Do primary care providers who speak Chinese improve access to mental health care of Chinese immigrants?

Alice W. Chen, Arminée Kazanjian

ABSTRACT

Background: The utilization of health care providers who share the language and culture of their patients has been advocated as a strategy to improve access to the mental health care of immigrants. This study examines the relationship between patients receiving primary care from health care providers who speak Chinese and the rate of mental health diagnosis and consultation among Chinese immigrants in British Columbia (BC), Canada.

Methods: The study analyzed 3 linked administrative databases: an immigration database, BC’s health databases and BC’s physician register. The study population consisted of more than 270 000 recent Chinese immigrants to BC, with sex and age-matched comparison subjects. We calculated the odds ratios (ORs) of being diagnosed with common mental health conditions and the rate ratios (RRs) of mental health visits per year of health plan registration, by proportion of general care received from Chinese-speaking physicians; this was done using logistic regression and generalized linear models, adjusting for sex, age and time registered in the health plan.

Results: Among Chinese immigrants, a higher proportion of care received from Chinese-speaking general practitioners (GPs) was associated with a lower probability of being diagnosed with neurotic disorders (OR = 0.87; 95% confidence interval [CI] 0.80–0.95), drug dependence (OR = 0.22; 95% CI 0.14–0.35), adjustment reaction (OR = 0.39; 95% CI 0.33–0.46) and depressive disorder not elsewhere classified (OR = 0.47; 95% CI 0.42–0.52), as well as a lower rate of mental health service utilization (RR = 0.65; 95% CI 0.61–0.69). Among the comparison group, a higher proportion of primary care received from Chinese-speaking GPs was associated with a lower probability of being diagnosed with affective psychoses (OR = 0.53; 95% CI 0.47–0.59), neurotic disorders (OR = 0.49; 95% CI 0.47–0.51), drug dependence (OR = 0.28; 95% CI 0.24–0.32), acute reaction to stress (OR = 0.54; 95% CI 0.51–0.57), adjustment reaction (OR = 0.36; 95% CI 0.33–0.39), depressive disorder not elsewhere classified (OR = 0.30; 95% CI 0.29–0.32) and anxiety/depression (OR = 0.83; 95% CI 0.80–0.86), and with lower rates of mental health service utilization (RR = 0.32; 95% CI 0.30–0.33).

Conclusions: Although Chinese-speaking primary care physicians may facilitate Chinese immigrants’ access to medical care, these physicians may not optimize diagnosis and treatment of mental health problems. Our findings have implications for access to mental health care by minority populations in metropolitan centres in Canada and North America, where immigrants rely heavily on health care practitioners who speak their native language for their primary care.

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According to recent statistics, 19% (418,200) of immigrants to Canada between 1997 and 2006 were of Chinese origin. This large number of Chinese immigrants poses a challenge with respect to facilitating access to mental health services; the research literature consistently reports that Chinese and Asian populations are less likely than the non-Asian population to use mental health services, regardless of mental health need. The concern is most salient in British Columbia (BC) where one-third of immigrants to Canada in 2006 came from Chinese territories and 16% of the 2 million residents in the census metropolitan area of Vancouver reported Chinese as their mother tongue.

For some immigrants, the stress of immigration and settlement can put their psychological well-being at risk. Asian immigrants have reported poor English ability and lack of bilingual professionals as barriers to obtaining mental health care. In the absence of reliable data on the mental health state of new immigrants, equity within and access to mental health care can only be assessed by investigating its actual utilization. Although both primary and specialist care are covered by the public health insurance plan in BC, Chinese immigrants in the province had only 10%–20% as many mental health consultations with general practitioners (GPs) and psychiatrists as a comparison group. This discrepancy corroborates arguments that cultural and linguistic factors can present barriers to mental health care.

The recruitment of bilingual health care providers from within ethnic communities has been proposed as a means to removing these barriers. How shared language or ethnicity between providers and patients facilitates access to care is not well understood, although some suggest shared conceptualization of mental health problems and cultural competence as the mediating factors. For appropriate mental health services to be provided, clinicians must be able to exchange information with their patients and understand their mental health status within the cultural context. In many cultures, psychological disturbances are expressed as somatic symptoms or not considered health issues at all. Thus, if Chinese immigrants with emotional distress seek medical care, they often present with somatic complaints. Whether the underlying mental health issues are solicited and recognized is crucial to access to services. Because of the close link between language and culture, especially among new immigrants, the effect of the two cannot be easily differentiated.

Although ethnically or linguistically matched health care providers have been shown to improve utilization by ethnic minority patients in the United States (US) mental health system, little is known about whether this advantage will apply to the primary care system in BC. Since GPs function as primary care providers in BC’s health care system, we conducted our study to examine whether receiving primary care from GPs who are able to communicate in Chinese facilitates identification of mental health problems and the receipt of mental health services by Chinese immigrant patients. We chose language skill, rather than ethnicity, as the study variable because it is the key component of therapeutic relationships. The purpose of the study was to critically consider the widely advocated notion that recruiting health care practitioners who speak the same language as their immigrant patients was the preferred strategy to facilitate their access to mental health care.

Methods

Data sources. Our study employed a retrospective observational design and analyzed secondary data from linked administrative data systems. The first was the immigration database from Citizenship and Immigration Canada of all immigrants to BC between 1985 and 2000. The second was BC’s health database, which included the provincial health plan register and physicians’ fee-for-service payment claims. Since the BC health plan requires a monthly premium, the health plan register contains reliable information on the current residency status and coverage eligibility of each individual. The physicians’ claims file contains all records of physician services claimed for eligible BC residents. The third data source was the College of Physicians and Surgeons of BC register, which was used to determine the Chinese language skill of GPs who submitted service payment claims.

An independent research centre linked the immigration and provincial health databases, using probabilistic linkage methods. This linkage allowed the research centre to identify and extract utilization records of the study immigrants from the health databases. We compiled a list of Chinese-speaking GPs and psychiatrists registered in BC during the study period; Chinese language skill of physicians was determined based on their surname, place of graduation and self-reported language skills in the College register, and by subsequent telephone verification. Appendix 1 describes the procedure used to determine physicians’ Chinese language abilities. The research centre then linked the list to the health database by the physicians’ billing numbers; the Chinese language skill of each physician who was paid for services for the study subjects was thus noted in the study dataset. Names and identification numbers of both patients and physicians were removed before the records were released to researchers for analysis. The University of British Columbia Clinical Research Ethics Board granted ethics approval for this study.
Subjects. Study immigrants were those in the immigration database who emigrated from China, Taiwan, Hong Kong or Macau who were successfully linked to the provincial health plan register. A comparison group was generated by randomly selecting from the same register, excluding those in the immigration database, an individual matched to each linked immigrant by sex, year of birth and local health area of residence. The comparison group served to clarify if the observed effects were specific to recent Chinese immigrants; it was considered a non-immigrant group, although it included a small number of immigrants who arrived in BC before 1985. Observation of subjects began when they registered in the health plan after landing in Canada during the study period of 1992–2001. Each comparison subject was assigned the landing date of his or her matched immigrant. We included in the analyses only subjects who were registered in the health plan for some time during the study period and made at least 1 visit to a GP. Of the study cohort, 152 184 Chinese immigrants were registered in 1992–2001, and 130 902 visited a GP at least once; 151 303 comparison subjects were registered in the same period, and 144 660 visited a GP at least once. Since all immigrants in this study had come from regions where Chinese was the predominant language, it was assumed that Chinese was their native tongue and preferred language of communication.

Study variables. For each subject, we calculated the proportion of general consultations attributed to GPs who speak Chinese, to represent the extent to which primary care was received from Chinese-speaking clinicians. This proportion was defined as the number of consultations by any Chinese-speaking GP for any reason (mental health and non-mental health) divided by the total number of consultations received from all GPs. Since GPs are the primary care providers in BC, this continuous variable represents the role of Chinese-speaking physicians in the subject’s entry to formal medical care. If Chinese language competence in primary care increased immigrants’ access to mental health services, we hypothesized that a higher proportion of care from Chinese-speaking providers would increase the use of mental health services among Chinese immigrants. For the comparison group, we hypothesized that care from Chinese-speaking physicians would have no effect on mental health service utilization.

We calculated 2 types of outcome variables: whether a subject received a mental health diagnosis and the rate of consultation for all mental health conditions. The calculation of the outcomes included both payments to GPs and payments to psychiatrists. Each payment record in the database contains a diagnostic code derived from either the International Classification of Diseases Version 9 (ICD-9) coding scheme or a supplementory code list created by BC. A subject was considered to have received a diagnosis if the diagnostic category of interest was documented in at least 1 of the payment records during the study period (1992–2001). Only the 8 most common categories in the database were reported in this study: schizophrenic psychoses (ICD-9 295.xx), affective psychoses (ICD-9 296.xx), neurotic disorders (ICD-9 300.xx), drug dependence (ICD-9 304.xx), acute reaction to stress (ICD-9 308.xx), adjustment reaction (ICD-9 309.xx), depressive disorder not elsewhere classified (ICD-9 311.xx) and anxiety/depression. The last condition is a diagnostic code unique to BC and is used commonly by GPs to describe non-specific anxious and depressive symptoms. The rate of mental health consultation was the total number of mental health consultations divided by the number of years a subject was registered in the health plan. We considered a consultation provided by a GP to be for mental health purposes if at least 1 of the diagnoses submitted was a mental health condition. All consultations by psychiatrists were considered to be for mental health reasons.

Data analysis. We investigated the relationship between the Chinese language ability of primary care providers and mental health care received by the subjects in 2 ways. The first was the probability of a subject being diagnosed with a mental health condition according to the proportion of their medical care received from Chinese-speaking GPs. The probability was expressed as an odds ratio, which was estimated by logistic regression, adjusting for age, sex and time registered in the health plan. The second measure was the rate ratio (RR) of mental health consultation, according to the proportion of their medical care received from Chinese-speaking GPs. The RR was estimated by the generalized linear regression model with negative binomial distribution, adjusting age, sex and amount of time registered in the health plan. All statistical analyses were performed with SAS version 9.1 (SAS Institute Inc. Cary, North Carolina, US) statistical software.

Results

Description of subjects and physicians. Study subjects and comparison subjects were evenly divided between males and females; the average age at study entry was 33 years (Table 1). The majority of immigrants arrived after the study period began; the mean length of subject observation was 6 years. Chinese-speaking GPs provided 87.0% of all general care of the Chinese immigrants; more than half (51.6%) of the immigrants saw exclusively Chinese-speaking GPs for their primary care. In contrast, Chinese-speaking GPs
### Table 1: Characteristics of Chinese immigrants and comparison subjects*

| Characteristic                                           | Chinese immigrants (n = 130 902) | Comparison group (n = 144 660) |
|----------------------------------------------------------|----------------------------------|---------------------------------|
| Mean age at entry to study, years                       | 33.5                             | 33.3                            |
| Mean number of years in study                           | 6.0                              | 6.2                             |
| Sex, %                                                   |                                  |                                 |
| Male                                                     | 52.4                             | 51.5                            |
| Female                                                   | 47.6                             | 48.5                            |
| Mean individual proportion of primary care visits to Chinese-speaking GPs | 0.87                             | 0.23                            |
| Percentage who received all primary care from Chinese-speaking GPs | 51.6                             | 8.1                             |

*Chinese immigrants and comparison subjects had at least 1 visit to a GP from 1992-2001. GP = general practitioner.

### Table 2: Number and percentage of immigrants and comparison subjects diagnosed with selected mental health conditions

| Diagnosis                               | Chinese immigrants, n (%) (N = 130 902) | Comparison group, n (%) (N = 144 660) |
|-----------------------------------------|----------------------------------------|--------------------------------------|
| Anxiety/depression                      | 18 905(14.44)                          | 31 586(21.83)                        |
| Neurotic disorders                      | 9 447(7.22)                            | 21 987(15.20)                        |
| Acute reaction to stress                | 4 459(3.41)                            | 13 319(9.21)                         |
| Depressive disorder NEC                 | 4 306(3.29)                            | 22 888(15.82)                        |
| Adjustment reaction                     | 1 691(1.29)                            | 8 205(5.67)                          |
| Affective psychoses                     | 884(0.68)                              | 3 349(2.32)                          |
| Schizophrenic psychoses                 | 430(0.33)                              | 1 474(1.02)                          |
| Drug dependence                         | 148(0.11)                              | 3 218(2.22)                          |

NEC = not elsewhere classified

### Table 3: Adjusted OR* of receiving a diagnosis of selected mental health conditions, by proportion of medical visits to Chinese-speaking GPs

| Mental health condition   | Chinese immigrants OR (95% CI) | Comparison group OR (95% CI) |
|---------------------------|-------------------------------|-------------------------------|
| Anxiety/depression        | 1.05 (0.98–1.13)              | 0.83 (0.80–0.86)              |
| Acute reaction to stress  | 0.90 (0.80–1.02)              | 0.54 (0.51–0.57)              |
| Neurotic disorders        | 0.87 (0.80–0.95)              | 0.49 (0.47–0.51)              |
| Affective psychoses       | 0.86 (0.66–1.12)              | 0.53 (0.47–0.59)              |
| Schizophrenic psychoses   | 0.74 (0.52–1.07)              | 1.01 (0.88–1.16)              |
| Depressive disorder NEC   | 0.47 (0.42–0.52)              | 0.30 (0.29–0.32)              |
| Adjustment reaction       | 0.39 (0.33–0.46)              | 0.36 (0.33–0.39)              |
| Drug dependence           | 0.22 (0.14–0.35)              | 0.28 (0.24–0.32)              |

* ORs were adjusted for sex, age and length of time registered in health plan. An OR > 1 indicates that individuals who received more care from Chinese-speaking GPs were more likely to receive a diagnosis. An OR < 1 indicates the reverse.

CI = confidence interval; GP = general practitioner; NEC = not elsewhere classified; OR = odds ratio
Table 4: Adjusted RR* of mental health consultation, by proportion of medical visits to Chinese-speaking GPs

| Physician specialty | Chinese Immigrants RR (95% CI) | Comparison group RR (95% CI) |
|---------------------|-------------------------------|-------------------------------|
| Overall (GPs and psychiatrists) | 0.65 (0.61–0.69) | 0.32 (0.30–0.33) |
| GPs | 0.60 (0.57–0.64) | 0.30 (0.29–0.31) |
| Psychiatrists | 0.78 (0.56–1.08) | 0.35 (0.32–0.39) |

*RRs were adjusted for sex, age and length of time registered in health plan. An RR >1 indicates individuals who received more care from Chinese-speaking GPs had more mental health consultations. An RR <1 indicates the reverse.
CI = confidence interval; GP = general practitioner; RR= rate ratio

provided only 23.0% of the general care for comparison subjects, only 8.1% of whom visited exclusively Chinese-speaking physicians.

A total of 886 Chinese-speaking GPs and psychiatrists were identified for this study. This was likely an underestimate as physicians who did not self-report Chinese language ability, did not graduate from a medical school in Chinese-speaking regions and were not contacted for verification were considered non-Chinese-speaking. Of those identified as Chinese-speaking, 97% had a Chinese surname and 40% graduated from educational institutions outside North America; the majority (68%) of the overseas graduates were trained in China, Taiwan or Hong Kong.

Table 2 presents the prevalence of selected mental health conditions diagnosed among the immigrant and comparison subjects. The mean number of mental health consultations by GP per year of registration in the health plan was 0.11 (standard deviation [SD] 0.43) for Chinese immigrants and 0.53 (SD 3.3) for the comparison group. The mean number of psychiatrist consultations per year of registration in the health plan was 0.03 (SD 0.50) for Chinese immigrants and 0.24 (SD 1.79) for the comparison group.

Proportion of primary care by Chinese-speaking GPs and odds of mental health diagnosis. Table 3 shows the association between the proportion of care received from Chinese-speaking GPs and the likelihood of receiving a mental health diagnosis during the study period, after adjusting for age, sex and time registered in the health plan. Chinese immigrants who received more of their primary care from Chinese-speaking GPs were less likely than those who received more care from non-Chinese-speaking GPs to have ever been diagnosed with neurotic disorders, drug dependence, adjustment reaction and depressive disorder not elsewhere classified. Results for other conditions were not statistically significant. Among the comparison group, receiving more of one’s primary care from Chinese-speaking GPs was associated with a lower likelihood of being diagnosed with all the mental health disorders included in this study, with the exception of schizophrenic psychoses.

Proportion of primary care by Chinese-speaking GPs and rate of mental health consultation. The proportion of care received from Chinese-speaking GPs was also associated with volume of mental health service use (Table 4). Both Chinese immigrant and comparison subjects who relied more on Chinese-speaking GPs for general medical care had lower overall rates of mental health consultation in primary care and psychiatry. Among Chinese immigrants, those who saw exclusively Chinese-speaking GPs had only two-thirds the rate of mental health consultation as those who did not visit Chinese-speaking GPs. The relationship was due primarily to the rate of mental health consultation in primary care, since the relationship for consultation with psychiatrists was not statistically significant. The effect was more profound among comparison group members; those who saw exclusively Chinese-speaking GPs had only one-third as many mental health consultations as those who saw non-Chinese-speaking physicians, and the results were statistically significant for both GPs and psychiatrists.

Discussion

We found that the provision of primary care from Chinese-speaking physicians to Chinese-speaking immigrants is associated with a lower likelihood of being diagnosed with common mental health conditions and a lower rate of mental health consultation. Contrary to the hypotheses of advocates for multilingual health care services, Chinese immigrants who rely on physicians who share their linguistic background for primary care are less likely to receive mental health services than those who do not visit Chinese-speaking physicians. Interestingly, this disparity by language
skill of primary care providers is also noted in the group of comparison subjects, suggesting that Chinese-speaking physicians may have a different practice or diagnostic pattern than non-Chinese-speaking physicians. Although numerous studies have been published regarding the influence of patient characteristics on health care received or not received, there is scant literature regarding the relationship between clinician characteristics and services delivered. Studies regarding linguistic/ethnic match in the US are specific to the mental health service system. To our knowledge, ours is the first study that links ethnocultural characteristic of primary care providers to the receipt of mental health services.

**Limitations.** Our study had some limitations. One pertains to the diagnostic codes used in the physician payments database. The validity of the codes is not verified and only 1 code is required for each claim. Although periodic random audits of physician claims provide some assurance of accuracy of codes submitted, patients with comorbid physical and mental disorders may only have their physical conditions identified. However, this issue is expected to affect all subjects equally and should not bias the study. Also, inherent with studies using administrative databases, the nature and quality of the intervention is not known. Providers may have addressed underlying mental health concerns of the subjects without the encounter being identified as mental health in nature. Another limitation is that not all non-Chinese-speaking physicians and non-immigrant comparison subjects in this study were correctly classified. In general, such misclassification does not affect the findings, as it implies that the actual effect being studied may be stronger than that observed. As well, this study did not differentiate among Chinese immigrants who came from different sociopolitical regions and spoke different dialects; there may be situations where a Chinese-speaking physician has no advantage in communication or establishing rapport with a Chinese patient because of such differences, however, we presume that such scenarios are rare.

The most plausible explanation for lower rates of diagnosis or treatment by Chinese-speaking physicians lies either in the physicians’ cultural background or training, or both. Chinese language ability is a proxy for ethnic origin and, to a lesser extent, medical training, for the physicians in BC, since the overwhelming majority of Chinese-speaking physicians have ethnic Chinese surnames and at least one-quarter of them are trained in Chinese regions. Thus, the cultural health beliefs that lead Chinese immigrants to express their emotional distress in different ways and to attribute their psychological experiences to non-medical reasons may also operate in their primary care providers such that mental health symptoms and treatment needs are over-looked or downplayed. The relatively higher rate of diagnosis of the ambiguous category of anxiety/depression supports the hypothesis that, when presented with emotional distress, Chinese-speaking physicians may favour the use of this subclinical category over formal psychiatric diagnoses. Alternatively, the recognition of serious psychiatric illnesses, such as schizophrenic and affective psychoses, is less dependent on cultural interpretation; hence, language skill of primary care providers has no statistically significant association with rates of diagnosis of these serious disorders. Since serious disorders are often referred for psychiatric consultation and follow-up, neither does the language skill of primary care providers have any statistically significant effect on rate of consultation with psychiatrists by Chinese immigrants, notwithstanding the fact that there are few Chinese-speaking psychiatrists in BC. Our results suggest that once a Chinese immigrant presents with a serious mental health condition that warrants psychiatric referral, the Chinese language competence of the providers has less bearing on the subsequent services received.

**Conclusions**

The association between the proportion of primary care provided by Chinese-speaking GPs and the probability of being diagnosed with common mental disorders poses interesting dilemmas for health care policy. If GPs are unable to communicate with their patients in their preferred language, patients may be impeded in their access to health care services, and the risk of misdiagnosis and inappropriate intervention is high. Conversely, if Chinese-speaking GPs are systematically underdiagnosing mental health conditions, then this may have a wider impact on Chinese immigrant communities in metropolitan North American cities, since the majority of immigrants in these communities depend solely on Chinese-speaking GPs for their primary care.

The findings of this study do not necessarily refute the strategy of recruiting clinicians with diverse language skills in order to serve a culturally and linguistically diverse population. Paradoxically, without practitioners who can communicate in their native language, immigrants to Canada and minorities may be further deterred from approaching health care professionals with health problems — including mental health problems — and the incidence of underdiagnosis and undertreatment may be even higher. As it is, the
Chinese immigrants in our study accessed medical services at a much lower rate than the comparison group: 14% of immigrants had not visited a GP during the study period, compared with 4% of comparison subjects.

Lower rates of utilization observed among Chinese immigrants have often been ascribed to lower prevalence of mental disorders in this population or barriers to mental health care.5,9,13,16,47,34 This study highlights the contribution of physicians to the disparity and the complexities involved in policies and practices to reduce disparity. Although clinicians with different language and cultural backgrounds are crucial to providing culturally appropriate care to immigrants who otherwise might not seek health care, the potential of these clinicians to respond to mental health issues may not have been optimized. Pervasive underdiagnosis and undertreatment by health care practitioners who have made a commitment to providing care to immigrants and minorities is a form of systemic barrier to mental health care. Future research should focus on elucidating the factors that contribute to the practice patterns of Chinese and other bilingual/bicultural physicians. The recruitment and training of these health care professionals must also consider strategies to change their practice behaviour to serve comprehensively the physical and mental health needs in the immigrant and minority communities.

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**Appendix 1: Procedure to identify Chinese language skill of physicians**

The names, place of graduation and languages spoken of all physicians who were registered in the College of Physicians and Surgeons of British Columbia (CPSBC) database as a general practitioner, family practitioner or psychiatrist in any year from 1985–2001 were obtained. The following algorithm was used to determine the Chinese language ability of these physicians:

1. Self-reported ability to speak Chinese or one of its dialects = Chinese-speaking.
2. Graduation from a medical educational institution in China, Hong Kong or Taiwan = Chinese-speaking.
3. Of those who were not identified as Chinese-speaking in Steps 1 and 2, those with Chinese surnames were extracted.
   a) The Chinese language ability of some physicians was determined by personal information sources of researchers.
   b) Of the remaining physicians with Chinese surnames, a telephone verification procedure was conducted:
      i. Those who were still registered in 2003 and who had a valid telephone number listed in the CPSBC directory were contacted by telephone in December 2004 or January 2005.
      ii. The person who responded to the telephone call (usually the receptionist in the physician’s office) was asked to verify if the physician spoke Chinese or understand patients who spoke Chinese.

Physicians who did not have Chinese surnames and who did not report Chinese language ability or graduate from a Chinese-speaking country were considered non-Chinese-speaking.