AGING & MENTAL HEALTH, 2017
https://doi.org/10.1080/13607863.2017.1364345

Routledge
Taylor & Francis Group

A cross-sectional study of coping resources and mental health of Chinese older adults in the United States

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ABSTRACT

Objectives: This study examined the potential influence of coping resources at individual (sense of mastery), family (spousal and family support, children's filial piety), and community levels (community cohesion) on the mental health (depression, anxiety) of U.S. Chinese older adults.

Methods: The data were derived from the Population Study of Chinese Elderly in Chicago (N= 3,159). Negative binomial regressions were performed to predict depression and anxiety, respectively, by entering the three sets of coping resources separately and jointly, controlling for socio-demographic and acculturation variables.

Results: Stronger sense of mastery and greater perception of children's filial piety were associated with better mental health outcomes. Spousal support was not associated with any mental health outomes, and family support was actually assciated with greater depression and anxiety. Stronger community cohesion was associated with fewer depressive symptoms but greater anxiety.

Conclusion: Older immigrants' sense of control and perception that children adhere to traditional family norms are important mental health protective factors. Whereas depending on families for support may compromise their well-being, community cohesion could be a double-edged sword for their mental health. Future studies shall further disentangle the associations among sense of mastery, reliance on family and ethnic enclaves for support, and older immigrants' well-being.

ARTICLE HISTORY
Received 3 February 2017
Accepted 29 July 2017

KEYWORDS
Social support; immigrants; depression; anxiety; sense of mastery

Introduction

The Asian population is the fastest growing ethnic group in the United States (U.S. Census Bureau, 2012). But they are much less studied compared to African American and Hispanic populations in mental health issues (Kuo, Chong, & Joseph, 2008). As the largest sub-population of Asian Americans, Chinese elderly in the United States have been found to have higher anxiety symptoms, higher sense of loneliness, and similar or higher depression prevalence rates than the general American older populations (Chang, Beck, Simon, & Dong, 2014; Chen et al., 2013; Dong, Chen, & Simon, 2014; Simon, Chang, Zhang, Ruan, & Dong, 2014). Besides this descriptive information, our knowledge about protective and risk factors of Chinese older adults' mental health is still largely limited to studies in China or small, non-probability samples of Chinese elderly in the United States (Chang et al., 2014; Kuo et al., 2008).

To fill this gap, this study relied on data from the largest and most comprehensive study of Chinese elders in the United States – Population Study of Chinese Elderly in Chicago (PINE) – to examine the ways in which individual, family, and community coping resources of Chinese elderly in the United States are associated with their mental health. By focusing on the largest ethnic group in the world that have high mental health risks (Parker, Gladstone, & Chee, 2001), the findings of this study will contribute important scientific and practical knowledge to successful aging of older ethnic minorities in the United States.

Why coping resources matter for older immigrants: theoretical explanations

Several theoretical frameworks help to explain why and in what ways various coping resources benefit older immigrants' mental health. According to stress and coping theory (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984), individuals perform a series of cognitive appraisals when facing significant psychological stress. They evaluate the instrumental and emotional demands of the situation as well as the resources available to cope with the situation. When situational demands are perceived as exceeding one's coping ability and resources, stress develops, which in turn results in emotional distress, eventually leading to deterioration in physical and mental health (Lazarus & Folkman, 1984). Immigration and acculturation are chronic psychological stressors that not only erode one's well-being but also affect personal recourses, which are expected to protect against stressors (Pearlin, 2010). As such, immigrants' social support and sense of mastery, that is, the extent in which an individual feels in charge of one's life (used interchangeably with sense of control hereafter) greatly affect how they appraise the stressful immigration and acculturation process, which in turn, influence their adaptational outcomes and well-being (Lazarus, 1997).

Berry's acculturation theory (1997) describes acculturation as a process in which individuals negotiate two or more cultures as they transition and adapt to a new social environment. Acculturative stress often occurs in this process as immigrants experience changes in language, ethnic identity,

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cognitive styles, and attitudes. Berry suggests that, although a certain level of stress may be adaptive and can assist individuals' adjustment to the new environment, high levels of stress that are greater than the individual's capacity to cope will create psychological distress and impair immigrants' well-being. Berry (1997) further points out that coping resources such as social support and personal psychological traits such as sense of mastery play an important role in explaining immigrants' variability in psychological outcomes when facing a similar acculturation process.

Life course theory (Elder, Johnson, & Crosnoe, 2003) also helps to explain the interplay between migration, coping, and mental health in later life. Immigrating is a turning point in one's life course that is followed by transitions and changes in family life, health, and work trajectories, often followed by distress and hardships, and consequently poor physical and mental health (Hutchison, 2010). However, these individual trajectories may be moderated by environmental support and human agency, the actions and decisions taken by individuals in controlling their own life (Hutchison, 2010). For instance, it is common for immigrants to use informal networks and kinship ties to manage and resist stress in the acculturate process (Glick, 2010). Such support is often associated with a higher sense of control among immigrants, especially when the support is from people within the same ethnic group (Pearlin, 1991).

In sum, all the three theories mentioned above point to immigrants' strengths and capacity in changing adverse life circumstances by relying on internal and external coping resources. Different levels of coping resources are identified in these theories. Sense of mastery/human agency at the individual level may function as an internal coping mechanism that enhances one's sense of control over the stressful acculturation process (Lazarus, 1997). Social support provided at the family and the community level could also buffer acculturative stress and consequently protect mental health (Berry, 1997). Considering multiple levels of coping resources not only helps to strengthen the explanatory purview of these theories, but also yields a more comprehensive picture of older immigrants' acculturation experience.

Empirical findings on coping resources and mental health among Asian elderly immigrants

The family is often the key for the survival of older immigrants due to cultural preferences, linguistic isolation, and economic constraints (Treas, 2008). A preliminary analysis of the PINE data showed that 85% of the respondents migrated to the United States for family reasons such as family reunion or caring for grandchildren. Compared to other ethnic groups, Chinese elderly immigrants tend to have fewer sources of support beyond their adult children (Wong, Yoo, & Stewart, 2007). The social norm of filial piety, which indicates adult children's obligations to respect and care for aging parents, is the cornerstone of the social structure of Confusion heritage societies like China (Lum et al., 2015). In this sense, family support and children's filial piety could be critical coping resources for Chinese older immigrants.

However, empirical evidence of the psychological benefits of family supports on Asian older immigrants is limited and mixed. Although two studies (Lee, Moon, & Knight, 2005; Liu, Guo, Xu, Mao, & Chi, 2017) reported that close family relationships were associated with fewer depressive symptoms among Chinese and Korean older immigrants, more studies showed lack of associations between various family support (e.g. financial, instrumental, emotional support, and children's filial piety) and depression in the two groups (Jang et al., 2015; Kang, Basham, & Kim, 2013; Kang, Domanski, & Moon, 2009; Kwan et al., 2014; Liu, Dong, Nguyen, & Lai, in press).

Besides the family, neighbourhood and community compose another important coping resource for older adults by providing informational and instrumental support, religious and health care services, and opportunities for socialization and recreation with peers (Choi, 2000). A cohesive and supportive neighbourhood is particularly important for older immigrants, who often spend most of their time in ethnic enclaves – geographic areas with high ethnic concentration. Again, findings on the mental health benefit of cohesive neighbourhood on Asian elderly immigrants are inconclusive. While two studies on Korean elderly immigrants reported lack of association between community cohesion and depressive symptoms (Jang et al., 2015; Roh et al., 2011), studies on Chinese elderly immigrants found that the perceptions of having higher social cohesion in the neighbourhood was associated with lower levels of depression and anxiety, and greater quality of life (Dong & Bergren, 2016; Tang, Xu, Chi, & Dong, 2016).

Sense of mastery is a much less studied but important coping resource for older immigrants. The process of aging and immigration may diminish one's sense of mastery due to deteriorating physical conditions, difficulties with a new language, loss of financial security, roles, and social status, and increasing dependence on family members. With these changes, having strong beliefs of mastery could greatly affect older immigrants' appraisal of their life circumstances and consequently their mental health. A greater sense of mastery was found to be associated with lower negative affect among Asian Indian elderly immigrants (Diwan, Jonnalagadda, & Balaswamy, 2004), an increased level of happiness and a lower level of depression among Korean immigrants (Shin, Han, & Kim, 2007), and fewer depressive symptoms among Mexican immigrant women (Heilemann, Frutos, Lee, & Kury, 2004). The potential psychological benefits of such a coping resource on Chinese older immigrants have not yet been studied.

The present study

The limited and inconsistent findings reviewed above point to the needs of better understanding the roles of various coping resources on Asian elderly immigrants' mental health. To address the research gaps, this study asked the question: Whether and in what ways are individual (i.e. sense of mastery), family (i.e. spousal support, family support, children's filial piety), and community coping resources (i.e. neighbourhood cohesion) related to the mental health of Chinese older adults in the United States?

This study extends the prior research in several important ways. First, it used the largest population-based study of Chinese elderly in the United States. The PINE enables researchers, for the first time, to deduce findings that are generalizable to a specific Asian subgroup. Second, this study assessed the coping resources at individual, family, and community levels simultaneously. This enables researchers and

practitioners to distinguish the relevant importance of different resources and prioritize resources for programs and interventions. Third, it's the first time that the concept of filial piety is assessed by an established and highly reliable scale in a study of this magnitude. By conceptualizing filial piety as a potential coping resource, this study will shed important light on mental health of aging ethnic minorities in a culturally appropriate and meaningful way.

Methods

Sample

Data were derived from the Population Study of Chinese Elderly in Chicago (PINE). A total of 3159 community-living Chinese older adults aged 60 and older were recruited from more than 20 social service agencies, community centers, faith-based organizations, and senior apartments in the Greater Chicago area between 2011 and 2013 (See Dong, Wong, & Simon, 2014 for more information of study design). Interviews were conducted in respondents' homes in the language preferred by the respondents. The survey covered a wide range of topics such as family relations, social support, discrimination, and physical and mental health. The PINE sample is representative of the Chinese aging population in the greater Chicago area (Simon, Chang, Rajan, Welch, & Dong, 2014).

Measures

Coping resources

Sense of mastery was measured by Pearlin Mastery Scale (Pearlin & Schooler, 1978), which assesses individuals' sense of control and their capability to overcome life adversities. Respondents were asked to rate their levels of agreement on seven statements (i.e. *I have little control over the things that happen to me; There is really no way I can solve some of the problems I have; There is little I can do to change many of the important things in my life; I often feel helpless in dealing with the problems of life; Sometimes I feel that I'm being pushed around in life; What happens to me in the future mostly depends on me; I can do about anything I really set my mind to do*) on a Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. After reversely coding the first five items, sum scores were calculated, ranging from 7 to 49, with a higher score indicating a greater sense of mastery (α = .80).

Support from spouse and family was assessed by questions drawn from the Health and Retirement Study (Juster & Suzman, 1995). Respondents first rated the extent to which they liked to (1) open up to spouse and (2) rely on spouse for help (1 = hardly ever, 2 = some of the time, 3 = often), then on the same questions regarding family members. Because almost 70% of the respondents reported 'often' to spousal support questions and between 50% and 60% did so on family support questions, two dichotomous variables were created to indicate whether the respondent received spouse or family support (1 = yes), respectively, if the answer was 'often' for at least one of the two questions under each domain.

Perceive filial piety from children was assessed by asking respondents how much (1) respect, (2) care, (3) checking on, (4) pleasure, (5) obedience, and (6) financial support that they had received from children (1 = very little, 2 = rather little, 3 = average, 4 = rather a lot, 5 = very much). Sum scores were calculated, ranging from 6 to 30, with a higher score indicating a greater level of received filial piety from children (α = .86).

Neighbourhood cohesion was measured by six questions adapted from the Chicago Health and Aging Project (Cagney et al., 2009). The respondents were asked how often they see (1) neighbours and friends talk outside in the yard or in the street, (2) neighbours take care of each other (i.e. doing yard work, watching children), and (3) neighbours watch out for each other (i.e. calling if they see a problem) on a four-point Likert scale (0 = never, 1 = rarely, 2 = sometimes, 3 = often). They were also asked to report the number of neighbours they (4) know by name, (5) have a friendly talk with once a week, and (6) they could call on for assistance on a five-point Likert scale (0 = none, 1 = 1–5, 2 = 6–10, 3 = 11–15, 4 = 16–20, 5 = 21 or more). Each of the items was first converted to a Z-score, and then was averaged to create a total score ranging from -1.08 to 2.84, with a higher score indicating a higher sense of community cohesion (α = .86).

Mental Health

Depression was assessed by Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, & Williams, 2001). Respondents were asked to rate how often they experienced nine depressive symptoms (i.e. changes in sleep, changes in appetite, fatigue, feelings of sadness or irritability, loss of interest in activities, inability to experience pleasure/feelings of guilt or worthlessness, inability to concentrate or making decisions, feeling restless or slowed down, and suicide thoughts) during the past 2 weeks (0 = not at all, 1 = several days, 2 = a week or more, 3 = nearly every day). Sum scores were calculated, ranging from 0 to 27, with higher scores indicating higher levels of depression (α = .82).

Anxiety was assessed by Hospital Anxiety and Depression Scale-Anxiety (HADS-A) (Zigmond & Snaith, 1983). Participants were asked how often they experienced seven symptoms (i.e. feel tense or wound up, have a frightened feeling as if something awful is about to happen, have worrying thoughts, sit at ease and feel relaxed, have a frightened feeling like butterflies in the stomach, feel restless, feel panic) in the past week (0 = not at all, 1 = occasionally, 2 = a lot of time, 3 = most of the time). Sum scores were created, ranging from 0 to 21, with a higher score indicating a higher level of anxiety (α = .80).

Control variables

Control variables included *age* (in years), *gender* (1 = women, 0 = men), *marital status* (1 = married, 0 = not married), *education* (in years), *personal annual income* (0 = $0–$4999, 1 = $5000–$9999, 2 = $10,000 or above), physical health, acculturation, and perceived stress. *Physical health* was assessed by respondents' difficulties in performing eight Activities of Daily Living (ADL) and 12 Instrumental Activities of Daily Living (IADL) on a scale ranging from 0 = none, 1 = sometimes, 2 = a lot, to 3 = most of the time. Because less than 8% of the respondents reported any ADL difficulties, two dichotomous variables were created to indicate whether the respondents had any ADL or IADL difficulties, respectively (1 = Yes, 0 = No).

Acculturation was assessed by years of residence in the United States and level of acculturation (Marín, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). Respondents rated their preference for speaking a given language in different settings (read and speak, as a child, at home, while thinking, with friends), in media use (T.V. programs, radio

programs, movie), and preferred ethnicity of those they interact (close friends, people at parties, the friends you visit, children's friends) on a five-point Likert scale (1 = only Chinese, 2 = more Chinese than English/Americans, 3 = both equally/about half and half, 4 = more English/Americans than Chinese, 5 = only English/Americans). A sum scale was calculated, ranging from 12 to 60, with a higher score indicting a higher level of acculturation (α = .91).

Perceived stress was assessed by Perceived Stress Scale (PSS-10) (Cohen, Kamarck, & Mermelstein, 1983). Respondents were asked to rate how often they experience 10 feelings (i.e. felt upset, unable to control important things, nervous and stressed, confident to handle personal problems, that things were going their way, could not cope with all things they had to do, able to control irritation in life, on top of things, been angered because things were out of control, and difficulties could not be overcome) on a five-point Likert scale (0 = never, 1 = almost never, 2 = sometimes, 3 = fairly often, and 4 = very often). After reversely recoding the items 4, 5, 7 and 8, sum scores were calculated, ranging from 0 to 40, with a higher score indicting a higher level of stress (α = 86).

Data analysis

We provided descriptive information of the sample characteristics and the key study variables (i.e. coping resources and mental health). Correlations among the key study variables were then provided. To address the research question, we carried out stepwise negative binomial regressions to predict depression and anxiety, respectively, by entering control variables first (Model 1), and adding individual, family, and community coping resource variables separately (Models 2–4) and jointly (Model 5). In all the models, the VIF values ranged from 1.02 to 5.68, indicting that multicollinearity is not a concern for this study.

Results

Sample characteristics are presented in Table 1. The respondents were on average 73 years old, and the majority were women (58%) and married (71%). They had an average nine years of education, and less than 15% had annual personal income of $10,000 or higher. Despite an average 20 year stay in the United States, the respondents had overall very low acculturation levels (M = 15.25 on a scale ranging from 12 to 60, SD = 5.11). They had moderate levels of sense of mastery (M = 34.56 on a scale ranging from 7 to 49, SD = 7.66), and about 56% and 65% received support from spouse and family, respectively. The respondents reported a high level of perceived filial piety from children (M = 22.18 on a scale ranging from 6 to 30, SD = 4.95) and a moderate level of neighbourhood cohesion (M = 0.002 on a scale ranging from −1.08 to 2.84, SD = 0.77).

Table 1. Sample characteristics of the PINE (N = 3158).

Characteristics	Range	Mean/%	SD
Age	60–105	72.81	8.30
Women		57.95%	
Married		71.33%	
Years of education	0–26	8.72	5.05
Personal annual income			
$0–$4999		33.31%	
$5000–$9999		51.76%	
$10,000 or above		14.93%	
Having ADL difficulties		7.77%	
Having IADL difficulties		50.28%	
Years in the US	0.1–90	20.02	13.18
Level of acculturation	12–60	15.25	5.11
Perceived stress	0–39	10.11	6.55
Coping resources			
Sense of mastery	7–49	34.56	7.66
Support from spouse/partner		56.08%	
Support from family		64.76%	
Received filial piety from children	6-30	22.18	4.95
Neighbourhood cohesion	−1.08–2.84	.002	.77
Mental health			
Depression	0–27	2.65	4.13
Anxiety	0–21	2.65	3.28

Table 2. Correlations among key study variables in the PINE.

	1	2	3	4	5	6	7
1. Sense of mastery	1.00	.13***	.07***	.25***	.13***	−.42***	−.43***
2. Support from spouse		1.00	.16***	.09***	.04*	−.15***	−.10***
3. Support from family			1.00	.30***	.09***	−.09***	−.07***
4. Filial piety				1.00	.10***	−.13***	−.18***
5. Neighbourhood cohesion					1.00	−.11***	−.00
6. Depression						1.00	.44***
7. Anxiety							1.00

Table 2 presents correlations among the key study variables. With one exception (i.e. neighbourhood cohesion and anxiety), all the coping resource variables were positively associated with one another, and were negatively associated with depression and anxiety. Overall, sense of mastery had the strongest associations with depression (r = −.42, p < .001) and anxiety (r = −.43, p < .001), followed by filial piety (r = −.13, p < .001 for depression; r = −.18, p < .001 for anxiety). Support from family members had the weakest correlations with depression (r = −.09, p < .001) and anxiety (r = −.07, p < .001).

Table 3 summarizes the results of negative binomial regressions on depression. Model 1 showed that the respondents who were older (b = .008, p = .035), women (b = .198, p < .001), better educated (b = .016, p = .005), who had IADL difficulties (b = .312, p < .001), who lived in the United States for a shorter time (b = −.006, p = .016), and who had greater stress (b = .116, p < .001), reported more depressive symptoms. Models 2–5 showed that, regardless of whether examined individually or collectively, greater sense of mastery (b = −.026, p < .001 in Model 5), children's filial piety (b = −.022, p < .001 in Model 5), and neighbourhood cohesion (b = −.105, p = .002 in Model 5) were associated with fewer depressive symptoms, after controlling for socio-demographic, SES, health status, and perceived stress. Interestingly, receiving support from the spouse/partner (b = −.78, p = .293 in Model 5) was not associated with depression, and older adults who received support from family members (b = .182, p = 0.002 in Model 5) reported more depressive symptoms.

Table 4 summarizes regression results on anxiety. Similar to the results on depression, greater sense of mastery (b = −.031, p < .001) and children's filial piety (b = −.024, p < .001) were also associated with a lower level of anxiety (Model 5). Whereas support from spouse was not associated with anxiety (b = .014, p = .809), support from family was associated with higher levels of anxiety (b = .120, p = .008), as it was with depression. Lastly, perceived neighbourhood cohesion was associated with a higher level of anxiety (b = .073, p = .007) in the joint model (Model 5).

Table 3. Results of negative binominal regressions on depression among the PINE respondents.

	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β
Age	.008*	.009	.009*	.009*	.009*
Women	.198***	.193***	.213***	.219***	.214***
Married	−.064	−.050	.018	−.061	.005
Education	.016**	.021***	.013*	.020***	.022***
Annual household income	−.052	−.035	−.051	−.048	−.031
Having ADL difficulties	.184	.131	.243**	.138	.155
Having IADL difficulties	.312***	.312***	.333***	.354***	.356***
Years in the US	−.006*	−.006**	−.008**	−.006*	−.008**
Level of acculturation	.007	.012	.005	.008	.010
Perceived stress	.116***	.095***	.111***	.115***	.095***
Coping resources					
Sense of mastery (individual)		−.030***			−.026***
Support from spouse/partner (family)			−.107		−.078
Support from family (family)			.171**		.182**
Perceived filial piety (family)			−.032***		−.022***
Neighbourhood cohesion (community)				−.140***	−.105**

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

Table 4. Results of negative binominal regressions on anxiety among the PINE respondents.

	Model 1 β	Model 2 β	Model 3 β	Model 4 β	Model 5 β
Age	−.010**	−.010**	−.010**	−.010**	−.010**
Women	.296***	.296***	.315***	.287***	.293***
Married	−.037	−.038	−.061	−.045	−.060
Education	.013**	.019***	.009*	.013**	.015**
Annual household income	.007	.023	−.002	.010	.018
Having ADL difficulties	.090	.005	.136	.098	.079
Having IADL difficulties	.155***	.150**	.170***	.148**	.149**
Years in the US	−.003	−.003	−.004	−.003	−.004*
Level of acculturation	−.004	.000	−.008	−.005	−.003
Perceived stress	.092***	.071***	.088***	.093***	.071***
Coping resources					
Sense of mastery (individual)		−.033***			−.031***
Support from spouse/partner (family)			.033		.014
Support from family (family)			.156***		.120**
Perceived filial piety (family)			−.034***		−.024***
Neighbourhood cohesion (community)				.039	.073**

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

Discussion

Our findings showed that, among the various coping resources examined, Chinese older adults' own sense of mastery seems to have the strongest associations with depression and anxiety. Aging, being an ethnic minority, and being an immigrant make it difficult for these older adults to feel in control of their lives. Studies have reported that poor English proficiency, low income, difficulties in transportation, reducing functional ability, and differences in cultural norms were all related to low sense of mastery among older immigrants (Jang, Chiriboga, Lee, & Cho, 2009; Jang, Kim, & Chiriboga, 2006). Consistent with our findings, previous studies have also shown that a strong sense of mastery not only directly reduces psychological distress but also buffers deleterious effect of stress exposures of low income and perceived discrimination on physical and mental health among immigrants and older adults (Gadalla, 2010; Lachman & Weaver, 1998; Moradi & Hasan, 2004; Pudrovska, Schieman, Pearlin, & Nguyen, 2005). A strong sense of mastery, which is often described as a core self-evaluation and personality trait (Skaff, 2007), could protect older immigrants' well-being by fostering sense of self-efficacy and belief in their capabilities to influence the environment and control outcomes. Older immigrants with a strong sense of mastery may view the challenging situation as a deserved opportunity which they can master and benefit from (Judge & Bono, 2001). They are more likely to have active coping styles, use problem-focused coping strategies, and consequently having better resiliency and more favourable mental health outcomes (Skaff, 2007; Thoits, 1995). In contrast, those with low mastery may view the challenges as underserved opportunity or a change to fail. Such attitude may result in feelings of helplessness and hopelessness, compromising their mental health (Skaff, 2007).

Beyond the individual level, our study revealed mixed findings regarding the role of the family coping resources for older immigrants' mental health. Support from the spouse was not associated with the two mental health indicators of the respondents. This finding is inconsistent with previous research which showed that among various sources of support, spousal support and spousal relationships are particularly important for the physical and mental health of older adults (Dean, Kolody, & Wood, 1990; Li, Ji, & Chen, 2014; Santini, Koyanagi, Tyrovolas, Mason, & Haro, 2015). We speculate that, in the immigration and acculturation process, the spouse of an older immigrant may encounter similar challenges and adversities. Their support and assistance thus may be limited and less instrumental to improve the life situations of these older adults. As shown in another study based on the PINE, spousal conflict was prevalent among these Chinese older adults in the United States, particularly among those who had fewer coping resources (Guo, Dong, & Tiwari, 2017).

Opposite to what we have expected, support from family members in general was related to more depressive symptoms and higher levels of anxiety. This is an important finding as it points to a largely overlooked perspective of immigrant family dynamics – the potential harm of intensive and interdependent family relationships on older adults' mental health. It's well documented that older immigrants greatly reply on their families in general and adult children in particular for various support (Glick, 2010). Although such support plays an important role in facilitating their adaption to the new society, greater reliance on the family for basic needs such as making phone calls, grocery shopping, managing bills, and financial support may erode older adults' sense of self and well-being (Treas, 2008). A systematic review of correlates of depressive symptoms among older Chinese immigrants revealed that overall, family support in its various forms (i.e. emotional, instrumental, and financial support) is largely unrelated to depressive symptoms among this population (Stensland & Guo, 2015). It is likely that, parent-child power dynamics in immigrant family are shifted and older adults lose their traditional authority status in the family (Wong, Yoo, & Stewart, 2006). In this sense, support from family members may be accompanied by a sense of loss and dependency, which in turn, compromises their mental health.

Different from spousal and family support, a strong perception of children's filial piety was associated with favourable mental health outcomes. Filial piety is the cornerstone of Chinese family value system (Lum et al., 2015). It greatly affects family structure and intergenerational interactions by regulating obligations and behaviours of each generation (Lum et al., 2015). This traditional norm, however, is greatly challenged in the immigration context which has little, if any, infrastructure to support such collectivist norms (Liu, Ng, Weatherall, & Loong, 2000). Nevertheless, our findings reveal that, feeling that children adhering to this traditional norm could be an important protective factor for the well-being of overseas Chinese elderly. Similar findings were also reported in multiple studies on Chinese older adults in both contemporary China and United Statues, which consistently showed that children's filial performance was related to closer parent-child relationships, greater happiness and life satisfaction, and fewer depressive symptoms (Cheng & Chan, 2006; Guo, Liu, Xu, Mao, & Chi, 2015; Liu et al., 2000).

It is worth mentioning that the assessment of filial piety in this study included both attitudinal (i.e. respect, obedience, bringing happiness) and behavioural dimensions (i.e. checking on, care, financial support). Given that family support, which mainly captured the behavioural aspects of family interactions, was not associated with favourable mental health outcomes, our findings suggest that the perceptions that children being respectful, obedient, and caring may be more beneficial to Chinese older immigrants' well-being than receiving children's monetary and instrumental support. Another study based on the PINE reported that Chinese older immigrants had higher expectation on attitudinal instead of behavioural filial piety from children (Guo, Ling, & Dong, in press). Such respect and care from children may bring a sense of acknowledgement to these marginalized older adults, who often have poorer English skills and less economic and social resources than their children.

The potential influence of community cohesion on Chinese older adult' mental health is more complex and nuanced. On the one hand, greater sense of community cohesion was related to fewer depressive symptoms. The finding is consistent with studies on Korean older immigrants (Jang et al., 2015; Park, Jang, Lee, & Chiriboga, 2015), indicating that a cohesive and supportive neighbourhood could potentially benefit older immigrants by providing alternative source of support beyond the family. On the other hand, a stronger sense of community was associated with higher levels of anxiety when individual characteristics and other coping resources were considered. As Letki (2008) explained, for community cohesion – the sense that neighbours know, help, and trust each other – to emerge, a high level of cultural heterogeneity is required. It is likely that respondents who reported strong sense of community cohesion lived in ethnic enclaves (e.g. Chinatown). Although such living arrangement presents important social capital for these older adults, it may also reflect, to certain extents, older immigrants' greater dependence on families and communities and lack of self-reliance. If so, when the influences of other coping resources were teased out, these individuals may experience greater anxiety due to their more dependent living conditions.

This study has several limitations. First, the findings cannot be interpreted as causal relationships given the cross-sectional design. It is likely that older adults with different mental health status reported different sense of mastery and had different interactions with family or community members. Second, the assessment of family support was limited to dichotomous variables without considering different dimensions of support such as monetary support, instrumental, and emotional support. Future studies shall discern the potential influence of specific family support domains. Third, this study didn't distinguish recent immigrants from more established immigrants or the native-born. Future studies shall investigate whether our findings apply equally to each group. Lastly, qualitative studies are needed to provide meanings to why certain coping resources work while others don't.

Conclusion and implications for future study

Overall, our findings showed that strong sense of control in one's life and perception of children adhering to traditional filial norms are two important protective factors for Chinese older immigrants' mental health. Although the family plays a central role in older immigrants' lives, the intense and interdependent family relationships could be significant risk factors for their mental health. More studies are needed to understand the mechanism under which the family could promote or compromise older immigrants' well-being. Community cohesion seems to be a double-edged sword for Chinese older adults' mental health. Future studies shall further disentangle the relationships among sense of mastery, reliance on family and ethnic enclaves for support, and older immigrants' well-being.

These findings have some important practical implications. First and foremost, more programs shall be developed to enhance sense of mastery among older immigrants. Older immigrants are the least utilized asset of the society. Participating in intergenerational programs or teaching foreign languages and their cultural heritage could foster sense of mastery among older immigrants and promote their mental health (Treas & Mazumdar, 2002). Processing their migration experience and addressing their need for validation are also effective in promoting the mental health of this population (Simich, Beiser, & Mawani, 2003). Our findings also show

potential benefits of developing culturally competent interventions that aim at increasing filial obligations among Chinese immigrant families. More effort shall be put into educating mainstream providers about immigrants' traditional cultural practices. Meanwhile, it's important to educate and assisting immigrants from diverse cultures in understanding different cultural norms and practices in their new environment (Pumariega, Rothe, & Pumariega, 2005). Last but not the least, more programs are needed to promote older immigrants' participating in community activities, with an emphasis on increasing their sense of self-reliance and feelings of impotence. Such social participation has been shown to be associated with fewer depressive symptoms among older Asian immigrants (Jang et al., 2015).

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by National Institute on Aging [grant number R01 AG042318], [grant number R01 MD006173], [grant number R01CA163830], [grant number R34MH100443], [grant number R34MH100393], [grant number P20CA165588], [grant number R24MD001650], [grant number RC4AG039085]; The Starr Foundation; American Federation for Aging Research; John A. Hartford Foundation; The Atlantic Philanthropies.

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