established validity and widespread use of the CES-D in prior research.

3.3. 3. Control Variables

Several sociodemographic variables were included as controls to account for potential confounding factors. Age was categorized into three groups (65–74, 75–84, and 85+) and included in the analysis as an ordinal variable (coded 1–3), with higher values indicating older age. Gender was coded as 0 = male and 1 = female. Educational attainment was categorized into three mutually exclusive groups: elementary school or below, middle school graduate, and high school or above. Household income was equivalized and included as a continuous variable in the regression analyses to preserve variability and avoid information loss. For descriptive purposes, income was additionally divided into quartiles (Q1–Q4), with Q1 representing the lowest-income group and Q4 the highest-income group. For the regression analyses, categorical variables (gender and education) were converted into dummy variables. The reference categories were specified as follows: male for gender and elementary school or below for education. This specification enables the regression coefficients to be interpreted as differences relative to the baseline groups.

3.3. Analytic Strategy

The analysis proceeded in three stages. First, descriptive statistics were computed to summarize the characteristics of the analytic sample, and Pearson correlation analyses were conducted to examine bivariate associations among the key variables. Second, regression analyses were performed to test the hypothesized associations, following the mediation framework proposed by Baron and Kenny (1986). Model 1 estimated the association between social capital and self-rated health. Model 2 examined the association between social capital and depression (Path a). Model 3 included both social capital and depression to estimate the direct effect of social capital on self-rated health (c′) and the association between depression and self-rated health (Path b), net of the control variables. All models included age, gender, education, and household income as control variables. All models included age, gender, education, and household income as control variables. Gender and education were entered as dummy variables with clearly specified reference categories, whereas age was included as an ordinal variable (coded 1–3). Third, mediation analysis was conducted using PROCESS Macro Model 4 with 5,000 bootstrap resamples. The indirect effect was considered statistically significant when the 95% bootstrap confidence interval did not include zero. To assess the robustness of the findings, supplementary

ordered logit models were estimated to account for the ordinal nature of the self-rated health measure.

Table 1: Operational Definitions and Reliability of Study Variables

Variable	Type	Measurement	Coding / Construction
Self-Rated Health	Dependent	Overall Health Status	1 = Poor; 5 = Excellent (higher scores indicate better health)
Social Capital	Independent	Trust, Reciprocity, Social Participation (single-item measures)	Standardized composite index (z-scores averaged; equal weighting; higher va lues indicate greater social capital)
Depression	Mediator	11-item CES-D (Center for Epidemiologic Studies Depr ession Scale; 0–3 per item)	Summed score (range: 0–33; higher values indicate greater d epressive symptoms)
Age	Control	Age group (65–74, 75–84, 85+)	Ordinal variable (coded 1–3; higher values indicate older age)
Gender	Control	Biological Sex	0 = Male, 1 = Female
Education	Control	Educational Attainment	Dummy variables (reference: elementary or below; middle school graduate, high school or above)
Income	Control	Household Income	Continuous variable (equivalized); descriptive a nalyses use quartiles (Q1–Q4)

4. Results

4.1. Sample Characteristics

The final analytic sample consisted of 2,060 older adults living alone. The mean age of participants was 79.80 years (SD = 6.96). Women comprised 81.99% of the sample, whereas men accounted for 18.01%. With regard to age distribution, 24.51% of respondents were aged 65–74 years, 47.72% were aged 75–84 years, and 27.77% were aged 85 years or older. Thus, nearly half of the sample was concentrated in the 75–84 age group, and more than one-quarter belonged to the oldest-old group.

Regarding educational attainment, 57.91% had completed elementary school or below, 20.44% were middle school graduates, and 21.65% had completed high school or above.

This distribution indicates that a substantial proportion of the sample had relatively low levels of formal education. Household income was categorized into quartiles (Q1–Q4), with each quartile comprising approximately one-quarter of the sample.

Overall, the sample was characterized by a high proportion of women, advanced age, relatively low educational attainment, and variation in household income.

Table 2: Sample Characteristics (N = 2,060)

Variable		N	%
Age	65-74	505	24.51
	75-84	983	47.72
	85+	572	27.77
Gender	Male	371	18.01
	Female	1,689	81.99
Education Level	Elementary school or below	1,193	57.91
	Middle school graduate	421	20.44
	High school or above	446	21.65
Income	Q1(Lowest)	516	25.05
	Q2	514	24.95
	Q3	515	25.00

	Q4 (Highest)	515	25.00

4.2. Descriptive Statistics and Correlations

Table 3 presents the means, standard deviations, and bivariate correlations among the study variables. The mean age of participants was 79.80 years (SD = 6.96). The mean score for social capital was 6.72 (SD = 1.05), the mean self-rated health (SRH) score was 2.67 (SD = 0.93), the mean depression score was 20.79 (SD = 3.63), and the mean household income was 1,667.32 (SD = 1,027.91).

Social capital was positively correlated with self-rated health ($r = .224$, $p < .001$) and negatively correlated with depression ($r = -.125$, $p < .001$). Depression was negatively correlated with self-rated health ($r = -.406$, $p < .001$), indicating that higher levels of depressive symptoms are associated with poorer perceived health.

Age was negatively correlated with social capital ($r = -.244$, $p < .001$), self-rated health ($r = -.171$, $p < .001$), and income ($r = -.288$, $p < .001$), but positively correlated with depression ($r = .176$, $p < .001$), suggesting that older individuals tend to have lower social capital, poorer health, lower income, and higher levels of depression.

Gender showed a weak positive correlation with self-rated health ($r = .058$, $p < .05$) and a negative correlation with depression ($r = -.072$, $p < .01$), indicating that female respondents reported slightly better perceived health and lower levels of depressive symptoms.

Education level was positively correlated with social capital ($r = .148$, $p < .001$), self-rated health ($r = .172$, $p < .001$), and income ($r = .318$, $p < .001$), while negatively correlated with depression ($r = -.139$, $p < .001$). This suggests that individuals with higher educational attainment tend to have greater social resources, better health, and lower levels of depressive symptoms. Income was positively correlated with social capital ($r = .160$, $p < .001$) and self-rated health ($r = .221$, $p < .001$), and negatively correlated with depression ($r = -.215$, $p < .001$), indicating that higher income is associated with better health outcomes and lower psychological distress.

Overall, the bivariate correlations were consistent with the hypothesized relationships among social capital, depression, and self-rated health.

Table 3: Descriptive Statistics and Correlations (N = 2,060)

Variable	M	SD	1. Social Capital	2. Self-Rated Health	3. Depression	4. Age	5. Gender	6. Education Level	7. Income
1. Social Capital	6.72	1.05	—						
2. Self-Rated Health	2.67	0.93	.224***	—					
3. Depression	20.79	3.63	−.125***	−.406***	—				
4. Age	79.80	6.96	−.244***	−.171***	.176***	—			
5. Gender	0.82	0.38	.041	.058*	-.072**	−.015	—		
6. Education Level	1.64	0.83	.148***	.172***	-.139***	-.228***	.022	—	

7. Income	1667.32	1027.91	.160***	.221***	-.215***	−.288***	.036	.318***	—

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

4.3. Hierarchical Regression Analysis

Hierarchical regression analyses were conducted to examine the relationships among social capital, depression, and self-rated health. Control variables (age, gender, education, and income) were included in all models, but their coefficients are presented only in Model 3 in Table 4 for clarity.

In Model 1, social capital was positively associated with self-rated health (B = 0.198, SE = .018, p < .001), indicating that higher levels of social capital are linked to better perceived health among older adults living alone.

In Model 2, social capital was negatively associated with depression (B = −0.431, SE = .072, p < .001), suggesting that individuals with higher levels of social capital experience fewer depressive symptoms.

In Model 3, when both social capital and depression were included, depression was negatively associated with self-rated health (B = −0.174, SE = .078, p < .05), while the coefficient for social capital remained positive but decreased in magnitude (B = 0.123, SE = .021, p < .001). This attenuation suggests a potential mediating role of depression.

Among the control variables (reported in Model 3), age was negatively associated with self-rated health (B = −0.041, p < .001), indicating that older individuals reported poorer health. Gender was positively associated with self-rated health (B = 0.052, p < .05), suggesting that females reported slightly better perceived health than males. Higher levels of education were also associated with better self-rated health, with both middle school (B = 0.081, p < .05) and high school or above (B = 0.134, p < .01) showing significant effects compared to the reference group. Income was positively associated with self-rated health (B = 0.0002, p < .05), although the magnitude of the coefficient was relatively small.

Overall, these findings provide preliminary evidence that depression may partially mediate the relationship between social capital and self-rated health.

As a robustness check, ordered logistic regression analyses were additionally conducted treating self-rated health as an ordinal variable. The results were substantively consistent with the OLS findings. Detailed results are presented in Appendix A.

Table 4: Hierarchical Regression Analyses

Constructs	Model 1 (SRH) B	SE	Model 2 (DEP) B	SE	Model 3 (SRH Full) B	SE	β
Social Capital	0.198***	.018	−0.431***	.072	0.123***	.021	.089
Depression	—	—	—	—	−0.174*	.078	-.353
Age	—	—	—	—	−0.041***	.006	-.122
Gender (Female)	—	—	—	—	0.052*	.025	.061
Education Level (Middle school graduate)	—	—	—	—	0.081*	.033	.072
Education Level (High school or above)	—	—	—	—	0.134**	.041	.108
Income	—	—	—	—	0.0002*	.0001	.081

Constant	1.338***	.121	23.690***	.485	24.541***	.214	—

**p < .05, **p < .01, ***p < .001.*
SRH = Subjective Health; DEP = Depression.
Control variables were included in all models, but their coefficients are presented only in Model 3 for clarity.

4.4. Mediation Analysis

Table 5: Mediation Analysis Results

Effect Type	Coefficient	SE	95% CI
Total Effect (c)	0.198***	.018	—
Direct Effect (c′)	0.123***	.021	—
Indirect Effect (a × b)	0.075	.012	[0.051, 0.099]

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

Mediation analysis was conducted using the PROCESS macro (Model 4) for IBM SPSS Statistics 29.0 with 5,000 bootstrap resamples. Bootstrapped 95% confidence intervals were used to assess the significance of the indirect effect. As shown in Table 5, the total effect of social capital on self-rated health was statistically significant (B = 0.198, SE = .018, p < .001).

When depression was included in the model, the direct effect of social capital remained significant but decreased in magnitude (B = 0.123, SE = .021, p < .001). The indirect effect (a × b) of social capital on self-rated health through depression was 0.075 (SE = .012), and the bootstrapped 95% confidence interval did not include zero [0.051, 0.099], indicating a statistically significant mediation effect.

Consistent with the regression results, social capital was negatively associated with depression, and depression was negatively associated with self-rated health.

These findings indicate that depression partially mediates the relationship between social capital and self-rated health. Substantively, higher levels of social capital are associated with lower depressive symptoms, which in turn contribute to better self-rated health among older adults living alone.

5. Discussion

The present study examined whether depression mediates the relationship between social capital and self-rated health among older adults living alone in South Korea. Using nationally representative data from the 2024 Korea Welfare Panel Study, the findings provide strong empirical support for the proposed mediation framework.

First, social capital was positively associated with self-rated health, indicating that older adults with higher levels of trust, reciprocity, and social participation were more likely to perceive their health favorably. This finding is consistent with prior research identifying social capital as a key social determinant of health (Kawachi et al., 1999; Kim et al., 2006). Even among older adults living alone—who may lack immediate family support—social connectedness appears to play a crucial role in shaping positive health perceptions.

Second, social capital was negatively associated with depressive symptoms, supporting the stress-buffering perspective. Higher levels of social participation and interpersonal trust may enhance emotional support, strengthen a sense of belonging, and reduce perceived social isolation. These psychosocial resources are particularly important for older adults living alone and may contribute to lower levels of depression.

Third, depression showed a strong negative association with self-rated health (β = −.353), emerging as the most influential predictor in the full model. This result suggests that depressive symptoms play a central role in shaping individuals' perceptions of their health, influencing not only emotional well-being but also subjective evaluations of physical condition and overall functioning.

Importantly, the mediation analysis confirmed that depression partially mediates the relationship between social capital and self-rated health. The indirect effect was statistically significant (indirect effect = 0.075, 95% CI [0.051, 0.099]), indicating that part of the beneficial effect of social capital operates through the reduction of depressive symptoms. These findings highlight a key psychological pathway linking social environments to health perceptions and are consistent with previous studies emphasizing the role of social relationships in promoting mental and physical well-being.

From a theoretical perspective, all four hypotheses were supported. Social capital was positively associated with self-rated health (H1), negatively associated with depression (H2), and depression was negatively associated with self-rated health (H3). Furthermore, depression partially mediated the relationship between social capital and self-rated health (H4), confirming the proposed mediation model.

In addition, several control variables showed meaningful associations. Age was negatively associated with self-rated health, while higher levels of education and income were positively associated with better health outcomes. Gender differences were relatively modest but indicated slightly

better perceived health among female respondents. These findings suggest that both psychosocial and socioeconomic factors jointly shape health outcomes among older adults living alone.

This study contributes to the literature in two important ways. First, by empirically identifying depression as a mediating mechanism, it advances a process-oriented understanding of how social capital influences health. Second, by focusing on older adults living alone in a rapidly aging context, it highlights the importance of psychosocial resources in settings where traditional family support systems are weakening.

From a policy perspective, the findings underscore the importance of strengthening psychosocial resources among older adults living alone. Interventions that promote social participation, enhance interpersonal trust, and foster reciprocal support networks may help reduce depressive symptoms and improve perceived health. Community-based programs—such as social engagement initiatives and peer support groups—can play a critical role in reinforcing these resources and supporting healthy aging.

Despite these contributions, several limitations should be acknowledged. The cross-sectional design limits causal inference, and all variables were based on self-reported measures, raising the possibility of common method bias. In addition, social capital was operationalized as a composite index rather than a latent construct. Future longitudinal studies are needed to establish causal pathways and further validate the findings.

6. Conclusion

In conclusion, this study demonstrates that social capital is associated with better self-rated health among older adults living alone, both directly and indirectly through reduced depressive symptoms. The findings confirm that depression serves as a partial mediating mechanism, highlighting the importance of psychological pathways through which social environments influence health perceptions.

These results emphasize the critical role of psychosocial resources in later life, particularly for older adults who are vulnerable to social isolation. Trust, reciprocity, and opportunities for social participation were found to reduce depressive symptoms, which in turn contribute to more favorable health perceptions. In addition, socioeconomic factors such as education and income were also positively associated with health outcomes, indicating that both social and material resources are important determinants of well-being.

As population aging accelerates and single-person elderly households continue to increase, strengthening community-based social resources will be essential for promoting sustainable healthy aging. Policies and interventions that enhance social connectedness and reduce psychological distress may play a crucial role in improving both mental health and perceived health among vulnerable older populations.

Overall, this study highlights the importance of integrating social and psychological perspectives in understanding health outcomes, demonstrating that strengthening social capital can yield meaningful benefits for both emotional well-being and subjective health.

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Appendixes

Appendix 1: Ordered Logistic Regression Results

Variables	Model 1 (SRH) OR (SE)	Model 3 (Full) OR (SE)
Social Capital	1.294***(.041)	1.167***(.045)
Depression	—	0.612***(.082)
Age	0.984***(.012)	0.951***(.013)
Gender (Female)	1.118*(.061)	1.102*(.058)
Education Level (Middle school graduate)	1.176*(.083)	1.142*(.079)
Education Level (High school or above)	1.324**(.101)	1.281**(.097)
Income	1.0003*(.0002)	1.0003*(.0002)

Note: *p < .05, **p < .01, ***p < .001.
OR = odds ratio (Exp(B)); SE = standard error. Control variables (age, gender, education, and income) were included in all models.