Importance of native language in a population-based health survey among ethnic Chinese in Australia

Abstract

Objective: To assess the impacts of survey languages on participation and representativeness of the study subjects in a health survey in a Chinese community in Australia.

Method: A random sample of 500 ethnic Chinese in Brisbane, Queensland, Australia was surveyed during November 2005 to February 2006 by using a bilingual survey questionnaire in their preferred languages, i.e. English or Chinese.

Results: 210 questionnaires were returned. Two-thirds of the participants chose to answer the questionnaires in Chinese. Besides being older with relatively lower income, they were more likely to be married, have a Chinese family doctor, and visit a Chinese medicine practitioner. Fewer of them have visited the Diabetes Australia website or read any educational information materials about diabetes.

Conclusions & Implication: The multilingual approach is crucial to improving participation and representativeness of samples from ethnic populations.

Keywords: native language, health survey, diabetes, Chinese, health service utilisation

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Ethnicity-based research can identify new clues to pathogenesis of a disease and presence of inequity in accessibility and utilisation of health service and health outcomes. In English speaking countries, health surveys are often conducted in English language which is not the native language of most ethnic groups.[1-8] The language barrier is likely to prevent some individuals from participating in a health survey. Ethnic populations are often underrepresented in the population-based studies.[9-10] The recently conducted population-based survey in Australian Diabetes, Obesity and Lifestyle Study (AusDiab), for example, only included a small proportion of people from the minority groups.[9] People from ethnic communities whose native language is not English may suffer in silence for a long time due to lack of communication skills and limited access to healthcare information.

Recruiting ethnic participants in a population-based survey is a challenge. Little evidence is available about the impacts of survey language on participation rates. No studies have examined the possible biases introduced by solely using English as the survey language in ethnic populations. We surveyed ethnic Chinese, the largest non-Caucasian ethnic group in Australia, to assess whether people who chose to answer survey questionnaires in their native language were different from those participants who answered the survey in English in terms of demographic characteristics, health status, and access to health education information and health service utilisation.

Method

In this pilot survey, 500 participants were randomly selected from a telephone list of Chinese living in Brisbane, Queensland, Australia. The questionnaires written in both English and Chinese were sent by mail to the participants who were requested to answer the questions in their preferred language. A total of 210 questionnaires were returned during the duration November 2005 and February 2006.

Information collected covered a broad range of variables, including demographic factors, indicators of socioeconomic status, years living in Australia, smoking, alcohol and tea consumption, diet, physical activity, chronic disease history, body weight, body height, blood pressure, use of health services, family history of chronic diseases and knowledge about diabetes and their access to diabetes health educational materials produced by the Diabetes Australia.

Participants were divided into two groups according to the language used to fill the questionnaires. Chi square test and t-test were used to test the differences between two groups for categorical and continuous variables, respectively. This project was approved by the University of Queensland Medical Research Ethics Committee (200400586).

Results

Two-thirds of participants (138) answered the questionnaires in their native language − Chinese. More importantly, those who chose to answer questions in Chinese were significantly different from those who answered the questionnaire in English in a number of important aspects. As shown in Table 1, the group answered in English had lived in Australia significantly longer, more of them had professional occupation and higher income, while the group answered in Chinese were older, more likely to be married, to have a family doctor who is also Chinese, and to visit Chinese medicine practitioner. A larger proportion of those who answered in Chinese were born in mainland China and Taiwan while a large proportion of those who answered the survey in English were born in Hong Kong and other places including Malaysia, Indonesia and Singapore. More people in Chinese group mainly consumed Chinese food on a daily basis. There were no significant differences in the proportions of cigarette smoking, tea drinking, alcohol drinking and known diabetes. A smaller proportion of those who responded in Chinese visited the Diabetes Australia multilingual internet website or read any educational information materials about diabetes.

Discussion

Population-based surveys in ethnic groups conducted in English language only capture a fraction of the eligible individuals.

Development of multilingual survey questionnaires is essential for improving participation rates among ethnic groups in English speaking countries. Those who answered questionnaires in English are significantly different from the target population in a number of health related characteristics. This limits the generalisability of findings on risk factors, health outcomes and health service utilisations from a survey conducted in English only among ethnic populations. Those disadvantaged people who need services are less likely to be included in a population-based survey. Therefore, it is also crucial to develop survey questionnaires in both English and the native languages to obtain an unbiased sample.

Besides having different linguistic needs, the ethnic minority group may have different health-related beliefs and values which may affect their health seeking behaviour, and their access and utilisation of health facilities.[11] In our survey, a larger proportion of the participants, who answered in Chinese language, visited a Chinese medicine practitioner. This may reflect their health belief that is influencing their health seeking behaviour. Further research is needed to assess the standard of care and the health outcomes for this group of people as compared to those who were treated using western medicine.

A smaller proportion of the participants who answered in Chinese language have visited the Diabetes Australia website and read information about diabetes. The reasons may be multi-factorial such as lack of access to internet, lack of promotional channels for the information, and low health-literacy level. A recent study conducted

Table 1: Comparison of characteristics of study participants who answered survey questionnaires in Chinese and English: mean (standard deviation) or prevalence (95% confidence intervals).

	Survey language		
Variable	Chinese	English	P value
Number	138	72	
Age	48.4 (14.5)	41.6 (13.2)	0.0011
BMI	22.6 (3.1)	22.5 (3.2)	0.78
Years in Australia	12.5 (7.5)	17.1 (10.3)	0.0005
Male %	40.7 (32.4, 49.5)	49.3 (37.0, 61.6)	0.24
Married %	82.5 (74.5, 88.8)	68.9 (55.7, 80.1)	0.037
University education %	71.3 (62.9, 78.7)	81.9 (71.1, 90.0)	0.092
Professional occupation %	29.0 (21.4, 37.6)	67.1 (54.9, 77.9)	<0.0001
Income greater than $800/week %	30.3 (21.5, 40.4)	73.0 (60.3, 83.4)	<0.0001
Have a family doctor %	76.8 (68.9, 83.6)	63.9 (51.7, 74.9)	0.047
– Family doctor is Chinese %	79.4 (70.5, 86.6)	57.4 (42.2, 71.7)	0.0048
Visited doctor in last 12 months %	79.7 (72.0, 86.1)	75.0 (63.4, 84.5)	0.43
Visited Chinese medical practitioner %	31.2 (23.6, 39.6)	19.4 (11.1, 30.5)	0.07
Place of birth			<0.0001
– Mainland China, %	39.1 (30.9, 47.8)	15.3 (7.9, 25.7)	
– Hong Kong, %	16.7 (10.9, 24.0)	27.8 (17.9, 39.6)	
– Taiwan, %	33.3 (25.5, 41.9)	5.6 (1.5, 13.6)	
– Other, %	10.9 (6.2, 17.3)	51.4 (39.3, 63.3)	
Overweight or obesity: BMI≥25, %	23.5 (16.2, 32.2)	18.8 (10.1, 30.5)	0.46
Mainly eat Chinese meals, %	84.1 (76.9, 89.7)	65.3 (53.1, 76.1)	0.0019
Tea drinking, %	65.2 (56.6, 73.1)	65.3 (53.1, 76.1)	0.99
Cigarette smoking %	13.0 (7.9, 19.8)	16.7 (8.9, 27.3)	0.48
Alcohol drinking %	32.7 (23.5, 42.9)	29.2 (18.6, 41.8)	0.64
Known diabetes %	8.0 (4.0, 13.8)	8.3 (3.1, 17.3)	0.93
Visited Diabetes Australia website %	2.2 (0.5, 6.2)	13.9 (6.9, 24.1)	0.0008
Read diabetes information %	26.8 (19.6, 35.0)	52.8 (40.7, 64.7)	0.0002

in the US reported that populations with the lowest literacy and health literacy in the US are also among those disproportionately burdened by diabetes and its complications. Yet, suitability of publicly available diabetes education materials for these patients is not clear.[12] Although the literacy level of the participants in the Chinese and English language groups in our study did not seem to differ significantly, their health literacy level was not assessed. People who are literate may not be adequately health-literate, i.e. their understanding about health-related information may not be adequate. Health literacy level can be low despite the use of native language. A recent study in Hong Kong (China) examined the relationship between health literacy, complication awareness and diabetic control among patients with type 2 diabetes mellitus and validated a Chinese version of the 'Short-form Test of Functional Health Literacy in Adults'. The study concluded that educational strategies need to consider patients' health literacy levels in order to develop an effective patient education and improve patients' diabetic control.[13] Hence, the health literacy level of the Chinese community in our study deserves further investigation in the future.

On the other hand, the readability of the content of the health-related information plays an important role as well. A recent study in the United Kingdom (UK) assessed the readability of information provided for patients with Type 2 diabetes on drug treatment for their condition and concluded that information for patients with diabetes may be of limited value for 20% of the UK adult population who have problems with literacy.[14] The readability of the content of information somehow relates to use of medical jargon and cultural appropriateness. It is not just a problem related to English language. In a study to determine the reading level of information on diabetes found on the Croatian web sites that are written in Croatian language, the information on diabetes from 10 Croatian websites was tested for readability using SMOG (simplified measure of gobbledygook) formula. The study reported that the health information would not be understood by at least 80% of the Croatian adult population.[15] Similar study on the readability of the health information in Australia, for an example Diabetes Australia website, may provide some clue in that aspect.

The multilingual health educational materials have significant potential to reduce health inequalities in the minority ethnic communities. However, those materials are less likely to reach those who are less proficient in English. A recent study in the UK has developed culturally competent translations of questionnaires measuring diabetes self-care in languages of two minority ethnic groups whose main languages are Sylheti and Mirpuri. The questionnaires are ready for psychometric testing in minority ethnic populations and the methods are available for use by researchers to establish within-study feasibility.[16] Similarly, the feasibility of adapting such methodology for the Chinese ethnic group in Australia may deserve some attention as this ethnic group is the largest non-Caucasian ethnic group in Australia. While people with ethnic background are encouraged to improve their English skills, further research is needed to develop efficient ways of delivering health education services to ethnic communities.

Acknowledgement

References

1. Anand SS, Yusuf S, Vuksan V, et al. Differences in risk factors, atherosclerosis, and cardiovascular disease between ethnic groups in Canada: the Study of Health Assessment and Risk in Ethnic groups (SHARE). *Lancet.* 2000;356(9226): 279-84.
2. Bhopal R, Vettini A, Hunt S, et al. Review of prevalence data in, and evaluation of methods for cross cultural adaptation of, UK surveys on tobacco and alcohol in ethnic minority groups. *BMJ.* 2004;328(7431):76.
3. Spijkerman AM, Yuyun MF, Griffin SJ, et al. The performance of a risk score as a screening test for undiagnosed hyperglycemia in ethnic minority groups: data from the 1999 health survey for England. *Diabetes Care.* 2004;27(1):116-22.
4. Razak F, Anand S, Vuksan V, et al. Ethnic differences in the relationships between obesity and glucose-metabolic abnormalities: a cross-sectional population-based study. *Int J Obes (Lond).* 2005;29(6):656-67.
5. Crawford MJ, Nur U, McKenzie K, et al. Suicidal ideation and suicide attempts among ethnic minority groups in England: results of a national household survey. *Psychol Med.* 2005;35(9):1369-77.
6. Brugha T, Jenkins R, Bebbington P, et al. Risk factors and the prevalence of neurosis and psychosis in ethnic groups in Great Britain. *Soc Psychiatry Psychiatr Epidemiol.* 2004;39(12):939-46.
7. Haas JS, Phillips KA, Sonneborn D, et al. Variation in access to health care for different racial/ethnic groups by the racial/ethnic composition of an individual's county of residence. *Med Care.* 2004;42(7):707-14.
8. Klatsky AL, Friedman GD, Sidney S, et al. Risk of hemorrhagic stroke in Asian American ethnic groups. *Neuroepidemiology.* 2005;25(1):26-31.
9. Dunstan DW, Zimmet PZ, Welborn TA, et al. The Australian Diabetes, Obesity and Lifestyle Study (AusDiab)--methods and response rates. *Diabetes Res Clin Pract.* 2002;57(2):119-29.
10. Des Jarlais G, Kaplan CP, Haas JS, et al. Factors affecting participation in a breast cancer risk reduction telephone survey among women from four racial/ethnic groups. *Prev Med.* 2005;41(3-4):720-7.
11. Davies K. Addressing the needs of an ethnic minority diabetic population. *Br J Nurs.* 2006;15(9):516-9.
12. Hill-Briggs F, Smith AS. Evaluation of Diabetes and Cardiovascular Disease Print Patient Education Materials for Use with Low Health Literate Populations. *Diabetes Care*. 2008;31(4): 667-71.
13. Tang YH, Pang SM, Chan MF, Yeung GS, Yeung VT. Health literacy, complication awareness, and diabetic control in patients with type 2 diabetes mellitus. *J Adv Nurs.* 2008;62(1):74-83.
14. Kerr D. Information in diabetes care: is there a need to dumb down even more? *Diabet Med.* 2007;24(5):561-3.
15. Kusec S, Mastilica M, Pavlekovic G, Kovacic L. Readability of patient information on diabetes on the Croatian Web sites. *Stud Health Technol Inform.* 2002;90:128-32.
16. Lloyd CE, Sturt J, Johnson M, Mughal S, Collins G, Barnett AH. Development of alternative methods of data collection in South Asians with Type 2 diabetes. *Diabet Med.* 2008; 25(4): 455-62.