Relationship between Resilience, Community Participation, and Successful Aging Among Older Adults in South Korea: Mediating Role of Community Participation

Abstract:

A high level of resilience is positively related to successful aging. However, interventions to increase resilience in older adults are not yet available. This study aimed to examine the mediating role of community participation in the relationship between resilience and successful aging. Data from 284 individuals aged 60 years and above were analyzed in this cross-sectional study. The pathways between resilience, community participation, and successful aging were statistically significant after controlling for sociodemographic characteristics, depression, disability, and chronic disease. The analysis revealed a partial mediating effect of community participation (unstandardized estimate=0.01, $p<.01$), explaining 16.4% of the total effect of resilience on successful aging. Promoting community participation may be beneficial for enhancing successful aging in community-dwelling older adults. Further studies to examine the causal relationship between community participation and successful aging and to develop community services are recommended to use community resources as means to support successful aging.

Keywords: Community integration, Health promotion, Mediation analysis, Social participation, Successful aging

What this paper adds

- Active community participation of older adults may play a positive role in the mechanism to promote successful aging.
- For older adults with low levels of resilience, enhancing the level of community participation may promote their successful aging.

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Applications of study findings

- Plans to enhance older adults' community participation may be included in community health care policy.
- Interventions promoting community participation should be expanded to community-dwelling older adults.

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Introduction

The advances in public health and medical treatment have increased life expectancy compared to any other time in history; at the same time, aging entails multiple changes to one's life in several domains such as health, physical functioning, and social roles. However, these changes are not entirely negative for older adults. Rather than perceiving old age as a period of decline, the prevailing perspective is that it is a period of sustained development and creation of a new life (Vaillant & Mukamal, 2001). Consequently, the topic of how to spend spare time in later life in the healthiest and happiest ways has been gaining traction. However, health systems are challenged worldwide to find effective means of reducing the prevalence of disability and promoting solutions for successful aging (Nimrod & Ben-Shem, 2015).

A widely accepted theoretical model of successful aging was introduced by Rowe and Kahn (Rowe & Kahn, 1997). They emphasized preventing disease and disability, high cognitive and physical function, and participation in life as the three core components of successful aging (Rowe & Kahn, 2004; Rowe & Kahn, 1997). The definition of successful aging has been extended and it currently refers to a state of well-being in the physical, mental or cognitive, and social domains (Abud et al., 2022; Bhattacharyya et al., 2023; Hui Chian Teh et al., 2020; Von Faber et al., 2001; Wallack et al., 2016). Predictors of successful aging include younger age, female gender, higher income, higher educational level, less smoking, lower alcohol consumption, higher functional capacity, a higher level of physical activity, less obesity, and higher social and psychological support (Bosnes et al., 2019; Depp & Jeste, 2006; Moraes & Souza, 2005) .

Another predictor of successful aging is resilience. Resilience refers to the ability to bounce back after a distressed event or adversity in life (Hadley et al., 2017). Resilience is an essential personal resource, especially in older adults who experience more stressful events and dynamic changes in life than in other age groups. These events and changes include illness of self or spouse, bereavement, decrease in income, and life and role changes after retirement, and may negatively affect successful aging (Lee et al., 2021). Many studies have provided evidence of the advantages of resilience as a buffer to stressful events in older adults (Jeste et al., 2013;

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MacLeod et al., 2016; Rowe & Kahn, 1997; Smith & Hanni, 2019). Resilience is also associated with lower levels of physical disability (Wells et al., 2012), depression (Jeste et al., 2013), and longevity (MacLeod et al., 2016). Resilience is considered a basic element of happiness and success that affects performance related to one's work, activities of daily living, physical health, and mental health (Reivich & Shatté, 2002). Given that resilience is beneficial for successful aging, interventions to enhance resilience in older adults are necessary (MacLeod et al., 2016). However, previous research has tended to be biased toward measuring older adults' resilience rather than strategies that increase the level of resilience (MacLeod et al., 2016). Resilience develops over a lifetime and is a modifiable factor that can be developed in later life (Taylor & Carr, 2021; Whitson et al., 2016) through holistic interventions addressing multidimensional factors (Musich et al., 2022) including demographics (e.g., age and economic level), physical health, mental health (e.g., depression), and social health (e.g., social isolation and alienation) (Kim et al., 2021). However, validated interventions for older adults are not available yet (MacLeod et al., 2016).

Differing from resilience, intervening in the level of community participation of older adults may be possible by using current community-based programs. Community integration, which is an interchangeable expression of community participation (Sander et al., 2010) has been reported as a protective factor of successful aging, along with resilience (Pietrzak et al., 2014). Interventions for community participation have been mainly provided to rehabilitation service users who face barriers to returning to the community in order to enhance participation, community inclusion, and health status (Andrews et al., 2015; Kashif et al., 2019; Lee et al., 2019; Sander et al., 2010; Webber & Fendt-Newlin, 2017). The population benefiting community participation interventions can be expanded to include community-dwelling older adults who are vulnerable to social exclusion or isolation as they age. Social exclusion of older adults, which was detected in material resources, social networks, movability(mobility?), and access to health services (Van Regenmortel et al., 2016), is related to lower quality of life and health decline (Prattley et al., 2020).

Resilience and community participation are related, with community involvement being reported as one of the characteristics of older adults with high levels of resilience (MacLeod et al., 2016). Active participation in the community is a recommended approach to building

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resilience (American Psychological Association, 2020). However, there is currently a lack of available evidence demonstrating the associations between resilience, community participation, and successful aging. Examining the associations between the three variables using a mediating model is necessary to understand the mechanism of promoting successful aging. Confirming the mediating role of community participation can contribute to suggesting practical approaches for using community participation interventions as alternatives to resilience intervention for older adults. Thus, this study aimed to examine the mediating role of community participation in the relationship between resilience and successful aging (Figure 1).

<insert Figure 1 here>

Methods

Participants

The protocol of this cross-sectional secondary data analysis study was approved by the Institutional Review Board of XXX (Approval number: XXX)

Data were collected through two surveys—online and offline—for this study. The same questionnaires were administered in both surveys. The online survey was conducted from February 17 to21, 2022, and the offline survey was conducted from May 10 to August 17, 2022. The inclusion criteria for the survey participants were as follows: 1) Korean older adults aged 60 years or older; 2) individuals living in the community; 3) individuals who were physically, cognitively, and psychologically healthy to complete the survey; and 4) individuals who voluntarily consented to participate.

The online survey collected responses mainly from people living in Seoul, and the offline survey was conducted in Wonju and Gangneung cities, Gangwon Province, South Korea. In the offline survey, screening was performed to ensure that participants were physically, cognitively, and psychologically healthy for completing the survey. Only participants who have no evidence of cognitive impairment on the Cognitive Impairment Screening Test [CIST] and have no depression (Patient Health Questionnaire-9 [PHQ-9], score of 4 or lower) were included in the study.

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Measures

Main study variables

Korean version of Community Integration Measure (K-CIM)

The Community Integration Measure (CIM) is a 10-item self-administered questionnaire that assesses community integration and participation (McColl et al., 2001). For this study, it was translated into Korean and used to measure community participation. The Korean adaptation (K-CIM) consists of two factors (belonging and independent participation; five items each), with a total of 10 items. Community integration measure uses a five-point Likert scale (1=always agree, 2=sometimes agree, 3= neutral, 4=sometimes disagree, and 5=always disagree). The total score ranged from 10 to 50, and the responses are reversed to present a higher score, indicating greater community participation and integration. The total score ranged from 10 to 50, with higher scores indicating greater social integration. K-CIM is a self-administered questionnaire that takes 3–5 min to complete. Cronbach's alpha for K-CIM ranges from .78 to .92 (McColl et al., 2001).

Korean version of Connor-Davidson Resilience Scale (K-CD-RISC)

The Connor-Davidson Resilience Scale (CD-RISC) is a 25-item self-administered questionnaire widely used to measure resilience in the general population and clinical settings (Connor & Davidson, 2003). In 2010, the Korean version (K-CD-RISC) was developed by Baek et al. (Baek et al., 2010). The K-CD-RISC consists of five domains: hardiness, tolerance of negative affect, optimism, social support, and spirituality. It uses a five-point Likert scale (4=completely confident and 0=not at all confident). The total score ranges from 0 to 100, and a higher score indicates greater resilience. Cronbach's alpha for the K-CD-RISC was .92–.95 (Baek et al., 2010; Jung et al., 2016; Jung et al., 2012).

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confident and 0=not at all confident). The total score ranges from 0 to 100, with a higher score indicating greater resilience. Cronbach's alpha for the K-CD-RISC was .92–.95 (Baek et al., 2010; Jung et al., 2016; Jung et al., 2012).

Successful aging

Successful aging was measured using a combination of questions covering four aspects: physical health, finance, cognition, and relationships. These four aspects were selected based on previous studies on the determinants of successful aging (Abud et al., 2022; Hui Chian Teh et al., 2020; Von Faber et al., 2001; Wallack et al., 2016). Successful aging is determined within three health domains—physical, cognitive/mental, and social. The social domain includes relationships and financial security. Although there are existing measurement tools for successful aging, such as the successful aging inventory, they do not include cognitive and social domains (Troutman et al., 2011). Therefore, this study used a combination of questions rather than a standardized tool to measure successful aging.

The physical health and cognition aspects were each measured with one question: "How would you rate your health," and "How would you rate your memory." Responses to these questions were measured using a five-point Likert scale (5=very satisfied, 4=satisfied, 3=fair, 2=dissatisfied, and 1=very dissatisfied). The finance aspect was measured using one question "How would you rate your financial security," and participants were asked to respond using a five-point Likert scale (5=very high, 4=high, 3=about average, 2=low, and 1=very low). The relationship aspect was measured using four questions: 'Are you satisfied with your family relationships?', "Are you satisfied with your relationship with your relatives?", "Are you satisfied with your relationship with your friends?", and "Are you satisfied with your neighborhood relationships?" Responses to these questions were measured using a five-point Likert scale (5=very satisfied, 4=satisfied, 3=fair, 2=dissatisfied, and 1=very dissatisfied), and the average score was used. The total score of successful aging ranges from 4 to 20, with a higher score indicating more successful aging.

Control variables

Demographic information and depression were used as control variables. Demographics included age, gender, years of education, marital status, employment, disability, and chronic

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disease. Depression was measured using PHQ-9, which is a self-administered questionnaire consisting of nine items on how respondents felt in the past two weeks. It used a four-point Likert scale (0=not at all, 1=several days, 2=more than half the days, and 3= nearly every day), with the total score ranging from 0 to 27. The total score is interpreted as follows: 1–4=minimal depression, 5–9=mild depression, 10–14=moderate depression, 15–19=moderately severe depression, and 20–27=severe depression. The Cronbach's alpha of the Korean version of the PHQ-9 was 0.86, and the test-retest reliability was 0.79 (Han et al., 2008).

Statistical analysis

The data for this study did not contain any missing data. SAS 9.4 (SAS Institute, Inc., Cary, NC, USA) was used for all the analyses. Frequency and descriptive analyses were conducted to examine the sociodemographic characteristics of the participants. A mediation analysis using the CAUSALMED procedure was conducted to examine the associations between resilience, community participation, and successful aging. Resilience, community participation, and successful aging were set as exposure, mediator, and outcome, respectively, within the cross-sectional mediation model.

The results of the mediation analysis using the CAUSALMED procedure provide counterfactual results in addition to the total, direct, and indirect effects. For example, the controlled direct effect is the counterfactual result, implying that the direct effect of resilience on successful aging assumes that all participants' levels of community participation are fixed at the mean score of the study participants (Yung et al., 2018). The direct association of resilience with successful aging and indirect association mediated by community participation were analyzed after controlling for depression, gender, age, education, marital status, employment, disability, and chronic disease. All covariates, except depression and education, were treated as categorical variables.

Results

We collected 161 responses through the online survey. Through the offline survey, we

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collected 128 responses, of which five were removed due to missing values. Therefore, a total of 284 responses were included in this study. Table 1 presents the demographic characteristics of the respondents and descriptive statistics for the study variables. The mean age of the respondents was 68.0 years (SD=7.3), and slightly more than half of them were female. The majority of respondents reported that they were married (77.8%), retired (56.0%), not having a disability (89.4%), and having a chronic disease (78.5%). The mean years of education was 13.4 (SD=4.3).

<insert Table 1 here>

Figure 2 presents the coefficients of the paths between the study variables after adjusting for the control variables. Table 2 reports the mediation analysis results. The direct effect of resilience on successful aging was 0.03 (p<.001). The indirect effect of resilience on successful aging through community participation was 0.01, which accounted for 16.4% of the total effect. The total effect of resilience on successful aging was 0.04 (p=.003).

<insert Figure 2 here>

<insert Table 2 here>

Discussion

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This study examined the mediating role of community participation in the relationship between resilience and successful aging. Community participation was found to partially mediate the association between resilience and successful aging. The results imply that enhancing community participation can partially substitute for the advantages of resilience in successful aging. The significance of this study is that the results support the positive association of community participation with successful aging in older adults who have limited access to services that enhance resilience.

The association between resilience and successful aging found in this study is supported by previous studies that reported the importance of resilience for successful aging (Jeste et al., 2013; MacLeod et al., 2016; Smith & Hanni, 2019). The association between resilience and community participation found in this study was supported by the association of community participation with the adaptability of senior citizens (Zhang, 2019) and with the resilience level of people with acquired disabilities (Vos et al., 2019; Wardlaw et al., 2018).

The association of community participation with successful aging in this study can be explained through the associations of successful aging with three components of community participation, namely independent living, work, and leisure/social relationships (Sander et al., 2010). Independence in daily life has been reported as a predictor of successful aging (Moraes & Souza, 2005). Older adults perceive independence as a core concept of successful aging (Reich et al., 2020). Regarding work, participation in work activities, including not only paid work (Lee & Lee, 2018) but also formal/informal productive activities (e.g., caregiving for family members, job-seeking, volunteering) (Lee et al., 2014; Park, 2012), demonstrated positive associations with successful aging. Regarding leisure and social relationships, a positive association between participation in leisure activities and successful aging was found in research conducted with various designs, including quantitative (Choi, 2019), qualitative (Lee et al., 2020), and mixed-methods designs (Boyes, 2013). The advantages of diverse components (e.g., physical activities, social activities, and cognitive stimulation) of leisure activities in successful aging have been proven (Berlin et al., 2018; Lee & Payne, 2015). Group-based leisure activities have a positive effect on social relationships (Berlin et al., 2018; Boyes, 2013). Leisure activities requiring physical activity and sports were found to be physical health predictors related to successful aging (Rowe & Kahn, 1997; Siegenthaler & O'Dell, 2003). Active social participation through

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different types of community activities is associated with promoting successful aging (Lu et al., 2022).

This study highlighted the mediating role of community participation in the relationship between resilience and successful aging. The mediating role of community integration in this study supports the possibility of implementing welfare and health programs as part of the community services for older adults; these programs will be related to the three components of community participation (i.e., independent living, work, and leisure/social relationships) as protective approaches to enhance successful aging. When using community services as a strategy for increasing community participation, it is recommended to supplement the current services.

Regarding independent living, healthy lifestyle interventions that can assist older adults in maintaining physical independence, including cognitive function, may be appropriate for community health programs (Anton et al., 2015). Regarding work, the interventions involve developing occupations or activities that assist older adults in perceiving themselves as participating in productive activities. It could involve developing jobs that consider older adults' anxiety about income and employment (Kang et al., 2023; Kang & Kim, 2016). Regarding leisure and social activities, the associations of successful aging with various types of leisure activities were not statistically different from each other (Lee & Payne, 2015). However, active participation is important for the association between successful aging and leisure activities (Lee & Payne, 2015; Lee et al., 2021; Siegenthaler & O'Dell, 2003). Encouraging older adults to participate in leisure activities and motivating them to sustain their active participation is recommended.

Limitations and further research directions

The living areas of the study participants were concentrated in one metropolitan city and two medium-sized cities. Relationships between residential areas and older adults' psychological health and quality of life have been reported. Among older adults, physical surroundings are perceived as factors that constitute successful aging (Bhattacharyya et al., 2023). Further investigation, including older adults living in different environments, is necessary to reinforce the association between community participation and successful aging in community-dwelling

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older adults. The combined data collected through the two surveys were analyzed in this study. The same questionnaires were used in both surveys, which included community-dwelling healthy older adults. However, there could be heterogeneity in the combined sample owing to the difference in screening methods between the two surveys. For online surveys, the participants subjectively screened themselves, self-reporting as healthy older adults. For the offline survey, healthy older adults were objectively screened using the cutoff scores of the CIST and PHQ-9.

To the authors' knowledge, there is no measurement tool measuring successful aging in physical, cognitive/mental, and social health aspects. Therefore, this study used a combination of questions to measure successful aging. Nonetheless, further studies addressing additional aspects such as environmental and spiritual factors may be necessary to measure successful aging depending on the participants' age. This is because the factors contributing to successful aging can change as older adults continue to age (Bhattacharyya et al., 2023). The results of this cross-sectional study have limitations in terms of being interpreted as causal inferences. A longitudinal or experimental design study is recommended to examine the effectiveness of community integration interventions on successful aging. Further studies on developing community integration interventions for older adults that address the three components of community participation (i.e., independent living, work, and leisure/social relationships) are recommended. For example, small peer group-based interventions can be considered to encourage autonomy, motivation, and social networking in daily life (Park et al, 2021). Combining leisure with physical activity can be considered to utilize the advantages of physical activities in the mental and physical health of older adults (Berlin et al., 2018; Wermelinger Avila et al., 2022).

Conclusion

The partial mediating role of community participation in the association between resilience and successful aging boosts the advantages of enhancing community participation in the successful aging of community-dwelling older adults. It is recommended to utilize and develop existing community services when using community resources as strategies for successful aging.

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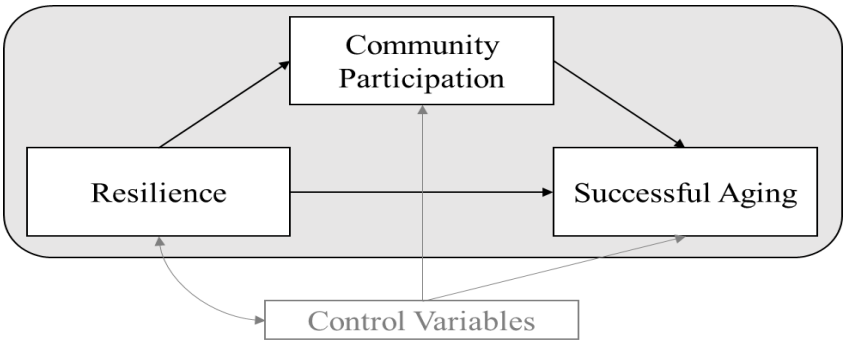

Figure 1. Hypothesized model of the associations between resilience, community participation, and successful aging

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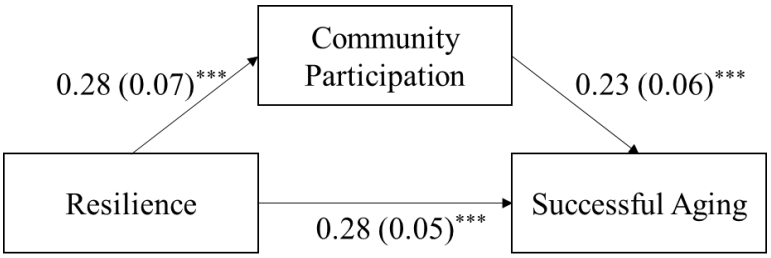

Figure 2. Mediation analysis results

Note. Standardized beta (standard errors), $^{***}p < .001$

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Table 1. Respondents' demographic characteristics and descriptive statistics for the study variables (n=284)

Variable	Mean (SD), Range **(Possible score range)**	Frequency (%)
Age (year)	68.0 (7.3), 60-93 (>60)	
Gender		
Male		140 (49.3)
Female		144 (50.7)
Education (year)	13.4 (4.3), 1-22 (>0)	
Marital status		
Never married		13 (4.6)
Married		221 (77.8)
Separated/Divorced		21 (7.4)
Widowed		29 (10.2)
Employment status		
Working		85 (29.9)
Home-maker		40 (14.1)
Retired: within 1 year		22 (7.8)
Retired: between 1 - 2 years		14 (4.9)
Retired: between 2 - 5 years		26 (9.2)
Retired: more than 5 years		97 (34.2)
Disability		
No		254 (89.4)
Yes		30 (10.6)
Chronic disease		
No		61 (21.5)
Yes		223 (78.5)
K-CIM†	36.6 (8.0), 10-50 **(10-50)**	
K-CD-RISC†	60.7 (17.3), 0-100 **(0-100)**	
Successful aging†	13.0 (2.0), 6-18 **(4-20)**	
PHQ-9†	3.1 (4.0), 0-25 **(0-27)**	

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K-CIM= Korean version of Community Integration Measure, K-CD-RISC= Korean version of Connor-Davidson Resilience Scale, PHQ-9= Patient Health Questionnaire-9, SD=standard deviation, †**: The higher scores indicate greater social integration, greater resilience, more successful aging, and more severe depression, respectively.**

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Table 2. Mediation effects (Unstandardized path coefficients)

	Coefficient	S.E.	Z	*p*
Total effect	0.04	0.01	6.83	.001***
Controlled direct effect	0.03	0.01	5.46	.001***
Natural direct effect	0.03	0.01	5.45	.001***
Natural indirect effect	0.01	0.00	2.99	.003**
Percentage mediated	16.44	5.87	2.80	.005**

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

S.E.= Standard error

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