

Research paper

Health status of Chinese women in Northern Ireland: SF-36 health survey

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ABSTRACT

In contrast to the remainder of the UK, the largest ethnic minority group in Northern Ireland is Chinese. There are few research findings on the health status of Chinese in the UK, especially with respect to women. This research aimed to investigate the general health status of Chinese women in Northern Ireland, and to make suggestions for health promotion. A survey methodology was used. This consisted of questionnaires that included demographic measures, open-ended questions and the SF-36 (Hong Kong version) health survey. A convenience sample of non-pregnant Chinese women in Northern Ireland ($n = 48$) was collected during 2002–2003. Data were analysed by using the online scoring system, and subsequently coded into and analysed using SPSS (v11.0).

The findings showed that more than a quarter of the participants understood only a little English, which was a potential obstacle to obtaining health information. About 26.6% of participants stated that they were suffering from health problems, for

example, anaemia, bronchiectasis, back pain and depression. SF-36 results showed that the psychosocial health status of Chinese women living in Northern Ireland was significantly below average for women in the UK. However, the physical health status of the participants was at or above the average for the UK female population.

It was concluded that the health status of Chinese women might be influenced by multiple factors, for example, their sociocultural characteristics and beliefs, heterogeneity and interaction of risk factors, acculturated dietary intake, late hospitalisation and high stress. Psychological and social wellbeing need to be improved, and more social support should be provided to improve their overall health status. Health professionals should be aware of the trans-cultural issues in a multicultural environment.

Keywords: Chinese women, health status, health survey, mental health, SF-36

Introduction

The Chinese community in Northern Ireland is a heterogeneous group made up of members from different regions including Hong Kong, mainland China, Singapore and Malaysia, and speaking different dialects including Cantonese, Mandarin and Hakka (Holder, 2003). Like Chinese immigrants in the rest of the UK, Chinese migration to Ireland commenced in the late 19th century, but large-scale immigration from Hong Kong and elsewhere dates from the late 1950s/1960s (Holder, 2003). In addition, as a

consequence of political and economic circumstances in China, some people from mainland China have sought refuge in the UK, including Northern Ireland. Home Office statistics show that since 1989 there has been a steady rise in immigrants who are Mandarin speakers from mainland China and, since 1999, a corresponding fall in immigration from Hong Kong where Cantonese is the main language (Home Office, 2005). Consequently, there are now more Mandarin than Cantonese speakers in the UK, and immigrants

from mainland China form one of the fastest growing ethnic minority groups, particularly in Northern Ireland. According to the 2001 census, the Northern Ireland Chinese population numbered around 4145. Approximately 1275 were women aged 18–59 years who make up 30.76% of the total Chinese population in Northern Ireland. About one-third were resident in or around the Belfast area at the time of this study (Northern Ireland Statistic and Research Agency, 2003).

The most frequently reported occupations among Chinese people in Northern Ireland are in skilled trades and elementary occupations; that is to say, jobs that do not require formal educational qualifications but usually require a short period of experience-related training. Examples include packer, cleaner and waiter/waitress. Apart from these, the largest occupational groups are students, small employers and those who run their own businesses (Northern Ireland Statistic and Research Agency, 2003). In addition, the 2001 census showed that about 43% of Chinese women in Northern Ireland had no academic or professional qualifications, and were more likely to work in restaurants and hotels, this showing a different employment from that of members of other ethnic groups (Northern Ireland Statistic and Research Agency, 2003).

Chinese women living outside their country of origin face multiple barriers to obtaining good health (Northern Health and Social Services Board, and Multi-cultural Resource Centre, 1995). These include limited information and options, because many do not know where and when to seek medical services. Many Chinese women cannot read or speak English and so have poor understanding of the services provided, and experience difficulty in interacting with healthcare providers. Their ability to make independent health-related choices and gain access to health and other social services is further constrained by a lack of economic resources. Language barriers and lack of culturally based knowledge can create difficulties for professionals in terms of giving appropriate advice and care (Papadopoulos *et al*, 2004).

There is ample evidence that members of ethnic minority groups, including Chinese people, have higher rates of chronic diseases, including hypertension, diabetes, heart disease, and cancers of the colon, breast, and prostate, as well as less access to healthcare (Whittemore *et al*, 1990; Chen and Gao, 1993; Satia *et al*, 2000; Landman and Cruickshank, 2001; Liao *et al*, 2004). However, there are few research findings on the health status of Chinese in the UK, particularly in Northern Ireland (apart from the major survey by Sproston *et al* (1999) which was confined to England). The research reported here seeks to add to the very small amount of literature on this topic.

Methods

The aim of the study was to investigate the general health status of Chinese women in Northern Ireland using the SF-36 health survey instrument as a basis for suggesting appropriate health promotion strategies for Chinese immigrants. A cross-sectional design was used based on a self-administered questionnaire consisting of three sections:

- demographic and anthropometric measures which included age, marital status, religion, occupation, level of education, nationality, years of residence, and personal habits such as smoking and drinking. Weight (in kilograms) and height (in centimetres) were also recorded
- open-ended questions which sought to elicit information about participants' proficiency in English, the resources on which they drew to access health information, personal impressions of the health services, whether or not they considered themselves to have health problems, and their perceived stress levels
- the SF-36 health survey. As a health measurement tool, the SF-36 health survey has been widely recommended and has been validated in a wide range of languages, and particularly among Chinese populations (Parker *et al*, 1998). Normative data have been established in most countries, where 'norm' is a reference standard of 'average' or 'normal' scores (Jenkinson *et al*, 1993; Ware, 2002). The internal consistency and construct validity of the SF-36 health survey have been generally acknowledged (Brazier *et al*, 1992; Jenkinson *et al*, 1996). The SF-36 health survey measures both physical and mental components. The physical component score summarises scores of physical function, role-physical (refers to limitations in daily activities due to physical problems with work or other regular daily activities as a result of physical health), bodily pain (in terms of pain suffered during the previous four weeks and the degree to which pain interfered with the normal work), general health (measured by asking the participants to rate their general health and responses to the general health statements according to their health perceptions). The mental health component score summarises the scores of mental health, role limitations due to emotional problems, social function, and vitality. The mental health score gives information on such characteristics as whether or not the subject is happy, calm, peaceful, nervous, or feeling down and unable to be cheered up. Questions about emotional problems measure the impact of these on work or other regular daily activities. The social function component is concerned with the degree to which physical health or

emotional problems interfere with normal social activities. Finally, the vitality component attempts to measure how full of life, energetic, worn out, or tired participants feel (Ware, 2002).

The questionnaire was developed in three versions: English, simplified Chinese for Mandarin speakers and traditional Chinese for Cantonese speakers. In the Chinese version questionnaire, a validated and translated Chinese version of the SF-36 health survey (Lam *et al*, 1998) was adopted.

The sampling criteria were non-pregnant Chinese women living in Northern Ireland for more than six months, and aged between 18 and 59 years. A convenience sampling method was employed, and participants were recruited by one of the authors from Chinese community groups, community organisations, social networks and multicultural organisations. An attempt was made to ensure that the sample was as representative as possible according to the proportion and characteristics of Chinese residents living in each area of Northern Ireland, as outlined in the 2001 census (Northern Ireland Statistic and Research Agency, 2003), with varied backgrounds and occupations.

Questionnaires were distributed by one of the authors through local Chinese community activities and in languages of participants' preference, to Chinese women who met the sampling criteria, between February 2003 and January 2004. A consent form with a brief introduction to the study was attached in front of the questionnaire, and informed consent was obtained from each participant. One-hundred and thirty-eight questionnaires in total were distributed, and stamped-addressed reply envelopes were provided. Names and addresses of participants were also recorded at the first contact. A reminder was sent to the addresses if the questionnaires were not returned after two weeks. Forty-eight questionnaires were returned, which gave a response rate of 35%.

Demographic and anthropometric data were analysed using descriptive statistics. The open-ended questions were analysed using qualitative methods that centred on reading, rereading and comparison that allowed emergent themes to be identified. Latent content analysis was used to identify and code the significant meanings by reviewing the context of the questionnaires. Manifest content analysis was also used; this involved surveying the scripts for words, phrases, and terms central to the research, and then analysing them by numeric descriptive statistics (Morse and Field, 1998). In general this involved describing the contents by identifying themes or categories. The identified themes were then presented to peers and experts in the field of health promotion, which provided a valuable opportunity for discussion, reflection and further validation.

The returned SF-36 health surveys were scored using online scoring available at the SF-36 website (Quality Metric Incorporated, 2004). Scale scores and norm-based scores were obtained, and results were coded into SPSS (v11.0). Both descriptive and inferential statistics were used. A one-sample *t* test was used to examine whether there were significant differences in data on health status between this study and the UK normative data for women (Jenkinson *et al*, 1993).

The principles of beneficence and non-maleficence, respect for human dignity, human justice, anonymity and confidentiality were ensured in this study. Ethical approval was granted by the Research Ethics Committee of the University of Ulster on 14 July 2002. The chairman of the local Chinese community also granted approval. Permission to use the Chinese (HK version) SF-36 health survey (Lam *et al*, 1998) was obtained on 12 November 2002.

Issues of translation and back-translation

The questionnaire was developed in Chinese in both simplified (for Mandarin speakers) and traditional (for Cantonese speakers) by one of the authors who is bilingual (Chinese–English). It was translated into English, and back-translated to Chinese by a bilingual speaker who has a health-related background. The two Chinese versions of the questionnaire were then compared and verified to have lexical equivalence.

The Chinese Hong Kong version SF-36 health survey has been translated and back-translated by Lam *et al*. (1998), and its acceptability, conceptual equivalence, scaling assumptions and construct validity have been tested. Lam *et al* (1998, p. 1139) concluded that the Chinese version 'has achieved conceptual equivalence and satisfied the psychometric scaling assumptions well enough to warrant further use and testing, using the standard scoring algorithms'.

Findings

Sample description: demographic and anthropometric data

All the participants were non-smokers, and the majority of them (86%) did not drink alcohol. Most ($n = 28$) of them were from Belfast, and the rest were from urban and rural areas throughout Northern Ireland. Years of residency in Northern Ireland ranged from six months to 32 years, with a mean of eight years. Ages ranged from 20 to 59 years, with a mean

age of 36 years. The majority of participants ($n = 33$) were married, 11 were single, two divorced and two widowed. Eighteen of them were housewives, others were students, company staff, researchers, doctors, lecturers, business women and cleaners. Fifty-six per cent of all participants ($n = 28$) had university-level education, 34% ($n = 15$) had reached higher school level, and 10% ($n = 5$) primary school levels.

More than a quarter of the participants (27%) reported that they only understood a little English, or did not know any English; 48% ($n = 23$) reported that they could understand English and only 24% of the participants were fluent in English.

Body mass index

Body mass index (BMI) is a useful anthropometric index, used to evaluate nutritional status both within and between populations. In this study, body mass index ranged from 17.53 to 29.07, with a mean of 22.07 and a standard deviation of 2.85. Six participants were underweight, and one-fifth ($n = 10$) of the participants were overweight (BMI > 25.0). None of the participants was obese.

Perceptions of health, health information and health services

Health and health counselling

Half of the participants stated they would go to see their general practitioner (GP) when they had health problems, and one-third of them stated it would depend on the degree of discomfort. Only two participants preferred to see the traditional Chinese medicine doctor. Thirty-four per cent ($n = 17$) of the participants stated that they suffered from health problems. Content analysis showed 94.1% ($n = 16$) of those were aged over 30 years. These health problems included food allergies, allergic rhinitis (hayfever), asthma, anaemia, stomach problems, bronchiectasis, cervical vertebra disc prolapse, abnormal menstruation, back pain, hepatitis B carrier, depression, constipation, lumbar disc prolapse, 'uterus problem', hyperthyroidism, and iritis.

Stress

Eleven participants, almost a quarter of those who took part, stated that they were suffering from high levels of stress. The sources of stress were business, work, study, examinations, children and family affairs, and lack of support.

Health information and health services

The majority of the participants obtained health information from the media, that is through newspapers,

magazines and television, as well as friends. Only 12 participants obtained health information from health professionals and health organisations, in addition to media and friends. According to participants, health services needed to be improved, although the majority (76%) stated they were satisfied or felt 'OK' with the service that they received, citing as the reason for this the comprehensiveness of the services and the positive attitudes of health professionals. Twenty-four participants did not know or were not satisfied with the health services in Northern Ireland. Unfamiliar procedures, such as having to make appointments, and long waiting times were the main reasons for their dissatisfaction.

The SF-36 health survey

Table 1 shows the results of scale scores and norm-based scores using the SF-36 health survey. More than half of the participants scored norm-based scores that were lower than 50 on bodily pain, general health, social function, role limitation due to emotional problems, mental health and total mental component scores, while role-physical and PCS were at the margin of 50. These findings suggest that health perception and psychosocial health status were poor for these Chinese women.

The mean scale scores for the dimensions of SF-36 health survey were compared with the health studies in Hong Kong (Lam *et al*, 1999) and the UK (Jenkinson *et al*, 1999) (see Table 2). The physical component score of the study reported here was higher than in the UK study, reflecting a relatively optimal physical health status for these Chinese women in Northern Ireland. However, the mean scale scores of bodily pain, social function, role limitation due to emotional problems, and mental health in this research were the lowest among the three studies, while the mental component score was much lower than in the UK study, indicating a lower level of mental health compared to the general female population of the UK. Furthermore, the mean score for physical function was higher than the UK study and lower than the Hong Kong study, and both of the mean scores for general health and vitality were higher than the Hong Kong study and lower than the UK study. These results are consistent with the statistical findings, which indicate that psychosocial health and perception of general health by these Chinese women in Northern Ireland were low. It also seems the scores were a reflection of the health status for Chinese women in Northern Ireland, with a physical component score in the upper margin of the whole population and a mental component score below the average of the whole population.

One-sample *t* tests were performed to examine whether there were significant differences between

Table 1 Scale scores and norm-based scale scores of SF-36 health survey

| Dimensions | <i>n</i> | Scale scores, mean (SD) | Norm-based scores, mean (SD) |
|---------------------------|----------|-------------------------|------------------------------|
| Physical function | 48 | 88.65 (12.54) | 52.36 (5.23) |
| Role-physical | 48 | 75.52 (32.82) | 49.30 (9.26) |
| Bodily pain | 48 | 64.69 (23.36) | 47.63 (9.99) |
| General health perception | 48 | 63.04 (20.12) | 46.70 (9.42) |
| Vitality | 48 | 62.81 (20.47) | 52.76 (9.69) |
| Social function | 48 | 75.95 (19.81) | 46.73 (8.58) |
| Role-emotional | 48 | 55.56 (43.13) | 41.25 (13.64) |
| Mental health | 48 | 69.25 (18.82) | 46.61 (10.69) |
| PCS | 48 | 49.81 (7.61) | 49.81 (7.61) |
| MCS | 48 | 44.71 (11.40) | 44.71 (11.40) |

SD: standard deviation; Role-physical: role limitation due to physical problems; Role-emotional: role limitation due to emotional problems; PCS: physical component score; MCS: mental component score.

Table 2 Comparison of means of SF-36 scale score of the health status dimensions between the studies in Hong Kong (HK) and UK

| | Mean of this study (<i>n</i> = 48) (SD) | Mean of the HK female by Lam <i>et al</i> (1999) (SD) | Mean of the UK 18-64 years female by Jenkinson <i>et al</i> (1999) (SD) |
|---------------------------|---|--|--|
| Physical function | 88.65 (12.54) | 89.82 (14.19) | 86.66 (20.15) |
| Role-physical | 75.52 (32.82) | 79.79 (32.96) | 85.83 (22.52) |
| Bodily pain | 64.69 (23.36) | 81.14 (23.91) | 76.97 (23.44) |
| General health perception | 63.04 (20.12) | 52.92 (20.38) | 71.28 (20.54) |
| Vitality (or energy) | 62.81 (20.47) | 58.99 (19.48) | 84.07 (21.79) |
| Social function | 75.95 (19.81) | 90.96 (17.08) | 81.33 (23.62) |
| Role-emotional | 55.56 (43.13) | 71.04 (38.80) | 55.91 (19.85) |
| Mental health | 69.25 (18.82) | 72.53 (17.13) | 70.05 (18.65) |
| PCS | 49.81 (7.61) | N/A | 49.54 (10.40) |
| MCS | 44.71 (11.40) | N/A | 49.17 (10.39) |

N/A: not available

data obtained from this study and the normative data for women in the UK as a whole (Jenkinson *et al*, 1993). As can be seen from Table 3, highly significant statistical differences ($P < 0.001$) between the scale

scores of bodily pain, general health, social function, and role limitation due to emotional problems were found in this study between the Chinese women in Northern Ireland and women in the UK (Jenkinson

Table 3 Statistical differences of scores between UK **normative data** for women (Jenkinson *et al*, 1993) and scale scores of Chinese women in Northern Ireland

| | UK women, mean | Chinese women in Northern Ireland, mean | One-sample <i>t</i> tests significance (<i>P</i>) |
|---------------------------|-------------------|---|--|
| Physical function | 86.40 | 88.65 | 0.221 |
| Role-physical | 83.70 | 75.52 | 0.091 |
| Bodily pain | 79.12 | 64.69 | <0.001* |
| General health perception | 72.92 | 63.04 | 0.001* |
| Vitality | 58.94 | 62.81 | 0.196 |
| Social function | 86.48 | 75.95 | 0.001* |
| Role-emotional | 80.76 | 55.56 | <0.001* |
| Mental health | 72.20 | 69.25 | 0.283 |

**P* < 0.001

et al, 1993). However, there were no significant differences between physical function, the role of physical health, vitality or mental health.

Discussion

Multiple factors can affect the health of immigrants. In a model of immigrant and refugee health, Beiser (2005) concluded that four paradigms dominated scientific and popular discourse about migrant health, and provided a framework for research, policy and practice. The four paradigms are: 'pre-existing illness', 'convergence', 'resettlement stress', and 'interaction'. Although each paradigm acts as an independent model to explain certain problems about immigrants' health, it appears to be the synergy between the individual paradigms that produces the overall effect in influencing health of immigrants.

This research investigated the general health status of Chinese women in Northern Ireland, using open-ended questions and the SF-36 health survey tool. The 'pre-existing illness' paradigm provides a possible explanation for the findings that physical and physiological health were at or above the average of the general population (Beiser, 2005). More than half of the participants (58.3%) in this study had attained university-level education. Dryburgh and Kelly (2003) noted that the highly skilled are most likely to emigrate, and they are the healthiest group among the immigrants (Kliwer and Jones, 1998). Moreover, the people who choose to emigrate are usually a self-selected group in good health. In our study, measurements of

body mass index showed that none of the participants was obese and that the majority were within the healthy weight range.

'Convergence', 'resettlement stress' and 'interaction' paradigms provide an explanation for the lower psychological and social health status compared to the average among women in the UK. Psychosocial adjustment and adaptation to a new culture by people from another culture have been referred to as 'acculturation' (Merger, 2000); that is, cultural or behavioural assimilation. Acculturation stress builds up during the process of immigration and resettlement. Almost a quarter of the participants stated they were suffering from high levels of stress. This was consistent with the findings of the health status of older American-Chinese (Yu, 1986; Mui, 1996; Shen and Takeuchi, 2001) and Canadian-Chinese (Lai, 2004). These studies also reported lower psychological wellbeing and more depressive symptoms in older Chinese than in the older general population.

Immigrants are exposed to physical, social, cultural and environmental factors that are specific to the destination country. Any failed interaction with these factors would result in a low psychosocial health status. Compared to local people, immigrants face more pressure in their everyday life; for example, pressures come from the immigration process, having to adapt to the new environment and having to work hard for personal achievement.

Attention has been drawn to relationships between acculturation, stress and socio-economic status. Shen and Takeuchi (2001) found that higher depressive symptoms were related to lower socio-economic status and higher stress among Chinese immigrants. Although Chinese people have a long-standing tradition of

withstanding hardship, and a high tolerance for distressing circumstances, difficulties in adjusting to the new culture become more obvious when there is no social support and there is a language barrier. Chinese people have a strong sense of interdependence with family and social support; however, they were more likely to have 'a severe lack of social support' when they emigrated to another country (Pitson, 1999, p. 159). On the other hand, Chinese people have not traditionally viewed mental health as being as important as physical health. They have been found to be reluctant to express feelings and emotions, especially negative ones (Ho *et al*, 2004). Therefore, mental health education is very important for immigrant populations, and it may be more effective if it is tailored to a level of acculturation.

In addition, half of the participants in our study did not know about, or were not satisfied with the health services in Northern Ireland. Previous research has reported significantly lower use of health services, especially those in mental health, by members of ethnic minority groups (Sproston *et al*, 2001; Guo, 2004). More than one-third of the participants in our study stated that they suffered from various health problems. There is also evidence that members of ethnic minority groups have significantly poorer outcomes for some cancers (Selby, 1996; Papadopoulos and Lees, 2004), high rates of hypertension, chronic heart diseases, diabetes and cancer of colon. This may be due to late presentation, but the interplay of language barriers and health services, unhealthy dietary acculturation and health outcomes may also play a part, as well as heterogeneity and interaction of the risk factors (Thomas, 2002). Therefore, health promotion providers should not only target physical health, but also aim to improve psychological and mental health for all immigrants, not only for Chinese women. Better health perception, lower stress and better social support would promote their health status. Thus, health gains in this population group would, in turn, raise the overall population's health status.

Conclusion

We acknowledge that findings from this study are not generalisable, due to the convenience sampling methods. However, naturalistic generalisation can apply, which means ethnic minorities can make connections and associations with the similarities of the findings, and build up their understandings (Stake, 2001). Other minority ethnic groups could benefit from consideration of the findings about the Chinese immigrant in relation to their own situations and experiences. Further research using a randomised sampling method or longitudinal design is recommended.

Multiple factors such as sociocultural characteristics and beliefs, the heterogeneity and interaction of the risk factors, acculturated dietary intake, late hospitalisation and high levels of stress may influence the health of Chinese women in Northern Ireland. Immigrants' health, in particular psychological and social wellbeing, needs to be improved, not only to enhance day-to-day quality of life in the new country, but also to improve individuals' ability to cope in the aftermath of disasters, whether natural or related to conflict. Health professionals should also be aware of the mental health problems arising from the acculturation process among immigrants.

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CONFLICTS OF INTEREST

None.

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