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Determinants of Self-rated Cognitive Health among Older Korean Americans

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Abstract

Background and Objectives: In response to the dearth of information on cognitive health in older ethnic minorities, in the present study, we examined factors associated with self-rated cognitive health (SRCH) in older Korean Americans. Drawing from the World Health Organization's framework of social determinants of health, we examined how a broad spectrum of factors might influence the way in which older Korean Americans perceive and evaluate their own cognitive health.
Research Design and Methods: Using data from the Study of Older Korean Americans (SOKA; *N* = 2,061, mean age = 73.2), a series of hierarchical linear regression models of SRCH was tested with sequential entry of predictors: (1) Mini-Mental State Examination (MMSE) score of cognitive status, (2) demographic variables, (3) physical and mental health status, (4) health behaviors, and (5) socio-cultural and community factors.
Results: In addition to cognitive screening outcomes, each set of variables made a significant contribution to the predictive model of SRCH. Positive ratings of cognitive health were observed among older individuals with greater education, good physical and mental health, involvement in regular exercise, and socio-cultural resources (social networks, acculturation, and family solidarity).
Discussion and Implications: The SRCH of older adults goes beyond cognitive screening outcomes, suggesting a need to incorporate the various sources of social determinants when seeking to promote the cognitive health of older populations.

Keywords: Cognitive performance, Social determinants of health, Older immigrants

As the world's populations age with an increasing prevalence of dementia, more attention is being paid to cognitive health in later years of life (Blazer, Yaffe, & Liverman, 2015; Larson, Yaffe, & Langa, 2013; Salthouse, 1991). Cognitive health is integral to older individuals' ability to perform everyday activities and enjoy life (Larson et al., 2013; Salthouse, 1991), and it intersects with other critical dimensions of health as well (Blazer et al., 2015). Studies indicate that 13%–60% of U.S. adults from diverse backgrounds are concerned about or fear cognitive impairment for themselves or loved ones, highlighting cognitive health's significance for public health (Harris Interactive, 2011; Jang, Yoon, Park, Rhee, & Chiriboga, 2018; Tang et al., 2017).

To study cognitive health, researchers have frequently employed constructs such as subjective cognitive decline (SCD) and subjective memory complaints (SMC), both of

which are important predictors of health and well-being and are potential early markers of cognitive impairment in older adults (Jessen et al., 2014; Mitchell, Beaumont, Ferguson, Yadegarfar, & Stubbs, 2014; Mulligan, Smart, Segalowitz, & MacDonald, 2018). In the present study, we focus on a related but more general construct: self-rated cognitive health (SRCH). Following in a long tradition of research on self-rated health (SRH) and self-rated mental health (SRMH) (e.g., DeSalvo, Bloser, Reynolds, He, & Muntner, 2006; Fleishman & Zuvekas, 2007; Mawani & Gilmour, 2010), SRCH is measured with a single question: "How would you rate your cognitive health?" (Cutler, 2015; Jang, Yoon, Rhee, Park, & Chiriboga, 2019). With its brief response ranging from *excellent* to *poor*, this single item has emerged in health research as an important construct that rates both physical and mental health (DeSalvo et al., 2006; Fleishman & Zuvekas, 2007; Mawani & Gilmour, 2010). In addition to its brevity, this item is highly likely to be accepted by individuals with different levels of literacy and education. However, despite the established literature on SRH and SRMH, there is a dearth of research on SRCH in the older population in general and in racial/ethnic minorities in particular (Cutler, 2015; Jackson et al., 2017; Jang et al., 2019). The goal of the present study was to explore factors associated with SRCH in a sample of older Korean Americans. This group is an appropriate target because (1) they are the fifth largest Asian American subgroup, (2) they are predominantly foreign born first-generation immigrants, (3) they manifest marked disparities in health and healthcare due to linguistic and cultural barriers, and (4) information on their cognitive health is scarce (Jang et al., 2019; Pew Research Center, 2017; U.S. Census Bureau, 2011).

Our investigation was guided by the framework of social determinants of health (World Health Organization [WHO], 2008). The understanding of health, in the domains of both SRH and SRMH, has been enriched by this framework's inclusion of contextual factors such as living circumstances, personal and social resources, life styles, and environmental factors (DeSalvo et al., 2006; Fleishman & Zuvekas, 2007; Mawani & Gilmour, 2010). All of these factors are applicable to cognitive health. Although performance on cognitive tests may provide a foundation for a self-evaluation of cognitive health status, SRCH may be further shaped by other factors that go beyond the level of cognitive status (Crumley, Stetler, & Horhota, 2014; Jessen et al., 2014). Understanding these other factors may help advance the assessment of cognitive health.

In the present study, the potential determinants of SRCH include not only sociodemographic, health, and life style attributes commonly used in health research (WHO, 2008), but also socio-cultural and community resources unique to the target population. They are grouped into (1) demographic variables (age, gender, marital status, and education), (2) physical and mental health status (chronic disease, functional disability, and depressive symptoms), (3) health behaviors (smoking, drinking, and regular exercise), and (4) socio-cultural and community factors (social networks, family solidarity, acculturation, and ethnic community social cohesion). The rationale for including social networks and family solidarity is based on the value in Korean society of familism and collectivism. Social connectivity within members of family and community, highly valued in Asian cultures, brings benefits to older individuals' health and well-being (Park et al., 2015; Sohn et al., 2017). Acculturation, or the level of familiarity with the language and culture of a host society, is widely known to be an important resource that influences various aspects of immigrants' lives (Jang, Kim, Chiriboga, & King-Kallimanis, 2007). Because ethnic communities often serve as a critical source of support for older immigrants (Chau & Lai, 2011; Cheong, Edwards, Goulbourne, & Solomos, 2007; Kawachi, Subramanian, & Kim, 2008; Mulvaney-Day, Alegria, & Sribney, 2007), we conceptualize social cohesion in ethnic communities as an important part of socio-cultural and community resources.

Thus, in the present study, we examine how a broad spectrum of social determinants may influence the way in which older Korean Americans perceive and evaluate their own cognitive health. We hypothesize that, beyond cognitive screening outcomes, positive SRCH will be associated with the variables representing personal, interpersonal, and socio-cultural and community resources (e.g., higher educational attainment, better physical and mental health status, engagement in health-promoting behaviors, larger social networks, stronger family solidarity, higher levels of acculturation, and greater sense of social cohesion in ethnic communities).

Methods

Participants

Data were drawn from the Study of Older Korean Americans (SOKA), a multistate survey of Korean immigrants age 60 and older. In an effort to increase the generalizability of findings, sites were selected from populations with differing proportions of Korean densities: California, New York, Texas, Hawaii, and Florida. Their respective proportions included 29.3%, 8.0%, 5.2%, 2.7%, and 2.2% of the total Korean population residing in the United States (U.S. Census Bureau, 2011). In each state, a primary metropolitan statistical area with a representative proportion of Korean Americans was selected: Los Angeles, New York City, Austin, Honolulu, and Tampa. Combined, these sites present a continuum of Korean population densities.

Community-based samples were recruited by a team of investigators who shared the language and culture of the target population. The project began with the compiling of a database of Korean-oriented resources, services, and amenities at each study location; this database not only facilitated the research team's efforts for community engagement but also guided the selection of specific locations

for data collection. In the development of these databases and in their use at each site, community advisors' input was actively solicited. The multisite surveys took place at multiple locations and events (e.g., churches, temples, grocery stores, small group meetings, and cultural events) from April 2017 to February 2018. The survey questionnaire was in Korean, developed through a back-translation and reconciliation method. The questionnaire was designed to be self-administered, but trained interviewers were onsite for anyone who needed assistance. Upon completion of the survey, each participant was assessed for cognitive function, using the Mini-Mental State Examination (MMSE), by a trained research personnel. Participants were each paid US$20 for participation. The project was approved by a university's Institutional Review Board. All participants were informed of the study's goals and signed an informed consent form. A total of 2,176 individuals participated in the survey. After removal of those who had more than 10% of data missing on the variables used in the present analyses ($n = 111$) or whose cognitive status suggested severe impairment (MMSE score <10; $n = 4$), the final sample consisted of 2,061 participants.

Measures

Self-rated cognitive health
Participants were asked to rate their overall cognitive health on a 5-point scale: *poor* (1), *fair* (2), *good* (3), *very good* (4), or *excellent* (5).

Cognitive status
The MMSE (Folstein, Folstein, & McHugh, 1975) was used to screen the status of cognitive ability. The MMSE includes items on time and place orientation, memory recall, attentional and computational capabilities, language ability, three-stage commands, pentagon drawing, judgement, and comprehension. Responses for each item were scored as 1 = *correct* or 0 = *incorrect*. Total scores could range from 0 to 30, with higher scores indicating better cognitive status. The psychometric properties of the Korean version of the MMSE have been validated (Han et al., 2010; Kim et al., 2010); internal consistency in the present sample was satisfactory ($\alpha = .73$).

Demographic variables
Background information included age (in years), gender (0 = *male*, 1 = *female*), marital status (0 = *not married*, 1 = *married*), and education (0 = ≤ *high school graduation*; 1 = > *high school graduation*).

Physical and mental health status
Chronic disease and functional disability were used as indicators of physical health. Total count for the checklist of 10 chronic diseases and conditions common in older populations (e.g., diabetes, cancer, arthritis, heart disease, and high blood pressure) was used as a continuous format.

Functional disability was assessed with a composite measure (Fillenbaum, 1988) including activities of daily living (ADL) and instrumental activities of daily living (IADL). The scale included 16 activities (e.g., walking, bathing, dressing, and managing medication), and participants were asked to indicate how they could perform each activity. Responses were coded as 0 (*without help*), 1 (*with some help*), or 2 (*unable to do*). Total scores could range from 0 (no functional disability) to 32 (severe functional disability). Internal consistency of the scale in the present sample was high ($\alpha = .89$).

As an indicator of mental health status, depressive symptoms were measured by the Patient Health Questionnaire 2 (PHQ 2), a short form of the PHQ 9 (Kroenke, Spitzer, & Williams, 2001). Participants were asked to report how often, over the past 2 weeks, they had been bothered by problems such as "little interest or pleasure in doing things" and "feeling down, depressed or hopeless." Each item was scored on a 4-point scale ranging from 0 (*not at all*) to 3 (*nearly every day*). Total scores could range from 0 to 6, with higher scores indicating greater levels of depressive symptoms. The scale has been translated into the Korean language, and its psychometric properties have been validated (An, Seo, Lim, Shin, & Kim, 2013). Internal consistency of the scale in the present sample was high ($\alpha = .80$).

Health behaviors
Participants were asked to indicate whether they were involved in smoking, drinking (daily intake of 3 or more glasses of alcohol drinks), and regular exercise, using a yes/no format (0 = *no*, 1 = *yes*).

Socio-cultural and community factors
Social network, family solidarity, acculturation, and ethnic community social cohesion were included. Social network was measured with the six items in Lubben's Social Network Scale (LSNS; Lubben et al., 2006; Lubben & Gironda, 2003). These questions asked about the number of family or friends seen at least once a month, the number with whom respondents felt at ease to discuss private matters, and the number they felt close to. Responses were given on a 6-point scale ranging from 0 (*none*) to 5 (*nine or more*). Total scores could range from 0 to 30, with higher scores indicating a stronger social tie. The scale has been translated into Korean, and it has been validated for psychometric properties (Hong, Casado, & Harrington, 2011). Internal consistency in the present sample was high ($\alpha = .88$).

Family solidarity was assessed with 6 items adapted from the Social Interaction Scale (Krause, 1995; Sneed & Cohen, 2014) to measure positive interactions with family. Participants were asked to respond to such questions as "How much do your family understand the way you feel about things?" and "How much can you rely on your family for help if you have a serious problem?" on a 4-point scale from 1 (*not at all*) to 4 (*a lot*). Total scores could range

from 6 to 24, with a higher score indicating greater family solidarity. Internal consistency in the present sample was high (α = .93).

The level of acculturation was assessed with a 12-item inventory of acculturation (Jang et al., 2007), addressing English proficiency, media consumption, food consumption, social relationship, sense of belonging, and familiarity with culture and customs. Each response was coded from 0 to 3, and total scores could range from 0 to 36, with a higher score indicating greater acculturation to mainstream American culture. Internal consistency in the present sample was high (α = .91).

Ethnic community social cohesion was measured with a 5-item scale adapted from previous studies on social capital in general populations (e.g., Cagney et al., 2009). Participants were asked to indicate their level of agreement on such statements as "People in my ethnic community are willing to help each other," "People in my ethnic community generally get along with each other," and "People in my ethnic community share the same values." Responses were given on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Total scores could range from 5 to 25, with higher scores indicating a greater level of sense of cohesion. Internal consistency in the present sample was high (α = .92).

Analytical Strategy

Descriptive statistics and bivariate correlations were performed to understand the overall characteristics of the sample and underlying associations among study variables. A series of hierarchical linear regression models of SRCH was tested by entering sets of predictors in the following order: (1) MMSE score of cognitive status, (2) demographic variables, (3) physical and mental health status, (4) health behaviors, and (5) socio-cultural and community factors. Each set was entered independently to examine how it would contribute to explaining the variance of SRCH. All analyses were performed using IBM SPSS Statistics 25 (IBM Corp., Armonk, NY).

Results

Descriptive Characteristics of the Sample

Characteristics of the overall sample are summarized in Table 1. The mean age of the sample was 73.2 years (SD = 7.93). Approximately 67% were women, 61% were married, and 40% had more than a high school education. The average scores for chronic medical condition, functional disability, and depressive symptoms were 1.57 (SD = 1.40), 1.67 (SD = 3.42), and 1.03 (SD = 1.54), respectively. Concerning health behaviors, over 5% of the sample were involved in smoking, about 4% in problematic drinking, and over 77% in regular exercise. The mean scores for social network, family solidarity, acculturation, and ethnic community social cohesion were 15.5

Table 1. Descriptive Characteristics of the Sample (*N* = 2,061)

	%	M ± SD (range)	α
Age		73.2 ± 7.93 (60–100)	
Gender			
Male	33.2		
Female	66.8		
Marital status			
Not married	39.2		
Married	60.8		
Education			
≤High school graduation	60.3		
>High school graduation	39.7		
Chronic medical condition		1.57 ± 1.40 (0–10)	
Functional disability		1.67 ± 3.42 (0–32)	.89
Depressive symptom		1.03 ± 1.54 (0–6)	.80
Smoking	5.5		
Drinking	3.8		
Regular exercise	77.3		
Social network		15.5 ± 6.05 (0–30)	.88
Family solidarity		19.1 ± 3.99 (6–24)	.93
Acculturation		12.2 ± 7.06 (0–35)	.91
Ethnic community social cohesion		16.4 ± 4.11 (5–25)	.92
Cognitive status (MMSE score)		26.7 ± 2.91 (10–30)	.73
Self-rated cognitive health		3.15 ± 1.13 (1–5)	
Poor	6.4		
Fair	26.8		
Good	24.0		
Very good	31.3		
Excellent	11.5		

(SD = 6.05), 19.1 (SD = 3.99), 12.2 (SD = 7.06), and 16.4 (SD = 4.11), respectively. The scores for cognitive performance and self-rated cognitive health averaged 26.7 (SD = 2.91) and 3.15 (SD = 1.13), respectively. Over one third of the sample rated their cognitive health as either *fair* or *poor*. The score distribution of self-rated cognitive health was close to normal (skewness, −0.07, SE = 0.05; kurtosis, −0.94, SE = 0.10).

Bivariate Correlations Among Study Variables

The results of the bivariate correlations among study variables are summarized in Table 2. Positive perceptions of cognitive health were associated with younger age, female gender, married status, and greater education. The correlations between SRCH and health status all indicated that a favorable rating of cognitive health was associated with better physical and mental health: chronic disease ($r = -.24$, $p < .001$), functional disability ($r = -.24$, $p < .001$), and depressive symptoms ($r = -.35$, $p < .001$). Smoking and drinking were not significantly correlated with SRCH, whereas regular exercise was associated with more favorable ratings of cognitive health ($r = .15$, $p < .001$). Additionally, all socio-cultural and community factors were significant correlates of SRCH; greater levels

Table 2. Correlations Among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	—															
2. Female	-.12***	—														
3. Married	-.23***	-.26***	—													
4. >High school graduation	-.07**	-.29***	.16***	—												
5. Chronic disease	.27***	.11***	-.16***	-.17***	—											
6. Functional disability	.33***	.11***	-.19***	-.16***	.32***	—										
7. Depressive symptom	.10***	.08***	-.18***	-.14***	.20***	.24***	—									
8. Smoking	-.09**	-.13***	-.01	-.00	-.03	-.04	.06**	—								
9. Drinking	-.03	-.07**	-.03	-.00	.01	-.01	.05*	.24**	—							
10. Regular exercise	.05*	-.05*	.07**	.09***	-.07**	-.10***	-.16***	-.09**	-.01	—						
11. Social network	-.11**	.03	.20***	.13***	-.09***	-.13***	-.25***	-.09***	-.06*	.18***	—					
12. Family solidarity	.08**	.01	.17***	.05*	-.06**	-.03	-.22***	-.08***	-.04	.12***	.35***	—				
13. Acculturation	-.21***	-.10***	.21***	.36***	-.24***	-.26***	-.19***	-.01	.00	.14***	.26***	.12***	—			
14. Social cohesion	.13***	.05*	-.01	-.02	.00	.03	-.11***	-.06**	.01	.11***	.13***	.22***	-.02	—		
15. Cognitive status (MMSE)	-.36***	-.13***	.24***	.29***	-.21***	-.29***	-.18***	.01	-.05*	.07**	.21***	.00	.30***	-.10***	—	
16. Self-rated cognitive health	-.16***	.10***	.15***	.26***	-.24***	-.24***	-.35***	-.00	-.00	.15***	.24***	.17***	.37***	.07**	.25***	—

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

of social network, family solidarity, acculturation, and social cohesion were associated with more favorable ratings of cognitive health. The correlation between objective and subjective measures of cognitive health was significant but modest ($r = .25$, $p < .001$). All correlation coefficients in the matrix were lower than .38, so there was no concern about collinearity.

Hierarchical Linear Regression Models of Self-rated Cognitive Health

Table 3 presents the findings of the hierarchical linear regression models of SRCH. In the initial model, cognitive status was entered alone, and it was found to be a significant predictor, accounting for 6% of the total variance of self-rated cognitive health. The effect of cognitive status remained significant throughout the subsequent analyses. When demographic variables were added to the model, younger age, married status, and higher education emerged as significant, independent predictors of more favorable ratings of cognitive health; together they explained an additional 5% of the total variance. The effect of age and marital status disappeared when physical and mental health status were considered; however, that of education remained significant in subsequent models. Greater levels of chronic medical condition, functional disability, and depressive symptoms were all associated with less favorable perceptions of cognitive health. This set of variables explained an additional 9% of the total variance. For health behavior variables, only regular exercise was a significant predictor. In the final model with socio-cultural and community factors, social network, family solidarity, and acculturation were associated with a positive rating of cognitive health. The total amount of variance explained by the full model was 26%.

Discussion

In response to the increasing attention given to cognitive health in the later years of life (Blazer et al., 2015; Larson et al., 2013; Salthouse, 1991) and the dearth of information on older ethnic minorities (Cutler, 2015; Jackson et al., 2017; Jang et al., 2019), in the present study, we examined factors associated with SRCH in older Korean Americans. This research was guided by the framework of the social determinants of health (WHO, 2008), with SRCH hypothesized as being shaped not only by cognitive status screened with the MMSE but also by a broad spectrum of variables, including demographic characteristics, physical and mental health status, health behaviors, and socio-cultural and community factors. Analyses of the data from 2,061 participants in the Study of Older Korean Americans (SOKA) provided findings in support of our proposed hypotheses.

In line with the well-established body of literature on SRH and SRMH (DeSalvo et al., 2006; Fleishman & Zuvekas, 2007; Mawani & Gilmour, 2010), the present

Table 3. Regression Models of Self-Rated Cognitive Health

	Standardized Regression Coefficient (β)				
	Model 1	Model 2	Model 3	Model 4	Model 5
Cognitive status (MMSE score)	.26***	.16***	.11***	.11***	.08**
Age		−.07**	−.02	−.02	−.03
Female		−.02	.00	.01	−.02
Married		.05*	.01	.01	−.03
>High school graduation		.21***	.16***	.15***	.09***
Chronic disease			−.11***	−.10***	−.08***
Functional disability			−.08**	−.07**	−.05*
Depressive symptoms			−.26***	−.26***	−.22***
Smoking				.01	.06
Drinking				.02	.02
Regular exercise				.07**	.04*
Social network					.06*
Family solidarity					.07**
Acculturation					.21***
Ethnic community social cohesion					.03
ΔR^2	.06***	.05***	.09***	.01**	.05***
Overall R^2	.06***	.11***	.20***	.21***	.26***

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

study suggests the potential value of SRCH in health research. In the present sample, the score distribution of SRCH was close to normal. Over one third of respondents (33.2%) reported that their overall cognitive health was either *fair* or *poor*, and this rate is quite similar to 27.1% observed in a national sample of older adults in the United States (Cutler, 2015). The correlation between cognitive performance and SRCH was significant but modest ($r = .25$, $p < .001$), and this finding is in accordance with the literature showing discrepancies between objective and subjective measures of physical and mental health (DeSalvo et al., 2006; Fleishman & Zuvekas, 2007; Mawani & Gilmour, 2010) and cognitive health (Jungwirth et al., 2004; Mulligan et al., 2018). In a meta-analysis of 53 studies of older adults, for example, Crumley et al. (2014) found that the average relationship between objective and subjective memory was reliably greater than zero but small ($r = .06$, $SE = 0.01$). Although cognitive ability is an important basis of SRCH, there seems to be a wide range of variation in how older individuals perceive and evaluate their own cognitive health status. Identification of social determinants of SRCH was intended to improve our understanding of potential factors that might account for discrepancies or variations.

Our multivariate analyses demonstrate the role of the broad spectrum of social determinants in predicting SRCH. Although its predictability decreased, cognitive status was a significant factor throughout the models. After MMSE scores were controlled, each set of predictors accrued a significant amount of the variance explained. The positive effect of education was in accordance with previous studies showing that an early educational attainment not only boosts older adults' cognitive reserve and self-efficacy but also helps them maintain cognitive function (Huang & Zhou, 2013; Zelinski, Burnight, & Lane, 2001). The strong linkage between SRCH and physical and mental health status suggests the intersectionality of cognitive health and other dimensions of health where the presence of physical and mental health constraints undermine subjective perceptions of cognitive health. Among the three health measures considered, depressive symptoms had a notably high regression coefficient ($β = −.22$, $p < .001$). This finding is in line with the finding in a national sample of older adults that depressive symptoms are one of the strongest predictors of self-perceptions of cognitive function (Hülür, Hertzog, Pearman, & Gerstorf, 2015). Depressive moods may contribute to the intensified negativity in ratings of personal status of cognitive health (Mulligan et al., 2018). The set of health behaviors also accounted for a small but meaningful amount of the variance of SRCH. The involvement in regular exercise in particular was found to be a significant promoter of positive self-ratings of cognitive health.

A unique feature of the present study is that sociocultural and community resources relevant to older ethnic immigrants were considered as social determinants of SRCH. In multivariate analyses, social network, family solidarity, and acculturation were found to be significant. In accordance with the literature on the beneficial role of social resources in subjective evaluations of health and mental health (Fiori & Jager, 2012; Zhang & Ta, 2009), and confirming the high value in familism in Asian cultures (Park et al., 2015; Sohn et al., 2017), those with social connectedness and quality relationships with family were shown to have more favorable ratings of cognitive health.

The role of acculturation deserves particular attention. The correlation between acculturation and SRCH ($r = .37$, $p < .001$) was the highest among all variables, and the magnitude of the regression coefficient of acculturation on SRCH ($\beta = .21$, $p < .001$) was comparable to that of depressive symptoms. The positive impact of acculturation on health appraisals in physical and mental health has been observed in diverse groups of immigrants (Lommel & Chen, 2016; Todorova et al., 2013; Zhang & Ta, 2009); however, to the best of our knowledge, the effect of acculturation on subjective evaluations in the domain of cognitive health has not been reported. Given that older immigrants are one of the fastest growing segments of the U.S. population (Colby & Ortman, 2015), the exploration of the dynamics among aging, acculturation, and cognitive health warrants further attention.

Some limitations to the present study should be noted. First, given its cross-sectional design and nonprobability sampling strategies, the present study is limited in its ability to suggest causal inferences or generalizability. It should also be noted that the present study focused on volunteer samples of community-dwelling older adults. Given the nature of the samples, the findings are only suggestive and await further investigation. Future studies should also include a more representative sample, diverse racial/ethnic groups, and other sources of cognitive assessment (e.g., a battery of cognitive tests, neurological assessment, and informant report). Using a longitudinal design, the possibility of reversal or of reciprocal relationships among study variables should also be considered. For example, depressive symptoms or poor cognitive function could be consequences rather than causes of negative ratings of cognitive health. The assessment of health behaviors with a single-item question with a yes/no response also adds to the limitations. Moreover, the relatively high rate of reported engagement in regular exercise may have resulted from participants' subjective interpretations of regular exercise or from a strong influence of social desirability in responses. Although the selected variables in the present study accounted for a significant amount of the variance of SRCH, unexplained variance remains. Future studies might consider addressing other fundamental variables that may influence self-reports of cognitive health, such as self-concept and personality traits. The present study used a single ethnic group focusing on its within-group variations. Future studies should include older adults with diverse racial/ethnic backgrounds to examine their similarities and differences in SRCH. Cross-group comparisons in the relationships between objective and subjective measures of cognitive health and the role of acculturation in those relationships warrant further attention.

Despite these limitations, our findings contribute to enhancing our understanding of SRCH by considering its social determinants. Our finding that older adults' SRCH goes beyond cognitive screening outcomes suggests incorporating the various sources of social determinants in an effort to promote the cognitive health of older populations and prioritizing older adults who lack personal and interpersonal resources.

Conflict of Interest

None reported.

References

An, J. Y., Seo, E. R., Lim, K. H., Shin, J. H., & Kim, J. B. (2013). Standardization of the Korean version of screening tool for depression (Patient Health Questionnaire-9, PHQ-9). *Journal of the Korean Society of Biological Therapies in Psychiatry*, **19**(1), 47–56.

Blazer, D. G., Yaffe, K., & Liverman, C. T. (Eds.). (2015). *Cognitive aging: Progress in understanding and opportunities for action*. Washington, DC: National Academies Press.

Cagney, K. A., Glass, T. A., Skarupski, K. A., Barnes, L. L., Schwartz, B. S., & Mendes de Leon, C. F. (2009). Neighborhood-level cohesion and disorder: Measurement and validation in two older adult urban populations. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, **64**, 415–424. doi:10.1093/geronb/gbn041

Chau, S., & Lai, D. W. (2011). The size of an ethno-cultural community as a social determinant of health for Chinese seniors. *Journal of Immigrant and Minority Health*, **13**, 1090–1098. doi:10.1007/s10903-010-9374-0

Cheong, P. H., Edwards, R., Goulbourne, H., & Solomos, J. (2007). Immigration, social cohesion and social capital: A critical review. *Critical Social Policy*, **27**(1), 24–49. doi:10.1177/0261018307072206

Colby, S. L., & Ortman, J. M. (2015). *Projections of the size and composition of the U.S. population: 2014 to 2060* (Current Population Reports, No. P25-1143). Washington, DC: U.S. Census Bureau.

Crumley, J. J., Stetler, C. A., & Horhota, M. (2014). Examining the relationship between subjective and objective memory performance in older adults: A meta-analysis. *Psychology and Aging*, **29**(2), 250–263. doi:10.1037/a0035908

Cutler, S. J. (2015). Worries about getting Alzheimer's: Who's concerned? *American Journal of Alzheimer's Disease and Other Dementias*, **30**, 591–598. doi:10.1177/1533317514568889

DeSalvo, K. B., Bloser, N., Reynolds, K., He, J., & Muntner, P. (2006). Mortality prediction with a single general self-rated health question. A meta-analysis. *Journal of General Internal Medicine*, **21**, 267–275. doi:10.1111/j.1525-1497.2005.00291.x

Fillenbaum, G. G. (1988). *Multidimensional functional assessment: The Duke older Americans resources and services procedures*. Hillsdale, NJ: Lawrence Erlbaum.

Fiori, K. L., & Jager, J. (2012). The impact of social support networks on mental and physical health in the transition to older adulthood: A longitudinal, pattern-centered approach. *International Journal of Behavioral Development*, **36**(2), 117–129. doi:10.1177/0165025411424089

Fleishman, J. A., & Zuvekas, S. H. (2007). Global self-rated mental health: Associations with other mental health measures and with role functioning. *Medical Care*, **45**(7), 602–609. doi:10.1097/MLR.0b013e31803bb4b0

Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, **12**, 189–198. doi:10.1016/0022-3956(75)90026-6

Han, J. W., Kim, T. H., Jhoo, J. H., Park, J. H., Kim, J. L., Ryu, S. H.,…Kim, K. W. (2010). A normative study of the Mini-Mental State Examination for Dementia Screening (MMSE-DS) and its short form (SMMSE-DS) in the Korean elderly. *Journal of Korean Geriatric Psychiatry*, **14**(1), 27–37.

Harris Interactive. (2011). *What America thinks: MetLife Foundation Alzheimer's survey*. Retrieved from https://www.metlife.com/content/dam/microsites/about/corporate-profile/alzheimers-2011.pdf

Hong, M., Casado, B. L., & Harrington, D. (2011). Validation of Korean versions of the Lubben Social Network Scales in Korean Americans. *Clinical Gerontologist*, **34**(4), 319–334. doi:10.1080/07317115.2011.572534

Huang, W., & Zhou, Y. (2013). Effects of education on cognition at older ages: Evidence from China's Great Famine. *Social Science & Medicine*, **98**, 54–62. doi:10.1016/j.socscimed.2013.08.021

Hülür, G., Hertzog, C., Pearman, A. M., & Gerstorf, D. (2015). Correlates and moderators of change in subjective memory and memory performance: Findings from the Health and Retirement Study. *Gerontology*, **61**(3), 232–240. doi:10.1159/000369010

Jackson, J. D., Rentz, D. M., Aghjayan, S. L., Buckley, R. F., Meneide, T. F., Sperling, R. A., & Amariglio, R. E. (2017). Subjective cognitive concerns are associated with objective memory performance in Caucasian but not African-American persons. *Age and Ageing*, **46**, 988–993. doi:10.1093/ageing/afx077

Jang, Y., Kim, G., Chiriboga, D., & King-Kallimanis, B. (2007). A bidimensional model of acculturation for Korean American older adults. *Journal of Aging Studies*, **21**, 267–275. doi:10.1016/j.jaging.2006.10.004

Jang, Y., Yoon, H., Park, N. S., Rhee, M.-K., & Chiriboga, D. A. (2018). Asian Americans' concerns and plans about Alzheimer's disease: The role of exposure, literacy and cultural beliefs. *Health and Social Care in the Community*, **26**(2), 199–206. doi:10.1111.hsc.12509

Jang, Y., Yoon, H., Rhee, M. K., Park, N. S., & Chiriboga, D. A. (2019). *Cognitive performance, self-rated cognitive health, and concerns about Alzheimer's disease in older Korean Americans*. Los Angeles: University of Southern California. Manuscript submitted for publication.

Jessen, F., Amariglio, R. E., van Boxtel, M., Breteler, M., Ceccaldi, M., Chételat, G.,… Wagner, M. (2014). A conceptual framework for research on subjective cognitive decline in preclinical Alzheimer's disease. *Alzheimer's & Dementia*, **10**(6), 844–852. doi:10.1016/j.jalz.2014.01.001

Jungwirth, S., Fischer, P., Weissgram, S., Kirchmeyr, W., Bauer, P., & Tragl, K. H. (2004). Subjective memory complaints and objective memory impairment in the Vienna-Transdanube aging community. *Journal of the American Geriatrics Society*, **52**, 263–268. doi:10.1111/j.1532-5415.2004.52066.x

Kawachi, I., Subramanian, S. V., & Kim, D. (2008). Social capital and health: A decade of progress and beyond. In I. Kawachi, S. V. Subramanian, & D. Kim (Eds.), *Social capital and health* (pp. 1–26). New York: Springer.

Kim, T. H., Jhoo, J. H., Park, J. H., Kim, J. L., Ryu, S. H., Moon, S. W.,…Kim, K. W. (2010). Korean version of Mini Mental Status Examination for dementia screening and its short form. *Psychiatry Investigation*, **7**(2), 102. doi:10.4306/pi.2010.7.2.102

Krause, N. (1995). Negative interaction and satisfaction with social support among older adults. *The Journals of Gerontology: Series B. Psychological Sciences and Social Sciences*, **50B**(2), P59–P73. doi:10.1093/geronb/50B.2.P59

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, **16**, 606–613. doi:10.1046/j.1525-1497.2001.016009606.x

Larson, E. B., Yaffe, K., & Langa, K. M. (2013). New insights into the dementia epidemic. *The New England Journal of Medicine*, **369**, 2275–2277. doi:10.1056/NEJMp1311405

Lommel, L. L., & Chen, J. L. (2016). The relationship between self-rated health and acculturation in Hispanic and Asian adult immigrants: A systematic review. *Journal of Immigrant and Minority Health*, **18**, 468–478. doi:10.1007/s10903-015-0208-y

Lubben, J., Blozik, E., Gillmann, G., Iliffe, S., von Renteln Kruse, W., Beck, J. C., & Stuck, A. E. (2006). Performance of an abbreviated version of the Lubben Social Network Scale among three European community-dwelling older adult populations. *The Gerontologist*, **46**(4), 503–513. doi:10.1093/geront/46.4.503

Lubben, J., & Gironda, M. (2003). Centrality of social ties to the health and well-being of older adults. In B. Berkman & L. Harootyan (Eds.), *Social work and health care in an aging society: Education, policy, practice, and research* (pp. 319–350). New York, NY: Springer.

Mawani, F. N., & Gilmour, H. (2010). Validation of self-rated mental health. *Health Reports*, **21**, 61–75.

Mitchell, A. J., Beaumont, H., Ferguson, D., Yadegarfar, M., & Stubbs, B. (2014). Risk of dementia and mild cognitive impairment in older people with subjective memory complaints: Meta-analysis. *Acta Psychiatrica Scandinavica*, **130**(6), 439–451. doi:10.1111/acps.12336

Mulligan, B. P., Smart, C. M., Segalowitz, S. J., & MacDonald, S. W. S. (2018). Characteristics of healthy older adults that influence self-rated cognitive function. *Journal of the International Neuropsychological Society*, **24**, 57–66. doi:10.1017/S1355617717000613

Mulvaney-Day, N. E., Alegria, M., & Sribney, W. (2007). Social cohesion, social support, and health among Latinos in the United States. *Social Science & Medicine (1982)*, **64**, 477–495. doi:10.1016/j.socscimed.2006.08.030

Park, N. S., Jang, Y., Lee, B. S., Ko, J. E., Haley, W. E., & Chiriboga, D. A. (2015). An empirical typology of social networks and its association with physical and mental health: A study with older Korean immigrants. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, **70**, 67–76. doi:10.1093/geronb/gbt065

Pew Research Center. (2017). *Koreans in the U.S. factsheet.* Washington, DC: Author. Retrieved from https://www.pewsocialtrends.org/fact-sheet/asian-americans-koreans-in-the-u-s/

Salthouse, T. A. (1991). *Theoretical perspectives on cognitive aging.* Hillsdale, NJ: Lawrence Erlbaum.

Sneed, R. S., & Cohen, S. (2014). Negative social interactions and incident hypertension among older adults. *Health Psychology*, **33**(6), 554–565. doi:10.1037/hea0000057

Sohn, S. Y., Joo, W. T., Kim, W. J., Kim, S. J., Youm, Y., Kim, H. C.,...Lee, E. (2017). Social network types among older Korean adults: Associations with subjective health. *Social Science & Medicine (1982)*, **173**, 88–95. doi:10.1016/j.socscimed.2016.11.042

Tang, W., Kannaley, K., Friedman, D. B., Edwards, V. J., Wilcox, S., Levkoff, S. E.,...Belza, B. (2017). Concern about developing Alzheimer's disease or dementia and intention to be screened: An analysis of national survey data. *Archives of Gerontology and Geriatrics*, **71**, 43–49. doi:10.1016/j.archger.2017.02.013

Todorova, I. L. G., Tucker, K. L., Jimenez, M. P., Lincoln, A. K., Arevalo, S., & Falcón, L. M. (2013). Determinants of self-rated health and the role of acculturation: Implications for health inequalities. *Ethnicity & Health*, **18**(6), 563–585. doi:10.1080/13557858.2013.771147

U.S. Census Bureau. (2011). American factfinder 2010. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_SF1_PCT5&prodType=table

World Health Organization. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health.* Geneva: Author. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/43943/9789241563703_eng.pdf?sequence=1

Zelinski, E. M., Burnight, K. P., & Lane, C. J. (2001). The relationship between subjective and objective memory in the oldest old: Comparisons of findings from a representative and a convenience sample. *Journal of Aging and Health*, **13**, 248–266. doi:10.1177/089826430101300205

Zhang, W., & Ta, V. M. (2009). Social connections, immigration-related factors, and self-rated physical and mental health among Asian Americans. *Social Science & Medicine*, **68**(12), 2104–2112. doi:10.1016/j.socscimed.2009.04.012