Social Engagement and Sense of Loneliness and Hopelessness: Findings From the PINE Study

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Abstract

Among older Chinese adults in the United States, depression is a common health problem. Using data from the first population-based survey of older Chinese Americans (N = 2,929) and applying negative binomial and ordinary least squares regression models, this study examines the relationship between social engagement (including cognitive activity and social activity) and sense of loneliness and hopelessness. Findings reveal that social engagement is significantly and negatively related to both loneliness and hopelessness after controlling for sociodemographic characteristics and health status. In addition, it is found that different aspects of social engagement present differential associations with sense of loneliness and hopelessness: Social activity is significantly associated with lower rate ratios of loneliness, whereas cognitive activity is significantly related to reduced levels of hopelessness. Our findings address the importance of engaging in cognitively stimulating and socially integrating activities in promoting psychological well-being for U.S. Chinese older adults.

Introduction

The Chinese community constitutes the largest percentage of Asian Americans (Pew Research Center, 2016). In terms of health and well-being of Chinese Americans, Tong and Sentell (2017) described that this minority population often face unique health challenges due to factors such as limited English proficiency and lack of health insurance, which make them difficult to navigate through the complicated health care system in the United States. Within the Chinese community, rapid growth is a prevailing characteristic of its elderly population. Between 2005 and 2015, the proportion of older Chinese adults above the age of 65 years has increased from 10.4% (American Community Survey, 2005) to 13.2% of the 4.1 million total Chinese American population by 2015 (American Community Survey, 2015). The significant increase of this minority population makes an examination of their health and well-being as well as their important correlates an urgent priority.

Using data from the Population Study of Chinese Elderly in Chicago (PINE), this study aims to examine the role of social engagement, a critical component of successful aging (Rowe & Kahn, 1998), in relation to psychological well-being among older Chinese adults in the United States. Although the overall health benefits of social engagement for older adults are well documented (Bath & Deeg, 2005; Morrow-Howell & Gehlert, 2012), very few studies have specifically examined loneliness and hopelessness, and ever fewer studies have examined these outcome variables within the population of U.S. Chinese older adults. Among them, close to 90% were foreign born and approximately 70% reported limited English proficiency (American Community Survey, 2011). With language and institutional barriers, this population often experienced disproportionate burden of health disparities, mental health in particular.

Depression, for instance, is a common health problem among older Chinese Americans. Ying (1988) described that both older Chinese Americans and older Chinese

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immigrants are at a higher risk of developing depression than older White Americans because they often experience more stressors but have fewer resources to cope with them. However, Chinese Americans rarely reported experiencing depression in surveys. Instead, their psychological problems were usually revealed through physical complaints such as loss of interest in ordinary activities, as well as their expression of anxiety, loneliness, and feelings of emptiness and hopelessness (Kolb, 2010).

Will engaging in activities that are cognitively stimulating or socially integrating make a difference in reducing their feelings of loneliness and hopelessness, thus promoting their overall psychological well-being? This study aims to examine whether social engagement and its important components are associated with sense of loneliness and hopelessness among U.S. Chinese older adults.

Background

Social Engagement

There are many ways to define social engagement. Active engagement with life is one of the three critical components of the successful aging paradigm proposed by Rowe and Kahn (1998). According to them, social engagement has two dimensions: One is relating to and being connected with others through social relationships; the other is to engage in productive activities that create goods or serveries of value, regardless of being paid or not (Rowe & Kahn, 1997). Glass, De Leon, Bassuk, and Berkman (2006), however, defined social engagement as performance of meaningful social roles for leisure and productive activity. Similarly, Bassuk, Glass, and Berkman (1999) viewed social engagement as maintaining many social connections and a high participation level in social activities. Based on these definitions, we broadly define social engagement as being actively involved in meaningful activities that are cognitively stimulating or socially integrating in this study.

As an essential component of quality of life (Mor et al., 1995), social engagement has long been associated with positive physical and psychological outcomes in the general older population (Berkman, Glass, Brissette, & Seeman, 2000). Continuing participation in different types of activities improves the well-being of older adults in late life and helps them achieve successful aging (Rowe & Kahn, 1997). In particular, research shows that social engagement is connected with lower levels of depression after adjusting for factors including sociodemographics, health status, and fitness activities among community-dwelling elderly (Glass et al., 2006). In the institutional setting, Worster (1998) found that older nursing home residents who remain socially engaged are less depressed than their inactive counterparts. Very few studies, however, have examined relationships of social engagement with sense of loneliness and hopelessness, the precursors of depression, among U.S. Chinese older adults, an understudied population.

Social Engagement and Loneliness

It is important to examine loneliness as it is closely related to depressive symptoms such as feelings of anxiety and sadness (Cacioppo, Hughes, Waite, Hawkley, & Thisted, 2006). In the literature, loneliness embraces many definitions. It refers to the feeling of being alone, separated, or apart from others according to Tomaka, Thompson, and Palacios (2006). Meis (1985) defined it as intense feelings of emptiness, abandonment, and forlornness. Ernst and Cacioppo (1999) conceptualized it as an imbalance between actual and desired social contact. To some extent, loneliness can be viewed as the opposite of social engagement, which contains both physical and psychological disconnectedness from the community and people (Victor, Scambler, Bond, & Bowling, 2000). Lack of social integration may lead to loneliness of social isolation (Drageset, 2004), which is a distressing feeling that arises when one's social relationships are insufficient and inadequate (Hawkley & Cacioppo, 2010).

In general, older adults are more vulnerable to feelings of loneliness compared with their younger counterparts because they often have to deal with more physical losses and changes in their lives that may lead to reduced social connections (Donaldson & Watson, 1996). Feelings of loneliness are less common among older adults who have more contacts with friends and neighbors of similar chronological ages (Peplau, 1982). Friends and old acquaintances are more likely to provide outlets for socializing that help to moderate feelings of loneliness (Heller, 1993). In addition, frequent contacts with children and grandchildren, likewise, help to reduce levels of loneliness (Felton & Berry, 1992) as family members and close friends tend to provide sense of intimacy, security, and peace (Weiss, 1973).

Taken together, this study hypothesizes that social engagement is negatively associated with feelings of loneliness among older Chinese adults. Participating in social activities and exercises provides a platform to meet people and helps people feel socially connected (Jylhä, 2004; McAuley et al., 2000). However, enjoyable and constructive solitary activities may also help to combat loneliness by improving individual's mood and sense of personal control (de Jong Gierveld, van Tilburg, & Dykstra, 2006).

Social Engagement and Hopelessness

Beck, Weissman, Lester, and Trexler (1974) defined hopelessness as a system of negative cognitive expectancies concerning oneself and one's future life. Hopelessness is related to adverse health outcomes for older people including cardiovascular morbidity and mortality (Dong & Chang, 2014; Everson, Kaplan, Goldberg, & Salonen, 2000). Most important, hopelessness is one of the core characteristics of depression and closely related to suicide attempts (Beck et al., 1974). Kovacs and Garrison (1985)

showed that hopelessness is the strongest predictor of suicide at 10-year follow-up among a group of patients with depression. For older adults in particular, hopelessness is a strong predictor of suicidal intent (Vannoy et al., 2007). Feeling of hopelessness is particularly a big concern among older Chinese Americans and is, perhaps, one of the major reasons that accounts for their high suicide rate. The suicide rate among older Chinese Americans, older females and older immigrants in particular, is significantly higher than that of White Americans (Casado & Leung, 2002; Yu, 1986).

Will social engagement promote psychological well-being in late life by reducing feelings of hopelessness? According to the activity theory (Havighurst, 1961), maintaining roles and activities that affirm one's self-concept helps to improve well-being and life satisfaction of older people (Wadensten, 2006). Meaningful activities also help people obtain positive feedback and confirm valued identities that may lead to an increased self-esteem and a better health. In addition, it is found that creating a space for the community population to participate in local activities and keeping human contacts are essential to reduce hopelessness and play important roles in preventing geriatric suicidal ideation among older adults (Szanto, Reynolds, Conwell, Begley, & Houck, 1998; Uncapher, Gallagher-Thompson, Osgood, & Bongar, 1998). Taken together, we hypothesize that social engagement is negatively associated with feelings of hopelessness among U.S. Chinese older adults.

Method

Data

To test the proposed hypotheses, we use data from the PINE. The PINE study is the largest population-based epidemiological study of U.S. Chinese older adults aged 60 and above in the Greater Chicago area (Dong, 2014). The PINE study is guided by a community-based participatory research (CBPR) approach and its primary purpose is to examine cultural determinants of health and well-being of U.S. Chinese older adults (Dong, Wong, & Simon, 2014). The data were collected for a period of approximately 2 years, from July 2011 to June 2013. Of 3,542 eligible Chinese older adults who were contacted, 3,159 agreed to participate in the study, yielding a response rate of 91.9%. In the current study, after list-wise deletion of missing data, our analytical sample was reduced to 2,929.

Measures

Dependent variables. Dependent variables include loneliness and hopelessness. Loneliness was assessed by asking respondents the following questions: (a) How often do you feel that you lack companionship? (b) How often do you feel left out in life? and (c) How often do you feel isolated from others? A summed index was cre-

ated based on respondents' answers (0 = *hardly ever*, 1 = *sometimes*, 2 = *often*) to these three questions. Hopelessness is a summed index based on responses (1 = *strongly disagree* to 6 = *strongly agree*) to seven statements: (a) In the future, I expect to succeed in what concerns me the most. (b) My future seems dark to me. (c) All I can see ahead of me is unpleasantness rather than pleasantness. (d) I do not expect to get what I really want. (e) I have great faith in the future. (f) It is very unlikely that I will get any real satisfaction in the future. (g) I can look forward to more good times than bad times. Responses were coded such that high score reflects high levels of loneliness or hopelessness. The standardized alpha for indices of loneliness and hopelessness are .77 and .82, respectively.

Independent variables. Our focal independent variable is social engagement. It was assessed using 16 questions, which were grouped into two clusters—cognitive activity and social activity (Dong, Li, & Simon, 2014). The former was comprised of activities that are cognitively stimulating, including (a) watching TV, (b) listening to the radio, (c) reading newspapers, (d) reading magazines, (e) reading books, (f) daily reading time, (g) playing games (i.e., cards, checkers, crosswords, or other puzzles or games), and (h) playing mahjong. The latter was made up of activities that are socially integrated such as (a) going out (i.e., movie, restaurant, sporting event), (b) visiting relatives/friends/neighbors, (c) having friends/relatives for a dinner or a party, (d) going on day trips or overnight trips, (e) visiting a museum, (f) attending a concert/play/musical, (g) visiting a library, and (h) visiting community centers. As summarized by Dong, Li, and Simon (2014), "The cognitive activity cluster comprises of activities requiring more mental exercise and less social interaction and physical strength, whereas the social activity cluster includes activities requiring relatively less mental exercises but more social interaction and physical strength" (p. S82). For questions,

> How often do you watch TV, listen to the radio, read newspapers, read magazines, read books, play games such as cards, checkers, crosswords, or other puzzles or games, play mahjong, go out to a movie, restaurant, or sporting event, visit relatives/ friends/neighbors, have friends / relatives for a dinner or a party, and go on day trips or overnight trips?

a Likert-type-scale (0 = *once a year or less*, 1 = *several times a year*, 2 = *several times a month*, 3 = *several times a week*, and 4 = *every day or almost every day*) was used. For questions, "In the past five years, how many times have your visited museum, attended a concert/play/ musical, visited a library, and visited community centers?" a set of different responses (0 = *never*, 1 = *1-2 times*, 2 = *3-9 times*, 3 = *10-19 times*, and 4 = *20 or more times*) was used. For question, "How much time do you spend reading each day?" the response categories include 0 = *none*, 1 = *a few minutes*, 2 = *half an hour*,

3 = *1-2 hr*, 4 = *2-3 hr*, and 5 = *more than 3 hr*. Both cognitive activity and social activity are summed indices with score of the former ranging from 0 to 33 and score of the latter ranging from 0 to 32. The standardized alpha ranges from .60 to .75.

Control variables. We controlled for age (in years), gender (female = 1), education (in years of schooling), marital status (married = 1), income (1 = US$0-US$4,999; 2 = US$5,000-US$9,999; 3 = US$10,000 or more), disabilities in activities of daily living (ADLs; assessing difficulties in eating, dressing, bathing, walking, transferring, grooming, incontinence, toileting), disabilities in instrumental activities of daily living (IADLs; assessing difficulties in managing money, using telephone, preparing for meals, doing laundry, taking medication, doing housework, etc.), and medical comorbidity (a continuous variable that examines the existence of up to nine chronic conditions such as heart disease, stroke or brain hemorrhage, cancer, high cholesterol, diabetes, high blood pressure, a broken or fractured hip, thyroid disease, osteoarthritis, inflammation, or problems with joints).

Analysis

Univariate statistics were summarized in Table 1. One of the dependent variables—loneliness—is discretely distributed with a large proportion of respondents reporting 0. Therefore, a continuous version of a negative binomial model is appropriate to improve the model fit and to account for the overdispersion issue (Chandra & Roy, 2012). Three negative binomial models that examine the effects of social engagement (Model 1), cognitive activity (Model 2), and social activity (Model 3) on loneliness were presented in Table 2. Subsequently, a set of ordinary least squares (OLS) regression models were estimated in Table 3 to examine the focal relationships using hopelessness as an outcome variable. For each focal independent variable (social engagement/cognitive activity/social activity), sociodemographics and health-related control variables were adjusted for.

Results

Descriptive statistics were reported in Table 1. Results show that the average age of our respondents is 72.53 years with a standard deviation (*SD*) of 8.19 years. There are more female (57.6%) than male respondents. More than two thirds of the sample were currently married. The average education level is close to 9 years of schooling with an *SD* being approximately 5 years, and the mean level of individual annual income approaches Level 2, which is equivalent to an income level ranging from US$5,000 to US$9,999. In terms of health and well-being, the average number of disabilities in ADLs and IADLs are 0.32 (*SD* = 1.87) and 3.48 (*SD* = 5.97), respectively. And, respondents reported having approximately two chronic conditions on average. All focal

Table 1. Descriptive Statistics for Focal Independent Variables, Dependent Variables, and Control Variables: The 2011-2013 PINE Study (*N* = 2,929).

	Mean/Percentage (PCT)
Focal variables	
Social engagement	21.07 (9.08)
Cognitive activity	12.06 (5.86)
Social activity	9.01(4.76)
Hopelessness	15.41 (5.68)
Loneliness	0.56 (1.18)
Sociodemographics	
Age	72.53 (8.19)
Gender	
Male	42.40 (PCT)
Female	57.60 (PCT)
Marital status	
Married	72.48 (PCT)
Others	27.52 (PCT)
Years of schooling	8.77 (5.01)
Annual income	1.94 (1.14)
ADLs	0.32 (1.87)
IADLs	3.48 (5.97)
Medical conditions	2.05 (1.46)

Note. Standard deviations are in parentheses. For annual income, there are three ordinal categories (1 = US$0-US$4,999; 2 = US$5,000-US$9,999; 3 = US$10,000 or more) and median/mode = 2 (US$5,000-US$9,999). PINE = Population Study of Chinese Elderly in Chicago; ADL = activity of daily living; IADL = instrumental activity of daily living.

independent variables are continuous variables. Sample means for social engagement, cognitive activity, and social activity are 21.07 (*SD* = 9.08), 12.06 (*SD* = 5.86), and 9.01 (*SD* = 4.76), respectively.

Effects of focal independent variables on loneliness were reviewed in Table 2. As expected, after controlling for sociodemographics and health status, social engagement is associated with a significant lower rate ratio (RR) of loneliness in Model 1, RR = 0.99% and 95% confidence interval (CI) = [0.98, 1.00]. When cognitive activity was examined in Model 2, its effect on loneliness is statistically nonsignificant. Social activity replaced cognitive activity in Model 3. Results show that its effect on loneliness remains significant regardless of including all the control variables. These findings indicate that social engagement, its social component in particular, is associated with a reduced RR of loneliness.

Some interesting patterns on control variables in relation to loneliness in Table 2 are also worth mentioning. Having a spouse/partner or having higher levels of income significantly reduces the rate of loneliness, whereas having more IADLs significantly increases the rate of loneliness. Surprisingly, advancing age is associated with a reduced RR, whereas education is associated with an increased RR of loneliness.

OLS regressions that examine the effects of focal independent variables on hopelessness are described in Table 3. Model 1 shows that social engagement is related

Table 2. Multivariate Results From the Negative Binomial Models Regressing Loneliness on Social Engagement, Cognitively Stimulating Activity, Socially Integrating Activity, and Covariates Among Chinese Older Adults in the 2011 to 2013 PINE Study (*N* = 2,929).

	Model 1	Model 2	Model 3
	RR [95% CI]	RR [95% CI]	RR [95% CI]
Age	0.99 [0.98, 1.00]*	0.99 [0.98, 1.00]*	0.99 [0.97, 1.00]*
Gender (male[a])			
Female	0.92 [0.77, 1.10]	0.92 [0.77, 1.10]	0.93 [0.78, 1.11]
Education	1.05 [1.03, 1.07]***	1.05 [1.03, 1.07]***	1.05 [1.03, 1.07]***
Married/partnered (no[a])			
Yes	0.39 [0.32, 0.47]***	0.39 [0.32, 0.48]***	0.38 [0.31, 0.47]***
Annual income	0.92 [0.85, 0.99]*	0.92 [0.85, 0.99]*	0.92 [0.85, 0.99]*
ADLs	0.97 [0.92, 1.02]	0.97 [0.92, 1.02]	0.97 [0.92, 1.02]
IADLs	1.05 [1.03, 1.07]***	1.05 [1.03, 1.07]***	1.05 [1.03, 1.07]***
Medical conditions	1.03 [0.97, 1.09]	1.03 [0.97, 1.09]	1.03 [0.97, 1.09]
Social engagement	0.99 [0.98, 1.00]*	—	—
Cognitive activity	—	0.99 [0.97, 1.01]	—
Social activity	—	—	0.97 [0.95, 0.99]**

Note. RRs and 95% CI (in brackets) are provided; age was centered at 72 years and education was centered at 9 years of schooling. PINE = Population Study of Chinese Elderly in Chicago; RR = rate ratio; CI = confidence interval; ADL = activity of daily living; IADL = instrumental activity of daily living.
[a]Reference group.
*p < .05. **p < .01. ***p < .001.

negatively and significantly (*b* = −0.05, *p* < .001) to hopelessness, adjusting for sociodemographic and health control variables. The similar pattern was found when cognitive activity was examined in Model 2. Social activity is not significantly related to hopelessness in Model 3. In terms of control variables, findings on marital status, IADLs, and education are similar to findings in Table 2. Compared with males, females are less likely to report feelings of hopelessness.

Discussion

Using the first population-based survey among older Chinese Americans, this study examines the relationships between social engagement and sense of loneliness and hopelessness. Our study contributes to the literature on social engagement and mental health by (a) investigating the rarely examined outcome variables—sense of loneliness and hopeless, the important precursors of mental health problems; (b) classifying social engagement into social activity and cognitive activity, and examining their differential effects on loneliness and hopelessness; and (c) focusing on a previously overlooked target population—U.S. Chinese older adults who are at high risk of mental health problems due to their immigration status and limited English proficiency. Findings reveal that social engagement is significantly and negatively related to both loneliness and hopelessness after controlling for sociodemographics and health status. In addition, different aspects of social engagement present differential associations with the outcome variables: Social activity is significantly associated with

lower RRs of loneliness, whereas cognitive activity is significantly related to lower levels of hopelessness. Our findings address the importance of engaging in cognitively stimulating and socially integrating activities in promoting psychological well-being for U.S. Chinese older adults.

Social engagement is beneficial to psychological well-being for older Chinese adults. Engaging in activities such as reading, playing mahjong, and watching television is negatively related to psychological distress among old Chinese adults in China (Ross & Zhang, 2008; Zhang, Chen, & Feng, 2015). Social participation reduces depressive symptoms among older adults in Taiwan (Chiao, Weng, & Botticello, 2011). And, increased social engagement is associated with decreased depressive symptoms over time for long-term care facility residents in Hong Kong (Lou, Chi, Kwan, & Leung, 2013). The current work extends previous studies by developing an index of social engagement that is comprised of both cognitively stimulating and socially integrating activities and examining the associations between two aspects of social engagement with important precursors of depression. To the best of our knowledge, this is, perhaps, one of the first works that studies the psychological benefits of social engagement among elderly Chinese in the United States, an understudied population due to lack of data. Our results suggest that activity engagement in general reduces levels of loneliness, offers sense of hope, promotes sense of personal control, thus benefiting psychological well-being for elderly Chinese Americans.

Our study reveals that social engagement, socially integrating activity in particular, alleviates loneliness

Table 3. Multivariate Results From the OLS Models Regressing Hopelessness on Social Engagement, Cognitively Stimulating Activity, Socially Integrating Activity, and Covariates Among Chinese Older Adults in the 2011 to 2013 PINE Study (*N* = 2,929).

	Model 1	Model 2	Model 3
Age	0.00	0.01	0.00
	(0.01)	(0.01)	(0.01)
Gender (male[a])			
Female	−0.50*	−0.53*	−0.44*
	(0.22)	(0.23)	(0.22)
Education	0.08***	0.09***	0.05*
	(0.02)	(0.02)	(0.02)
Married/partnered (no[a])			
Yes	−0.82**	−0.78**	−0.79**
	(0.26)	(0.26)	(0.26)
Annual income	−0.15	−0.15	−0.16
	(0.09)	(0.09)	(0.09)
ADLs	0.04	0.03	0.05
	(0.07)	(0.07)	(0.07)
IADLs	0.20***	0.20***	0.21***
	(0.02)	(0.02)	(0.02)
Medical conditions	0.12	0.12	0.10
	(0.07)	(0.07)	(0.07)
Social engagement	−0.05***		
	(0.01)		
Cognitive activity		−0.08***	
		(0.02)	
Social activity			−0.04
			(0.02)
Intercept	16.69	16.63	15.96
Adjusted *R*²	.06	.07	.06

Note. Regression coefficients and standard errors (in parentheses) are provided; age was centered at 72 years and education was centered at 9 years of schooling. OLS = ordinary least squares; PINE = Population Study of Chinese Elderly in Chicago; ADL = activity of daily living; IADL = instrumental activity of daily living.
[a]Reference group.
*p < .05. **p < .01. ***p < .001.

and social isolation for the Chinese elderly. This finding is in line with prior research suggesting that beneficial health outcomes are often noticed when older adults have meaningful social engagement with others (Cohen, 2006), and social integration within acquaintances who share similar social activities helps to counteract loneliness (Weiss, 1973). Part of the reason that accounts for the beneficial health effects of social engagement is that social participation may help people feel that they are able to maintain mastery and sense of personal control in their lives (Adams, Leibbrandt, & Moon, 2011; McMurray & Clendon, 2015) despite the constraints of aging such as functional decline and lack of social support from family members. In summary, social participation prevents social isolation as well as increases opportunities to interact with people for older Chinese adults, thus playing a crucial role in promoting sense of belonging and reducing their levels of loneliness.

Our study also found that social engagement, especially its cognitive component, reduces feelings of hopelessness for the Chinese elderly. Ross and Zhang (2008) are among the first to disclose that cognitively stimulating activities such as reading and playing mahjong or card games indirectly improve one's psychological well-being through cognitive enhancement. These activities are intellectually challenging as they often require mental engagement, critical thinking, and sophisticated calculations. Our finding provides additional evidence, revealing that part of the reason why cognitively stimulating activities enhance psychological well-being in late life is probably because the former provides sense of hope, meaning, and purpose for the elderly. Reading newspapers/magazine and watching TV, for instance, make older adults keep up with the latest news taking place in their communities as well as in the world, and help them adapt to changes in society. All these greatly reduce their sense of uncertainty and promote their sense of personal control, which in turn, enhance their psychological well-being.

This study is not without limitations. First, using cross-sectional data does not allow us to make causal inferences. It is not clear whether social engagement prevents loneliness/hopelessness or whether individuals who enjoy high levels of psychological well-being are more likely to participate in activities. Second, although the index of social engagement comprehensively includes a variety of activities that are commonly engaged in by the Chinese elderly, it is still likely that some active Chinese elderly who happen to engage in activities that are not included in our data set were mistakenly categorized as inactive individuals. Third, more psychosocial variables should be included in future studies to speculate the differential effects of social activity and cognitive activity on sense of loneliness and hopelessness. Finally, we should be aware that our results might not be generalizable to the elderly Chinese living in other parts of the United States and elsewhere as we used regional data that were primarily collected in the Greater Chicago area.

Despite these limitations, our findings have several policy implications. Given the salutary effects of social engagement on psychological well-being, efforts should be put to develop social programs that aim to develop meaningful social activities that may help Chinese older adults to overcome loneliness and hopelessness due to acculturative stress, loss of loved ones, and decline in health. For instance, creating community programs in Chinatown where the Chinese elderly can participate in group hobby activities is likely to have a strong positive effect on participants' psychological well-being. To encourage participation, relevant government agencies should pay particular attention to develop culturally tailored programs that accommodate older Chinese adults' special needs. Besides community programs, it is recommended that senior care home agencies also offer opportunities for the Chinese elderly residing in nursing homes to participate in meaningful

social activities that meet their needs and preferences. In addition, community-dwelling Chinese older adults, especially recent immigrants, often encounter numerous adaptation challenges and language barriers, thus are limited to passive, home-oriented, and child care activities. More opportunities need to be provided to expand the scope of social engagement, such as volunteering through formal organizations, community work, and employment. These activities will benefit older adults, their family, and the community.

Declaration of Conflicting Interests

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References

Adams, K. B., Leibbrandt, S., & Moon, H. (2011). A critical review of the literature on social and leisure activity and wellbeing in later life. *Ageing & Society*, *31*, 683-712.

American Community Survey. (2005). *American Community Survey: 2005 estimates*. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_1YR_S0201&prodType=table

American Community Survey. (2011). *American Community Survey: 2011 estimates*. Retrieved from http://www.census.gov/acs/www/

American Community Survey. (2015). *American Community Survey: 2015 estimates*. Retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_1YR_S0201&prodType=table

Bassuk, S. S., Glass, T. A., & Berkman, L. F. (1999). Social disengagement and incident cognitive decline in community-dwelling older persons. *Annals of Internal Medicine*, *131*, 165-173.

Bath, P. A., & Deeg, D. (2005). Social engagement and health outcomes among older people: Introduction to a special section. *European Journal of Ageing*, *2*, 24-30.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: The Hopelessness Scale. *Journal of Consulting and Clinical Psychology*, *42*, 861-865.

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, *51*, 843-857.

Cacioppo, J. T., Hughes, M. E., Waite, L. J., Hawkley, L. C., & Thisted, R. A. (2006). Loneliness as a specific risk factor for depressive symptoms: Cross-sectional and longitudinal analyses. *Psychology and Aging*, *21*, 140-151.

Casado, B. L., & Leung, P. (2002). Migratory grief and depression among elderly Chinese American immigrants. *Journal of Gerontological Social Work*, *36*(1-2), 5-26.

Chandra, N. K., & Roy, D. A. (2012). A continuous version of the negative binomial distribution. *Statistica*, *72*, 81-92.

Chiao, C., Weng, L., & Botticello, A. L. (2011). Social participation reduces depressive symptoms among older adults: An 18-year longitudinal analysis in Taiwan. *BMC Public Health*, *11*, Article 292. Retrieved from https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-11-292

Cohen, G. (2006). Research on creativity and aging: The positive impact of the arts on health and illness. *Generations*, *30*(1), 7-15.

de Jong Gierveld, J., van Tilburg, T., & Dykstra, P. A. (2006). Loneliness and social isolation. In A. Vangelisti & D. Perlman (Eds.), *Cambridge handbook of personal relationships* (pp. 485-500). Cambridge, MA: Cambridge University Press.

Donaldson, J. M., & Watson, R. (1996). Loneliness in elderly people: An important area for nursing research. *Journal of Advanced Nursing*, *24*, 952-959.

Dong, X. (2014). Addressing health and well-being of U.S. Chinese older adults through community-based participatory research: Introduction to the PINE study. *The Journals of Gerontology, Series A: Medical Sciences*, *69*(Suppl. 2), S1-S6.

Dong, X., & Chang, E. S. (2014). Understanding hopelessness among community-dwelling Chinese older adults in the greater Chicago area. *Journal of Gerontology & Geriatric Research*, *3*(5), 193. doi:10.4172/2167-7182.1000193

Dong, X., Li, Y., & Simon, M. (2014). Social engagement among U.S. Chinese older adults—Findings from the PINE study. *The Journals of Gerontology, Series A: Medical Sciences*, *69*(Suppl. 2), S82-S89.

Dong, X., Wong, E., & Simon, M. (2014). Study design and implementation of the PINE study. *Journal of Aging and Health*, *26*, 1085-1099.

Drageset, J. (2004). The importance of activities of daily living and social contact for loneliness: A survey among residents in nursing homes. *Scandinavian Journal of Caring Sciences*, *18*, 65-71.

Ernst, J. M., & Cacioppo, J. T. (1999). Lonely hearts: Psychological perspectives on loneliness. *Applied & Preventive Psychology*, *8*, 1-22.

Everson, S. A., Kaplan, G. A., Goldberg, D. E., & Salonen, J. T. (2000). Hypertension incidence is predicted by high levels of hopelessness in Finnish men. *Hypertension*, *35*, 561-567.

Felton, B. J., & Berry, C. A. (1992). Do the sources of the urban elderly's social support determine its psychological consequences? *Psychology and Aging*, *7*, 89-97.

Glass, T. A., De Leon, C. F. M., Bassuk, S. S., & Berkman, L. F. (2006). Social engagement and depressive symptoms in late life: Longitudinal findings. *Journal of Aging and Health*, *18*, 604-628.

Havighurst, R. J. (1961). Successful aging. *The Gerontologist*, *1*, 8-13.

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine*, *40*, 218-227.

Heller, K. (1993). Prevention activities for older adults: Social structures and personal competencies that maintain useful social roles. *Journal of Counseling & Development*, *72*, 124-130.

Jylhä, M. (2004). Old age and loneliness: Cross-sectional and longitudinal analyses in the Tampere Longitudinal Study on Aging. *Canadian Journal on Aging*, *23*, 157-168.

Kolb, P. (Ed.). (2010). *Social work practice with ethnically and racially diverse nursing home residents and their families*. New York, NY: Columbia University Press.

Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry*, *142*, 559-563.

Lou, V. W., Chi, I., Kwan, C. W., & Leung, A. Y. M. (2013). Trajectories of social engagement and depressive symptoms among long-term care facility residents in Hong Kong. *Age and Ageing*, *42*, 215-222.

McAuley, E., Blissmer, B., Marquez, D. X., Jerome, G. J., Kramer, A. F., & Katula, J. (2000). Social relations, physical activity, and well-being in older adults. *Preventive Medicine*, *31*, 608-617.

McMurray, A., & Clendon, J. (2015). *Community health and wellness: Primary health care in practice*. Australia: Elsevier Health Sciences.

Meis, M. (1985). Loneliness in the elderly. *Orthopaedic Nursing*, *4*(3), 63-67.

Mor, V., Branco, K., Fleishman, J., Hawes, C., Phillips, C., Morris, J., & Fries, B. (1995). The structure of social engagement among nursing home residents. *The Journals of Gerontology, Series B: Psychological Sciences & Social Sciences*, *50*(1), P1-P8.

Morrow-Howell, N., & Gehlert, S. (2012). Social engagement and a healthy aging society. In T. Prohaska, L. Anderson, & R. Binstock (Eds.), *Public health for an aging society* (pp. 205-227). Baltimore, MD: Johns Hopkins University Press.

Peplau, L. A. (1982). *Loneliness: A sourcebook of current theory, research, and therapy* (Vol. 36). Hoboken, NJ: John Wiley.

Pew Research Center. (2016). *Chinese Americans*. Retrieved from http://www.pewsocialtrends.org/asianamericans-graphics/chinese/

Ross, C., & Zhang, W. (2008). Education and psychological distress among older Chinese. *Journal of Aging and Health*, *20*, 273-289.

Rowe, J. W., & Kahn, R. L. (1997). Successful aging. *The Gerontologist*, *37*, 433-440.

Rowe, J. W., & Kahn, R. L. (1998). *Successful aging*. New York, NY: Random House.

Szanto, K., Reynolds, C. F., Conwell, Y., Begley, A. E., & Houck, P. (1998). High levels of hopelessness persist in geriatric patients with remitted depression and a history of attempted suicide. *Journal of the American Geriatrics Society*, *46*, 1401-1406.

Tomaka, J., Thompson, S., & Palacios, R. (2006). The relation of social isolation, loneliness, and social support to disease outcomes among the elderly. *Journal of Aging and Health*, *18*, 359-384.

Tong, M., & Sentell, T. (2017). Insights in public health: Challenges investigating health outcomes in Chinese Americans using population-based survey data. *Hawai'i Journal of Medicine & Public Health*, *76*, 27-32.

Uncapher, H., Gallagher-Thompson, D., Osgood, N. J., & Bongar, B. (1998). Hopelessness and suicidal ideation in older adults. *The Gerontologist*, *38*, 62-70.

Vannoy, S. D., Duberstein, P., Cukrowicz, K., Lin, E., Fan, M. Y., & Unützer, J. (2007). The relationship between suicide ideation and late-life depression. *The American Journal of Geriatric Psychiatry*, *15*, 1024-1033.

Victor, C., Scambler, S., Bond, J., & Bowling, A. (2000). Being alone in later life: Loneliness, social isolation and living alone. *Reviews in Clinical Gerontology*, *10*, 407-417.

Wadensten, B. (2006). An analysis of psychosocial theories of ageing and their relevance to practical gerontological nursing in Sweden. *Scandinavian Journal of Caring Sciences*, *20*, 347-354.

Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation*. Cambridge: The Massachusetts Institute of Technology.

Worster, J. P. (1998). *Social engagement: Depressogenic factors in the older* (Theses and Dissertations, 2011). Retrieved from http://rdw.rowan.edu/etd/2011

Ying, Y. W. (1988). Depressive symptomatology among Chinese-Americans as measured by the CES-D. *Journal of Clinical Psychology*, *44*, 739-746.

Yu, E. S. (1986). Health of the Chinese older in America. *Research on Aging*, *8*, 84-109.

Zhang, W., Chen, H., & Feng, Q. (2015). Education and psychological distress of older Chinese: Exploring the longitudinal relationship and its subgroup variations. *Journal of Aging and Health*, *27*, 1170-1198.