Gender Differences in Perceived Social Support in U.S. Chinese Older Adults

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Abstract

Background: This study examined gender differences in perceived positive and negative social support among U.S. Chinese older adults.

Methods: Data were drawn from the PINE study, a population-based study of Chinese older adults in the greater Chicago area.

Results: Of the 3,159 Chinese older adults surveyed, 58.9% were women. Compared with men and women were more likely to perceive positive spousal support (rely on: 89.8% vs. 85.2%, p<0.01), family support (open upto: 88.5% vs.81.5%, p<0.001; rely on: 91.8% vs. 87.9%, p<0.001) and friend support (open upto: 74.7% vs. 64.4%, p<0.001; rely on: 61.4% vs. 56.9%, p<0.05), whereas men were more likely than women to perceive negative spousal support (been demanded too much: 17.4% vs. 10.7%, p<0.001; been criticized: 35.6% vs. 25.9%, p<0.001). Younger age (r=0.10), higher levels of education (r=0.10), being married (r=0.08), living with a larger number of people (r=0.06), higher overall health status (r=0.14), better quality of life (r=0.20) and improved health over the past year (r=0.07) were significantly and positively correlated with perceived positive social support in older women.

Conclusions: Perceived social support varied by gender among U.S. Chinese older adults. Longitudinal studies are needed to understand the outcomes associated with positive and negative social support.

Keywords: Positive social support; Negative social support; Gender difference; Chinese; Older adult

Introduction

Social support is an important component of successful aging [1]. Prior studies suggest that decreased social support may lead to lower levels of quality of life, [2] depressive symptoms [3], suicide ideation [4] and mortality [5]. By contrast, higher levels of social support may protect older adults against adverse life events such as elder abuse [6,7].

Studies on perceived social support in older adults tend to focus exclusively on positive aspects of social support. However, negative aspects of social support may pose significant risks to older adults' health and well-being, as social support can also be a source of strain and conflict [8,9]. Indeed, under stressful situations, negative aspects of social support may have more potent effects on an individual's health outcomes than positive aspects of social support [10]. Therefore, studies that include both positive and negative aspects of social support can facilitate a more comprehensive understanding of social support in older adults.

Gender differences may persist in perceived social support among older adults. It is noted that the nature of social interaction is substantially different between men and women. For example, within the family context, women are often expected to be "kin keepers" and take on the main responsibility of household chores, child and elderly care, while men are prescribed the role of the breadwinner [11]. The lifelong investment women make in relationships with family members may lead to more support available in their later life. In a broader social context, women tend to be more emotionally expressive and are more likely to confide in friends than men [12]. Thus, older women tend to report larger social networks and receive social support from multiple sources, while older men are inclined to rely on their spouse exclusively [13]. The outcomes of perceived social support among older adults may also vary by gender. Some prior studies showed that social support had more profound effects on women [13,14], while others suggested that health outcomes of social support were much more significant in men [15].

Despite evidence suggesting gender differences in perceived social support among older adults, little is known about how these differences vary across cultural groups. Guided by patriarchal cultural values, Chinese women often assume subordinate roles to men. Such gender norms may affect men and women's participation in social life and make women susceptible to educational, income and employment disadvantages. Consequently, Chinese older women may have fewer self-support resources and may be more dependent on support from others.

Furthermore, perceived social support within the Chinese cultural context must take into account filial piety. As one of the dominant values in Confucianism, filial piety dictates adult children's obligations of caring for, respecting, and supporting their older parents [16]. Despite substantial social, demographic, and economic changes that

have occurred in China over the past decade, filial piety continues to be highly valued. Recently, to reinforce the value of filial piety, the Chinese government has passed a law allowing older parents to sue their adult child who fail to meet filial duties. As filial piety is a predominant ideology in Chinese culture, Chinese older adults may place higher expectations on family support–especially support from their children–than other kinds of support. Together, traditional gender norms and cultural values may shape gender differences in perceived social support among Chinese older adults.

Along with cultural influences, immigration and acculturation may modify gender differences in social support among older adults to some extent. The population of U.S. Chinese adults aged 65 and over has increased by 55% in the past decade, far exceeding the population growth rate of 15% among U.S. older adults. Despite the growing population, Chinese adults are older in age and less acculturated. Substantial language and cultural gaps may engender intergenerational conflicts and jeopardize traditional support systems among U.S. Chinese older adults [17]. Moreover, different acculturation levels between men and women may lead to distinct gender differences in perceptions on social support from various sources. The population imperative and the vulnerability of Chinese older adults warrant more attention to their social well-being.

This study aims to examine gender differences in perceived positive and negative social support and the socio-demographic and health related correlates of perceived positive and negative social support among U.S. Chinese older adults.

Methods

Population and settings

The Population Study of Chinese Elderly in Chicago (PINE) is a community-engaged, population-based epidemiological study of U.S. Chinese older adults aged 60 and over conducted in the greater Chicago area. Briefly, the purpose of the PINE study is to collect community-level data of U.S. Chinese older adults to examine the key cultural determinants of health and well-being. The project was initiated by a synergistic community-academic collaboration among the Rush Institute for Healthy Aging, Northwestern University, and many community-based social services agencies and organizations throughout the greater Chicago area.

In order to ensure study relevance to the well-being of the Chinese community and increase community participation, the PINE study implemented extensive culturally and linguistically appropriate community recruitment strategies strictly guided by a community-based participatory research (CBPR) approach [18]. The formation of this community-academic partnership allowed us to develop appropriate research methodology in accordance with the local Chinese cultural context, in which a community advisory board (CAB) plays a pivotal role in providing insights and strategies for conducting research. Board members were community stakeholders and residents enlisted through over twenty civic, health, social and advocacy groups, community centers and clinics in the city and suburbs of Chicago. The board works extensively with investigative team to develop and examine study instrument to ensure cultural sensitivity and appropriateness.

Study design and procedure

The research team implemented a targeted community-based recruitment strategy by first engaging community centers as our main recruitment sites throughout the greater Chicago area. Over twenty social services agencies, community centers, health advocacy agencies, faith-based organizations, senior apartments and social clubs served as the basis of study recruitment sites. Community-dwelling older adults who aged 60 years and over and self-identified as Chinese were eligible to participant in the study. Out of 3,542 eligible older adults approached, 3,159 agreed to participate in the study, yielding a response rate of 91.9 % [19].

In order to ensure cultural and linguistic sensitivity, trained multicultural and multi-lingual interviewers conducted face-to-face home interviews with participants in their preferred language and dialects, such as English, Cantonese, Taishanese, Mandarin, or Teochew dialect. Data were collected using state-of-science innovative web-based software which recorded simultaneously in English, Chinese traditional and simplified characters. Based on the available census data drawn from U.S. Census 2010 and a random block census project conducted in the Chinese community in Chicago, the PINE study is representative of the Chinese aging population in the greater Chicago area [20]. The study was approved by the Institutional Review Boards of the Rush University Medical Center.

Measurements

Socio-demographics

Basic demographic information including age, years of education completed, annual personal income (0-$4,999 per year; $5,000-$9,999 per year; $10,000-$14,999 per year; $15,000-$19,999 per year; or more than $20,000 per year), marital status (married; separated; divorced; or widowed), number of children, number of grandchildren, years in the community, and years in the U.S. were assessed in all participants. Living arrangement was categorized into four groups: (1) living alone; (2) living with 1 person; (3) living with 2-3 persons; or (4) living with 4 more persons.

Overall health status, quality of life and health changes over the last year

Overall health status was measured by "In general, how would you rate your health?" on a four-point scale (1=poor, 2=fair, 3=good, 4=very good). Quality of life was assessed by asking "In general, how would you rate your quality of life?" also on a four-point scale, ranging from 1=poor to 4=very good. Health changes over the last year was measured by "Compared to one year ago, how would you rate your health now?" on a three-point scale (1=worsened, 2=same, 3=improved).

Social support

The social support measurement was drawn from the National Social Life, Health and Aging Project [21]. We assessed participants' levels of social support by asking about the extent of support they received from (a) spouse, (b) family members and (c) friends. Social support items were categorized under positive support and negative strain, as key indicators of relationship quality [22,23]. Positive support was measured by asking the extent to which they liked to open up to spouse/family members/friends, and how often they rely on

spouse/family members/friends for help. Negative support was measured by asking how often they felt their spouse/family members/friends demanded too much from them, and how often they have been criticized by spouse/family members/friends. Respondents indicated answers to each question on a 3-point scale ranging from 1=hardly ever to 3=often. In this study, positive social support had a Cronbach's alpha of 0.73 and negative social support had a Cronbach's alpha of 0.63, indicating adequate reliability.

Data analysis

We used descriptive statistics to summarize the socio-demographic characteristics of the sample. Chi-square statistics were used to study and compare perceived positive and negative social support from different sources by gender. Pearson Correlation coefficients were calculated to examine associations between socio-demographic and health-related factors and perceived positive and negative social support in older men and older women. All statistical analyses were carried out with SAS, Version 9.2 (SAS Institute Inc., Cary, NC).

Results

Characteristics of the study participants by gender

Of the 3,159 Chinese older adults surveyed, 58.9% were women. Socio-demographic characteristics of the PINE participants are presented in Table 1. Compared with older men, a higher percentage of older women had no education (9.5% vs. 1.7%, $p<0.001$), were widowed (37.4% vs. 6.7%, $p<0.001$), had three or more children (58.8% vs. 51.1%, $p<0.001$), had three or more grandchildren (72.0 vs. 61.5, $p<0.001$), lived alone (28.5% vs. 11.9%, $p<0.001$), had poor health status (20.7% vs. 16.7%, $p<0.05$), and had good or very good quality of life (53.3% vs. 47.0%, $p<0.01$).

Perceived sources of positive and negative social support

Results for perceived positive spousal, family and friend social support by gender are presented in Table 2. Compared with older men, a larger proportion of older women could sometimes or often rely on their spouse (89.8% vs. 85.2%, $p<0.01$). Regarding perceived positive family support, more women than men reported they could sometimes or often open up to (88.5% vs. 81.5%, $p<0.001$) and rely on family members (91.8% vs. 87.9%, $p<0.001$). Likewise, women were more likely than men to report sometimes or often opening up to friends (74.7% vs. 64.4%, $p<0.001$) and relying on friends (61.4% vs. 56.9%, $p<0.05$).

	Men		Women		X^2	d.f.	p-value
Age (years)							
60-64	274	-20.7	407	-22.2			
65-69	281(21.2)		361	-19.7			
70-74	258	-19.5	349	-19			
75-79	231(17.4)		325	-17.7			
80 and more	282	-21.3	391	-21.3	1.8	4	0.77
Education (years)							
0	22	-1.7	173 (9.5)				
6-Jan	418	-31.8	761	-41.7			
12-Jul	521	-39.6	582	-31.9			
13-16	302	-23	274	-15			
17 and over	53	-4	34	-1.9	147.3	4	<0.001
Annual Personal Income							
(USD)							
$0 - $4,999	486	-37.1	555	-30.6			
$5,000- $9,999	628	-47.9	989	-54.6			
$10,000-$14,999	116 (8.9)		194	-10.7			
$15,000 -$19,999	38	-2.9	30	-1.7			
$20,000 and over	43	-3.3	44	-2.4	26	4	<0.001

Marital Status							
Married	1,176 (89.2)		1,061 (58.3)				
Separated	23	-1.8	34	-1.9			
Divorced	31	-2.4	43	-2.4			
Widowed	88	-6.7	681	-37.4	397.4	3	<0.001
Number of Children							
0	55	-4.2	73	-4			
1-2	591	-44.7	680	-37.2			
3 and more	676	-51.1	1076 (58.8)		19	2	<0.001
Number of Grandchildren							
0	202	-15.4	155 (8.5)				
1-2	305	-23.2	354	-19.5			
3 and more	809	-61.5	1309 (72.0)		48.7	2	<0.001
Living Arrangement							
Living alone	157	-11.9	522	-28.5			
1	644	-48.6	674	-36.8			
2-3	233	-17.6	247	-13.5			
4 or more	291	-22	390	-21.3	133.4	3	<0.001
Years in the U.S.							
0-10	388	-29.3	452	-24.8			
11-20	401	-30.3	568	-31.2			
21-30	305	-23.1	462	-25.4			
Over 30	229	-17.3	339	-18.6	8.4	3	0.04
Years in the Community							
0-10	782	-59.1	1,029 (56.4)				
11-20	297	-22.5	443	-24.3			
21-30	164	-12.4	224	-12.3			
Over 30	80	-6.1	130 (7.1)		3.4	3	0.33
Overall Health Status							
Very good	68	-5.1	72	-3.9			
Good	484	-36.5	613	-33.4			
Fair	552	-41.6	768	-41.9			
Poor	222	-16.7	380	-20.7	11	3	0.01
Quality of Life							
Very good	88	-6.6	128 (7.0)				
Good	535	-40.4	848	-46.3			

Fair	650	-49	807	-44.1			
Poor	53	-4	48	-2.6	15	3	0
Health Changes over the last year							
Improved	112 (8.5)		165 (9.0)				
Same	667	-50.3	868	-47.4			
Worsened	547	-41.3	798	-43.6	2.6	2	0.27

Table 1: Characteristics of the PINE Study Participants by Gender

		Men		Women		X^2	d.f.	p-value
Spouse	Open up to Spouse							
Support	Hardly ever	110	-9.3	118	-11.1			
	Some of the Time	237	-20	219	-20.5			
	Often	839	-70.7	730	-68.4	2.3	2	0.32
	Rely on Spouse							
	Hardly ever	158	-14.8	121	-10.2			
	Some of the Time	194	-18.2	237	-20			
	Often	714	-67	827	-69.8	11.2	2	0.004
Family Support	Open up to Family Members							
	Hardly ever	244	-18.5	210	-11.5			
	Some of the Time	482	-36.5	615	-33.7			
	Often	594	-45	1,001 (54.8)		42.2	2	<0.001
	Rely on Family Members							
	Hardly ever	160	-12.1	150	-8.2			
	Some of the Time	433	-32.8	502	-27.5			
	Often	727	-55.1	1,174 (64.3)		29.9	2	<0.001
Friend Support	Open up to Friends							
	Hardly ever	387	-35.7	402	-25.2			
	Some of the Time	427 (39.4)		660 (41.4)				
	Often	271 (25.0)		531 (33.3)		39.6	2	<0.001
	Rely on Friends							
	Hardly ever	467 (43.1)		615 (38.6)				
	Some of the Time	327 (30.2)		492 (30.9)				
	Often	289 (26.7)		486 (30.5)		6.6	2	0.04

Table 2: Perceived Different Source of Positive Social Support among U.S. Chinese Older Adults

Findings for perceived negative spousal, family, and friend social support are presented in Table 3. Compared with older women, a higher proportion of men reported they were sometimes or often being demanded too much from by their spouse (17.4% vs. 10.7%,

p<0.001) and criticized by their spouse (35.6% vs. 25.9%, p<0.001). No significant gender differences were found in perceived negative family and friend support.

Correlates of perceived positive and negative social support in Men and Women

Socio-demographic and health related correlates of perceived and negative social support among U.S. Chinese older women are presented in Table 4. Younger age (r=0.10, p<0.001), higher levels of education (r=0.10, p<0.001), being married (r=0.08, p<0.001), living with a larger number of people (r=0.06, p<0.01), higher overall health status (r=0.14, p<0.001), better quality of life (r=0.20, p<0.001), and improved health over the past year (r=0.07, p<0.01) were positively correlated with perceived positive social support in older women.

		Men		Women		X^2	d.f.	p-value
Spouse	Demanded Too Much							
Support	by Spouse							
	Hardly ever	983	-82.7	953	-89.3			
	Some of the Time	160	-13.5	81	-7.6			
	Often	46	-3.9	33	-3.1	22	2	<0.001
	Criticized by Spouse							
	Hardly ever	766	-64.4	790	-74			
	Some of the Time	343	-28.9	218	-20.4			
	Often	80	-6.7	59	-5.5	24.9	2	<0.001
Family	Demanded Too Much							
Support	by Family Members							
	Hardly ever	1,234 (93.6)		1,717 (94.0)				
	Some of the Time	68	-5.2	84	-4.6			
	Often	16	-1.2	26	-1.4	0.76	2	0.68
	Criticized by Family							
	Members							
	Hardly ever	1,159 (88.1)		1,625 (88.9)				
	Some of the Time	143	-10.9	177 (9.7)				
	Often	14	-1.1	25	-1.4	1.68	2	0.43
Friend	Demanded Too Much							
Support	by Friends							
	Hardly ever	1,553 (97.5)		1,057 (97.5)				
	Some of the Time	33 (2.1)		24 (2.2)				
	Often	7 (0.4)		3 (0.3)		0.52	2	0.77
	Criticized by Friends							
	Hardly ever	1,522 (95.7)		1,024 (94.5)				
	Some of the Time	61 (3.8)		57 (5.3)				
	Often	7 (0.4)		3 (0.3)		3.52	2	0.17

Table 3: Perceived Different Source of Negative Social Support among U.S. Chinese Older Adults

On the other hand, higher levels of education ($r=0.13$, $p<0.001$), being married ($r=0.12$, $p<0.001$), fewer children ($r=0.06$, $p<0.001$), fewer grandchildren ($r=0.08$, $p<0.01$), lower health status ($r=0.06$, $p<0.05$), and worsening health over the past year ($r=0.05$, $p<0.05$) were positively correlated with perceived negative social support in women.

We also examined correlates of perceived positive and negative social support among older men. Higher levels of education ($r=0.08$, $p<0.01$), being married ($r=0.19$, $p<0.001$), fewer children ($r=0.06$, $p<0.05$), living with more people ($r=0.11$, $p<0.001$), higher health status ($r=0.16$, $p<0.001$) and better quality of life ($r=0.21$, $p<0.001$) were positively correlated with perceived positive social support. Higher levels of education ($r=0.15$, $p<0.001$), being married ($r=0.08$, $p<0.01$), fewer children ($r=0.08$, $p<0.01$), and fewer grandchildren ($r=0.05$, $p<0.05$) were positively correlated with perceived negative social support.

	Age	Edu	Income	MS	Children	Grandchildren	Living	OHS	QOL	HC	PSS	NSS
Age	1											
Edu	-0.18***	1										
Income	-0.04	0.11***	1									
MS	-0.44***	0.20***	-0.03	1								
Children	0.32***	-0.40***	-0.07**	-0.14***	1							
Grandchildren	0.44***	-0.43***	-0.08***	-0.18***	0.74***	1						
Living	-0.32***	-0.03	-0.10***	0.26***	-0.03	-0.05*	1					
OHS	-0.08***	0.05*	0.10***	0.04	0	-0.02	-0.03	1				
QOL	0.03	0.10***	0.06**	-0.02	0.04	0.02	0	0.31***	1			
HC	-0.13***	0.03	0.05*	0.07**	-0.03	-0.05*	0.01	0.33***	0.14***	1		
PSS	-0.10***	0.10***	0.01	0.08***	-0.02	-0.04	0.06**	0.14***	0.20***	0.07**	1	
NSS	-0.03	0.13***	0.01	0.12***	-0.06**	-0.08**	0	-0.06*	-0.04	-0.05*	-0.05*	1

Table 4: Correlations of Scio-Demographic and Health Related Characteristics with Perceived Social Support in Older Women

Discussion

This study demonstrates that U.S. Chinese older women and older men were more likely to perceive spousal and family support than friend support. Specifically, women were more likely than men to perceive positive support from spouse, family, and friends while men were more likely than women to perceive negative spousal support. Younger age, higher levels of education, being married, and living with a larger number of people, higher overall health status, better quality of life and improved health over the past year were positively correlated with perceived positive social support in older women. On the other hand, higher levels of education, being married, fewer children, fewer grandchildren, lower health status and worsening health over the past year were positively correlated with perceived negative social support in women.

The study provides new insights concerning gender differences in perceived social support among U.S. Chinese older adults. Our inclusion of both positive and negative aspects of social support facilitated a more comprehensive assessment of perceived social support in U.S. Chinese older adults while our CBPR approach added rigor to the research methodology and increased the validity of our interpretations of study findings. The involvement of community organizations in all regards enhanced the trust between multilingual interviewers and older adults, thus ensuring the culturally sensitivity and appropriateness of the study [18,24].

In this study, both older men and women perceived more positive spousal and family support than friend support. This finding is in accordance with previous studies showing that spouse and family members were the primary sources of social support for Chinese older adults [25,26]. However, this study also demonstrates that men and women perceived more negative spousal and family support than negative friend support, supporting the notion that positive social support and negative social support are not independent [27]. Interactions with spouse and family members may simultaneously provide benefits to Chinese older adults and exacerbate the occurrence of conflict and abuse.

With regard to gender differences in perceived positive social support, we found that women were more likely to perceive positive family and friend support–a finding that lends credence to prior research in western countries and in Chinese populations. For example, a longitudinal study with 439 community-dwelling married U.S. older adults found that men tended to perceive their spouse as their primary sources of emotional support while women were more likely to rely on friends and children for emotional support [28]. In a study of 1,005 community-dwelling Chinese older adults in Hong Kong, women had non-restricted and friend-focused networks, while men possessed restricted and family-focused networks [29].

Gender differences in perceived social support in this study may reflect differences in social roles and social interactions among U.S. Chinese older men and older women. In particular, the network support of men and women may differ in function, with the tendency

for men to perceive networks as instrumental resources and women to regard them as emotional resources. Instrumental networks may be harder to maintain than emotional networks. Influenced by immigration, older men may be more likely to lose the instrumental networks with co-workers they built in their home country and to have relatively lower perceived friend support in the new country. These findings should be interpreted with caution given the larger proportion of older women than men who are widowed. The absence of spousal support may make older women more involved in relationships with family members and friends. Perceived social support among widowed U.S. Chinese older women should be explored further.

With respect to difference sources of negative social support, the only gender difference we observed was in perceived negative spousal support. That is, older men in the study were more likely to report being demanded too much or criticized by the spouse. As suggested by prior research, conflicts in intimate relationships often arise from unmet expectations [30]. We suspect that older women's higher expectations on marital relationships may lead to greater demands and criticisms on the husband. This may be particularly the case in low-income immigrant families, where the younger wife often remained employed after the husband retired from the workforce. Many of these immigrant women worked as homemakers and in others positions characterized by low wages and great physical demands. Work-related stress accompanied by responsibility for household chores may trigger a sense of inequality and result in conflicts. An alternative explanation may be that women were more emotionally expressive; they may be more vocal about their demands and criticisms. The finding that older men were more likely to report experiences of negative spousal support may also have implications to the study of elder abuse. Often women are considered to be more vulnerable to verbal abuse [31]. Yet the higher prevalence of negative spousal support reported in older men suggests that older men are also at risk for being verbally abused; more attention and research is needed on the safety and well-being of older men.

In the study, age was significantly and negatively correlated with perceived positive and negative social support in older women but not in older men. Women on average have longer life expectancies than men. However, the later life is often accompanied by chronic illness, functional declines and loss of significant others that may be associated with social isolation and reductions in support. Interestingly, older men with fewer children perceived more positive social support. In other words, more children may not necessarily result in increased amounts of support received from children. Perhaps with fewer siblings to share the responsibilities, the adult child may feel more filial obligations, making them more devoted to caring for the older parents. This explanation is supported by prior studies in Chinese populations. A study with 110 familial caregivers in urban China found that the total hours of care provided by the caregiver was negatively influenced by the presence of siblings [32].

Another study of 20,082 Chinese older adults in urban and rural China further showed that each additional child was related to diminishing returns of instrumental support received and increasing returns of financial support received [33].

However, it should be noted that fewer children was also correlated with increased negative social support in the present study. This may imply that without the availability of sibling support, the adult child may invest more time in elderly care and consequently experience more stress, which could catalyze direct negative behaviors towards elder parents. Future studies may need to explore the linkage between number of children and perceived social support among U.S. Chinese older adults.

The study presents a complex picture with regard to gender differences in the correlation between health and perceived social support. Of particular interest is that negative social support was correlated with overall health status and health changes over the past year in women but not in men. This finding concurs with prior studies showing that women were particularly vulnerable to negative social interactions [34]. A systematic review of marriage and health found that women showed greater physiological changes than men in response to negative behaviors in marriage [35]. In a study of 2,348 adults aged 25 years to 75 years, family strains were only associated with health problems among women [36]. One possible explanation may be that when encountering negative social support, men are more likely to use problem-focused and rational coping strategies, while women tend to adopt emotion-focused and avoidance coping strategies [37]. Accordingly, older women may respond to negative social support with anger and anxiety, which may trigger physical and mental illness.

In addition, compared with older men, older women are more likely to suffer from resource deficits such as illness and widowhood. Influenced by cultural values that place women as subordinates to men, U.S. Chinese older women may be also more prone to financial restraints. Such resources deficits may place older women at higher risk for depression, anxiety and even suicidal ideation. A prior study with older adults from France, Germany, United States and Japan showed that among older women, negative social relations exacerbated depressive symptoms associated with resource deficits [38]. We speculate that negative social support experienced by U.S. Chinese older women may worsen psychological disorders brought by resource deficits. Future studies should examine the linkages among negative social support, resource deficits, and psychological disorders.

Another explanation for the reciprocal association between health and negative social support among older women is that poor health status increases conflicts in social relationships via high levels of financial and emotional dependence. Particularly, due to language barriers and unfamiliarity with the U.S. health care system, older Chinese women who are ill have to rely on children for making doctors' appointments and transportation to the clinic. The increasing demand on children may increase caregiver stress and elicit conflicts in the relationship. The pathways by which perceived social support and health interact necessitates further clarification.

This study should be interpreted with limitations. First, we used education and income as proxy measures of socioeconomic status. Broader conceptualization of socioeconomic status would include professional occupational prestige, educational quality and family socioeconomic status. Future research is needed to systematically examine the comprehensive assessment of socioeconomic status with respect to social support in Chinese populations. Second, we did not distinguish between emotional support, instrumental support and financial support. Further studies should explore gender differences regarding the subtype of social support among U.S. Chinese older adults. In addition, this study did not explore the joint effects of positive social support and negative social support on health and well-being. The effects of negative social support on health are likely modified by positive social support [36]. Future studies should multi-level analyses considering the joint effects of positive and negative social support. Last, this study utilized a cross-sectional design, so we

could not postulate the temporal associations between socioeconomic and health related characteristics with perceived social support.

This study has important implications for research, health intervention and policy development. The study highlights a need for more rigorous research on perceived social support among U.S. Chinese older men and older women. The last decade has seen an increase in interventions adopting the support group approach to improve the health and well-being of older adults. One issue involved in designing such interventions is to identify who would benefit most from such interventions. The relatively lower family and friend support reported by U.S. Chinese older men suggests a need for improving or encouraging peer support as a way to improve the well-being of this population. Gender differences in the association between health and social support among U.S. Chinese older adults may indicate that traditional support group interventions would be more influential among older women than among older men. At the same time, when designing such interventions, considerable attention should be paid on reducing the effects of negative social support – especially spousal conflict.

Conclusion

This study presents a complex but intriguing picture of gender differences in perceived positive and negative social support among U.S. Chinese older adults. Women were more likely to perceive spousal, family, and friend support while men were more likely to perceive negative spousal support. Gender differences were also observed in correlates of perceived positive and negative social support. Future longitudinal studies should be conducted to improve our understanding on perceived social support among U.S. Chinese older men and women.

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