

The Size of an Ethno-Cultural Community as a Social Determinant of Health for Chinese Seniors

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Abstract The present study investigated the link between the sizes of the Chinese community to the health of Chinese seniors in Canada. A secondary data analysis of survey data from a representative sample of 2,272 Chinese older adults aged 55 and over was conducted. Hierarchical regression analyses were performed to assess the effects of the size of Chinese communities in Chinese seniors' health. Chinese seniors residing in the community with a small Chinese population reported better physical and mental health than the Chinese seniors residing in communities with a larger Chinese population. The findings were contrary to expectations that health of Chinese seniors should be higher in cities with large Chinese communities. These findings raise new questions for future investigations into the dynamics and impact of ethnic community size, and the importance of studying intragroup differences within ethno-cultural groups to better understand health disparities in ethnic groups.

Keywords Immigrants · Seniors · Ethnic community size · Health · Chinese

Background

The growth in migration, long-term settlement, and aging of immigrants and non-immigrants in Canada has implications for the availability and accessibility to health and social care services that meet the needs of diverse service users. In Canada, Chinese people aged 65 and over make up 11% of the Chinese Canadian community [1]. Many of these Chinese seniors are immersed in their respective communities in various Canadian cities [2–7]. These communities are built on a firm foundation by which Chinese Canadians maintain their cultural identity and practices, regardless of their length of residence and immigrant status [5]. In the context of aging, Chinese communities or “ethnic enclaves” are considered beneficial to Chinese seniors because of the ease of access to culturally and linguistically appropriate resources [2, 3, 8–14].

Researchers have documented that visible, ethnic minority groups, such as the Chinese seniors, experience cultural barriers to service access that may lead to foregone care and health disparities [10, 11, 15–17]. However, there are more than individual level factors at play in the occurrence of health disparities. From a social determinant of health perspective, the size of the ethno-cultural community, or ethnic group density, may be relevant to understanding its effects on health. Presently, a small number of studies suggest there might be a protective effect between ethnic group density and the health and wellbeing of the group members [18–20]. More research evidence is needed though to verify the strength and presence of this effect, and to expand the knowledge base for professional practice and policy making. The present study aims to contribute to the literature on the influence of ethnic group density on health by studying the effect of the size of the Chinese community on the health of Chinese seniors in Canada.

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Conceptual Framework: Ethno-Cultural Communities, Health, and Well-Being

It is natural for ethno-cultural minorities to seek social support from other members in their groups [14, 21–25]. Participating and belonging in one's community are associated with positive health outcomes [21, 26–29]. Social cohesion among community members, through social bonds, buffers the effects of stress and provides resources and assistance in times of need [25, 28, 30–32]. Social bonds become structures of social organization by which health-enhancing resources may be accessed [28, 33–36]. Research on Chinese seniors in Canada and elsewhere show the importance of culture and social supports to their health and well-being [2, 8–14, 37–41].

Segregation and racism has historically contributed to creating Chinese “ethnic enclaves” [42] in Canada. The “ethnic enclaves” offered immigrants, new and settled, a space of belonging, and access to cultural resources in various life domains [5, 6, 21, 43, 44]. Well-established ethnic enclaves have a stable ethnic economy arising from professional, commercial, and other goods and services that meet the needs of the community, as well as to outsiders (e.g., broader community) [45]. A major benefit is the social and physical space for respite from race-based hostility and discrimination by members outside the Chinese community [6, 21, 42, 43, 46]. During times of transition (i.e., immigration), engagement in one's ethno-cultural community may provide stability, and facilitate individual and community growth by guiding behaviors according to culturally based values and beliefs [47]. The largest concentration of Chinese people in Canada resides in the cities of Toronto and Vancouver. In these cities, the Chinese community exists beyond the “ethnic enclaves” and borders of Chinatown(s) spreading into urban and suburban areas. This wide spread of Chinese residents has meant that businesses and services are also spread out and not localized to only one central geographic area, as is the case of cities with a smaller Chinese population size (e.g., Winnipeg, Edmonton, Victoria). The availability and accessibility to multiple sites of cultural spaces and practices are beneficial to Chinese seniors' quality of life [13].

The presence of large, well-established ethno-cultural communities are presumed to offer social, economic, and cultural resources that will expedite settlement and social integration of minorities in the host society [24, 44, 48, 49]. According to Pickett and Wilkinson's recent review of studies on ethnic density and health, ethnic density has a positive effect on mental health and physical health [18]. Individuals living in high ethnic group density contexts have better psychological health and lower incidences of psychotic disorders than individuals who live in low ethnic

group density contexts [20, 50]. Although studies of ethnic group density and physical health are few in number, these studies also suggest there is a protective effect [18, 51].

Methods

Participants

The data for this study were originally collected in a larger study examining health and well-being of aging Chinese Canadians [12] 55 years and older in seven major Canadian cities: Victoria, Vancouver, Calgary, Edmonton, Winnipeg, Montreal, and Toronto. Telephone numbers listed with a Chinese surname in all research sites comprised the sampling frame. The method of using surnames as identifiers to find Chinese and other Asian participants has been established as an effective sampling approach [52–54]. However, this method excluded households without a telephone, unlisted telephone numbers, individuals with non-Chinese surnames, and mixed ethnicity households in which the non-Chinese member's name was used for registering the telephone number. A total of 40,654 telephone numbers were randomly selected from the 297,064 numbers listed with a Chinese surname. Trained interviewers conducted telephone screenings to identify eligible participants who were ethnic Chinese 55 years or older. The telephone screening resulted in identifying 12,621 Chinese households, of which 2,949 eligible individuals were identified and invited to participate in a face-to-face interview at the participant's home or at one of the community organizations. In households with more than one eligible participant, the rolling dice method was used to select only one participant.

Data Collection

The Research Ethics Boards of the universities the researchers were affiliated with approved the study. Data collection occurred between summer 2001 and spring 2002, using a verbally administered structured questionnaire conducted in English or a Chinese dialect. The questions were constructed in Chinese, translated into English, and back translated to Chinese to ensure accuracy in meaning in both versions. For standardized instruments that had a Chinese version, the Chinese version was used. Interviews were conducted in the respondents' language of choice, which included English, Cantonese, Shanghaiese, Fukienese, Mandarin, Hakka, and Chiu Chow. A total of 2,272 participants completed the questionnaire, representing a response rate of 77%.

Measures

In this study, health status referred to both physical and mental health, and was measured by a Chinese version of the Medical Outcome Study 36-item Short Form (SF-36) [55, 56]. The SF-36 is a well-established standardized health assessment instrument that has been used with ethnically and culturally diverse samples [57–61], and has previously been adapted and translated into Chinese [55, 56]. The PCS (Physical Component Summary) and the MCS (Mental Component Summary) are two summary scores which were calculated using the norm-based scoring method suggested in the manual [59]. The scores range from 0 to 100, with higher scores indicating better health status. The Cronbach's alphas for the PCS and MCS scales in this study were 0.90 and 0.84.

Size of the Chinese community was the key predictor variable for health status. The study's participants were divided into three groups according to the size of the Chinese population in the seven Census Metropolitan Areas reported in the 2001 Canadian Census. The large community size group consisted of participants from Vancouver and Toronto with population of 342,665 and 409,535, respectively. The medium size group consisted of participants from Calgary, Edmonton, and Montreal with the Chinese population of 51,855, 41,290, and 52,110, respectively. Finally, the participants from Victoria and Winnipeg were grouped as the small size group with the Chinese population of 11,240 and 10,925, respectively. The size of the community variable was coded as 1, 2, and 3 to correspond with small, medium, and large community size, respectively.

A few socio-demographic factors were included in the analysis to examine the effect of the size of Chinese community variable when controlling for the effects of these confounding factors. The categorical groupings of these variables are presented in Table 1. Self-rated financial adequacy referred to participants' ratings of how well their income and investments satisfied their financial needs, represented by the answers of 'very inadequate', 'not very well', 'adequately', and 'very well', with corresponding scores ranging from 1 to 4, respectively. A higher score represented a higher level of financial adequacy.

Self-rated English competency was assessed by two questions; one question assessed the respondent's ability to understand English while the second question assessed the respondent's ability to speak English. The sum of the two questions formed the self-rated English competency score, ranging from 2 to 6, with higher scores representing a higher level of English competency. Country of origin referred to the country from where the participants immigrated. Social support was measured using the sum of two items of self-reported social support, "Someone to trust" and "Someone to provide care," with corresponding scores

Table 1 Demographics of the participants ($N = 2,272$)

	Mean (SD)	%
Age (in years)	69.8 (8.7)	
Gender		
Female		55.8
Male		44.2
Marital status		
Not married		34.0
Married		66.0
Living arrangement		
Not living alone		86.2
Living alone		13.8
Education		
No formal education		12.7
Elementary		28.3
Secondary		37.8
Post secondary & above		21.1
Self-rated financial adequacy		
Very inadequate		3.3
Not very well		19.2
Adequate		73.3
Very well		4.2
English competency		
Scores: 2–6	4.05	.34
Social support		
Scores: 0–2	1.73	.49
Country of origin		
Born in Canada		1.6
Mainland China		27.1
Hong Kong		51.1
Taiwan		4.4
Vietnam		7.9
Southeast Asia		4.0
Other countries		3.9
Size of Chinese population		
Small (Victoria & Winnipeg)		16.0
Medium (Calgary, Edmonton & Montreal)		37.1
Large (Vancouver & Toronto)		46.9

of 0–2. A higher score represented higher self-reports of social support.

Service barriers were measured by asking participants to indicate either "yes" or "no" to a 22-item list of potential service barriers identified in previous research [62] and through consultation with services providers in the Chinese community. Examples of barriers included long waitlists, transportation difficulties, and professionals who do not speak the users' language. The total score indicated the total number of barriers, with higher scores representing more service barriers.

Data Analysis

Descriptive statistics including frequency distributions and means were used to examine the socio-demographic backgrounds and study variables. Hierarchical multiple regression analysis was used to assess the contributions of the size of the Chinese community to the variance in health status as the dependent variable. The socio-demographic variables were entered into the regression model as a block in the first step. Then, the community size variable was entered in the second step.

Results

The participants in this study were on average 70 years old, mostly married, not living alone, educated, able to speak English, and had high social supports. Many migrated from different countries, including Asia, Europe, the United States, and Central and South America. Forty-seven percent of the responses in this study were from seniors living in Toronto or Vancouver, 37% were from Calgary, Edmonton, and Montreal, and 16% were from Victoria and Winnipeg. Table 1 presents the sample characteristics in detail. Tests of differences in means for the SF-36 physical health (PCS) and mental health (MCS) scores by the size of the community were conducted (see Table 2). Participants residing in communities with a small Chinese population reported higher scores for physical and mental health than the participants in communities with a larger Chinese population.

To assess the effect of the size of the community on mental and physical health, two separate multiple regression analysis were conducted. When mental health was the dependent variable, living alone, being an immigrant from Taiwan, Southeast Asian, or other countries, and having more self-reported service barriers predicted lower mental health scores. In contrast, individuals reported a higher level of self-rated financial adequacy or having higher scores for social support have higher MCS scores (i.e., better mental health). The size of the Chinese population was a significant predictor of mental health status when the

confounding effects of all other predictors were controlled. Participants residing in cities with larger Chinese population reported lower scores for mental health, meaning poorer mental health, even when adjusted for the effects of the socio-demographic predictors.

When physical health was the dependent variable, being older, being from Southeast Asian or other countries, and higher reports of service barriers predicted lower scores for physical health status. Males and individuals with higher reports of financial adequacy were associated with higher scores for physical health status. Adding the community size variable at the second step did not change the effects of the socio-demographic factors that were significant in the first step. Similar to the regression analysis results for mental health status, physical health status was better for individuals residing in cities with a smaller Chinese population than for those residing in cities with a larger Chinese population (see Table 3).

The characteristics of the participants in the three different community sizes were also compared for differences. Statistically significant differences were found for education level, self-rated financial adequacy, country of origin, and number of service barriers. However, statistical significance was not found for age, gender, marital status, and living arrangement (see Table 4). Participants in communities with the smallest Chinese population reported a significantly lower education level when compared with the participants in communities with a bigger Chinese population. As well, a much higher proportion of the participants residing in communities with the smallest Chinese population size reported a positive level of financial adequacy when compared with the participants in the other two groups. The highest proportion of immigrants from Mainland China was found among the participants in communities with the smallest Chinese population size. While the highest proportion of immigrants from Hong Kong was found among the participants in communities with the largest Chinese population. Finally, participants in communities with the smallest Chinese population reported the least service barriers, while the greatest number of service barriers was reported by participants in the largest Chinese communities.

Table 2 PCS and MCS scores by size of Chinese community

Size of Chinese community	Health outcomes	
	PCS (physical health) ^a	MCS (mental health) ^b
Small (Victoria & Winnipeg)	52.89 (95% CI: 52.02–53.77)	52.72 (95% CI: 51.85–53.60)
Medium (Calgary, Edmonton, & Montreal)	51.06 (95% CI: 50.50–51.63)	47.29 (95% CI: 46.64–47.95)
Large (Vancouver & Toronto)	50.60 (95% CI: 50.08–51.13)	47.81 (95% CI: 47.15–48.47)

^a $F = 9.74, P < .001$

^b $F = 39.64, P < .001$

Table 3 Multiple regression analysis—predictors of MCS & PCS ($N = 2,272$)

	MCS (mental health)				PCS (physical health)			
	Model 1		Model 2		Model 1		Model 2	
	Standardized coefficients beta	<i>P</i> value	Standardized coefficients beta	<i>P</i> value	Standardized coefficients beta	<i>P</i> value	Standardized coefficients beta	<i>P</i> value
Block 1								
Age	-.02	.46	-.02	.48	-.08	.00***	-.08	.00***
Gender—Male (vs. female)	-.00	.94	.00	1.0	.12	.00***	.12	.00***
Marital status								
Married (vs. unmarried)	.04	.18	.03	.22	.02	.46	.02	.50
Living arrangement								
Living alone (vs. not living alone)	-.07	.00**	-.07	.00**	-.04	.10	-.04	-.07
Education (range from 1 to 4)	.02	.32	.03	.24	.04	.12	.04	.10
Self-rated financial adequacy (range from 1 to 4)	.14	.00***	.13	.00***	.13	.00***	.13	.00***
English competency	-.02	.34	-.02	.34	-.03	.13	-.03	.13
Country of origin (ref = born in Canada)								
Mainland China	-.11	.07	-.08	.19	-.08	.19	-.06	.32
Hong Kong	-.12	.08	-.06	.35	-.08	.23	-.04	.51
Taiwan	-.07	.04*	-.04	.19	-.05	.13	-.03	.32
Vietnam	-.07	.07	-.06	.14	-.05	.24	-.04	.34
Southeast Asia	-.07	.03*	-.05	.11	-.08	.02*	-.07	.04*
Other countries	-.06	.05*	-.04	.22	-.09	.01**	-.07	.02*
Social support	.06	.01**	.06	.01**	-.00	.84	-.01	.81
Service barriers (range from 0 to 21)	-.21	.00***	-.20	.00***	-.12	.00***	-.12	.00***
Block 2								
Size of Chinese community (range from 1 to 3)			-.10	.00***			-.08	.00**
R^2	.10		.10		.08		.08	
Adjusted R^2	.09		.10		.07		.08	

P value is significant at * 0.05, ** 0.01, *** 0.001

Discussion

Poorer health status was found in the older Chinese living in major, large Canadian cities. These findings counter the results of other studies where larger size of an ethnic community was positively related to better mental health [19, 20]. These results challenge the assumption that the presence of large, Chinese communities offers protective effects to its members. There are several possible reasons for these findings. First, segregation of the aging Chinese Canadian population and the effects of segregation may be one possible reason. A recent study of social distance and ethnic residential segregation found that as the Chinese population increases, so does its segregation from White European groups, particularly in the three main immigrant “gateway” cities of Canada, Toronto, Vancouver, and Montreal [63]. The growth of the ethno-cultural communities or ethnic enclaves indicates that segregation and

negative effects of exclusion of Chinese people from the social, economic, and political spaces of Canada still exists [2, 5, 64, 65].

As well, it is plausible that although the Chinese Canadian population is relatively large, there is a low integration of this population in Canadian mainstream society despite the long history and presence of Chinese people in Canada [65]. Research has found that members of dominant groups tend to misperceive and overestimate the size of the visible minority groups leading to erroneous judgements and expectations of social and economic threat [66]. This may result in deepening the social distance and can negatively affect Chinese seniors because of fewer opportunities for interaction with people outside of their ethno-cultural community. The implication for Chinese seniors may be the psychosocial effects of segregation on health, such as depression and other mental health declines found in other studies [18, 20, 50].

Table 4 Health predictors by size of Chinese community

	Size of Chinese community			Test Statistics & P values
	Small (Victoria & Winnipeg)	Medium (Calgary, Edmonton & Montreal)	Large (Vancouver & Toronto)	
Age (in years), mean	69.9	70.1	69.5	$F = 1.17$ NS
Gender (%)				
Female	56.6	57.1	54.5	$\chi^2 = 1.42$ NS
Male	43.4	42.9	45.5	
Marital status (%)				
Not married	32.7	36.6	32.5	$\chi^2 = 3.90$ NS
Married	67.3	63.4	67.5	
Living arrangement (%)				
Not living alone	84.3	85.0	87.8	$\chi^2 = 4.33$ NS
Living alone	15.7	15.0	12.2	
Education (%)				
No formal education	9.9	13.8	12.9	$\chi^2 = 49.62^*$
Elementary	27.2	32.4	25.5	
Secondary	47.5	36.9	35.2	
Post secondary & above	15.4	16.9	26.5	
Self-rated financial adequacy (%)				
Very inadequate	1.1	3.2	4.1	$\chi^2 = 27.00^*$
Not very well	12.1	20.0	21.1	
Adequate	82.4	71.9	71.3	
Very well	4.4	5.0	3.5	
Country of origin (%)				
Born in Canada	8.4	.6	.2	$\chi^2 = 271.45^*$
Mainland China	40.4	29.6	20.7	
Hong Kong	34.3	46.5	60.4	
Taiwan	2.2	2.9	6.3	
Vietnam	11.1	11.7	3.8	
Southeast Asia	2.8	4.3	4.2	
Other countries	.8	4.5	4.5	
English competency, mean rank	1161.14	1184.20	1181.30	$\chi^2 = 1.58$, NS
Social support, mean rank	1217.81	1173.83	1165.67	$\chi^2 = 3.33$, NS
Service barriers, mean	3.2	5.1	5.0	$F = 22.92^*$

* $P < .001$; NS not significant

A second possible reason for the health differences found in this study may be due to the Chinese seniors' access to social support and their use of different strategies of social relating with dominant group members in their respective communities and cities [43]. Immigrants and ethnic visible minorities in societies dominated by a majority group may use different adaptation strategies [67]. Segmented assimilation is one strategy whereby the minority members take on the values, habits, beliefs, and social and cultural practices of the dominant group, as necessary, in order to belong [67, 68]. This survival strategy may be used by members of small ethno-cultural communities to reduce the perceived differences between members of the minority and majority group,

while increasing their sense of similarity, inclusion, and belonging.

Members in smaller ethnic communities may have better well-being because of stronger social relationships because they support each other in ways unobtainable from outside of the group. This may lead to strong social bonds and a close-knit community that acts as a protective buffer against race-based hostility. Also, smaller size ethno-cultural communities may be tolerated and perceived more positively by the dominant group because they pose less of a threat to the dominant group's claim to power and resources [66]. This is a useful strategy when the number of members that make up the minority community is small

relative to the dominant group, and that the economic survival of minority members depends on the dominant group's willingness to facilitate participation in gainful employment and business opportunities. Higher social support may be obtained in smaller communities for these reasons. This strategy is in contrast to members of larger "minority communities" where larger groups can retain the norms of the respective indigenous cultural group [69]. These factors would facilitate the group's separation from the dominant group through deep integration in the ethno-cultural community to maintain positive, collective self-esteem.

The better physical and mental health found among seniors in smaller Chinese communities may be explained by their ability to access both "worlds." Whereas for seniors in larger cities with large Chinese communities, usage of an assimilation strategy may not be necessary, partly due to segregation discussed early, and partly by their dependence on the Chinese community for cultural resources and supports [3]. This is somewhat reflected in the study where participants in the smaller communities reported having the least service barriers, while participants in the largest communities reported the most service barriers in accessing mainstream services.

Social support was a significant predictor for reports of better mental health status, but not for reports of physical health status. The finding of high scores for social support as a significant predictor of better mental health suggests that individuals in cities with smaller Chinese communities are more likely to maintain social contacts and to receive support [70–74]. Surprisingly, social support was not a significant predictor of health in larger Chinese communities, which may suggest social cohesion in the large Chinese communities is weak. This has implications in that Chinese seniors in large Chinese communities may experience more individual experiences of social isolation. As the current study was not designed to examine social support in depth, further research is needed to examine the role of perceived and actual social isolation in the context of ethnic group density and health among visible ethnic minority seniors.

The third explanation for the findings is that smaller-size ethnic communities may be more resilient in dealing with negative experiences than their counterparts living in larger-size ethnic communities. Such resilience may translate into better health and functioning. In larger ethnic communities, greater intra-group diversification [43] is likely based on the country of origin, language differences, and cultural practices that may distinguish one sub-group of Chinese people from another. The presence of intra-group diversification within the ethno-cultural community is good in that it acknowledges diversity within the community. However, it may not mean there is cohesion within the

community. In the case of Chinese seniors who are members of sub-ethnic groups in the Chinese community (i.e., based on province of origin, language and sub-ethnic group customs and practices), social isolation may be higher for some than for others [43].

A related explanation is that older Chinese in poorer health tended to choose to move to larger urban cities where larger ethnic enclaves are more easily to be found. By so doing, they may think that they are in a better position or location to receive culturally and linguistically concordant services. However, without longitudinally tracking the health status of the participants before and after they move to the larger urban centers, it is difficult to draw any conclusion to this hypothetical explanation. Future research using a longitudinal design may provide answers to this observation.

The unique contribution of this study is the focus on ethnic group density effects on Chinese seniors, a group that is present and growing steadily in Canada and the United States. This study's findings suggest that the presence of a larger ethnic community size does not necessarily enhance individual health and well-being. Similar to other studies [51], these findings have relevance in cautioning moving quickly to expect that Chinese and other seniors can rely solely on their immediate and community social networks for support to meet their health and well-being needs. This is particularly important with the current health service directions that try to relinquish state involvement in their care and costs of care to seniors by expecting that the seniors can depend on their immediate family and community networks.

A limitation of the findings is that the differences reported between small, medium, and large Chinese communities, though statistically significant, are modest in magnitude. However, such differences should not be neglected in a practical sense. Very often, communities with a small or medium size Chinese community are left with only one community-based service organization in its jurisdiction to provide all the immigrant support services and to meet all ranges of needs. The range of choices is very limited. On the other hand, urban centers with large Chinese communities are often equipped with relatively more service providers. Therefore, the availability of ethno-specific immigrant services may not be a key factor for the health differences. As practitioners and policy decision makers work with the immigrants, practical considerations have to be given to address the effects of other confounding factors. These potential residual confounding effects may be due to the macro socioeconomic and political environment related to race relations, racism, and various forms of discrimination that exist in the larger urban centers with a higher concentration of ethno-cultural minorities and immigrants. Further research is needed to

examine the residual confounding effects of these macro factors and the practical approaches to reducing the health differences reported in this study.

Although the study adds new knowledge specific about ethnic group density effects and Chinese seniors in Canada, much more future research is needed to explore the effects of ethnic group density and intergenerational differences between older and younger seniors. As well, more studies are needed with various ethnic groups and demographic characteristics (i.e., gender) to piece together a better picture of how ethnic group density influence health.

Despite the fact that the participants in this study were obtained through screening through a list of randomly selected telephone numbers listed under Chinese surnames, the sample included is not a fully representative sample. There may be many aging Chinese adults meeting the inclusion criteria, but were not included since their telephone numbers were not listed using a Chinese surname. At the same time, aging Chinese adults who reside in locations or cities outside of these seven major urban centres were not included. Therefore, the findings have to be interpreted with caution due to the potential limitation in generalization power.

New Contributions to the Literature

From a social determinant of health perspective, this study highlights the relevance of the size of the ethno-cultural community as an important factor in understanding its influence on health outcomes. The findings also raise important questions about the role that intra-group diversity may have on settlement adjustment and health, and the question of integration/segregation of Chinese communities in contemporary, mainstream Canada.

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