

Impact of Culture on Depressive Symptoms of Elderly Chinese Immigrants

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Objectives: The impact of culture on mental health has been inadequately researched. This study examines the effect of cultural factors on the depressive symptoms reported by elderly Chinese immigrants in Canada.

Method: Data from 1537 elderly Chinese immigrants who took part in a cross-sectional multisite survey on the health and well-being of older Chinese-Canadians were used. Participants were identified through telephone screening of randomly selected telephone numbers listed with Chinese surnames. A structured questionnaire was used to conduct face-to-face interviews. A Chinese version of the 15-item Geriatric Depression Scale was used to assess depressive symptoms.

Results: Close to one-quarter of the elderly Chinese immigrants reported having at least a mild level of depressive symptoms. Having more cultural barriers and a higher level of identification with Chinese cultural values resulted in a higher probability of being depressive.

Conclusions: The importance of the sociocultural determinants of mental health is demonstrated. The health delivery system should be more sensitive to the unique ethnic and cultural differences of older immigrants.

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Clinical Implications

- The health system should pay additional attention to the cultural uniqueness of service users and should enhance cultural appropriateness in service provision.
- Medical professionals should extend their clinical attention beyond symptoms and attend to the cultural values and barriers in health assessment.
- Baseline studies on depressive symptoms should be conducted and used as indicators for assessing the effectiveness of intervention strategies at policy and patient levels.

Limitations

- This study only included participants in community dwellings and could not be generalized to other subgroups, such as those who were institutionalized.
- This study was done in a community setting and is not able to establish clinically significant cases in this population.
- Without using a longitudinal design, the cross-sectional survey was unable to establish the causal impact of the predictors.

Key Words: depression, elderly Chinese immigrants, prevalence of depressive symptoms, Chinese-Canadians

Depression is a common mental health problem affecting 10% to 15% of the elderly population in North America (1–4). The growth of cultural diversity in the North American population has resulted in research studies examining depression among elderly persons of ethnic minority backgrounds,

including those of Japanese (5), Korean (6), Mexican (7), Native American (8), and Chinese (9) background. In general, prevalence of depressive symptoms among the ethnic minority elderly was higher than that among the general elderly. While some may attribute the variation to cultural differences,

it is unclear how the culture of the ethnic minority elderly affects depressive symptoms.

Culture is an important social determinant of health (10). However, efforts to examine culture have often focused on the differences between various ethnic groups (11–13), leading to the perpetuation of a cultural homogeneity assumption. This study examined the impact of intragroup cultural variations on depressive symptoms of elderly Chinese in Canada.

While depression is a major mental health threat to many Canadians (14), it is important to study the elderly Chinese for 3 reasons. First, Chinese Canadians have a lengthy settlement history in Canada and belong to the largest visible minority group; second, population aging in this group is the fastest among all visible minority groups. Among Chinese, the elderly population accounts for about 10% of its population, representing a 50% increase from 1996 (15). Third, cultural uniqueness shared by many Chinese Canadians, particularly the elderly, provides a good example of how variations in traditional culture and other cultural factors impact mental health in Western society.

A search of Medline, Psycinfo, Cinahl, and AARP Ageline resulted in over 150 research publications on depression among elderly Chinese as of January 1, 2003. Among them, only 7 studies examined depression of the elderly Chinese in North America (9,16–21), and all reported a similarly high prevalence of depression, ranging from 18% to 29.4%. Self-rated health, living alone, perceived satisfaction with family care, life satisfaction, social support, health status, functional status, education, level of acculturation, and command of the English language were identified predictors (9,16,17,20). Nevertheless, the concept of culture was not addressed in these studies. The research question of this study was as follows: How does the culture of older Chinese Canadians affect prevalence of depressive symptoms?

Method

Data were collected between June 2001 and March 2002 as part of a larger research project entitled “Health and Well Being of Older Chinese in Canada,” which examined the health and culture of Chinese aged 55 years and over in 7 major Canadian cities, including Victoria, Greater Vancouver, Calgary, Edmonton, Winnipeg, Greater Toronto, and Greater Montreal. The sample was obtained by calling randomly selected telephone numbers listed under Chinese surnames in each city. Eligible participants were ethnic Chinese aged 55 years and over. Those selected were invited to take part in a face-to-face interview, using a structured questionnaire covering a wide range of topics including socio-demographic information, health status, service use, and cultural values and beliefs. The interviews were conducted in either English or a Chinese dialect spoken by the participants.

Written or verbal informed consent was obtained before the interview. Finally, 2272 participants completed the research, representing a response rate of 77%. In this study, 1537 elderly immigrants aged 65 years and over were included in the analysis.

Measures

Depressive symptoms were measured by a revised Chinese version of the 15-item Geriatric Depression Scale (GDS), which was translated and adapted to better fit the cultural context of elderly Chinese in North America (22). Scores were assigned to participants who indicated positive answers to items that represent depressive symptoms. Participants with a total score of 4 or under were considered “normal.” Those who scored between 5 and 9 on the scale were considered “mildly depressed,” and those who scored 10 or over were considered “moderately-to-severely depressed.”

Three types of predictors, that is, sociodemographic variables, physical health variables, and cultural variables, were assessed. Previous research indicated an association between depression and various sociodemographic factors such as age (19), sex (23,24), marital status (25), income (26), self-rated financial adequacy (27), living arrangement (19,28), religious commitment (29), and education level (26). For elderly immigrants, English competency, country of origin, and length of residency in Canada were variables relevant to immigrant status and adjustment and were included in this study.

To measure self-rated financial adequacy, participants were asked to indicate how well their income and investments satisfied financial needs along a 4-point scale, ranging from “very inadequate” to “very well.” English competency was assessed with 2 questions that asked participants whether they were able to comprehend English and whether they were able to speak English; choices ranged from “very well” to “not at all.” A score was assigned from the 2 questions to form a self-rated English proficiency score ranging from 2 to 6. A higher sum represented a higher level of English competency.

Research findings have consistently shown the positive impact of social support on reducing the risk of depression (30–33). In this study, social support was measured by 5 questions adapted from the Older Americans Resources and Services (OARS) Social Resource Scale (34). These questions assessed family structure, patterns of friendship and visiting, availability of a confidant, and availability of a helper, should the need arise. A score between 1 and 3 was assigned to each response. Scores for all questions were summed to form the social support index, ranged between 5 and 15, with higher scores representing a higher level of social support.

Physical Health Variables

Studies show that poorer health is a predictor of higher levels of depression (28,35–37). The following 4 health measures were used in this study:

1. Number of chronic illnesses. This was measured by asking participants to indicate either yes (represented by 1) or no (represented by 0) on a list of 24 common illnesses. A higher score represented more illnesses.

2. Functioning capacity in activities of daily living (ADL) and instrumental activities of daily living (IADL). ADL was measured by asking participants whether they would need help in self-care activities such as bathing and (or) showering or dressing. IADL was measured by asking participants whether they would need help in performing activities such as light household chores. Participants were asked to indicate their ability to perform each of the ADL and IADL, from no help needed (a score of 0), to completely dependent on others (a score of 3). All responses were summed to produce an ADL index with a score ranging from 0 to 12 and an IADL index with a score ranging from 0 to 24. Higher scores represented a higher level of dependency.

3. The Physical Component Summary (PCS) of a Chinese version of the Medical Outcomes Study 36-item Short Form (SF-36) (38) is a standardized health assessment tool used with people from various cultural backgrounds (39–42). The PCS was used to measure the general physical health of participants. It has a score range between 0 and 100, with higher scores indicating better physical health.

4. Self-perceived health was measured by a question from the SF-36, which asked participants to rate their own health status from “poor” to “excellent,” represented by scores ranging from 1 to 5, with higher scores indicating better health.

Four cultural variables were included in this study: Chinese cultural values, Chinese health beliefs, ethnic identity, and cultural barriers in accessing health services. Research has shown that most acculturated or bicultural immigrants have the lowest prevalence rates of depression and report themselves as being healthy (43). This study assessed participants’ Chinese cultural values, using a list of 11 statements constructed by the research team of the Health and Well-Being Study. These statements reflect beliefs and values with respect to such aspects of Chinese culture as language use, sex roles, interracial marriage, food and diet, and parent–child relationships. For each statement, participants were asked to indicate their level of agreement along a 5-point scale ranging from “strongly disagree” to “strongly agree.” The answers were coded to form a sum ranging from 1 to 5, with higher scores indicating a higher level of identification with Chinese cultural values.

Chinese health beliefs refer to common concepts including norms and health practices.

These were measured by a constructed list of 12 statements related to areas such as eating, health maintenance, and use of traditional Chinese medicine. Participants were asked to indicate their levels of agreement with each statement from “disagree” to “neither agree nor disagree” or “agree.” Responses from 12 statements formed a combined score ranging from 1 to 3. A higher score represented a higher level of Chinese health beliefs.

Ethnic identity is also an indicator determining the acculturation level of immigrants (44,45). Ten questions focusing on the participants’ involvement in cultural activities and association with the Chinese community were constructed to measure ethnic identity. The answers were coded and summed to form an ethnic identity index ranging from 10 to 30, with higher scores representing a higher level of Chinese ethnic identity.

Service barriers affect access by those in need, which affects the well-being of individuals (46,47). For older immigrants, service barriers create inconveniences and could negatively affect health. This study measured the following 5 culture-related barriers identified in previous research (48): 1) “there are no other Chinese clients/users,” 2) “the professionals there are not Chinese,” 3) “the professionals do not understand your culture,” 4) “the professionals there do not speak your language,” and 5) “the programs are not specialized for Chinese.” A score of 1 was assigned to each of the barriers reported. Total scores ranged from 0 to 5, with higher scores representing more cultural barriers.

Results

Table 1 presents the demographic information of the elderly Chinese immigrants, indicating the diversity within this ethnic group.

On average, participants were reported to have 3.1 depressive symptoms, SD 3.2. According to the Geriatric Depression Scale-Short Form (GDS-SF) cut-off point, participants were placed into either a normal group or a group reporting at least a mild level of depressive symptoms. The results indicate that close to one-quarter (24.2%) of participants reported having a mild level of depressive symptoms (that is, GDS-SF scores ≥ 5).

An independent sample *t* test and chi-square test were used to analyze the bivariate associations between depressive symptoms and the predictors (Table 2). The following were all associated with having depression: living alone, older age, single status, female sex, less financial adequacy, religious belief, lower levels of education, lower levels of social support, and less monthly income. Participants who reported having depressive symptoms also reported having more chronic

Table 1 Demographic background of the participants (n = 1537)

	Mean (SD)
Age in years	74.1 (6.6)
English competency	4.0 (0.4)
Length of residency in years	18.5 (12.1)
Financial adequacy	2.8 (0.6)
	(%)
Sex	
Women	55.8
Men	44.2
Religion	
Having a religion	60.4
Not having a religion	39.6
Marital status	
Single	42.9
Married	57.1
Living arrangement	
Not living alone	82.0
Living alone	18.0
Education	
No formal education	17.4
Elementary	34.2
Secondary	31.4
Post secondary and above	17.0
Country of origin	
Mainland China	28.9
Hong Kong	52.3
Taiwan	4.1
Vietnam	7.8
Southeast Asia	3.6
Other countries	3.3
Monthly income	
Under \$500	15.1
\$500–\$999	45.0
\$1000–\$1499	33.2
\$1500 and over	6.7

illnesses, a higher level of dependence in basic ADL, a higher level of dependence in IADL, poorer physical health, and poorer self-perceived health. Those who reported having depressive symptoms reported a lower level of identification with Chinese ethnic identity, a higher level of identification with Chinese cultural values, a higher level of identification with Chinese health beliefs, and more cultural barriers than did those without depressive symptoms.

Hierarchical logistic regression was used to identify predictors of depressive symptoms, and the dependent variable, depression, represented the proportion of participants considered to suffer at least mild depression (that is, scoring 5 or more depressive symptoms along the GDS). The predicting factors were entered in blocks, beginning with the sociodemographic variables (that is, sex, age, religion, marital status, living arrangement, education, English competency, country of origin, length of residency, financial adequacy, monthly income, and social support), followed by physical health variables (that is, number of chronic illnesses, ADL, IADL, PCS, and self-perceived health) and cultural variables (Chinese ethnic identity, Chinese cultural values, Chinese health beliefs, and cultural barriers), so that the impact of each block could be assessed. Table 3 presents the results of hierarchical logistic regression analysis. The -2 log likelihood was used to measure how well the model fit the data, with smaller values indicating a better fit. When only sociodemographic variables were included in the model, a -2 log likelihood of 1570.23 (df 12, $P < 0.001$) was reported.

When physical health variables were added, most original predicting factors in the first model remained statistically significant except for sex and marital status. Entering physical health variables in the regression model indicated the largest change in the -2 log likelihood. Adding the physical health variables reduced the -2 log likelihood by 148.78 to 1421.45 (df 5, $P < 0.001$). Having poorer self-perceived health and more chronic illnesses increased the probability of having depressive symptoms.

The addition of cultural variables in the third model further reduced the -2 log likelihood by 21.18 to 1400.27 (df 4, $P < 0.001$). In the final model, having a religion, less financial adequacy, a lower level of social support, more chronic illnesses, poorer self-perceived health, a higher level of identification with Chinese cultural values, and more cultural barriers were risk factors for increasing the probability of experiencing depressive symptoms. Among all significant predictors, the odds ratios were highest for the number of chronic illnesses, Chinese cultural values, and cultural barriers. Having one more chronic illness would increase the likelihood of having depressive symptoms by 1.16 times; having one more cultural barrier would increase the odds by 1.13 times; having a higher level of identification with Chinese cultural values would increase the odds by 1.38 times.

Discussion

The findings demonstrate the importance of sociocultural determinants of mental health. Having lower social support and a lower level of financial adequacy increased the risk for depressive symptoms. The prevalence of depressive symptoms reported by older Chinese immigrants was much higher

A. Mean	Nondepressive (GDS-SF < 5)	Depressive (GDS-SF ≥ 5)	Statistical significance
Age in years	73.8	74.9	$t = -2.8, P < 0.01$
English competency (range 2 to 6)	4.0	4.0	$t = -1.6, ns$
Length of residency in years	18.8	17.7	$t = 1.5, ns$
Financial adequacy (range 1 to 4)	2.8	2.6	$t = 6.0, P < 0.001$
Social support (range 5 to 15)	11.2	10.6	$t = 4.7, P < 0.001$
Number of chronic illnesses (range 0 to 24)	3.2	4.8	$t = -10.9, P < 0.001$
ADL (range 0 to 12)	0.1	0.4	$t = -3.6, P < 0.001$
IADL (range 0 to 24)	4.6	7.3	$t = -7.1, P < 0.001$
PCS (range 0 to 100)	52.1	46.6	$t = 9.4, P < 0.001$
Self-perceived health (range 1 to 5)	3.0	2.3	$t = 11.8, P < 0.001$
Ethnic identity (range 10 to 30)	23.0	22.4	$t = 4.1, P < 0.001$
Chinese cultural values (range 1 to 5)	3.8	3.9	$t = -3.2, P < 0.01$
Chinese health beliefs (range 1 to 3)	2.5	2.5	$t = -3.1, P < 0.01$
Cultural barriers (range 0 to 5)	1.5	2.2	$t = -5.6, P < 0.001$
B. Percentage	Nondepressive	Depressive	Statistical significance
Sex			$\chi^2 = 27.0, P < 0.001$
Women	70.7	29.3	
Men	82.2	17.8	
Religion			$\chi^2 = 15.6, P < 0.001$
Having a religion	72.3	27.7	
Not having a religion	81.1	18.9	
Marital status			$\chi^2 = 35.1, P < 0.001$
Single	68.3	31.7	
Married	81.4	18.6	
Living arrangement			$\chi^2 = 8.0, P < 0.01$
Not living alone	77.2	22.8	
Living alone	69.2	30.8	
Education			$\chi^2 = 14.2, P < 0.01$
No formal education	67.5	32.5	
Elementary	75.2	24.8	
Secondary	78.9	21.1	
Post secondary and above	79.7	20.3	
Country of origin			$\chi^2 = 2.1, ns$
Mainland China	76.8	23.2	
Hong Kong	74.9	25.1	
Taiwan	77.8	22.2	
Vietnam	76.7	23.3	
Southeast Asia	72.7	27.3	
Other countries	82.0	18.0	
Monthly income			$\chi^2 = 7.9, P < 0.05$
Under \$500	72.4	27.6	
\$500–\$999	75.8	24.2	
\$1000–\$1499	75.1	24.9	
\$1500 and over	86.4	13.6	

ADL = activities of daily living; GDS-SC= Geriatric Depression Scale-Short Form; IADL =instrumental activities of daily living; PCS = physical component summary; ns = not significant

Table 3 Logistic regression analyses of depressive symptoms (*n* = 1537)

	Parameter estimates, odds ratio (95%CI)		
	Model 1	Model 2	Model 3
Block 1 Sociodemographic variables			
Sex ^a —Men	−0.39*, 0.68 (0.50, 0.92)	ns	ns
Not having a religion ^b	−0.38**, 0.69 (0.52, 0.90)	−0.33*, 0.72 (0.54, 0.96)	−0.34*, 0.71 (0.53, 0.95)
Being married ^c	−0.40*, 0.67 (0.49, 0.92)	ns	ns
Financial adequacy (range 1 to 4)	−0.74***, 0.48 (0.38, 0.60)	−0.64***, 0.53 (0.41, 0.68)	−0.62***, 0.54 (0.42, 0.69)
Social support (range 5 to 15)	−0.12***, 0.89 (0.84, 0.94)	−0.12***, 0.89 (0.84, 0.95)	−0.11**, 0.90 (0.84, 0.96)
Block 2 Physical health variables			
Number of chronic illnesses (range 0 to 24)	—	0.15***, 1.17 (1.10, 1.23)	0.15***, 1.16 (1.10, 1.23)
Self-perceived health (range 1 to 5)	—	−0.43***, 0.65 (0.55, 0.76)	−0.44***, 0.65 (0.55, 0.76)
Block 3 Cultural variables			
Chinese cultural values (range 1 to 5)	—	—	0.32*, 1.38 (1.06, 1.79)
Cultural barriers (range 0 to 5)	—	—	0.12**, 1.13 (1.05, 1.21)
−2 log likelihood	1570.23 ***	1421.45***	1400.27***
Change of −2 log likelihood	123.61, 12	148.78, 5	21.18, 4
Reference groups: ^a women; ^b having a religion; ^c single; — = unavailable data; ns = not significant			
* <i>P</i> < 0.05; ** <i>P</i> < 0.01; *** <i>P</i> < 0.001			

than the usual 10% to 15% reported by the general elderly population (1–4).

A new finding indicates that culture is not a static concept. The cultural variation represented by different levels of cultural values and cultural barriers is a significant predictor of depressive symptoms. The findings point to a direction of focus for mental health professionals. Although most elderly immigrants in this study lived in Canada for over 18 years, the cultural differences and related barriers continued to impede their mental well-being. The findings show that immigration experience and disadvantaged socioeconomic status often cause elderly immigrants to be vulnerable to depression and other mental health problems (49,50). The negative impact of inadequate financial status on depression, as shown in this study, adds further support to this argument.

This study has a few limitations. Using surnames listed in telephone directories failed to include older Chinese who did not have a telephone at home, who had an unlisted number, and who used a non-Chinese surname. Unfortunately, owing to the lack of published data, it was infeasible to estimate the size of the population not captured by the study sample. Since the total Chinese-Canadian population in the 7 cities in this study accounted for close to 90% of the total Chinese-Canadian population in Canada (51), and the ratio of intermarriages for

Chinese women in the age range has usually been very low, even with an estimated 10% sampling error accounting for the unlisted numbers and non-Chinese surnames, the sample should provide a good representation of most older Chinese in Canada. Owing to inclusion criteria, the findings cannot be generalized to those who were institutionalized and those too frail to participate. This study only screened for depressive symptoms in a community setting and did not establish clinically significant cases in this population. The measurements of cultural variables were self-constructed and required further validation. Because this was a cross-sectional study, the findings were not able to ascertain the casual relations between depression and risk factors identified.

This study carries health service delivery implications. The results suggest a need to address the problem of depression. These findings have shown that the cultural values maintained by elderly immigrants in combination with the cultural barriers that they face accessing health services are major impediments to mental health. It is inappropriate and infeasible to expect elderly immigrants to give up their cultural values and beliefs; thus it is important for the health system to pay attention to cultural uniqueness and cultural appropriateness in service provision to eliminate access barriers and challenges. Policies and interventions to enhance the cultural match

between patients and the services patients receive should become a strategy for further exploration.

In the health assessment for older immigrants, medical professionals should focus on symptoms as well as on cultural values and barriers. They should be alerted to unique risk factors by proactively enquiring about culturally related service barriers that older immigrant patients may encounter, cultural shock, and incompatibility of cultural values that patients have experienced.

Baseline studies on depressive symptoms and other mental health status measures of older immigrants should be conducted, so that results may be used as indicators for assessing the effectiveness of intervention strategies at policy and patient levels. With an aging population in which cultural diversity is growing, population health research dedicated to examining the changes of elderly immigrants' mental health status is needed. Longitudinal research that further assesses the impact of changes in cultural values and beliefs on depressive symptoms of elderly immigrants is recommended, so the causal relation can be better understood.

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Résumé : L'effet de la culture sur les symptômes dépressifs d'immigrants chinois âgés

Objectifs : L'effet de la culture sur la santé mentale n'a pas fait l'objet de recherches adéquates. Cette étude examine l'effet des facteurs culturels sur les symptômes dépressifs déclarés par des immigrants chinois âgés au Canada.

Méthode : Les données de 1 537 immigrants chinois âgés qui ont pris part à une enquête transversale à emplacements multiples sur la santé et le bien-être des Chinois canadiens âgés ont été utilisées. Les participants ont été identifiés par sélection téléphonique à partir d'une liste de numéros de téléphone choisis au hasard, liés à des noms de famille chinois. Un questionnaire structuré a servi à mener les entrevues en personne. Une version chinoise de l'échelle de dépression gériatrique en 15 items a été utilisée pour évaluer les symptômes dépressifs.

Résultats : Près d'un quart des immigrants chinois âgés ont déclaré avoir au moins un niveau léger de symptômes dépressifs. Le fait d'avoir davantage de barrières culturelles et un niveau élevé d'identification aux valeurs culturelles chinoises entraînait une plus grande probabilité d'être dépressif.

Conclusions : L'importance des déterminants socioculturels de la santé mentale est démontrée. Le système de santé devrait être plus sensible aux différences culturelles et ethniques uniques des