


Exploring Relationships of Psychological Sense of Community With Self-Rated Health and Depressive Symptoms Among Older Chinese Americans

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Abstract

This study examined the relationships of psychological sense of community (PSOC) with self-rated health and depressive symptoms among older Chinese Americans. The sample was taken from the Population Study of Chinese Elderly in Chicago (PINE), a population-based survey of 3,159 community-dwelling seniors. PSOC was measured through the Sense of Community Index (SCI). Factor analysis indicated a four-dimensional structure within the SCI; however, the SCI lacked dimensional consistency and items that composed four underlying factors were different than the proposed ones. After controlling for sociodemographics, binary and multinomial logistic regression analyses showed that a higher level of PSOC was related to a lower likelihood of self-reporting poor or fair health and of developing more depressive symptoms. The identified factors of influence and emotional connection were also significantly related to self-rated health and depressive symptoms. Future research need aim at improving the conceptualization process of the PSOC and cultural relevance in minority populations.

Keywords

psychological sense of community, older Chinese Americans, health

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Introduction

Communities are either defined by geographical boundaries, or groups of people with common interests, values, or cultures but not bounded by physical locality (Pretty, Chipuer, & Bramston, 2003), implying that communities can be territorial or relational. Relational community is typical in Chinese culture, emphasizing the importance of collectivism, that is, social embeddedness and interdependence among individuals that comprise their ingroups (Brewer & Chen, 2007). Immigration in later life may exacerbate the stress process and social isolation due to the difficulty in adjustments to life in a new country (Wilmoth & Chen, 2003). Therefore, immigrants may increasingly rely on the community for social integration to reduce levels of stress, develop supportive relationships, and increase access to coping resources (Wilmoth & Chen, 2003). The culture of collectivism and change in living environments may make Chinese immigrants, especially older adults, seek opportunities for social engagement and identity development

within communities, including territorial communities such as Chinatowns or relational communities such as churches (Sonn, 2002). Life circumstances, including place of residence, play important roles in maintaining older adults' well-being (Henning-Smith, 2016). Despite the growing number of older Chinese Americans and Chinese communities in the United States, few studies have explicitly examined the psychological sense of community (PSOC) and its relationship with health in this population. Drawing on the data from the largest community-based study of older Chinese Americans, this study aims to investigate the structure of PSOC and

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the associations with self-rated health and depressive symptoms among older Chinese Americans.

As an important concept in community psychology, PSOC was coined to characterize the relationship between the individual and the social structure (Chavis & Wandersman, 1990). PSOC refers to the feelings that the members of a community have in relation to their community and other members as well as a shared faith that their physiological or psychological needs can be met by the community (Nowell & Boyd, 2010). Most research efforts have been driven by the model of McMillan and Chavis (1986), who postulated that PSOC consists of four elements: (a) membership—the feeling of belonging or of sharing a sense of personal relatedness; (b) influence—a sense of mattering, of making a difference to a group and of the group mattering to its members; (c) needs fulfillment—a feeling that member's needs will be met by the resources received through their membership in the group; and (d) emotional connection—the commitment and belief that members have shared and will share history, common places, time together, and similar experiences. The four elements dynamically work together to create and maintain an overall PSOC (McMillan & Chavis, 1986).

PSOC measures have been developed, and the most commonly used is the Sense of Community Index (SCI), designed to capture the four elements of McMillan and Chavis's PSOC model (Perkins, Florin, Rich, Wandersman, & Chavis, 1990). The current 12-item SCI was developed from the data collected in the large New York City Block Booster project (Perkins et al., 1990). The SCI has been repeatedly used and examined, with Cronbach's alphas for the overall scale ranging from .64 to .69; but four factors have been identified with insufficient internal consistency, with alphas ranging from .07 to .72 (Chipuer & Pretty, 1999; Obst & White, 2004; Perkins et al., 1990). Although Nowell and Boyd (2010) criticized that the PSOC remains underconceptualized, empirical evidence shows that the single-factor, one-dimensional scale of SCI is an adequate measure of overall PSOC (e.g., Chipuer & Pretty, 1999; Long & Perkins, 2003; Proescholdbell, Roosa, & Nemeroff, 2006).

Human needs theory has been proposed to understand the underlying factor structure of PSOC and to explain one's psychological connection to a community (Nowell & Boyd, 2010). The community is viewed as a resource through which an individual member can fulfill significant human needs, such as feelings of belonging and emotional connections (Nowell & Boyd, 2010). Furthermore, the perceptions of belonging and cohesive feelings of membership in the community, especially the emotional connections based on a shared history, interests, or concerns, may play a key role in maintaining or enhancing individual psychological well-being (Nowell & Boyd, 2010). The loss of primary communities and the removal of cultures may result in the loss of PSOC, and consequently, negative psychological outcomes

(Sonn, 2002). Research indicates that PSOC and its underlying factors have significant positive relationships with a range of psychological well-being indicators (e.g., Pretty et al., 2003; Pretty, Conroy, Dugay, Fowler, & Williams, 1996; Prezza, Arrici, Roberti, & Tedeschi, 2001).

According to the U.S. Census Bureau pooled 2009–2013 American Community Survey, there are over four million Chinese immigrants in the United States (Hooper & Batalova, 2015). The number of older Chinese immigrants has grown rapidly (Dong, 2014). However, there is little information regarding the role of PSOC in the lives of older Chinese Americans. Although the Chinese American community is the oldest and largest Asian population in the United States, research and practice efforts are scarce toward public health goals due to past anti-Chinese sentiments and immigration policies (Dong, 2014). The lack of community data made it impossible to assess health disparities faced by Chinese older adults and to examine the effects of living environments on their health. The Population Study of Chinese Elderly in Chicago (PINE), as the first population-based, epidemiological study of the U.S. Chinese older adults, provides an excellent data source to understand the relationship between perceived community characteristics and individual health. In line with McMillan and Chavis model (1986) and human needs theory, this study aimed to identify the four-dimensional structure within the SCI and to examine the relationships of the SCI, both one-dimensional and four-dimensional, with self-rated health and depressive symptoms among community-dwelling older Chinese Americans. It is expected that four dimensions of the SCI, that is, membership, influence, needs fulfillment, and emotional connection, are captured in this study. It is also expected that both the single- and the four-dimensional structures of the SCI have negative relationships with poor self-rated health and depressive symptoms.

Method

The PINE is a community-engaged, population-based epidemiological study of American Chinese adults aged 60 years and above (Dong, 2014). Guided by a community-based participatory research approach, the PINE data were collected between 2011 and 2013 among 3,159 respondents in the Greater Chicago area. Less than 5% of the observations had missing values, resulting in the sample sizes of 3,021 and 3,089 in multivariate regression models, respectively.

Measures

The SCI was used to capture the PSOC construct. In addition to the four factors identified through factor analysis, we used the summary score of the 12 items in the regression analysis. Responses to each item were given on a 5-point Likert-type scale, ranging from 1

Table 1. SCI: Factor Loadings and Component Items ($n = 1,569$).

	Items	Original factors	Revised factors	Factor loadings
SCI 12	I expect to live in this neighborhood for a long time.	EC	EC	0.79
SCI 10	It is very important to me to live in this particular neighborhood.	EC	EC	0.74
SCI 5	I feel at home at this neighborhood.	M	EC	0.73
SCI 1	I think my neighborhood is a good place for me to live.	NF	EC	0.68
SCI 6	Very few of my neighbors know me.	M	M	0.88
SCI 4	I can recognize most of the people who live in my neighborhood.	M	M	0.78
SCI 11	People in this neighborhood generally don't get along with each other.	EC	M	0.50
SCI 7	I care about what my neighbors think of my actions.	I	I	0.76
SCI 8	I have almost no influence what this neighborhood is like.	I	I	0.73
SCI 2	People in this neighborhood do not share the same values.	NF	I	0.66
SCI 3	My neighbors and I want the same things from this neighborhood.	NF	NF	0.77
SCI 9	If there is a problem in this neighborhood, people who live here can get it solved.	I	NF	0.70

Note. SCI = Sense of Community Index; EC = emotional connection; M = membership; NF = needs fulfillment; I = influence.

(*strongly disagree*) to 5 (*strongly agree*); higher scores indicated higher levels of PSOC. Items 2, 6, 8, and 11 (see Table 1) were reversely coded. The scale had sufficient internal consistency (Cronbach's $\alpha = .67$) in this study.

Depressive symptom was measured through the Patient Health Questionnaire-9 (PHQ-9) scale instrument. Respondents were asked about how often they had been bothered during the past 2 weeks by such feelings as little interest in doing things, feeling down, feeling bad about oneself. Responses were scaled from 0 (*not at all*) to 3 (*nearly every day*). A summary score of nine items was first calculated, and then categorized into three levels due to uneven frequency distributions: 0 (*not depressive at all*), 1 to 4 (*very minor depressive*), 5 and above (*mild, moderate, or severe depressive symptoms*). The Cronbach's alpha of PHQ-9 in the PINE study was .82.

Self-rated health included responses of very good, good, fair, or poor. Due to the similarities in sociodemographics and the SCI between those rating "very good" and "good" health, between those with "fair" and "poor" health, it was further dichotomized into 0 (good or very good) or 1 (fair or poor).

Control variables included age (in years), gender (female or male), education (in years), income (1 = less than US\$5,000 to 10 = US\$45,000 or more), years living in the neighborhood (range = 0.1-80), and living arrangement (1 = living alone; 2 = only with spouse; 3 = with spouse and children; 4 = with spouse, adult children, and grandchildren; 5 = with others). Previous literature indicates the influence of living arrangement on health and the best mental and physical health outcomes of living

Table 2. Sample Descriptive ($N = 3,159$).

Variables	M (SD)/%
Age (59-105 years)	72.81 (8.30)
Female (%)	57.97
Education (0-26)	8.72 (5.05)
Income (%)	1.95 (1.14)
Years in the neighborhood (0.1-80)	12.14 (11.04)
Living arrangement	
Living alone	21.48
With spouse only	37.88
With spouse and children	12.29
Three generations	22.49
With others	5.86
SCI (19-58)	40.66 (5.40)
Emotional connection	4.02 (0.64)
Membership	3.46 (0.81)
Influence	2.31 (0.77)
Needs fulfillment	3.65 (0.96)
Self-rated health	
Good/very good	39.15
Poor/fair	60.85
Depressive symptoms	
0	45.33
1 to 4	34.31
5 or more	20.36

Note. SCI = Sense of Community Index.

with a spouse or a partner (e.g., Henning-Smith, 2016). We also controlled for self-rated health in predicting depressive symptoms, and vice versa, as both variables were correlated ($r = .29, p < .0001$). Descriptive statistics of study variables were presented in Table 2.

Analysis

To determine the factor structure of the SCI, an exploratory factor analysis was first conducted with one randomly selected split-half sample ($n = 1,569$). The analysis was conducted in SAS 9.2 with a procedure of simple random sampling without replacement, wherein the selection probability is the same for all respondents in the sample and a respondent cannot be selected more than once. The obtained factor structures were then cross-validated with the remaining participants of the total sample. Maximum likelihood estimation was performed to determine factor loadings. An item was identified to load on a given factor if the factor loading was .40 or greater (Field, 2000). Factors reflecting each dimension were created by rescaling with a standardized scale of 1 to 5 to be comparable with the original items.

After the four factors were identified, they were replicated in the total sample and regressed on depressive symptoms and self-rated health, respectively. The summary score of SCI was also regressed on two dependent variables. Binary logistic models were applied to estimate self-rated health, with those reporting good or very good health used as the reference group. Multinomial logistic regression models were estimated to examine the relationships of SCI with the three-level depressive symptoms. Respondents reporting no depressive symptoms were the reference group, against which those with minor depressive, and those with mild, moderate, or severe depressive symptoms were compared, respectively.

Results

Table 1 lists 12 items of the SCI, the originally proposed, and the currently revised items that composed each factor, and factor loadings generated from a randomly selected half-split sample. The initial step showed that four factors had eigenvalues larger than one, thus four factors were retained, which accounted for about 59% of the total variance in the construct. The result was in line with the proposed number of SCI dimensions by McMillan and Chavis (1986). Further examination of the extracted factors, however, indicated that items that composed each factor were different than the proposed items within each subscale (Perkins et al., 1990). Factor 1, or *Emotional Connection*, contained four items: 10, 12 (as proposed); 1 (originally for needs fulfillment); and 5 (originally for membership), with factor loadings of 0.68 or higher. Factor 2, or *Membership*, contained Items 4, 6 (as proposed) and 11 (originally for emotional connection), with factors loadings of 0.88, 0.78, and 0.50. Factor 3, or *Influence*, was measured by Items 7, 8 (as proposed) and 2 (originally for needs fulfillment), with factors loadings of 0.66 or higher. Factor 4, or *Needs Fulfillment*, was indicated by two items: 3 (as proposed) and 9 (originally for influence), with factors loadings of 0.77 and 0.70. But the cross-validation with the remaining respondents indicated the instability of

factor structures: Factor 1 contained items for both *Emotional Connection* and *Needs Fulfillment* (Items 1, 3, 5, 9, 10, and 12), while Factors 2 and 3, that is, *Membership* and *Influence*, contained the same items as those identified in the first split-half sample. The four-factor solution was selected in accordance with the PSOC model (McMillan & Chavis, 1986).

Table 3 presents binary logistic regression analysis results on self-rated health. In general, one-unit increase in the SCI scale was associated with 4% decrease in the likelihood of self-reporting poor or fair health (odds ratio (OR) = 0.96; 95% confidence interval [CI] = [0.94, 0.97]) after controlling for sociodemographics, living arrangement, and depressive symptoms. When examining the relationship with the four subscales, emotional connection and influence were significantly related to self-rated health. Particularly, one-unit increase in emotional connection and influence was associated with 27% (OR = 0.73; 95% CI = [0.63, 0.85]) and 19% (OR = 0.81; 95% CI = [0.73, 0.90]) decrease in the likelihood of self-reporting poor/fair health, respectively, after controlling for covariates.

Table 4 presents the multinomial logistic regression results on depressive symptoms, showing that one-unit increase in the summary SCI scale was associated with 3% decrease in the likelihood of minor depression (OR = 0.97; 95% CI = [0.95, 0.98]), and 8% decrease in the likelihood of mild, moderate, or severe depression (OR = 0.92; 95% CI = [0.90, 0.94]) after controlling for covariates. As to four subscales, only influence was negatively associated with minor depression, with one-unit increase being associated with 24% decrease in the likelihood of minor depression (OR = 0.76; 95% CI = [0.68, 0.86]). Three factors were associated with mild/moderate/severe depression. One-unit increase in emotional connection, membership, and influence was associated with 39% (OR = 0.61; 95% CI = [0.51, 0.73]), 22% (OR = 0.78; 95% CI = [0.68, 0.90]), and 28% (OR = 0.72; 95% CI = [0.63, 0.84]) decrease in the likelihood of reporting five or more depressive symptoms, respectively, after controlling for covariates.

Discussion

This study adds to a substantial body of evidence that PSOC is related to individual well-being, especially among Chinese older adults who may face great challenges in adjustment to life in the new country. Guided by the model of McMillan and Chavis (1986) and human needs theory (Nowell & Boyd, 2010), this is the first study examining the structure and role of PSOC among older Chinese Americans. We found that PSOC and its component factors, especially influence and emotional connection, are positively related to self-rated health and depressive symptoms. Findings suggest that PSOC is an important resource for meeting the needs for affiliation, power, and affection, which may in turn affect individual health.

Table 3. Binary Logistic Regression on Self-Rated Poor/Fair Health.

Variables	B	SE	p value	OR (95% CI)
Age	0.02	0.01	.004	1.02 [1.01, 1.03]
Female	0.11	0.08	.182	1.12 [0.95, 1.32]
Education	-0.01	0.01	.187	0.99 [0.97, 1.01]
Income	-0.12	0.04	.001	0.89 [0.83, 0.96]
Years in neighborhood	-0.01	0.00	.008	0.99 [0.98, 1.00]
Living arrangement (Ref: with spouse only)				
Living alone	-0.14	0.11	.199	0.87 [0.69, 1.05]
With spouse and children	0.04	0.13	.769	1.04 [0.81, 1.34]
Three generations	-0.16	0.11	.124	0.85 [0.69, 1.05]
With others	-0.03	0.18	.869	0.97 [0.68, 1.38]
Depressive 1-4	0.79	0.09	<.0001	2.21 [1.87, 2.62]
Depressive 5+	1.57	0.12	<.0001	4.79 [3.48, 6.08]
SCI ^a	-0.05	0.01	<.0001	0.96 [0.94, 0.97]
Emotional connection ^b	-0.32	0.08	<.0001	0.73 [0.63, 0.85]
Membership ^b	-0.08	0.06	.169	0.93 [0.83, 1.03]
Influence ^b	-0.21	0.05	<.0001	0.81 [0.73, 0.90]
Needs fulfillment ^b	-0.01	0.06	.818	0.99 [0.88, 2.62]

Note. OR = odds ratio; CI = confidence interval; SCI = Sense of Community Index.

^aIncluded SCI and control variables ($n = 3,089$).

^bIncluded emotional connection, membership, influence, needs fulfillment, and control variables ($n = 3,021$).

Table 4. Multinomial Logistic Regression on Depressive Symptoms.

	Minor depression				Mild/moderate/severe depression			
	B	SE	p value	OR (95% CI)	B	SE	p value	OR (95% CI)
Age	0.02	0.01	.003	1.02 [1.01, 1.03]	0.03	0.01	<.0001	1.03 [1.02, 1.05]
Female	0.37	0.09	<.0001	1.45 [1.22, 1.72]	0.71	0.11	<.0001	2.03 [1.63, 2.52]
Education	0.00	0.01	.626	1.00 [0.99, 1.02]	0.00	0.01	.647	1.01 [0.98, 1.03]
Income	-0.09	0.04	.025	0.92 [0.85, 0.99]	-0.15	0.05	.008	0.86 [0.78, 0.96]
Years in neighborhood	-0.00	0.00	.351	1.00 [0.99, 1.00]	-0.00	0.01	.449	1.00 [0.99, 1.01]
Living arrangement								
Living alone	-0.01	0.12	.939	0.99 [0.78, 1.26]	-0.06	0.14	.685	0.94 [0.71, 1.25]
With spouse, children	-0.30	0.14	.035	0.74 [0.56, 0.98]	-0.49	0.18	.005	0.61 [0.43, 0.86]
Three generations	0.03	0.11	.806	1.03 [0.82, 1.29]	-0.28	0.14	.047	0.75 [0.57, 1.00]
With others	0.00	0.19	.984	1.00 [0.69, 1.46]	-0.20	0.24	.399	0.82 [0.51, 1.30]
Poor/fair health	0.79	0.09	<.0001	2.21 [1.87, 2.62]	1.58	0.12	<.0001	4.85 [3.82, 6.15]
SCI ^a	-0.03	0.01	<.0001	0.97 [0.95, 0.98]	-0.08	0.01	<.0001	0.92 [0.90, 0.94]
Emotional connection ^b	-0.11	0.08	.608	0.96 [0.82, 1.12]	-0.49	0.09	<.0001	0.61 [0.51, 0.73]
Membership ^b	-0.08	0.06	.168	0.92 [0.82, 1.04]	-0.24	0.07	.0006	0.78 [0.68, 0.90]
Influence ^b	-0.27	0.06	<.0001	0.76 [0.68, 0.86]	-0.32	0.07	<.0001	0.72 [0.63, 0.84]
Needs fulfillment ^b	-0.08	0.06	.207	0.92 [0.82, 1.05]	-0.01	0.08	.861	0.99 [0.85, 1.15]

Note. OR = odds ratio; CI = confidence interval; SCI = Sense of Community Index.

^aIncluded SCI and control variables ($n = 3,089$).

^bIncluded emotional connection, membership, influence, needs fulfillment, and control variables ($n = 3,021$).

Although four component factors within the SCI were identified, some items per factor were different than the proposed items; specifically, the original three items of needs fulfillment (Perkins et al., 1990) were loaded into other three factors. Besides, the four-factor structure was not supported in the cross-validation procedure, suggesting the lack of dimensional consistency to the SCI, as documented in other studies (Chipuer & Pretty, 1999). Findings also imply the lack of cultural relevance in the SCI. For example, emotional connection reflects a

central theme in East Asian collectivism, that is, a high value of interpersonal relationships within a group, which constitutes the primary unit of society and the foundation of self-identity (Brewer & Chen, 2007). By contrast, membership or connection with a group appears to characterize American collectivists (Brewer & Chen, 2007). This may explain why one factor identified in the cross-validation contains both emotional connection and needs fulfillment and why emotional connection is significantly related to health indicators in this study.

We found that the one-dimensional SCI was significantly related to both self-rated health and depressive symptoms, supporting the literature documenting the significant positive impacts of PSOC on a range of health indicators. A further examination of the four component factors indicates that not all of them had significant relationships with health indicators, probably because the four dimensions were not held up in this study and the items lacked cultural relevance. As Long and Perkins (2003) pointed out, four dimensions vary from place to place and change over time, and measures may not accurately reflect McMillan and Chavis's (1986) aims. Particularly, two items of needs fulfillment in this study were concerned with sharing the same values and problem-solving among neighbors, which did not fully capture a wide range of physical and psychological needs, or those important to older Chinese Americans. According to a study in a Turkish community (Yetim & Yetim, 2012), individual needs include both low-order or basic needs (such as having an income, shelter, and employment) and high-order needs (such as educational, social, and health needs). The lack of items on basic needs may explain why the identified factor of needs fulfillment does not relate to individual health.

The PSOC is viewed as a resource for affiliation, power, and affection (Nowell & Boyd, 2010), and it is particularly important to immigrants, for whom communities play a central role in providing opportunities for identity development and social engagement, which, in turn, may bolster feelings of security, stability, belongings, acceptance, equality, and power. Due to the cross-cultural transitions and associated challenges, older Chinese Americans, especially recent immigrants, are vulnerable to depressive symptoms and other types of psychological distress (Mui, 1999). PSOC may serve as the key to mediating the negative impacts of immigration or life transition on individual well-being. People with shared cultures and experiences are likely to form a community of their own and a network of mutually helpful relationships, buffering the hard challenges during the acculturation process.

The study has several limitations. First, the study did not test the SCI validity. And findings showed the lack of dimensional consistency in the SCI within its four-factor structure. Future research needs to develop and modify observed items, using more advanced and proper analysis tools to evaluate dimensional constructs. Second, the study did not include measures of the neighborhood characteristics, such as neighborhood socioeconomic status, and perceived neighborhood cohesion, which may confound the relationships between SCI and health. Also missing are other potential factors such as physical limitations, social support, and family dynamics. Finally, the generalizability of findings beyond Chinese older adults in the Greater Chicago area is unknown. Future research needs to improve the conceptualization of PSOC with more carefully defined

measures and more comprehensive conceptual models, increase cultural relevance, and assess the relationships with well-being indicators across diverse populations.

The study findings point to the importance of enhancing community belongings and connections and improving social cohesion in communities. Indeed, communities provide the contexts within which members can participate in, perform meaningful social roles, and develop skills and competencies to function in the broader society (Sonn, 2002). In addition, PSOC can be construed as both the process and outcome of fulfilling significant human needs and building meaningful emotional connections. It should be noted that the risk of promoting ethno-specific communities may lead to exclusion and separatism (Sonn, 2002). It is important to affirm cultural identities, histories, and other social identities, and, meanwhile, to integrate into the broader social systems. Communities are in the position to help older adults obtain information, knowledge, and skills to meet their needs and maintain life satisfaction and well-being.

In conclusion, our study provides evidence that PSOC has positive associations with self-rated health and depressive symptoms among older Chinese Americans. Future research should continue to develop and improve the theoretical foundation and measurement models of the PSOC. It is practically important to find ways to build and bolster a strong sense of community. Improvement in the qualities of residential environments, both physically and culturally, will be conducive to high sense of community, and individual and community well-being as well.

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References

- Brewer, M. B., & Chen, Y. (2007). Where (who) are collectives in collectivism? Toward conceptual clarification of individualism and collectivism. *Psychological Review*, *114*, 133-151.
- Chavis, D. M., & Wandersman, A. (1990). Sense of community in the urban environment: A catalyst for participation and community development. *American Journal of Community Psychology*, *18*, 55-81.
- Chipuer, H. M., & Pretty, G. H. (1999). A review of the Sense of Community Index: Current uses, factor structure, reliability, and further development. *Journal of Community Psychology*, *27*, 643-658.
- Dong, X. (2014). Addressing health and well-being of U.S. Chinese older adults through community-based participatory research: Introduction of the PINE study. *The Journals of Gerontology, Series A: Biological Sciences*

- & *Medical Sciences*, 69(Suppl. 2), S1-S6. doi:10.1093/gerona/glu112
- Field, A. P. (2000). *Discovering statistics using SPSS for Windows: Advanced techniques for the beginner*. London, England: Sage.
- Henning-Smith, C. (2016). Quality of life and psychological distress among older adults: The role of living arrangements. *Journal of Applied Gerontology*, 35, 39-61.
- Hooper, K., & Batalova, J. (2015). *Chinese immigrants in the United States*. Retrieved from <http://www.migrationpolicy.org/article/chinese-immigrants-united-states>
- Long, D. A., & Perkins, D. D. (2003). Confirmatory factor analysis of the Sense of Community Index and development of a brief SCI. *Journal of Community Psychology*, 3, 279-296.
- McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology*, 14, 6-23.
- Mui, A. C. (1999). Living alone and depression among older Chinese immigrants. *Journal of Gerontological Social Work*, 30, 147-166.
- Nowell, B., & Boyd, N. (2010). Viewing community as responsibility as well as resource: Deconstructing the theoretical roots of psychological sense of community. *Journal of Community Psychology*, 38, 828-841.
- Obst, P. L., & White, K. M. (2004). Revisiting the Sense of Community Index: A confirmatory factor analysis. *Journal of Community Psychology*, 32, 691-705.
- Perkins, D. D., Florin, P., Rich, R. C., Wandersman, A., & Chavis, D. M. (1990). Participation and the social and physical environment of residential blocks: Crime and community context. *American Journal of Community Psychology*, 18, 83-115.
- Pretty, G. H., Chipuer, H. M., & Bramston, P. (2003). Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of Environmental Psychology*, 23, 273-287.
- Pretty, G. H., Conroy, C., Dugay, J., Fowler, K., & Williams, D. (1996). Sense of community and its relevance to adolescents of all ages. *Journal of Community Psychology*, 24, 365-379.
- Prezza, M., Arrici, M., Roberti, T., & Tedeschi, G. (2001). Sense of community referred to the whole town: Its relations with neighboring, loneliness, life satisfaction, and area of residence. *Journal of Community Psychology*, 29, 29-52.
- Proescholdbell, R. J., Roosa, M. W., & Nemeroff, C. J. (2006). Component measures of psychological sense of community among gay men. *Journal of Community Psychology*, 34, 9-24.
- Sonn, C. C. (2002). Immigrant adaptation: Exploring the process through sense of community. In A. T. Fisher, C. C. Sonn, & B. J. Bishop (Eds.), *Psychological sense of community: Research, applications and implications* (pp. 205-222). New York, NY: Kluwer Academic/Plenum.
- Wilmoth, J. M., & Chen, P. C. (2003). Immigrant status, living arrangements, and depressive symptoms among middle-aged and older adults. *The Journals of Gerontology, Series B: Psychological Sciences & Social Sciences*, 58(5), S305-S313.
- Yetim, N., & Yetim, U. (2012). Sense of community and individual well-being: A research on fulfillment of needs and social capital in the Turkish community. *Social Indicators Research*, 115, 93-115. doi:10.1007/s11205-012-0210-x