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Research

# Formative research to promote the Get Healthy Information and Coaching Service (GHS) in the Australian-Chinese community

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**Abstract.** The free, telephone-based Get Healthy Information and Coaching Service (GHS) has made sustained improvements in healthy behaviours and weight change in the Australian population, but there is poor uptake of the GHS by culturally and linguistically diverse communities. This formative research study explored the Australian-Chinese community's awareness, perceptions and experiences of the GHS and their knowledge and cultural beliefs about healthy lifestyles. Conducted in Sydney, Australia, the research included 16 Chinese community-stakeholder interviews, a cross-sectional survey of 253 Chinese community members; and a review of Chinese participant GHS data. The study revealed poor uptake (<1%) and awareness (16%) of the GHS, but good intent (86%) to use it. The need for culturally appropriate and relevant information on healthy eating and physical activity was identified. Employment of a bilingual, bicultural coach, redesign and translation of written resources and targeted promotion in partnership with community organisations were recommended.

**Additional keywords:** culturally and linguistically diverse communities, health-seeking behaviour, nutrition, physical activity, telephone coaching.

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## Introduction

The Get Healthy Information and Coaching Service (GHS) is a free telephone-based lifestyle program successful in making sustained improvements in healthy eating, physical activity and healthy weight (O'Hara *et al*. 2013*a*, 2014). The GHS, available to all New South Wales adults by self-referral or health practitioner referral, offers participants the option of receiving detailed self-help materials or enrolling in a personalised 6-month telephone coaching program. This program includes 10 individually tailored calls provided by qualified health coaches over a 6-month period on a tapered schedule, with a higher frequency of calls occurring in the first 12 weeks (O'Hara *et al*. 2013*b*). The GHS provides a telephone interpreter service, but only 8% of registered GHS users spoke a language other than English (O'Hara *et al*. 2014).

Australia has one of the most culturally diverse populations, experiencing a substantial increase in migration from Asian countries in recent decades (Australian Bureau of Statistics 2014). Sydney has the largest overseas-born population in Australia, with Chinese-born migrants making up the second largest subgroup (Australian Bureau of Statistics 2014).

There is an increased prevalence of cardiovascular disease risk factors and gestational diabetes among different ethnic population groups in Australia, particularly those born in Asian regions, including China (Holdenson *et al*. 2003; Shen *et al*. 2011; Girgis *et al*. 2012; Guo *et al*. 2015). Genetic, environmental,

**What is known about the topic?**

- The Get Healthy Information and Coaching Service has resulted in improvements in healthy eating, physical activity and weight, but has limited uptake by those who are non-English speaking.

**What does this paper add?**

- This paper provides insight into the cultural context and experiences that influence healthy lifestyles and uptake of the Get Healthy Information and Coaching Service in the Australian-Chinese community.

cultural, social and behavioural risk factors contribute (Holdenson *et al*. 2003; Shamshirgaran *et al*. 2013). Behavioural risk factors associated with Western lifestyles include increased consumption of energy-dense foods, decreased consumption of vegetables and legumes and reduced physical activity (Wahlqvist 2002; Gong and Zhao 2016). In New South Wales (NSW), Chinese-born migrants have lower levels of adequate vegetable consumption (29.5 *v.* 42.0%) and physical activity participation (49.3 *v.* 55.1%) compared to the overall NSW population (Centre for Epidemiology and Research 2010).

Prevention efforts are warranted to prevent and manage lifestyle-related chronic diseases, including diabetes, in the Australian-Chinese community (Shamshirgaran *et al*. 2015; Gong and Zhao 2016). The purpose of this research was to identify engagement strategies to increase the Chinese community's GHS participation. This study explored awareness, perceptions and experiences of the GHS; and cultural beliefs and practices regarding healthy eating, physical activity and healthy weight, of Chinese-speaking adults living in Sydney.

## Methods

A formative, mixed-methods research study was conducted between November 2015 and March 2016, which included both quantitative and qualitative data from Chinese community stakeholders, members and NSW GHS participants. Ethics approval for this research was obtained from the Sydney Local Health District (SLHD) and South East Sydney LHD (SESLHD) Human Research Ethics Committees (HREC reference number X15–0405 and LNR/15/RPAH/549).

### *Setting*

The research took place in the Sydney and South Eastern Sydney LHDs, which have significant proportions of residents speaking a language other than English at home (SLHD 43%; SESLHD 32%) (Multicultural Health Service 2014; Sydney Local Health District 2015). After English, Mandarin and Cantonese were two of the most common languages spoken (Multicultural Health Service 2014; Sydney Local Health District 2015). There were 147 000 Chinese migrants living in Sydney in 2011; the suburbs with the largest proportions of Chinese-born migrants in Australia were located within these LHDs (Australian Bureau of Statistics 2014).

### *Data collection and participant recruitment*

#### *NSW GHS participation*

Individual non-identifiable data of Chinese GHS participants were extracted based on main language spoken at home being Mandarin or Cantonese from the NSW GHS database for the period 1 July 2014 to 30 June 2015, including sociodemographic indicators, height and weight.

#### *Community member survey*

A cross-sectional survey was conducted with a purposive sample of Chinese community members stratified by broad life stages (young adults, parents, older adults), during the period December 2015 to March 2016. Chinese community groups were identified by stakeholders and invited to participate in the survey by the bilingual project officer. Chinese language group information sessions on healthy eating and physical activity were offered as an incentive.

A self-administered structured questionnaire was translated into simplified and traditional Chinese by a level 3 accredited provider of the National Accreditation Authority for Translators and Interpreters Ltd (NAATI). For each of the Chinese community groups that agreed to take part, the group facilitator nominated a regular group session during which the survey would be conducted. In half of the sessions, the bilingual project officer distributed and collected completed questionnaires; group leaders or teachers assumed this role for the other half. Individual consent was implied by questionnaire completion. Sociodemographic characteristics and information about the GHS were collected, specifically awareness, participation, motivation, referral source, satisfaction, barriers and enablers to use. Intention to use the GHS was assessed after a brief explanation of the GHS was provided.

#### *Community stakeholder interviews*

A purposive sample of Chinese community stakeholders was identified through local knowledge, existing networks, previous working relationships with the bilingual project officer and other community agency referrals. Stakeholders were eligible if they fulfilled roles that provided health or community services to Chinese communities in either SESLHD or SLHD, and efforts were made to include a representation of stakeholders working with Chinese community members at various life stages, including young adults, parents and older people. The female bilingual project officer contacted stakeholders to determine their interest in being interviewed, and scheduled an interview time at their workplace. Face-to-face interviews were conducted in English, Cantonese or Mandarin, as desired, using a semi-structured interview guide, which lasted ~ 1 h. Written consent was obtained. Stakeholders were asked to describe their role and services provided. In relation to their experiences working with the Chinese community, they were asked about the importance, concerns and needs for information on healthy eating, physical activity or maintaining a healthy weight; their awareness and experience of the GHS (for themselves and others) in the community; experienced and perceived barriers and enablers to GHS participation; and recommendations to engage the community in GHS participation. The bilingual project officer took brief notes of the stakeholders' responses to each of these

questions during the interview and added further detail post-interview.

### Analysis

#### NSW GHS participation and community member survey

Statistical analyses were conducted using Stata (ver. 13, StataCorp., College Station, TX, USA, see https://www.stata.com/). Descriptive analysis was conducted to summarise participants' demographics and information about GHS; multiple logistic regression analysis was conducted to examine whether participants' demographics were related to their intention to use GHS.

#### Community stakeholder interviews

Interview notes from 16 stakeholder interviews were reviewed independently by three researchers that did not have an existing relationship with any of the stakeholders, and emerging themes were identified. Themes were compared and emergent ideas about patterns and explanations discussed, until consensus on common themes emerged. The researchers agreed there was a saturation of themes, eliminating the need for further interviews.

Findings from stakeholders were compared to enablers and barriers identified by community members, to determine consistencies and differences and to increase understanding of the issues from different perspectives.

## Results

### NSW GHS participation

Less than 1% ($n = 38$) of GHS participants were of Chinese background; the majority were female (82%) and received tertiary education (86%). The average age was 37.5 years old (s.d. 13.3; age range = 21–69 years). More than half (55%) were either unemployed, retired or performed carer or home duties. One-third were classified as overweight or obese (BMI $\geq$25) based on their self-reported height and weight.

### Community member survey

The survey was completed by 253 community members, including volunteers, Chinese language school students' parents, English language students and members of senior physical activity, parent, grandparent, carer and other community groups. The majority of participants were women (77%), aged $\geq$55 years old (63%), either retired or performed home duties (66%) and could not speak (82%) and read (78%) English well (Table 1). There was a higher proportion of Mandarin- (58%) than Cantonese- (31%) speaking participants. The average length of residence was 13.2 years (s.d. 11.4).

#### Awareness, experience and intention regarding GHS

A small proportion of community members surveyed had heard of (16%) or used (6%) the GHS (Table 2). Of those that had used the GHS ($n = 14$), the majority rated it as good or fair ($n = 11$; 78%) and less than half ($n = 6$; 43%) had used the coaching service. The most frequently cited reasons for using the GHS were for support to do more exercise ($n = 6$; 43%) or eat healthily ($n = 5$; 36%).

**Table 1. Characteristics of community member survey participants**
Note: sample size is not always 253 because of missing values

| Demographic characteristics | *n* (%) |
|---|---|
| Gender | |
| Female | 177 (77) |
| Male | 54 (23) |
| Age (years) | |
| 18–24 | 5 (2) |
| 25–34 | 17 (7) |
| 35–44 | 37 (16) |
| 45–54 | 26 (11) |
| 55–64 | 67 (29) |
| ≥65 | 78 (34) |
| Languages spoken at home | |
| Mandarin | 129 (58) |
| Cantonese | 69 (31) |
| Other | 25 (11) |
| Spoken English | |
| Very well | 12 (5) |
| Well | 30 (13) |
| Fair | 64 (29) |
| Not very well | 75 (33) |
| Not at all | 44 (20) |
| English reading | |
| Very well | 12 (6) |
| Well | 36 (16) |
| Fair | 58 (26) |
| Not very well | 63 (28) |
| Not at all | 54 (24) |
| Education | |
| Primary school | 13 (6) |
| Some high school | 29 (13) |
| High school certificate or occupational education | 67 (30) |
| University or other tertiary institute degree or higher | 112 (51) |
| Employment | |
| Employed | 62 (27) |
| Unemployed | 7 (3) |
| Retired | 99 (44) |
| Home duties | 49 (22) |
| Other | 8 (4) |

The majority intended to use the GHS in the future (86%). Intention to use the GHS was not associated with respondents' demographics.

#### Barriers and enablers to GHS

The most commonly reported barriers and enablers to GHS participation were language and communication issues, specifically having Chinese language information resources and a Chinese bilingual health professional coach (Table 2). Telephone coaching by an interpreter was perceived more frequently as a barrier (24%) than as an enabler (8%). Time burden and feeling uncomfortable talking about health issues over the phone were also frequently reported barriers, with many preferring face-to-face consultation with a health professional.

### Community stakeholder interviews

In total, 16 stakeholders (7 male, 9 female) were interviewed from organisations with varied roles, including Chinese community organisations, health service providers (general practitioner,

**Table 2. Awareness, participation and intention to participate, enablers and barriers to using the Get Healthy Information and Coaching Service (GHS) among community member survey participants**

Note: sample size is not always 253 because of missing values and multiple selections

| Variables | *n* (%) |
|---|---|
| Heard of GHS | |
| Yes | 38 (16) |
| No | 207 (84) |
| Where heard from | |
| TV | 5 (14) |
| Internet | 8 (23) |
| Newspaper | 8 (23) |
| General Practitioner or health professional | 4 (11) |
| Other | 10 (29) |
| Ever participated in GHS | |
| Yes | 14 (6) |
| No | 239 (94) |
| Intention of using GHS | |
| Yes | 201 (86) |
| No | 33 (14) |
| Barriers | |
| Information is not available in my language | 86 (34) |
| Long waiting time on the phone | 83 (33) |
| The health professional doesn't speak my language | 63 (25) |
| Have to use an interpreter to communicate | 60 (24) |
| Busy life, no time to spend on the phone | 48 (19) |
| Don't feel comfortable talking to another person on the phone about my health issues | 36 (14) |
| Other | 9 (4) |
| Enablers | |
| Information provided in Chinese | 167 (66) |
| Face-to-face consultation with a health professional | 79 (31) |
| Free assessment by health professional of my risk of getting chronic disease | 72 (28) |
| Telephone coaching by bilingual health professional | 59 (23) |
| Telephone coaching by interpreter | 21 (8) |
| Other | 3 (1) |

dietitian and multicultural health), diversity, cancer support and other community services. Themes are described briefly, with further detail in Table 3.

Stakeholders reported healthy eating and physical activity are important in the community and pursuing a healthy lifestyle is embedded within their culture. They noted a common perception of reduced risk for lifestyle-related chronic disease compared to the Australian-born population. Differences in prioritisation and adoption of a healthy lifestyle according to age, gender, duration of residence in Australia, English literacy, financial and health status were noted.

Stakeholders reported poor knowledge of a healthy balanced diet in the community, particularly for older people influenced by cultural myths and beliefs, resulting in dietary practices that increased chronic disease risk. They observed the consumption of foods for therapeutic purposes, unhealthy traditional foods, an imbalance in food groups consumed, the adoption of the unhealthy Western diet, particularly for families, and knowledge gaps in the recommended amount and types of physical activity for older people.

Stakeholders reported a tendency in the community to seek advice on healthy eating and physical activity practices from trusted bilingual health professionals, family, friends and the media, and often only after a health issue or symptoms were identified.

The GHS was not perceived as culturally appropriate to the community; the most overwhelming barriers to participation being the use of an interpreter resulting in a three-way coaching conversation, as well as the lack of translated and culturally relevant resources. Issues regarding trust and participant motivation were frequently raised.

Stakeholders strongly recommended a bilingual and bicultural health professional coach with knowledge of Chinese foods and practices; and the redesign of GHS printed resources, with community consultation. They also recommended promotional messages highlight chronic disease risks, dispel bodyweight myths and increase personal relevance.

Stakeholders highly recommended using face-to-face events or existing community programs as a platform to engage and recruit the community to the GHS; suggestions included interactive workshops and programs developed in partnership with respected community organisations, bilingual health professionals and the Chinese media.

## Discussion

This study provides important information on the Sydney Chinese community's uptake, awareness and experience of the GHS, and relevant insight on their attitudes, beliefs and practices regarding healthy eating, physical activity and healthy weight. There was limited GHS awareness and uptake in this community, with less than 1% of NSW GHS participants of Chinese background, the majority of whom were female and well educated. Previous research also found poor uptake of preventive health services by Australian-Chinese migrants (Chan and Quine 1997; Kwok and Sullivan 2007).

Possible reasons for low GHS uptake were identified and explored; the GHS was perceived as not culturally appropriate for the Chinese community because of the lack of bilingual coaches and culturally relevant resources. This is consistent with other research indicating the inadequacy of healthcare resources for the Australian-Chinese community, where often literal word-for-word translations do not reflect understanding of cultural beliefs and practices; and interpreter services cannot provide in-depth consultation and establish trust (Chan and Quine 1997; Kwok and Sullivan 2007; Arora *et al*. 2012). In addition to speaking Chinese dialects, health service providers need to understand the social and cultural norms in the Australian-Chinese community (Chan and Quine 1997; Kwok and Sullivan 2007; Blignault *et al*. 2008; Arora *et al*. 2012; Choi *et al*. 2015). Understanding the health beliefs and practices of the Chinese community and how this translates to health-seeking and health-related behaviours is fundamental to developing culturally appropriate services within the GHS.

Another barrier to GHS use identified was the perceived irrelevance, with issues consistent with previous research: the appearance of healthy weight in the Chinese community (Guo *et al*. 2015; Gong and Zhao 2016); competing family and financial priorities, particularly for new migrants (Ahmad *et al*. 2004); the tendency to seek health information from family, friends, mass media and Chinese-speaking general practitioners

**Table 3. Main research questions, identified themes and descriptions of community stakeholder interviews**
GHS, Get Healthy Information and Coaching Service

| Themes | Description |
|---|---|
| Importance of, concerns about and need for information on healthy eating, physical activity and healthy weight | |
| Healthy eating and physical activity are important | • Embedded within the Chinese culture and frequently discussed in social networks.<br>• Motivated by health, appearance, confidence, longevity and avoidance of medication. |
| Prioritisation and adoption of healthy lifestyle behaviours varies within population subgroups: age, gender, duration of residence in Australia, English literacy, financial and working status | • Retirees have more time than people of working age; women more likely to adopt healthy behaviours than men; younger, educated have greater awareness.<br>• Competing priorities for new migrants and people of working age: housing, employment, education, financial, family and social isolation.<br>• Barriers to healthy food for older people include: language and finances. |
| Low perceived risk in the Chinese community for lifestyle-related chronic disease and associated risk factors, compared to the Australian-born population | • Lower prevalence of overweight and obesity observed in the community.<br>• Healthier traditional Chinese diet.<br>• Some awareness of increased prevalence of cardiovascular risk factors such as diabetes, obesity and metabolic syndrome, particularly among middle-aged and older people. |
| Increased motivation and adoption of healthy lifestyle behaviours for secondary prevention | • Limited awareness of the importance of healthy lifestyle behaviours for primary prevention of chronic disease.<br>• Increased motivation for secondary prevention, i.e. alleviate symptoms or complications of disease.<br>• Focus on treatment rather than prevention.<br>• Expect a 'quick fix' solution as opposed to lifestyle behaviour change.<br>• In contrast, one stakeholder (allied health professional) observed their diabetic clients' preference for adopting lifestyle behaviour change rather than medication for secondary prevention. |
| Knowledge, myths and beliefs about healthy eating, physical activity and healthy weight | |
| Traditional Chinese medicine and cultural beliefs for primary and secondary prevention of chronic disease | • Reliance on traditional Chinese medicines, herbal alternatives and supplements to maintain health, common in China.<br>• Herbal treatments sought before health practitioner advice or support. |
| Poor diet due to poor knowledge of a balanced, healthy diet, cultural beliefs, myths and practices | • Poor knowledge of a balanced diet and nutritional values of food groups, particularly older people, e.g. meals consist of a high proportion of rice and inadequate proportion of protein; high consumption of soy sauce resulting in high sodium intake.<br>• Poor knowledge of food labels.<br>• Traditional beliefs about balancing hot and cold foods, particularly older people, e.g. prefer hot foods as they believe cold foods such as fresh fruit and vegetables are bad for health. |
| Low awareness of risky traditional unhealthy foods | • Consumption of traditional unhealthy foods, particularly by men, e.g. salty egg, preserved vegetables and meat, Chinese sausages, dim sims.<br>• Cultural foods eaten during Chinese cultural festivals; for example, moon cake. |
| Food therapy, where foods are consumed or avoided to alleviate symptoms or cure illness | • Part of the Chinese culture, frequently discussed and practised, e.g. consumption of okra has health benefits for diabetics; consumption of pig's pancreas can help cure diabetes.<br>• Alleviate symptoms or cure illness by consuming more of, or avoiding, certain foods. |
| Exposure to the unhealthy Western diet | • Eating habits and choices influenced by time pressures and exposure to Western culture and foods, particularly for families. |
| Poor knowledge of physical activity recommendations | • Poor understanding of the frequency, intensity and types of exercise recommended, and tailored exercise needs, particularly for older people. |
| Trusted information sources: Chinese media, social networks and medical practitioners | • Chinese media, including the Internet, radio, newspaper and magazines perceived as reliable and frequently sourced for health information.<br>• Some concern about trust and reliance on Internet sources.<br>• Advice and information sought first from family and friends; word-of-mouth and face-to-face preferred.<br>• Chinese doctors respected in the community, more so than allied health professionals. |
| Barriers to GHS participation | |
| Cultural appropriateness of GHS | • Coach has limited understanding of the Chinese cultural beliefs and practices.<br>• Three-way conversation between coach, interpreter and client is uncomfortable and impersonal, particularly challenging for older people. |
| Trust and preference for other sources of health information and support | • Discomfort sharing personal health information by telephone and with a stranger.<br>• Face-to-face information or support services preferred, including family, friends and health professionals; Chinese media also trusted and preferred. |
| Personal relevance: motivation and identified need | • Lack of motivation to seek advice on healthy eating and physical activity, with the exception of secondary prevention.<br>• Existing translated GHS promotional brochure not attractive, motivating, unclear (that it relates to a service) and does not highlight relevance or need for the service.<br>• Initiating first call, particularly challenging for older people and those with limited English. |

(*continued next page*)

**Table 3.** (*continued*)

| Themes | Description |
|---|---|
| Time commitment burden | • Three-way conversation between coach, participant and interpreter, particularly the health assessment is time consuming.<br>• Unlikely to commit to the program in the long term. |
| Engaging the community in the GHS | |
| Provide culturally appropriate and practical information and support on diet and exercise to GHS participants | • Employ a bilingual, bicultural health professional coach to deliver and promote the GHS who understands and relates to the cultural beliefs, myths and practices, particularly about foods.<br>• Develop GHS Chinese-translated information resources in consultation with the Chinese community that are culturally relevant, highly visual, practical and solution-focused, e.g. refer to Chinese healthy cooking methods, recipes, products and commonly eaten foods. |
| Increase perceived relevance and appropriateness of the GHS through promotional strategies that are culturally and personally relevant, positive, motivating and informative | • Redesign GHS promotional brochure to include culturally relevant information, positive messages and images that increase perceived relevance, motivate use and more clearly describe the GHS and what it offers. Highlight the GHS is free.<br>• Increase awareness of high prevalence of cardiovascular disease risk factors in the community and dispel myths about bodyweight and risk.<br>• Present research on the Chinese diet and lifestyle, and the health risks after migration to Western countries.<br>• Increase knowledge of the risky lifestyle behaviours associated with cardiovascular disease and associated risk factors such as obesity and diabetes.<br>• Identify individuals' risk for chronic disease.<br>• Target those with existing chronic health conditions.<br>• Use personal stories and case studies to illustrate both: the health risks associated with unhealthy lifestyles; and GHS-positive experiences and successes. |
| Promote the GHS through trusted sources such as Chinese media, organisations, networks, health professionals and conduct face-to-face events | • Use face-to-face events, workshops or programs as a platform to engage and recruit. Adopt interactive and creative strategies, e.g. cooking events, writing competitions, healthy recipes competitions, Q&A sessions with bilingual health professionals, free health risk assessments.<br>• Run a Chinese media campaign; integrate into the Chinese media program. |
| Partner and consult with Chinese community organisations, groups, health practitioners | • Engage community organisations, networks, groups and members in promotional strategies.<br>• Engage and consult bilingual health professionals.<br>• Promote through social media, particularly for young people, e.g. mobile apps, blogs, Facebook, WeChat, Chinese websites. |

(Chan and Quine 1997; Ahmad *et al*. 2004; Blignault *et al*. 2008; Choi *et al*. 2015); and the delay in seeking support until a condition is diagnosed or symptoms are experienced (Kwok and Sullivan 2007). Despite this, stakeholders confirmed the need for culturally appropriate healthy lifestyle information from reputable sources (Choi *et al*. 2015) and encouragingly, the majority of community members surveyed expressed intent to participate in the GHS. Referral sources and motivators for GHS participation in the Chinese community should be explored.

Establishing trust, understanding and motivation will be important to increase the Chinese community's GHS participation. Key to achieving this is employment of a bilingual, bicultural GHS coach, familiar with their cultural ideologies, beliefs, myths and practices and an understanding of the competing priorities faced in the community. Redesigning GHS promotional and information resources in consultation with the community to provide highly visual and culturally relevant content will also be essential (Arora *et al*. 2012).

Stakeholders recommended GHS promotion through face-to-face events with existing trusted Chinese health professionals, community organisations, networks and groups or through the Chinese media. Offering free health risk assessments to increase awareness of cardiovascular disease risk and GHS relevance, and highlighting the fact GHS is free, was recommended, as Chinese migrants may have an expectation to pay for such health services (Ahmad *et al*. 2004). This will be important, particularly for new migrants, those who are unemployed, retirees or those performing home duties.

Stakeholders noted food plays an important role in maintaining health among the Chinese community (Payne *et al*. 2008). Adherence to cultural and traditional dietary practices included consumption of food for therapeutic purposes (Payne *et al*. 2008; Queensland Health Multicultural Services 2011; Choi *et al*. 2015), to balance yin and yang forces (Kwok and Sullivan 2007; Payne *et al*. 2008; Choi *et al*. 2015) and the reliance on natural and herbal remedies (Chan and Quine 1997; Kwok and Sullivan 2007). Stakeholders expressed concern for some of these behaviours, highlighting older people's poor knowledge of a balanced nutritious diet.

The increased risk for lifestyle-related chronic disease, due to the adoption of the Western diet and eating habits, was raised by stakeholders and consistent with previous research (Wahlqvist 2002; Gong and Zhao 2016). The transition to the Western diet and degree of acculturation varies within the Australian-Chinese community according to demographic characteristics, age of migration and length of residence in Australia (Hsu-Hage *et al*. 1995; Guo *et al*. 2015). Promotion efforts should focus on maintaining healthy parts of the traditional lifestyle and adopting healthier traits of the Australian lifestyle (Guo *et al*. 2015).

This study benefited from strong, well-established working relationships with Chinese community organisations, healthcare professionals and community members. Further engagement

with several organisations servicing the Chinese community was key to facilitating access to a good representation of community members. This was essential to understanding their needs in terms of nutrition, physical activity and healthy weight, and how best to promote and deliver the GHS in their community.

We caution against generalising the study findings to all Chinese people living in Sydney or Australia, which was not the purpose of this study. First, the diversity of the Chinese community in Australia in terms of origin, language, tradition and beliefs must be acknowledged (Chan and Quine 1997; Blignault *et al*. 2008; Choi *et al*. 2015). Second, purposive samples were used and females, older and non-working adults were overrepresented in the survey. Third, the samples represent Sydney Chinese community members that are reasonably well connected through either work, volunteering, community programs, groups or networks. Further research should explore the values, attitudes, healthy lifestyle behaviours and potential engagement strategies for those less connected in the community or with competing priorities, including Chinese men of working age and new migrants.

A limitation of the study is that we did not transcribe the interviews, which would have enhanced the credibility of the qualitative findings by ensuring a more accurate recording of the stakeholders' views (Tong *et al*. 2007). It would also have allowed for themes to be illustrated with direct quotes. The community survey items were not tested for validity or reliability. Offering the incentive of information sessions on healthy eating and physical activity to existing community groups is unlikely to have influenced community stakeholders' or members' responses as these information sessions were held after data collection was complete.

This research sought a better understanding of the barriers and enablers to GHS participation by the Chinese community. The triangulation of data from a large sample with in-depth stakeholder information and GHS participation data added strength. The stratified purposive sampling strategy used for the community member survey enabled us to explore commonalities and variations in the Chinese community (Palinkas *et al*. 2013). Many of the health-related values and needs identified are consistent with previous research involving the Chinese community in Sydney (Chan and Quine 1997; Kwok and Sullivan 2007; Blignault *et al*. 2008; Arora *et al*. 2012), Australia (Hsu-Hage *et al*. 1995; Queensland Health Multicultural Services 2011; Choi *et al*. 2015) and other Western countries (Ahmad *et al*.2004; Payne *et al*. 2008).

This research has generated hypotheses about the relationships between healthy lifestyle attitudes, values and GHS use, which should be tested further using qualitative and quantitative research with GHS participants. Specifically of interest are issues of trust, given the community's preference for face-to-face communication; and motivators for participation in primary prevention services such as the GHS, given their propensity to seek advice from family and friends and as a secondary prevention measure.

The findings have provided the impetus for a pilot study, with the employment of a Chinese bilingual and bicultural coach, the redesign and translation of written GHS resources and targeted promotion strategies in partnership with the community. Examining GHS participation rates, referral sources, motivational factors, satisfaction and behavioural outcomes will be important.

This research contributes to the understanding of why there is poor uptake of the GHS by the Chinese community; lessons will be applied to the ongoing development and dissemination of the GHS, specifically targeting the Chinese community but also other culturally and linguistically diverse communities in Australia. Findings may also be relevant to improve accessibility of other mainstream health information services to the Australian-Chinese community.

## Conflicts of interest

The authors declare that they have no conflicts of interest.

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