DOI: 10.1111/jan.16302

EMPIRICAL RESEARCH QUALITATIVE

Self-care behaviours of first-generation Chinese immigrants living with cardiovascular disease: A qualitative study

¹School of Nursing and Midwifery, Faculty of Health, University of Technology Sydney, Ultimo, New South Wales, Australia

²School of Population Health, Faculty of Medicine, University of New South Wales, Kensington, New South Wales, Australia

Correspondence

Ling Zeng, School of Nursing and Midwifery, Faculty of Health, University of Technology Sydney, Ultimo, NSW, Australia.

Email: ling.zeng-1@student.uts.edu.au

Funding information Australian Government Research Training Program Scholarship

Abstract

Aim: To identify and describe self-care behaviours performed by Chinese immigrants living with cardiovascular disease in Australia, and factors perceived as barriers and facilitators to evidence-based cardiac self-care.

JAN

WILEY

Design: A qualitative descriptive design.

Methods: Individual semi-structured phone interviews were conducted among participants meeting the following criteria: (1) first-generation Chinese immigrants to Australia, born in Mainland China, Hong Kong, Macao or Taiwan; (2) Australian permanent residents or citizens; (3) self-reported or medically diagnosed with coronary heart disease, stroke or heart failure; (4) able to speak English or Mandarin; (5) able to provide informed consent, excluding those with history or evidence of impaired cognition such as dementia. Participants were recruited via social media, Chinese community associations and medical centres from September 2021 to June 2022. Data were analysed using inductive and deductive thematic analysis, guided by the Middle-Range Theory of Self-Care of Chronic Illness. The study was reported in line with the COREQ checklist.

Results: Twenty participants were interviewed, 60% female, mean age 69.9 years. Most migrated to Australia at older age following their retirement in China; most had limited English proficiency. Many practiced adequate self-care for their CVD in selfcare maintenance and monitoring. Variously, they adopted heart-healthy diets, developed exercise routines, attended medical services and closely monitored their body signs and symptoms. However, self-adjusting medications, taking Traditional Chinese Medicine and self-administering health supplements were prevalent practices and first-response management of acute cardiac symptoms was suboptimal. Linguistic and cultural barriers to obtaining mainstream heart health information meant most participants resorted to informal, anecdotal and mainland Chinese sources.

Conclusion: Diverse factors were held responsible for sub-optimal self-care behaviours but lack of access to linguistically and culturally appropriate heart health information was widely blamed. Linguistically and culturally appropriate community-based heart health education programmes are urgently needed, targeting healthy lifestyle modification, medication literacy and cardiac symptom management.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made. © 2024 The Author(s). Journal of Advanced Nursing published by John Wiley & Sons Ltd.

-WILEY

Impact: Study findings can be used to improve cardiac nurses' cultural sensitivity and practices targeting Chinese immigrants. Partnering with Chinese community associations offers health service providers and policymakers an innovative route to codesign and deliver targeted heart health education interventions and support for this population.

Public Contribution: Chinese community centre managers contributed to data collection by supporting participant recruitment.

KEYWORDS

cardiovascular disease, Chinese immigrants, chronic disease management, health behaviour, self-care

1 | INTRODUCTION

Cardiovascular disease (CVD) refers to a variety of heart and vascular problems and is the leading cause of mortality globally (WHO, 2021). In Australia, CVD accounted for 25% of all deaths and 600,000 hospitalizations in 2021 (AIHW, 2023). However, it poses a disproportionate burden on immigrant compared to host populations, resulting in CVD health disparities in immigrant populations (Agyemang & van den Born, 2022). Self-care is crucial in reducing cardiovascular morbidity and mortality (Riegel et al., 2017). As the concept of self-care developed, the Middle-Range Theory of Self-Care of Chronic Illness was elucidated (Riegel et al., 2012), encompassing three core domains: self-care maintenance, selfcare monitoring and self-care management. Self-care maintenance comprises behaviours performed to stabilize the illness process or maintain health status, such as healthy lifestyle adaptation and medication adherence. Self-care monitoring refers to activities for recognizing and observing body changes, such as measuring blood pressure. Self-care management entails patients' evaluation of the treatment and their response to changed body signs and symptoms (Riegel et al., 2012). However, it can pose challenges for immigrants as they navigate a newly adopted healthcare system with attendant language and cultural barriers.

Chinese immigrants, as a subgroup of the migratory population, present one of the largest and fastest-growing global immigrant groups (Gong & Zhao, 2016). The western countries where the largest numbers of Chinese people have migrated include the United States of America (USA), Canada, Australia, New Zealand and the United Kingdom (Li et al., 2018). In Australia, the Chinese immigrant population has grown rapidly since 2006, and by 2021 was the third-largest overseas-born migrant group (ABS, 2022). In the same year in the USA, this population was the largest Asian immigrant group, with 5.2 million people (USCB, 2023). Notably, in recent years many Chinese people have relocated to western countries at relatively older ages through the sponsorship of adult children who migrated first. These first-generation Chinese immigrants (those born in China who migrate to a host country) have different experiences from second- and subsequent-generation Chinese immigrants (the children of first or subsequent-generation

migrants, who were born in the host country) as life-long exposure to the host culture will have significantly impacted their level of acculturation within this country, for example in terms of language proficiency, cultural health beliefs and lifestyle. Similarly, Chinese acculturation to the host country for immigrants of mixed rather than unitary ethnic background may be a more complex matter in terms of health behaviours (Bainey et al., 2018; Zeng et al., 2023; Zhang et al., 2023).

Robust evidence has indicated that Chinese immigrants experience suboptimal CVD profiles. A large national cohort study found that the increasing prevalence of CVD risk factors such as obesity and diabetes in Chinese immigrants was associated with longer residence in the host country (Jin et al., 2017). According to a systematic review involving 258,474 participants, compared to their counterparts in China, Chinese immigrants had a higher prevalence and mortality from coronary heart disease (Gong & Zhao, 2016). Further, results from a meta-analysis with eight cohort studies showed higher short-term mortality after CVD diagnosis in Chinese immigrants than in the host population (Jin et al., 2015).

Self-care plays an important role in the prevention and management of CVD (Riegel et al., 2017) found that cardiac patients only spent about 10 h per year with their healthcare providers, so most of the care cardiac patients experience for their CVD occurs outside of healthcare settings. Self-care comprises evidencebased practices for reducing cardiac mortality and hospital readmissions, and increasing quality of life (Riegel et al., 2017; Virani et al., 2023).

Multiple factors are known to influence patients' adherence to self-care behaviours, such as social determinants of health (such as education and income), health literacy, personal habits, culture and health beliefs, among others (Riegel et al., 2017; Virani et al., 2023). All these factors can complicate self-care and challenge patients with CVD in performing self-care practices. The complexities of selfcare practice put extra strain on immigrant populations who work between their native and host cultures (Osokpo et al., 2021; Osokpo & Riegel, 2021). Chinese immigrants in western countries have to adapt to new lifestyles, cope with the stresses of acculturation and negotiate the different health beliefs, treatment mechanisms WILEY-JAN

and healthcare systems of their origin and host countries. All these considerations can differentiate Chinese immigrants' self-care behaviours from those of the host population.

A better understanding of self-care behaviours among firstgeneration Chinese immigrants living with CVD could facilitate the development of targeted interventions to improve their self-care behaviours and optimize their CVD health outcomes in Chinese immigrant populations. However, studies describing self-care behaviours in first-generation Chinese immigrants with CVD are scarce with only three quantitative and two qualitative studies identified. They can also be methodologically limited. For example, quantitative surveys, a popular approach, presuppose knowledge of the questions to ask (Zeng et al., 2023). Self-care behaviours in these studies were limited to lifestyle modification, medication adherence and seeking healthcare resources. Further, studies do not always distinguish first from second or mixed generations of migrants, whose self-care practices may vary significantly depending on their level of acculturation (Bainey et al., 2018).

2 | METHODS

2.1 | Study aims

To address this gap, this study aimed to identify and describe selfcare behaviours performed by first-generation Chinese immigrants living with CVD in Australia, and factors perceived as barriers and facilitators to evidence-based self-care.

2.2 | Design

Grounded in philosophical assumptions of naturalism/constructivism, a qualitative descriptive approach was employed in this study: an appropriate choice for early exploratory work in an understudied population, providing rich description despite limited time and resource availability (Bradshaw et al., 2017; Neergaard et al., 2009). The study was reported in line with the Consolidated Criteria for Reporting Qualitative Research (Tong et al., 2007).

2.3 | Study setting and recruitment

Participants were included if they were as follows: (1) adults who were first-generation Chinese immigrants to Australia, born in Mainland China, Hong Kong, Macao or Taiwan; (2) Australian permanent residents or citizens; (3) self-reported or medically diagnosed with CVD, including coronary heart disease, stroke or heart failure; (4) able to speak English or Mandarin; (5) able to provide informed consent, excluding those with history or evidence of impaired cognition such as dementia.

Purposive and snowball sampling were used in the study. Participants were recruited from three sources: social media,

Chinese community associations and medical centres in Sydney, Australia. Electronic recruitment flyers were distributed via commonly used social media among Chinese immigrants in Australia, such as WeChat, the Sydney Today mobile app and 2ac Australian Chinese Radio. To be compliant with the public health orders in place to manage the COVID-19 pandemic at the time, the first author contacted gatekeepers of Chinese community associations to support recruitment by circulating electronic flyers in their community WeChat, Facebook and other online channels. After COVID restrictions were lifted, in May 2022 she attended Chinese community associations' social activities and circulated paper flyers in person and printed flyers were placed in reception areas at a medical centre. Potential participants were asked to circulate the information to any family and friends who met the criteria. Participants who were interested in this research were invited to contact the first author via a phone number or email address. Recruitment continued until data saturation was reached, that is, until no new information emerged during interviews (Bradshaw et al., 2017). The recruitment period was from September 2021 to June 2022.

2.4 | Data collection

The first author is a registered nurse and bilingual researcher with translation certification accredited by the National Translation Authority. Sharing the same cultural background with the potential participants, she understood some local dialects and cultural health beliefs and practices, which facilitated the conduct of the interviews. The author had no contact with any participants before the research project and maintained a neutral and non-judgemental attitude toward participants.

Having screened potential participants for eligibility, the first author explained the research verbally and supplied an information sheet and consent form to eligible participants. Simultaneously, participants' cognitive status was assessed through their understanding and appropriateness of responses during the conversation. The dates and times for the phone interviews were agreed with participants. Participants were interviewed in Mandarin, their preferred language. Each interview was audio-recorded with consent, and the researcher took field notes.

A semi-structured interview was used, with an interview guide informed by the Middle-Range Theory of Self-care of Chronic Illness (Riegel et al., 2012, 2017). This was drafted, discussed and revised among the author group and piloted with volunteers whose data were not included in the study analysis. The interview started with structured questions about participants' demographic and clinical data related to their CVD diagnosis, followed by the open question: 'Since you received your heart diagnosis, what do you do to take care of your heart health at home'? Probes were used to enable the participants to expand and articulate their CVD self-care behaviours in relation to self-care maintenance, self-care monitoring and selfcare management, and to identify factors which they perceived as barriers and facilitators of this (Table 1).

TABLE 1 Interview guide.

1. What is your heart problem? Can you briefly tell me what happened?

Probes

- Time, place of the initial heart diagnosis
- Risk factors for heart disease (listed individually)
- Treatment plan (medications)
- How did you feel about the initial heart diagnosis
- 2. Apart from medication, what advice have you received to manage your heart disease from health professionals?
- 3. Regarding any health advice you received, what did you do at home?
- In the early days following the heart diagnosis, what did you do to take care of your heart health?

Probes

- How did you take your medication?
 - Take it regularly? Missing doses? Stop it?
 - Western medicine / TCM? Traditional Chinese patent medicine /supplement
 - Monitor/response to side effects?
- Seeking healthcare services?
 - Doctor (GP, cardio specialist, allied health?/ ethical background)
 - Reasons for health services (follow-up, medication, symptoms...flu vaccination)
 - Communication (barriers?)
 - How did you find and learn the heart health materials?
 - Any changes in lifestyles?
 - Diet (food choices, who cook), smoking/alcohol, social meals
 - Exercise (type, frequency, with anyone? Noticed any symptoms)Weight?
 - Cope stress?
 - Sleep? Social activities?
- Symptom monitor and response? (since the initial diagnosis, have you had any cardiac symptoms)
 - How did you monitor? (BP, blood sugar, cholesterol, INR)
 - What symptoms make you relate them to your heart problem?
 - What did you do with the heart symptoms?
 - (optional) How did you prevent the heart event? Triggers?
- 4. How did the diagnosis impact your family? What did they do with your heart health?
- Supervision: Medication? Lifestyles? Seeking healthcare? Health information?
- Monitor: Symptoms
- Assistant: Meals/ seek healthcare?
- 5. Nowadays, what do you do for your heart health? Can you tell me about any changes compared to your past experiences taking care of your CVD? Why did you make these changes?

2.5 | Data analysis

The audio files were transcribed verbatim in Chinese by the first author (Clark et al., 2017). During the process, interview data were deidentified to ensure the participants' confidentiality. Twinn (1997) states that the consistency and reliability of data translation in crosslanguage interview studies can be improved by using an independent translator to translate interview transcripts (Al-Amer et al., 2015). Accordingly, in this study, a professional translator independently translated transcripts into English. These translated transcripts were then independently validated by two bilingual researchers in the authorship team. The translated and validated transcripts were imported into NVivo 12 software for data analysis.

Deductive thematic analysis was employed (Clarke & Braun, 2017) with a predetermined list of codes informed by the Middle-Range Theory of Self-care of Chronic Illness and related self-care inventory (Riegel et al., 2019). In line with Braun and Clarke's (2017) guideline, the first author immersed herself in the data through repeatedly listening to the audio recordings for transcription, translation, validation and coding. At the same time, the author team inductively generated new codes where data addressed the research aim but content was additional to the Theory of Self-care of Chronic Illness. The initial coding results were reviewed and decisions on overarching themes made by the three members of the author team. An example of data coding process is presented in Table S1.

2.6 | Ethical considerations

This study was approved by the Human Research Ethics Committee at the University of Technology Sydney, Australia (ETH21-6096).

2.7 | Trustworthiness

In line with trustworthiness criteria developed by Lincoln and Guba (1985), all the authorship team engaged in peer-debriefing and reflection during the data collection and analysis to ensure credibility. Prolonged engagement in data collection and data analysis was executed by the first author. Transferability was established by providing a rich description of study participants, the location and the context of the research. To improve dependability, independent data translation and analysis of transcripts were conducted and then checked by the authorship team. Any discrepancies encountered during coding and analysis were discussed to achieve consensus. An audit trail was recorded for research-related decisions during the process. Moreover, potential personal bias during data collection was described and discussed among the authorship team to improve confirmability.

3 | FINDINGS

3.1 | Characteristics of participants

Telephone interviews (mean duration: 63.6 min, ranging from 35.9 to 135.2 min) were conducted with 20 participants. There was no drop-out during the interviews. The mean age of participants was 69.9 years old; 12 were female. Most had migrated to Australia at relatively older ages, following their retirement in China. On average, they had lived in Australia for 14.4 years and all had limited English proficiency. Most were married and living with a partner or an extended family. All participants were covered under Australia's

ILEY-JAN

universal health insurance, and half were privately medically insured. Most participants reported a diagnosis of coronary heart disease while three had experienced a stroke. Many were diagnosed in Australia and had been living with CVD for more than 3 years. Most were prescribed conservative medications to manage their CVD initially (Table 2).

3.2 | Self-care behaviours, barriers and facilitators

Self-care behaviours were organized into three themes: self-care maintenance, self-care monitoring and self-care management. Within each theme, subthemes specified the domains of self-care behaviours (Table 3). Some themes were accompanied by identification of factors perceived as influencing these self-care behaviours.

3.2.1 | Theme one: Self-care maintenance

Dietary practices

The dietary practices adopted by these Chinese Australian participants following their CVD diagnosis were diverse and fell into three categories: adaptation to heart-healthy diets, maintenance of poor eating practices and continuance of previous healthy eating practice.

Adaptation to heart-healthy diets. Many participants attentively adapted to heart-healthy diets following their heart disease diagnosis. Those who made a conscious effort to incorporate hearthealthy dietary habits into their eating patterns changed their cooking styles and taste preferences by using less oil, salt and deepfrying. For example, they boiled food with water rather than braised with soy sauce. Changed choices of ingredients were also frequently mentioned. They restricted consumption of red or fatty meat which they replaced with fish and skinless chicken, and increased their intake of fruits, vegetables, wholegrain and beans. A few reduced their serving portion sizes or changed their main meal from dinner to lunch.

> Compared to the past, I cut down on the amount of vegetable oil and animal oil...I used to put some sesame oil, we called Xiangyou. Here, I use olive oil instead

> > (P8, male, 71yrs, CHD 6 yrs).

For many participants, the motivation to change to a heart healthy diet stemmed from their high health literacy and how they regarded their diagnosis of heart disease. Having recognized that dietary habits are closely related to the development of heart disease and healthy diets to its management, participants changed their dietary practices. Participants also stressed that they shifted the focus of their lives to promote their general and heart health

TABLE 2	Participants'	socio-dem	ographic a	and clinica	l profile
(n = 20).					

Characteristics	Mean (SD), N	Range (%)
Age (years)	69.6 (4.7)	61-79 40-45ª
Duration of Australian residence (years)	14.4 (11.8)	2-42
Gender		
Male	8	40
Female	12	60
English proficiency		
Poor	9	45
Basic	9	45
Good	2	10
Education level		
Middle school	2	10
High school	6	30
Junior college	5	25
Bachelor	7	35
Marital status	•	
Married	18	90
Diversed	1	5
Widowed	1	5
	1	5
	1	5
Alone	1	5
With partner	11	55
With partner and children	4	20
With extended family	4	20
Employment status		
Part-time	1	5
Full-time	1	5
Unemployed	1	5
Retired	17	85
Private insurance	10	50
CVD diagnosis		
Coronary heart disease	17	85
Stroke	3	15
Duration of CVD diagnosis (years)		
≤1	1	5
>1 and ≤3	7	35
>3 and ≤10	10	50
>10	2	10
Place of CVD diagnosis		
Mainland China	6	30
Australia	14	70
CVD risk factors		
Hypertension	6	30
Hyperlipidaemia	14	70
, , , , , , , , , , , , , , , , , , , ,		

TABLE 2 (Continued)

Characteristics	Mean (SD), N	Range (%)
Hyperglycaemia	1	5
Family history	6	30
Smoking	3	15
Depression	1	5
Other	3	15
Initial treatment		
Lifestyle intervention	1	5
Conservative medication therapy	16	80
Hospital admission treatment ^b	3	15
Number of chronic conditions		
None	3	15
1	11	55
2	4	20
3+	2	10

Abbreviation: CVD, cardiovascular disease.

^aOne participant only reported her age in this range.

^bInclude coronary artery bypass graft operation, stent operation and thrombolysis.

in their retirement, and thus they put effort into adopting healthy dietary practices.

Although I knew it (high cholesterol) was bad, I did not know it would result in heart disease... Many years ago, I was too preoccupied with my work to be able to commit to my health

(P4, female, 65yrs, CHD 4yrs).

Participants also reported that dietary acculturation to the food environment of Australia also served as a facilitator for them to adapt to a healthier diet. For example, most participants shifted to westernstyle breakfasts (such as milk, cereals or bread), and some embraced local vegetables as they believed these foods were healthy.

> Here, I also try to eat more Australian local vegetables, because they are healthier...so I also cook them sometimes

> > (P6, male, 68yrs, CHD 3 yrs).

Maintenance of poor eating practices. However, half the participants still maintained at least some of their previous unhealthy eating practices without restriction. They reported not paying attention to recommendations about heart-healthy diets following their CVD diagnosis and instead continued consuming fatty meat, deep-fried food, high-salt items, sugary snacks and big portions of food.

> No, I am not on any restricted diet... I do like to eat fatty meat. I still eat it. I eat that every day (P1, male, 71yrs, CHD 6 yrs).

TABLE 3Main themes and subthemes from the thematicanalysis of qualitative interviews.

Themes	Subthemes
Self-care maintenance	 Dietary practices Adaptation to heart-healthy diets^a Maintenance of poor eating practices Continuance of previous healthy eating practices
	Physical activitiesDeveloping exercise routinesLimiting exercise or maintaining physical inactivity
	 Medication adherence Adherence to prescribed western medication Use of Traditional Chinese medicine Self-administration of health supplements
	Stress management
	Medical follow-ups
	Seeking health information
	 Other self-care maintenance behaviours Sleep and rest patterns Drinking and smoking behaviours Flu vaccination Being vigilant to avoid triggers of angina
Self-care monitoring	Interpreting bodily symptoms
	Checking bodily signs
	Medication monitoring
Self-care management	Angina management
	Bodily signs management
	Medication management

^aHeart healthy diet: diet pattern is rich in vegetables, fruit and wholegrains, reduce in unhealthy fats, salt and added sugar.

Multiple barriers to adaptation to heart-healthy diets were reported. Coming from a collectivistic culture, Chinese participants' commitment to family could be a hurdle to adopting or maintaining heart-healthy diets. These participants prioritized their families' needs over their own when conflicts emerged between family eating preferences and their heart-healthy dietary regime.

> ...a big challenge for me since I came to Australia (laughing) I eat a lot for dinner, because everyone is at home at the dinner time ... I eat many meat dishes which made me gain weight... As I prepare the family dinner, I have to taste the food. As a result, I end up eating more meat than I should without even realizing it. So, that is the problem

> > (P16, male, 76yrs, CHD 7yrs).

Lack of diet-related health education was a determining factor reported by some participants for not adapting their diet. Some participants said they had not received any or adequate health WILEY-JAN

education on heart-healthy diets from doctors. Other participants pointed out that the diet-related health education they received from doctors was too general and broad. They also stressed that dietary behaviours are personal habits that doctors need to take into account when providing health education.

> There is no specific (health education) tailored to me as guidance, even though it has been more than 4 years since I got cardiovascular disease...Also, I do not receive individualized dietary advice from professionals like dietitians. (I expected to) hear from someone about this... I am very confused. I did not get any good advice in this regard

> > (P2, male, 68yrs, CHD 4yrs).

Participants reported that dietary habits which had been ingrained for a lifetime were not easily shifted. Moreover, some also confessed that they wanted to preserve the joy in life that they perceived to be conveyed by their customary diets for their quality of life. Hence, they did not, or not much restrict their dietary practices.

> I am not worried about it (eating fried food) ... I do not want my life quality to be decreased after I get cardiovascular disease. I still hope I can maintain the quality of my life, in order to eat what I like and to engage in the activities I enjoy

> > (P2, male, 68yrs, CHD 4 yrs).

Continuance of previous healthy eating practices. In some cases, (female) participants maintained dietary practices without making any deliberate changes where their dietary habits had previously been consistent with heart-healthy recommendations. Such diets were characterized by rarely eating meat, using little salt and oil, and meals being largely vegetable based.

Physical activities

In relation to physical activities, participants' behaviours fell into two categories: those who developed exercise routines and those with limited exercise or who maintained physical inactivity.

Developing exercise routines. Most of these Chinese participants had incorporated some form of exercise routine into their lifestyles following their diagnosis. The most commonly mentioned exercise was walking more than 1h daily, followed by group activities including Tai Chi, square dancing and playing ball games in their neighbourhoods or at Chinese community centres. Having enough time following their retirement served as a facilitator for building up participants' exercise routines. Moreover, getting connected with the Chinese community and joining their activities helped participants improve their awareness, knowledge and practices on regular exercises. Alongside the adoption of exercise routines, several participants described how they considered the appropriate intensity for their physical activity, out of concern that it could have a negative impact on their cardiovascular condition, inducing angina. Not to over-exert themselves, they tailored their exercise, avoided strenuous exercise or changed previous running habits to gentle walking or Tai Chi.

> I also pay attention to the level of physical activities, neither too much nor too less. Because the beating heart pumps out the blood whenever you walk a step. So you can't walk too much or too less (P8, male, 71yrs, CHD 6 yrs).

Limiting exercise or maintaining physical inactivity. However, some participants lacked motivation to exercise or did not prioritize exercise as an important element in self-care of heart disease, either limiting their exercise or deliberately maintaining a low level of physical inactivity. They gave various reasons for this. Four participants reported experiencing symptoms of arthritis and angina pain which dampened their motivation for regular exercise. Living at a distance from an exercise group activity was another impediment. One female participant who had lost her partner became physically inactive due to lack of motivation and related depression. Another female participant complained that between her caregiving role and her housework, she had no time to exercise.

> I used to go to the park in the morning. The two of us (with husband) would walk together, do some exercise and have a chat. (after her husband had passed away) Now, I enjoy staying at home, as it is nice and quiet (P15, female, 69yrs, CHD 2yrs)

> In terms of exercise ... I rarely run nowadays, even though my doctor advised me...I told my doctor that I was afraid to run. Do you know why? I have, I had arthritis in both of my knees... So, I cannot run (P16, male, 76yrs, CHD 7yrs).

Medication adherence

Participants' medication adherence behaviours fell into three categories: in relation to prescribed western medicine, in relation to use of Traditional Chinese Medicine (TCM) and to self-administration of health supplements.

Adherence to prescribed western medication. Three-quarters (n=15) of these Chinese participants reported being reasonably consistent in taking their prescribed western medications most of the time. Many participants had well-established medication routines, with specific scheduling timetables for taking medication, assembling medication in advance and taking medications with them while travelling. The social status of health professionals in China was described as very high, so even where they harboured doubts about the medication, participants still complied with physicians' prescriptions. This was partly out of respect for the prescriber's professional knowledge but also, given the social hierarchy distance between doctor and patient,

JAN

they were afraid to displease their doctors. For some participants, the need they perceived to manage their disease and control symptoms motivated their medication adherence.

> I just thought, as a patient, all I could do is listen to my doctor and take my medications. That is it (P19, female, 67vrs, CHD 1 vrs).

> I just take it more seriously than I used to. I did not have cardiovascular disease in the past, so I did not take it seriously. Now that I have it, I take my medications regularly

> > (P2, male, 68yrs, CHD 4yrs).

By comparison, four participants confessed to poor adherence to prescribed western medications. Some considerations could dampen participants' motivation for medication adherence. These included where deliberate choices were made in respect of self-appraisal of symptoms or concerns about side-effects; where there was genuine uncertainty about what they should be doing due to inconsistent opinions between physicians; and where they were affected by the psychological burden and overload of multiple medications to take in a day, leading to forgetfulness.

> Oh dear, I always forget (laughing). I take my medications when I feel unwell. I stop when I am well again (P7, female, 67yrs, CHD 33yrs).

Use of Traditional Chinese Medicine. Over one-third reported incorporating TCM to manage their heart disease, including traditional herbal medicine, Chinese patent medicine and food therapy. In particular, they identified the use of a fast-acting heart rescue pill, a Chinese patent medicine, as a first-line medication for relieving angina.

> Nitroglycerin does not work for me. I carry a different medication which I brought from China, called fast acting heart rescue pills. It is traditional Chinese medicine. But because it works so well, I really trust it (P16, male, 76yrs, CHD 7yrs).

Influenced by the belief that, as TCM was natural it would therefore have less side-effects, some participants preferred TCM to treat their heart disease. Compared to western prescribed medication, the effectiveness of TCM for relieving angina as proven by their own experiences was another reason to take it. For other participants, as their heart disease was diagnosed in China before migrating to Australia, they had been taking the TCM prescribed by physicians in China for a long time, and continued even now they were in Australia.

One was called (XXXX). I am still on it, since it can keep (my heart rate) above 50. But it is traditional

Chinese patent medicine, which is not available here. So (maintaining consistent supply)... is what I am most worried about (laughing)

(P3, female, 63yrs, CHD 14yrs).

Self-administration of dietary supplements. In addition to their prescribed Western medications and TCM, over half the participants reported taking dietary supplements. The most commonly used supplements for heart health were coenzyme Q10 and fish oil. Only one participant received a prescribed supplement: all other participants self-administered supplements recommended by their friends or family. Some believed these dietary supplements were especially beneficial for promoting their heart health and managing heart symptoms.

> I have been taking it (Q10) for more than 10 years, without stopping it... No matter whether they are helpful, I think, at least they take a bit effect, rather than no effect at all...it protects the heart health. It helps in regard to the cardiac troponin

> > (P8, male, 71 yrs, CHD 6yrs).

Stress management

Many of these participants stated they were more likely to manage their stress on their own, rather than seek professional support. Their well-developed personal values and cultural philosophies, such as living in the present, thinking positively and letting thoughts go, supported their capacity to cope with stressors. For some participants, practices such as self-distraction or keeping busy with reading, travelling, gardening, watching TV or enjoying foods were helpful for managing their stress levels. Other participants sought emotional support from family, Chinese community centres and psychological consultations. Some participants emphasized the importance of joining group activities held at Chinese community centres to alleviate their loneliness. However, three participants claimed that they just endured stress as they did not know how to address their emotions appropriately.

> It feels lonely being here. We, old people, do not speak any English, and we know nothing here. So, I feel there is a need for me to adapt to the environment here (in Australia), if you live here. I have no choice. So, I only can go out every day and participate in all sorts of activities (at the community centre), even though I had never tried them before

> > (P3, female, 63yrs, CHD 14yrs).

Medical follow-ups

Most participants consistently visited their general practitioners or cardiologist for regular follow-up visits. However, participants reported factors which could potentially dampen their motivation for regular follow-up care. These included problems with previous care, such as where they had received differing opinions about WILEY-JAN

their treatment from different providers; where their treatment was changed when they transferred from care under one system to another; where they experienced poor therapeutic rapport with their physician. They could also defer follow-up when they self-appraised their symptoms did not require attention; for example, one female participant perceived no need to attend the cardiologist follow-up if she had no symptoms.

Seeking health information

Seeking heart health information or resources is a common and essential behaviour in relation to self-care maintenance but was experienced variously among these Chinese Australians. Most participants sought heart health information written in Chinese. They searched for health information on Chinese websites, news feeds and WeChat (popular social media in China), and by (less commonly) connecting to social networks both in Australia and China. Participants also read printed health information in Chinese versions, either sourced locally in Australia or brought from China. Attending health talks held at Chinese community centres was reported by one participant as a way to access heart-related health information. However, a small number of participants demonstrated passivity by not reporting any effort to seek out heart-related health information. Their only channel for health information was their general practitioners who normally had little time to provide detailed health education, resulting in poor heart health literacy among these patients.

Participants frequently expressed a desire for more heart health information to support their self-care decision-making and skills. Two main barriers were encountered by these Chinese Australian participants when seeking heart health information. First and most commonly, over half the participants described a lack of access to culturally and linguistically appropriate heart health information from mainstream health services, and they had not received targeted health education from either their general practitioner or cardiologist.

> First of all, I do not know what I should pay attention to in my daily life. For example, do I need to take care of my mental wellbeing, such as controlling my anger? Secondly, about my diet. I know I should avoid food high in cholesterol, but I do not know what particular food I am supposed eat in moderation, and what I should eat more. Then, there is exercise. So, at this stage, I need some very clear and specific recommendations on how I should look after myself as a cardiac patient, in terms of emotional wellbeing, diet, or lifestyle

> > (P2, male, 68yrs, CHD 4 yrs).

Secondly, where these participants had received health education and guidance, what was provided by health practitioners was described as generic, too broad, not taking account of their individual circumstances. Accordingly, they wanted individualized heart health information to assist them in maintaining their selfcare practices.

> The doctor suggested I go for a brisk walk for 30 minutes every day. I was not able to follow that advice, because of my knee problems. They hurt when I walked for too long. And I also did not want any further damage done to my knees, so I avoided exercising too much

> > (P17, female, 68yrs, CHD 6yrs).

Other self-care maintenance behaviours

A small number of participants also described other behaviours, with four emergent sub-categories of sleep and rest patterns, drinking and smoking behaviours, flu vaccination and avoiding triggers for disease symptoms.

Sleep and rest patterns. Some participants reported sleeping well at night, and half the participants had developed the habit of taking a nap after lunch. However, many found it a challenge to maintain good sleep quality as they complained of broken sleep, only sleeping lightly and having disturbed sleep because of comorbidities such as joint pain and sleep apnoea. Two participants attributed their insomnia to addictively playing on their smartphones at night.

Drinking and smoking behaviours. Following their heart disease diagnosis, some participants who reported previous drinking habits had adjusted to drink only very occasionally, and in small or moderate amounts. One male participant who had smoked for 30 years complained that it was impossible to quit smoking over-night so he cut down to six or seven cigarettes from one pack a day. Another female participant was affected by second-hand smoke from her husband, a heavy smoker who refused to follow her suggestion of smoking cessation.

Flu vaccination. More than three-quarters of participants complied with their general practitioners' recommendation of annual flu vaccination. A few were reluctant to be vaccinated on the basis of personal beliefs indicative of poor health literacy on flu vaccination.

Being vigilant to avoid triggers of angina. Seven participants reported being vigilant to avoid triggers for angina or cardiac events, such as physical exertion, dehydration and heavy workload. Another participant emphasized the weather or temperature change, which he believed was related to blood circulation. The cold temperature could negatively impact the blood supply to his heart, so he put on more clothes in winter to keep warm to improve circulation to his heart.

AN

3.2.2 | Theme two: Self-care monitoring

As recounted by these Chinese participants, four major monitoring activities were identified, encompassing interpreting bodily symptoms, monitoring signs, medications and weight.

Interpreting bodily symptoms

Chinese participants were vigilant to somatic changes, interpreted the symptoms and understood the seriousness with regard to episodes of angina or stroke. When asked what symptoms they believed may relate to their heart problem, many participants (80%) mentioned chest tightness, palpitations, shortness of breath, dizziness and fatigue in the context of physical exertion and negative emotions. Two participants with previous stroke voiced their anxiety that feelings of numbness indicated another episode of stroke.

For example, numbness in my hands and feet, or my fingertips. That usually makes me worried if I had another stroke

(P18, female, in 40s, Stroke 1 yrs).

Atypical angina symptoms were also pinpointed by some participants, including tingling on the skin surface around the chest area, shoulder or armpit pain, feeling very hungry and generally feeling unwell.

> The feeling that I had to eat something immediately was quite urgent, as if I was starving. Then, I was sweating as well. I felt so tired that I had to sit down...I sometimes experienced dull pain in my arm at about 5 or 6am...However, the pain spot varied each time (P19, female, 67yrs, CHD 1 yrs).

Checking bodily signs

Most participants reported being compliant to attend for medical testing, predominantly blood tests and exercise stress tests. Many participants were vigilant to detect their weight changing and tracked their weight fluctuation over time. Approximately half of these participants actively checked their own blood pressure, blood sugar and clotting results at home on a daily or weekly basis in addition to attending medical check-ups. Four participants checked these body signs only when they felt unwell. Three participants did not monitor their body signs at all as they relied on medical examinations or perceived there was no need to check their 'normal' body signs. Not having a blood pressure monitoring device available at home was reported by one participant as deterring her self-monitoring behaviour.

> ...I do not monitor my blood sugar at home, because it has always been normal... But my GP did ask me to buy a blood pressure monitor...So, I have to wait for my daughter to buy one for me, as I cannot speak English

> > (P17, female, 68yrs, CHD 6yrs).

Medication monitoring

Over half the participants reported being vigilant to monitor medication effectiveness and detect side-effects using their somatic awareness, medication knowledge and personal experience. For example, when they took prescribed cardiac medications, they watched their bodies' reactions by self-measuring their heart rate and blood pressure. They used their knowledge of the common side effects of specific drugs; for example, muscle weakness or aches associated with statins. Participants on antiplatelet and anticoagulant medications closely checked for bruising and bleeding, and monitored their International Normalized Ratio (INR) blood test results, as instructed by their prescribers.

> I was on aspirin...I took one tablet every day and some bruises appeared in different areas... So, I was worried. I asked the doctor if I should stop taking it because some people told me about (the side effects). And I showed him (the bruises)

> > (P3, female, 63yrs, CHD 14yrs).

-WILEY

3.2.3 | Theme three: Self-care management

Three self-care management behaviours were identified, involving angina, bodily signs and medication management.

Angina management

During an angina episode, the common management strategies reported by over half the participants included resting immediately and taking nitro-glycerine or quick acting heart rescue pills (TCM) if the angina symptoms persisted. For some participants newly diagnosed with CVD or presenting with mild or atypical symptoms, their response was to tolerate and observe the symptoms, anticipating that the episode would resolve without intervention. Relaxing, talking with their family or eating something to relieve hunger symptoms were also performed to relieve the angina-related symptoms and stress. However, two participants with insight into the acuity of their heart condition called their family to send them to hospital immediately.

> In the bedroom, I felt difficult to catch a breath... However, when I laid in the bed, it made me feel short of breath. I started feeling choked. Then I sat up right away and took one nitro-glycerine. I still felt bad after I took the nitro-glycerine. My son was at home back then, I said to him: "Iet's go to the hospital as I am feeling unwell." So my son drove me to (hospital name) (P8, male, 71 yrs, CHD 6yrs).

After an angina episode, some participants recognized the need for a review and made an appointment to consult their doctors. Others waited until the next follow-up. Notably, one participant sought reassurance from her family for her angina-related symptoms.

Bodily signs management

WILFY-IAN

When changes were detected in bodily signs such as measurements of blood pressure, blood sugar or INR results, participants reported actively visiting their general practitioners for professional consultations. However, sometimes some participants adjusted their medications without consulting their doctors. Interestingly, one participant used his blood pressure records to indicate what he thought was the best time to take medication to achieve the best treatment outcomes.

> I find my blood pressure is highest at probably 5am, with 80/140 mmHg sometimes. So I take the medication to control my blood pressure at that time... So my blood pressure is well controlled

> > (P9, male, 73yrs, CHD10 yrs).

Medication management

In response to concerns about medication effectiveness and sideeffects, some participants initiated consultations with their general practitioners. In contrast, over half the participants adjusted their medications themselves when suffering from medication sideeffects, rather than communicating with their physicians in the first instance. However, one participant self-adjusted warfarin with their physician's permission as she knew how to adjust the dose in line with her INR results. Other participants with high levels of health literacy could rationalize medication side effects, interpret their seriousness and self-manage side effects under instruction.

> With dizziness, when I do some gardening in my backyard and suddenly stand up, for example, (I) may feel dizzy and need to find something to hold on to immediately. This may not be related to my heart, but blood pressure instead

> > (P1, male, 71yrs, CHD 6 yrs).

4 | DISCUSSION

The paper adds new knowledge by comprehensively describing selfcare behaviours among first-generation Chinese immigrants with CVD in Australia, a group with a unique experience of two cultures, compared to other Chinese immigrant generations. Overall, many participants were willing to take a role in self-care for their CVD, particularly in self-care maintenance (e.g. adjusting to a heart-healthy diet, exercising regularly and actively seeking out health services) and self-care monitoring. However, adherence to such self-care behaviours was by no means universal, and some of the practices described were not evidence-based. Although most were broadly adherent to their prescribed medication regimens, self-adjustment of medications, use of TCM and self-administration of health supplements were common practices among these populations. Of concern, how patients and families responded to acute cardiac events was suboptimal and delays could be compounded by using TCM. In addition to personal preference and health literacy, language barriers and cultural adaptation were also important influences on selfcare behaviours in these Chinese immigrants.

Participants described an accumulation of multiple sources of difficulty in adopting lifestyle changes within a context of widespread change due to migration. The challenges were acknowledged of changing lifestyle habits engrained over decades. Participants emphasized their lack of access to culturally and linguistically heart health information, and predominantly blamed this for their limited abilities to perform evidence-based CVD self-care. This could, partially at least, explain their poor self-care management response to heart attacks or angina episodes. Where they recognized the seriousness of a diagnosis of CVD, this could motivate and facilitate adoption of self-care behaviours but lack of culturally appropriate heart-health information posed a common and substantial barrier. Family could both help and hinder adherence to cardiac best practices but they suffered a similar lack of culturally and linguistically appropriate heart-health information. Further, participants wanted heart-health information that was not just culturally appropriate but tailored to take account of individual factors such as co-morbidities.

Our findings showed that many Chinese immigrants were willing to adopt a healthy diet following their CVD diagnosis. This was consistent with another study on Chinese immigrants with CVD (Jin et al., 2020). However, some participants still maintained previous poor dietary practices attributed to dietary habits, food acculturation and family obligations. Thus, it would be sensible for clinicians to assess Chinese immigrants' dietary habits and acculturation before giving dietary guidance. To improve dietary adherence, clinicians could reinforce the heart-healthy components of cultural dietary practices and encourage them to integrate dietary recommendations within the local cuisine. Moreover, it is essential to get family members involved with dietary education.

Many Chinese immigrants in this study developed physical activity routines, similar to findings of a review (Zeng et al., 2023), that this population commonly performed exercises such as walking, Tai Chi and swimming. Further, study findings showed Chinese community associations playing significant roles in promoting older Chinese immigrants with exercise routines such as Tai Chi, ball sports and dancing. Thus, community-based exercise interventions in collaboration with Chinese community managers could be developed to support Chinese immigrants with appropriate and sustained regular exercise intensity.

Whilst these immigrants reported broadly adhering to westernprescribed medications, they included TCM to manage their CVD and self-administration of heart health supplements was prevalent. Similar results were also reported in other studies from Australia and the United States (Jin et al., 2020; King-Shier et al., 2017). This may in part be due to these participants' CVD having been diagnosed and initially treated in their country of origin, which was a new finding in our study. Further, these participants were prone to self-adjust their prescribed medications when side-effects presented. Clinicians should bear these practices in mind when assessing Chinese immigrants' medication histories.

Participants' stressed their lack of access to linguistically and culturally appropriate heart health information from mainstream sources; also found in other studies exploring health information-seeking behaviours among Chinese immigrants in the United States and Australia (Qian & Mao, 2021; Zhang et al., 2023). Many participants in this study had no admission history for an acute CVD event, and thus had not received heart health education from hospitals or cardiac rehabilitation. Therefore they sought online health information from Chinese websites which were not based on or verified in line with Australian treatment guidelines. This misalignment of information was a possible source of misunderstanding and mistrust between patients and doctors, further undermining Chinese immigrants' self-care behaviours. Interventions are required to improve access to heart health education in outpatient and community settings. Consistent with a previous study (Xiao et al., 2023), Chinese immigrants heavily relied on Chinese social networks and Chinese community associations to access health information. It would be feasible to collaborate with Chinese community managers to develop and deliver heart health education programmes to engage peer and community support to improve self-care literacy and skills in this population.

Another important finding of this study was the inadequate response to heart attack or angina management in this population. This was also confirmed in a previous study, where Chinese immigrants delayed seeking treatment for acute angina symptoms due to their poor health literacy (Jin et al., 2020). Our study detailed the mechanism in response to an angina episode. They tended to use TCM (quick-acting heart reliever pills) to relieve the symptoms and were reluctant to call an ambulance due to the language barrier and financial burden. Culturally and linguistically appropriate intervention is urgently needed to improve the first response to acute cardiac events by Chinese immigrants.

This study has some limitations. First, participants were recruited solely from the Sydney area and whilst this area houses one of the biggest Chinese communities in Australia, study findings may not be transferrable beyond this location. Another limitation is in regard to the inclusion criterion that required participants to speak English or Mandarin as this excluded immigrants who only spoke Cantonese. Moreover, during the interview, participants' sense of socially desirable responses may have generated data bias. The findings in this study need to be interpreted and transferred with caution considering the differences between the health systems in the various host countries; Australian Chinese immigrants' experiences with the Australian health system may not be reproducible for other Chinese immigrant populations. Finally, the transcripts were not provided to participants for feedback due to COVID-19 movement restrictions, which might have compromised study confirmability.

5 | CONCLUSION

Most Chinese immigrants were motivated to engage in selfcare behaviours for their cardiac disease, particularly in self-care maintenance and monitoring. However, their limited health literacy and skills in CVD self-care were not adequate to enable them to fully participate in evidence-based self-care behaviours and optimize their health outcomes. This was largely attributed to the lack of access to linguistically and culturally appropriate heart health information involving not just the patients but also their families. This was echoed in their poor first response to acute cardiac events. Linguistically and culturally appropriate heart health education programmes are urgently needed among this population in the community, targeting healthy lifestyle modification, medication literacy and cardiac symptom management. Partnering with Chinese community organizations offers an innovative route to co-design and deliver targeted heart health education interventions and support for this population.

AUTHOR CONTRIBUTIONS

All authors agreed the final version of the manuscript. Ling Zeng carried out study conception, study design, data collection, data analysis, data interpretation and drafting the manuscript. Xiaoyue Xu and Lin Perry contributed to study conception, study design, data analysis, data interpretation, manuscript revision and editing.

ACKNOWLEDGEMENTS

The authors acknowledge the participation of the Chinese immigrants in Sydney and the support for recruitment received from the Chinese Community Associations in Sydney. Open access publishing facilitated by University of Technology Sydney, as part of the Wiley - University of Technology Sydney agreement via the Council of Australian University Librarians.

FUNDING INFORMATION

The corresponding author, Ling Zeng, is in receipt of a Research Training Programme Scholarship from the Australian federal government. No funding was declared for the remaining authors.

CONFLICT OF INTEREST STATEMENT

No conflict of interest has been declared by the authors.

PEER REVIEW

The peer review history for this article is available at https://www. webofscience.com/api/gateway/wos/peer-review/10.1111/jan. 16302.

DATA AVAILABILITY STATEMENT

The data utilized in this study have been lawfully acquired. The raw data will be only accessed with participants' permission, in line with appropriate Human Research Ethics Committee approvals.

ORCID

Ling Zeng D https://orcid.org/0000-0002-7228-0027 Xiaoyue Xu D https://orcid.org/0000-0003-4787-6547 Lin Perry D https://orcid.org/0000-0002-8507-1283

TWITTER

Ling Zeng Ӯ CristinaZeng

II FY-JAN

REFERENCES

- ABS. (2022). Cultural diversity of Australia information on country of birth, year of arrival, ancestry, language and religion. Australian Bureau of Statistics. https://www.abs.gov.au/articles/cultural-diversity-austr alia
- Agyemang, C., & van den Born, B. J. (2022). Cardiovascular health and disease in migrant populations: A call to action. *Nature Reviews Cardiology*, 19(1), 1–2. https://doi.org/10.1038/s41569-021-00644 -y
- AIHW. (2023). Heart, stroke and vascular disease: Australian facts. Australian Institute of Health and Welfare. https://www.aihw.gov. au/reports/heart-stroke-vascular-diseases/hsvd-facts/contents/ disease-types
- Al-Amer, R., Ramjan, L., Glew, P., Darwish, M., & Salamonson, Y. (2015). Translation of interviews from a source language to a target language: Examining issues in cross-cultural health care research. *Journal of Clinical Nursing*, 24(9–10), 1151–1162. https://doi.org/10. 1111/jocn.12681
- Bainey, K. R., Alemayehu, W., Gupta, A. K., Bowker, S. L., Welsh, R. C., & Kaul, P. (2018). Ethnic and sex differences in ambulance activation among hospitalized patients with acute coronary syndromes: Insights from the Alberta contemporary acute coronary syndrome patients invasive treatment strategies (COAPT) study. International Journal of Cardiology, 272, 33–39. https://doi.org/10.1016/j.ijcard. 2018.08.035
- Bradshaw, C., Atkinson, S., & Doody, O. (2017). Employing a qualitative description approach in health care research. *Global Qualitative Nursing Research*, 4, 1–8. https://doi.org/10.1177/2333393617 742282
- Clark, L., Birkhead, A. S., Fernandez, C., & Egger, M. J. (2017). A transcription and translation protocol for sensitive cross-cultural team research. *Qualitative Health Research*, 27(12), 1751–1764. https:// doi.org/10.1177/1049732317726761
- Clarke, V., & Braun, V. (2017). Thematic analysis. The Journal of Positive Psychology, 12(3), 297–298. https://doi.org/10.1080/17439760. 2016.1262613
- Gong, Z., & Zhao, D. (2016). Cardiovascular diseases and risk factors among Chinese immigrants. *Internal and Emergency Medicine*, 11(3), 307–318. https://doi.org/10.1007/s11739-015-1305-6
- Jin, K., Ding, D., Gullick, J., Koo, F., & Neubeck, L. (2015). A Chinese immigrant paradox? Low coronary heart disease incidence but higher short-term mortality in Western-dwelling Chinese immigrants: A systematic review and meta-analysis. Journal of the American Heart Association, 4(12), n/a. https://doi.org/10.1161/ JAHA.115.002568
- Jin, K., Gullick, J., Neubeck, L., Koo, F., & Ding, D. (2017). Acculturation is associated with higher prevalence of cardiovascular disease riskfactors among Chinese immigrants in Australia: Evidence from a large population-based cohort. European Journal of Preventive Cardiology, 24(18), 2000–2008. https://doi.org/10.1177/20474 87317736828
- Jin, K., Neubeck, L., Koo, F., Ding, D., & Gullick, J. (2020). Understanding prevention and management of coronary heart disease among Chinese immigrants and their family carers: A socioecological approach. *Journal of Transcultural Nursing*, 31(3), 257–266. https://doi. org/10.1177/1043659619859059
- King-Shier, K. M., Singh, S., Khan, N. A., LeBlanc, P., Lowe, J. C., Mather, C. M., Chong, E., & Quan, H. (2017). Ethno-cultural considerations in cardiac Patients' medication adherence. *Clinical Nursing Research*, 26(5), 576–591. https://doi.org/10.1177/1054773816646078

Li, J., Lowres, N., Jin, K., Zhang, L., Neubeck, L., & Gallagher, R. (2018). Quality and cultural sensitivity of linguistically appropriate cardiovascular disease information for Chinese immigrants: A review of online resources from heart foundations. *The Journal of Cardiovascular Nursing*, 33(3), 269–280. https://doi.org/10.1097/ JCN.000000000000457

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. Sage.

- Neergaard, M. A., Olesen, F., Andersen, R. S., & Sondergaard, J. (2009). Qualitative description—The poor cousin of health research? BMC Medical Research Methodology, 9(1), 52. https://doi.org/10.1186/ 1471-2288-9-52
- Osokpo, O., James, R., & Riegel, B. (2021). Maintaining cultural identity: A systematic mixed studies review of cultural influences on the self-care of African immigrants living with non-communicable disease. *Journal of Advanced Nursing*, 77(9), 3600–3617. https://doi. org/10.1111/jan.14804
- Osokpo, O., & Riegel, B. (2021). Cultural factors influencing self-care by persons with cardiovascular disease: An integrative review. International Journal of Nursing Studies, 116, 103383. https://doi. org/10.1016/j.ijnurstu.2019.06.014
- Qian, Y., & Mao, Y. (2021). Coping with cultural differences in healthcare: Chinese immigrant mothers' health information sharing via WeChat. International Journal of Intercultural Relations, 84, 315–324. https://doi.org/10.1016/j.ijintrel.2021.05.001
- Riegel, B., Jaarsma, T., Lee, C. S., & Strömberg, A. (2019). Integrating symptoms into the middle-range theory of self-care of chronic illness. Advances in Nursing Science, 42(3), 206–215. https://doi.org/ 10.1097/ANS.00000000000237
- Riegel, B., Jaarsma, T., & Strömberg, A. (2012). A middle-range theory of self-care of chronic illness. Advances in Nursing Science, 35(3), 194–204. https://doi.org/10.1097/ANS.0b013e318261b1ba
- Riegel, B., Moser, D. K., Buck, H. G., Dickson, V. V., Dunbar, S. B., Lee, C. S., Lennie, T. A., Lindenfeld, J., Mitchell, J. E., Treat-Jacobson, D. J., & Webber, D. E. (2017). Self-care for the prevention and management of cardiovascular disease and stroke: A scientific statement for healthcare professionals from the American Heart Association. *Journal of the American Heart Association*, 6(9), 1–27. https://doi.org/10.1161/JAHA.117.006997
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, 19(6), 349–357. https://doi.org/10.1093/intqhc/ mzm042
- Twinn, S. (1997). An exploratory study examining the influence of translation on the validity and reliability of qualitative data in nursing research. Journal of Advanced Nursing, 26(2), 418–423. https://doi. org/10.1046/j.1365-2648.1997.1997026418.x
- USCB. (2023). Asian American, Native Hawaiian and Pacific Islander Heritage Month: May 2023. United States Census Bureau. https:// www.census.gov/newsroom/facts-for-features/2023/asian-ameri can-pacific-islander.html
- Virani, S. S., Newby, L. K., Arnold, S. V., Bittner, V., Brewer, L. C., Demeter, S. H., Dixon, D. L., Fearon, W. F., Hess, B., Johnson, H. M., Kazi, D. S., Kolte, D., Kumbhani, D. J., LoFaso, J., Mahtta, D., Mark, D. B., Minissian, M., Navar, A. M., Patel, A. R., ... Williams, M. S. (2023).
 2023 AHA/ACC/ACCP/ASPC/NLA/PCNA guideline for the management of patients with chronic coronary disease: A report of the American Heart Association/American College of Cardiology Joint Committee on clinical practice guidelines. *Circulation*, 148(9), e9–e119. https://doi.org/10.1161/CIR.000000000001168
- WHO. (2021). Cardiovascular diseases (CVDs). World Health Organization. https://www.who.int/news-room/fact-sheets/detail/cardiovasc ular-diseases-(cvds)
- Xiao, L. D., Tu, Q., Bickford, J., & Muir-Cochrane, E. (2023). The experiences of older Chinese migrants with chronic diseases during

- Zeng, L., Perry, L., & Xu, X. (2023). Self-care behaviours and related cultural factors among Chinese immigrants with cardiovascular disease in western countries: An integrative review. *Journal of Clinical Nursing*, 32(9–10), 1599–1614. https://doi.org/10.1111/jocn.16120
- Zhang, L., Chung, S., Shi, W., Candelaria, D., & Gallagher, R. (2023). Online health information-seeking Behaviours and eHealth literacy among first-generation Chinese immigrants. *International Journal of Environmental Research and Public Health*, 20(4), 3474. https://doi. org/10.3390/ijerph20043474

How to cite this article: Zeng, L., Xu, X., & Perry, L. (2025). Self-care behaviours of first-generation Chinese immigrants living with cardiovascular disease: A qualitative study. *Journal* of Advanced Nursing, 81, 1038–1051. <u>https://doi.org/10.1111/</u> jan.16302

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

The Journal of Advanced Nursing (JAN) is an international, peer-reviewed, scientific journal. JAN contributes to the advancement of evidence-based nursing, midwifery and health care by disseminating high quality research and scholarship of contemporary relevance and with potential to advance knowledge for practice, education, management or policy. JAN publishes research reviews, original research reports and methodological and theoretical papers.

For further information, please visit JAN on the Wiley Online Library website: www.wileyonlinelibrary.com/journal/jan

Reasons to publish your work in JAN:

- High-impact forum: the world's most cited nursing journal, with an Impact Factor of 2.561 ranked 6/123 in the 2019 ISI Journal Citation Reports © (Nursing; Social Science).
- Most read nursing journal in the world: over 3 million articles downloaded online per year and accessible in over 10,000 libraries worldwide (including over 6,000 in developing countries with free or low cost access).
- Fast and easy online submission: online submission at http://mc.manuscriptcentral.com/jan.
- Positive publishing experience: rapid double-blind peer review with constructive feedback.
- Rapid online publication in five weeks: average time from final manuscript arriving in production to online publication.
- Online Open: the option to pay to make your article freely and openly accessible to non-subscribers upon publication on Wiley Online Library, as well as the option to deposit the article in your own or your funding agency's preferred archive (e.g. PubMed).

Wh fy