DO PRIMARY CARE PROVIDERS WHO SPEAK CHINESE IMPROVE ACCESS TO MENTAL HEALTH CARE OF CHINESE IMMIGRANTS?

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ABSTRACT

Background

Having health service providers who share the same language and culture as the patients has been promoted as a strategy to improve access to mental health care of immigrants. This study examines the relationship between receiving primary care from providers who speak Chinese and the rate of mental health diagnosis and consultations among Chinese immigrants in British Columbia (BC), Canada.

Methods

Data from three linked administrative databases were extracted and analyzed. The data sources yielded a study population of over 130,000 recent Chinese immigrants to BC and an equivalent number of sex and age-matched non-immigrant subjects.

Results

Higher proportion of primary care received from Chinese-speaking general practitioners was associated with lower probability of being diagnosed with some mental health conditions and lower rate of mental health service utilization. Both the Chinese immigrants and the non-immigrant patients who received more of their primary care from Chinese-speaking physicians were less likely than those who received less of their care from these physicians to be diagnosed with several common psychiatric disorders and had lower overall rates of mental health consultations.

Conclusions

While bilingual primary care physicians may facilitate Chinese immigrants' access to medical care, these physicians may not optimize diagnosis and treatment of mental health problems in the immigrant population. 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 bilingual practitioners for their primary care.

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INTRODUCTION

According to Citizenship and Immigration Canada statistics, 418,200 immigrants who arrived in Canada in 1997-2006 – comprising 19% of all immigrants who arrived during that period – came from Chinese origins.[1] When Chinese or Asians are consistently reported in the research literature as being less likely to use mental health services regardless of mental health need,[2-9] the large number of Chinese immigrants in the population poses a challenge in terms of facilitating access to mental health services. The concern is most salient in British Columbia (BC) where one-third of the new arrivals in 2006 came from Chinese territories[10] and 16% of the 2 million residents in the census metropolitan area of Vancouver reported Chinese as their mother tongue.[11]

Although insurance coverage is not an issue in Canada, Chinese immigrants in British Columbia (BC) had only 10-20% as many mental health consultations with general practitioners and psychiatrists as a comparison group of non-immigrants.[12] Such discrepancy in utilization lends support to arguments of cultural and language barriers to mental health care,[13] and recruitment of bilingual clinicians from within the ethnic communities has been suggested and widely supported as a solution to overcome these barriers.[14-20] Since general practitioners (GPs) function as primary care providers and gatekeepers in BC's health care system, GPs who are able to communicate in Chinese should facilitate the receipt of mental health services by Chinese immigrant patients, according to proponents of this strategy. The current study was conducted to examine whether receiving primary care from Chinese-speaking providers increased the probability that mental health problems were identified and treated among Chinese immigrants.

METHODS

Data Sources

This study was based on a retrospective observational design using secondary data from three linked administrative data systems. The first was the immigration database from Citizenship and Immigration Canada of all immigrants who landed in BC between 1985 and 2000. The second was BC's health database which included the provincial health plan registry and the physicians' fee-for-service payment claims; the latter contains records of most physician services received by 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 the service payment claims.

As part of a Canadian immigrant health research project, the immigration and provincial health databases were linked by an independent research centre, using probabilistic linkage methods.[21] The linkage allowed the research center to identify and extract the utilization records of the study immigrants from the health databases. We compiled a list of Chinese-speaking physicians registered in BC during the study period; Chinese language skill of physicians was determined based on the surname, place of graduation and self-reported language skills in the College register and also on telephone verification. Details of the procedure to determine Chinese language ability of the physicians are described in Appendix A. The same independent 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 records were released to the researchers for analysis. Ethics approval for this study was granted by the University of British Columbia Clinical Research Ethics Board.

Subjects

Study immigrants were those in the immigration database from China, Taiwan, Hong Kong or Macau who were successfully linked to the provincial health database. A comparison group of non-immigrants was generated by randomly selecting from BC's health plan, 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 Chinese immigrants. 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 its matched immigrant. Only subjects who were registered in the health plan for some time during the study period and made at least one visit to a GP were included in the analyses. Of 152,184 Chinese immigrants and same number of comparison subjects, 130,902 immigrants and 144,660 non-immigrants met the inclusion criteria.

Study Variables

Since all the immigrants in this study arrived recently from regions where Chinese was the predominant language, it was assumed that Chinese was their native and preferred language of communication. For each subject, the extent to which primary care was

received from Chinese-speaking clinicians was measured as the proportion of general consultations attributed to GPs who speak Chinese. The proportion of consultations by Chinese-speaking GPs was calculated as the number of consultations by any Chinese-speaking GP for any reason (mental health as well as non-mental health) divided by the total number of consultations received from all GPs. Since GPs are the primary care providers and gatekeepers in BC, this continuous variable represents the role of bilingual physicians in the subject's entry to formal medical care. If Chinese language competence in primary care increased immigrants' access to mental health services, higher proportion of care from Chinese-speaking providers was hypothesized to increase use of mental health services among Chinese immigrants. For non-immigrants, care from Chinese-speaking physicians should have no effect on mental health service utilization.

There were two types of outcome variables in this study: whether a subject ever received a mental health diagnosis and the rate of consultations for all mental health conditions. Payments to both GPs and psychiatrists were considered in the calculation of the outcomes. 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 supplementary 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 one of the payment records during the study period. Only the eight 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 was a diagnostic code unique to BC and used commonly by GPs to describe non-specific anxious and depressive symptoms. The rate of mental health consultations was the total number of mental health consultations divided by the number of years a subject was registered in the health plan and, thus, eligible to use medical services. A consultation provided by a GP was considered to be for mental health purposes if at least one of the diagnoses submitted was a mental health condition. All consultations by psychiatrists were considered to be for mental health reasons.

Data Analysis

The relationship between the Chinese language ability of primary care providers and mental health care received by the subjects was measured in two ways. The first was the probability of a subject ever 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 the odds ratio of ever receiving a diagnosis by an individual who received all the primary care from Chinese-speaking GPs versus someone who received all the primary care from non-Chinese-speaking GPs. The odds ratios were estimated by logistic regression, offset by the amount of time registered in the health plan and adjusting for sex and age. The second measure of the relationship was the rate ratio of mental health consultations according to the proportion of their medical care received from Chinese-speaking GPs. The rate ratio was estimated by the generalized linear regression model with negative binomial distribution, adjusting

for sex and age and offset by the time registered in the health plan. All statistical analyses were performed with SAS 9.1.

RESULTS

Description of Subjects

Both Chinese immigrant and non-immigrant subjects in this study were evenly divided between males and females with an average age of 33 at entry to the study. (Table 1) Majority of the immigrants arrived after the study period began; the mean length of participation in the study was approximately six years. Chinese immigrants received most of their primary care from Chinese-speaking physicians. Chinese-speaking GPs provided 87% of all general care of the Chinese immigrants; more than half of the immigrants saw exclusively Chinese-speaking GPs for their primary care. In contrast, Chinese-speaking GPs provided only 23% of the general care for non-immigrant subjects, fewer than 10% of whom visited only Chinese-speaking physicians.

Proportion of Primary Care by Chinese-speaking GPs and Odds of Mental Health Diagnosis

Table 2 shows the association between the proportion of care one received from Chinese-speaking GPs and the likelihood of ever receiving a mental health diagnosis during the study period, after adjusting for sex and age. 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 non-immigrant comparison group, receiving more of one's primary care from Chinese-speaking GPs was associated with lower likelihood of being diagnosed with all the mental health disorders in this study-, with the exception of schizophrenic psychoses.

Proportion of Primary Care by Chinese-speaking GPs and Rate of Mental Health Consultations

The proportion of care one received from Chinese-speaking GPs was also associated with the volume of mental health service use, as shown in Table 3. Both Chinese immigrant and non-immigrant subjects who relied more on Chinese-speaking GPs for general medical care had lower overall rates of mental health consultations in primary care and psychiatry. Among Chinese immigrants, those who saw exclusively Chinese-speaking GPs had only two-third the rate of mental health consultations as those who did not visit Chinese-speaking GPs. The relationship was due primarily to the rate of mental health consultations in primary care, since the relationship for consultations with psychiatrists was not statistically significant at the 5% level. 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

This study has shown that the proportion of primary care received from Chinese-speaking physicians is associated with lower rate of mental health consultations, largely due to the

lower likelihood of being diagnosed with some of the most common mental health conditions. Contrary to what advocates of multi-lingual services postulate, 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 see Chinese physicians.

In addition, it appears that having a common language does not account for this disparity in access to mental health services; interestingly, this disparity by language skill of primary care providers is also noted in the group of non-immigrant patients. The results suggest that Chinese-speaking physicians have a different practice or diagnostic pattern. There could be several interpretations of the variation. One is that it represents differences in service claim coding practice rather than differences in treatment provided. However, this view still leaves unexplained the existence of systematic coding differences by language skill of the practitioner. Another explanation is that Chinese-speaking GPs have different preferences in practice and refer out patients diagnosed with mental disorders. However, the finding that the proportion of care received from Chinese-speaking GPs is associated with lower probability of diagnosis of some mental disorders indicates that Chinese-speaking GPs may be less likely to identify these mental disorders in the first place. This interpretaton is of more concern to considerations of access to care as it implies that the variation of mental health service utilization indeed represents discrepancies in mental health conditions being identified and treated. Although somewhat speculative at this time, the most plausible explanation for lower rates of diagnosis or treatment by Chinese-speaking physicians is that Chinese language ability is a proxy for ethnocultural background or training or both. The overwhelming

majority of the Chinese-speaking physicians have ethnic Chinese surnames and over 40% graduated outside of North America. 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 health care providers such that mental health symptoms and treatment needs are frequently overlooked or downplayed. The relatively higher rate of diagnosis of the ambiguous category of anxiety/depression supports the notion that, when presented with emotional distress, Chinese-speaking physicians favour the use of this sub-clinical category over the formal psychiatric diagnoses. Conversely, the recognition of serious psychiatric illnesses, such as schizophrenic and affective psychoses, is less dependent on cultural interpretation and more often referred for psychiatric follow-up; hence, language skill of primary care providers has no statistically significant association with rates of diagnosis of these serious disorders and no effect on rate of consultations with psychiatrists by Chinese immigrants.

The stronger effect on mental health service utilization of having Chinese-speaking primary care providers among the non-immigrants than among the Chinese immigrants is also informative to the discussion on the effect of language compatibility on access to mental health services. It appears that non-immigrants, who are not restricted in their choice of primary care providers by Chinese language skill, seek non-Chinese-speaking physicians when it comes to mental health care. This is supported by an analysis (not shown in tables) that the mean proportion of visits to Chinese-speaking GPs for mental health reasons among the non-immigrants was 0.18, lower than the proportion for all primary care visits, while the proportion among Chinese immigrants was higher at 0.90.

Chinese immigrants who were diagnosed and treated were more dependent on Chinese-speaking doctors for mental health care than for general primary care while the opposite was true for non-immigrants.

The association between the proportion of primary care provided by Chinese-speaking GPs and the probability of being diagnosed with some common mental disorders poses interesting dilemmas for health policy. GPs are gatekeepers in Canada's medical system. If GPs are not able to communicate with their patients in their preferred language, patients may be impeded in their access and the probability of misdiagnosis and inappropriate intervention is high. On the other hand, if Chinese-speaking GPs are systematically under-diagnosing mental health conditions, then there are also serious implications in terms of timeliness and appropriateness of care. The consequences have wider impact on the Chinese immigrant communities in metropolitan North American cities since the majority in these communities depend solely on the bilingual 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 the practitioners who can communicate in their native language, immigrants and minorities may be further deterred from presenting their health problems, including mental health problems, to health professionals and the incidents of under-diagnosis and under-treatment may be even higher. As it is, Chinese immigrants are already accessing medical services at a much lower rate than the comparison group; 14% of the 152,184 immigrants had not visited a GP during the study period, compared to 4% of the non-immigrants.

There are limitations to this study. One is that not all non-Chinese-speaking physicians in this study were correctly classified. Physicians who did not self-report Chinese language ability or graduate from a Chinese-speaking country and who were not able to be contacted for verification were considered non-Chinese-speaking. In general, such misclassification does not affect the findings as it implies that the actual effect being studied may be stronger than has been observed. As well, since many individuals of Chinese origin are able to understand more than one dialect, this study did not attempt to identify dialects spoken. It is conceivable that there are situations when a Chinese-speaking physician has no advantage in communication with a Chinese patient because of differences in dialect but such scenarios are not thought to occur at sufficient frequency to affect the findings. Another limitation lies in the structure of the physician payment database in that only one diagnosis is required with each submission and patients with co-morbidities are not easily identified and may be under-counted in some diagnostic categories. However, this issue is expected to affect all subjects equally and should not bias the results of the study. Also, inherent with studies using administrative databases, the nature and quality of the intervention is not known. It is possible that underlying mental health concerns of Chinese immigrants may have been addressed by their practitioners without the encounter being labelled as mental health in nature.

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. This study highlights the inadvertent role that clinicians may play in adding to the disparity and the complexities involved in policies and practices to reduce disparity. While bilingual clinicians are crucial to providing culturally appropriate care to

immigrants who would otherwise not seek help at all, the potential of these clinicians to respond to mental health issues may not have been optimized. Pervasive under-diagnosis and under-treatment by practitioners who are committed 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 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.

Word count: 2967

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TABLE 2 - Odds Ratio of Ever Receiving Diagnosis of Selected Mental Health Conditions by Proportion of Medical Visits to Chinese-speaking GPs

	Chinese Immigrants		Non-Immigrants	
Mental Health Condition	OR*	95% CI	OR*	95% CI
Schizophrenic Psychoses	0.74	*(0.52 1.07)*	1.01	*(0.88 1.16)*
Affective Psychoses	0.86	*(0.66 1.12)*	0.53	*(0.47 0.59)*
Neurotic Disorders	0.87	*(0.80 0.95)*	0.49	*(0.47 0.51)*
Drug Dependence	0.22	*(0.14 0.35)*	0.28	*(0.24 0.32)*
Acute Reaction to Stress	0.90	*(0.80 1.02)*	0.54	*(0.51 0.57)*
Adjustment Reaction	0.39	*(0.33 0.46)*	0.36	*(0.33 0.39)*
Depressive Disorder NEC	0.47	*(0.42 0.52)*	0.30	*(0.29 0.32)*
Anxiety/Depression	1.05	*(0.98 1.13)*	0.83	*(0.80 0.86)*

* OR is the odds ratio of an individual who received all primary care from Chinese-speaking GPs ever being diagnosed with the condition versus an individual who received all primary care from non-Chinese-speaking GPs, adjusting for sex and age

TABLE 3 - Rate Ratio of Mental Health Consultations by Proportion of Medical Visits to Chinese-speaking GPs

	Chinese Immigrants		Non-Immigrants	
Specialty of Practitioner	RR*	95% CI	RR*	95% CI
Overall (GPs & Psychiatrists)	0.65	*(0.61 0.69)*	0.32	*(0.30 0.33)*
General Practitioners	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)*

* RR is the ratio of the rate of mental health consultations of an individual who received all primary care from Chinese-speaking GPs versus the rate of an individual who received all primary care from non-Chinese-speaking GPs, adjusting for sex and age

TABLE 1 - Characteristics of Chinese Immigrants and Non-immigrant Comparison Subjects*

	Chinese Immigrants		Non-Immigrants	
Total Number	130,902		144,660	
		95% CI		*95% CI*
Mean Age at Entry to Study	33.5	*(33.4 33.6)*	33.3	*(33.2 33.4)*
Mean Number of Years in Study	6.0	*(6.0 6.0)*	6.2	*(6.2 6.3)*
Sex				
Male	52.4%	*(52.1% 52.7%)*	51.5%	*(51.3% 51.8%)*
Female	47.6%	*(47.3% 47.9%)*	48.5%	*(48.2% 48.7%)*
Mean Individual Proportion of Primary Care Visits to Chinese-speaking GPs				
		95% CI		*95% CI*
	0.87	*(0.87 0.87)*	0.23	*(0.23 0.23)*
Percentage of Subjects Who Received All Primary Care from Chinese-speaking GPs (Proportion=1)				
		95% CI		*95% CI*
	51.6%	*(51.3% 51.9%)*	8.1%	*(8.0% 8.3%)*

* Chinese immigrants and comparison subjects had at least one visit to a general practitioner in 1992-2001

Appendix A

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 in 1985-2001 were obtained. The following algorithm was used to determine the Chinese language ability of these physicians.

I. Self-reported ability to speak Chinese or one of its dialects = Chinese-speaking

II. Graduation from an institution in China, Hong Kong or Taiwan = Chinese-speaking

III. Of those who were not identified as Chinese-speaking in Steps I and II, those with Chinese surnames were extracted.

- IIIa. Chinese language ability of some were determined by personal information sources of researchers
- IIIb. Of the remaining physicians with Chinese surnames, a telephone verification procedure was carried out:

1) 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-January 2005.
2) The person who responded to the phone call (usually the receptionist in the physician's office) was asked to verify if the physician was able to speak Chinese or understand patients who speak Chinese.

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