

# 'There is always a way to living with illness'— Self-management strategies reported by Chinese hospitalized patients with cardiovascular disease: A descriptive qualitative study

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## Abstract

**Objectives:** Patients living with cardiovascular diseases use different strategies to solve various problems. This study aimed to identify the category, type and specific self-management strategies reported by hospitalized patients with cardiovascular diseases.

**Methods:** This is a qualitative descriptive study. Twenty-eight individuals with cardiovascular diseases from a Cardiology Department affiliated with a school in China were recruited by purposive sampling. Face-to-face semi-structured interviews were used. The interviews were audio-recorded, transcribed, translated and analysed by using content analysis.

**Results:** Five self-management strategy categories (medical and alternative therapy uptake, risk assessment and avoidance, resource seeking and utilization, maintaining normality, and optional management), and seventeen self-management strategy types, encompassing one hundred and ten specific strategies were identified. The most commonly used self-management strategy types were

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lifestyle adjustment (eleven strategies), self-maintenance (nine strategies) and problem-solving (nine strategies). Additionally, the most described explicit self-management strategies were receiving family/colleague support, maintaining daily routines, monitoring symptoms and managing side effects, discussing with professionals, using medicines, and improving awareness.

**Conclusion:** This study identified diverse strategies reported by some Chinese cardiovascular patients. It may inform the design and development of personalized self-management interventions for health practitioners and policymakers, helping cardiovascular patients in Chinese communities worldwide receive culture-tailored services.

#### KEYWORDS

cardiovascular disease, qualitative research, self-management

## 1 | INTRODUCTION

Chronic illnesses, also known as non-communicable diseases, such as cardiovascular disease, cancer, respiratory diseases and diabetes, are the most prevalent and costly of all global health problems.<sup>1</sup> They are ongoing health conditions that can be controlled but not cured.<sup>2</sup> Further, they are long-term and intrusive to individuals' daily lives. The World Health Organization reports that chronic illnesses are the leading causes of death and poor outcomes.<sup>3</sup> Similarly, with the increasing prevalence, chronic diseases have become the most threatening problem to the public health of Chinese residents.<sup>4</sup>

According to Corbin and Strauss,<sup>5</sup> self-management is commonly defined as strategies that individuals perform to live well with long-term conditions, including medical, life roles and emotion. In the last 2 decades, self-management has had various other definitions, one of which was managing diseases and lifestyle behaviours, referring to "the ability of the individual, in conjunction with family, community and healthcare professionals, to manage symptoms, treatments, lifestyle changes, and psychosocial, cultural, and spiritual consequences of health conditions".<sup>6</sup> The others were like involving all strategies that patients used to live a good life despite long-term conditions.<sup>7</sup> The latest concept analysis conducted by Van de Velde et al.<sup>8</sup> has defined self-management as 'the intrinsically controlled ability of an active, responsible, informed and autonomous individual to live with the medical, role and emotional consequences of his chronic condition(s) in partnership with his social network and the healthcare provider(s)'. This definition was not only organized into 3 groups—person-oriented attributes, person-environment-oriented attributes and summarizing attributes—but also evolved to much broader concepts, like paying greater attention to the real-life context and goal-oriented care.

Self-management has been recognized as one of the most critical components of healthcare to ease the burden of diseases, optimize disease management and outcomes, and maintain a satisfactory quality of life (QoL).<sup>9</sup> Gradually, there is an increasing awareness that similar strategies can be effectively completed across different types of chronic illnesses, such as monitoring one's condition and applying cognitive, behavioural, and emotional strategies.<sup>1,10,11</sup> Effective and successful self-management strategies help to improve patients' self-reported health status, but patients' behaviours are often far from the suggested recommendations, especially in the elderly.<sup>12,13</sup>

Also, patients with different cultural backgrounds have various perceptions towards chronic self-management.<sup>14</sup> One of the most distinguishing characteristics in Chinese culture is Traditional Chinese Medicine, which has a great impact on Chinese patients' perception of disease treatment and management.<sup>15</sup>

Despite the above studies, there is sparse literature about Chinese patients' perspectives about how they manage their chronic conditions when they face challenges. This study aimed to identify the category, type and specific self-management strategies that patients with cardiovascular diseases reported on the hospitalization episode receiving acute-care. The research question was, 'what are the self-management strategies for patients living with cardiovascular disease?' This qualitative analysis is located within a more extensive study undertaken to explain the adaptive behaviours that patients with chronic conditions have taken.

## 2 | METHODS

This study was a qualitative description, using the content analysis method described by Sandelowski.<sup>16,17</sup> As a naturalistic study, the purpose of this study was describing the participants' self-management behaviour strategies and their natural states, and the content analysis is oriented toward summarizing the content of the data.<sup>18,19</sup> Therefore, the qualitative content analysis was used to guide data analysis.<sup>20</sup> It is appropriate for exploratory research because the coding categories come directly from the participants rather than from pre-existing theories or categories.<sup>21</sup>

### 2.1 | Setting and sampling

This study was undertaken at a Cardiology Department in one of the affiliated university hospitals in China. Recruitment started after obtaining approval from the Nurse Deputy Director and Department Nursing Directors.

A purposive sampling technique guided recruitment. Nurses who worked in this department assisted in recruitment by reviewing medical history and conditions according to the inclusion criteria for this study. Inclusion criteria included: (1) aged 18 years or older; (2) diagnosed with one or more chronic condition; (3) the ability to give informed consent; (4) willingness to share experiences of living with chronic diseases; (5) the ability to express themselves clearly; (6) no involvement in other studies.

Before researchers approached potential participants, on-duty nurses would introduce the researchers to potential participants and their families when they were available. The authors (R.Q and Q.Z) then contacted each of the potential participants and invited them to take part in the study, which included participating in an interview. In total, 32 patients were invited, 6 of whom were contacted through their family caregivers, and 29 volunteered to participate. Interviews took place according to the participants' preference for location, such as the meeting room of the department or in their shared hospital room.

### 2.2 | Data collection procedure

Data was collected from April to May 2018 via individual face-to-face interviews by R.Q and Q.Z. The first author, R.Q, was a third-year Ph.D. student interested in the area of chronic management. Before this study, R.Q has conducted internships and worked in the research site for half a year, so that R.Q was very familiar with the department and was relatively easy to enter the field. Co-author Q.Z was a master student, whose major topic was the same as R.Q's. Both of them had received professional training courses about the basic knowledge of qualitative researches and participated in lectures related to the topic of this study. Besides, R.Q could understand some local

dialects and had practical experiences in conducting interviews, which could help with the operability of collecting richer and more authentic information in a limited time. R.Q conducted most interviews while Q.Z completed three interviews and was primarily present as an assistant taking field notes. There were a total of 14 care providers present during different interviews, and they were supposed to help with the emergent patient care needs, as well as to interpret native dialects for better understanding.

A semi-structured interview guide consisting of open-ended questions was based on the literature and Chronic Care Model,<sup>22</sup> for this model was widely adopted and implemented in the areas of cardiovascular diseases worldwide. Moreover, this model includes the 'health system or a health organization' component, the 'clinical information systems' component, the 'decision support' component, 'delivery system design' component, the 'self-management support' component, and the 'community including organizations and resources for patients' component, which could help further understand target patients' real self-management strategies from various dimensions. Pilot interviews and discussions with the research team were conducted to explore detailed descriptions of participants' self-management strategies. During the interviews, probing questions were posed to interviewees, encouraging them to use their own words to expand their narratives. These questions were intentionally asked in standard mandarin, such as: 'Could you please share your experiences about how you live with cardiovascular disease with me', 'Could you please tell me about the self-management strategies you have used' or 'What did you do to deal with your body's conditions?' Participants used their own words and dialects to answer with the help of family members' interpretations at times. Two patients (*P15 and P19*) stopped interviews and left for regular physical examinations but their data was kept for analysis with their permissions. Interviews lasted 5–115 minutes and were digitally auto-recorded with interviewees' oral permissions. All the audio files were downloaded onto a password-protected laptop and then transcribed verbatim in Chinese by the researchers. The quotes provided below have been translated into English by the researchers.

### 2.3 | Ethics

Ethical approval was provided by the Hospital Ethics Committee (20190814-5). Considering the collection, storage and use of identifiable data, this study was conducted following the Declaration of Helsinki and the Declaration of Taipei.<sup>23,24</sup> All participants were provided with a full explanation about the purpose of the study, following principles of voluntary participation and confidentiality. Written consent forms were completed, and those who were unable to read or write provided oral permissions which were audio-taped before interviews started. All the materials and anonymous data were securely stored. During the interviews, participants were able to refuse to answer any question and withdraw at any time.

### 2.4 | Data analysis

In the first step of the analysis, two researchers (R.Q & Q.Z) listened to the recorded interviews to get an overview of the reported self-management strategies. Then the two researchers immersed themselves into the data by reading transcripts repeatedly line-by-line, and then independently extracting and coding meaning units from the transcripts. As a second step, the two researchers compared and discussed the overlapping or similar concepts and codes, which were then combined to develop categories. The initial categories, along with accompanying quotes, were reviewed by a third researcher (L.T) and an expert (K.S). The aim was to limit the risk of missing relevant units in the condensation process.<sup>25</sup> Last, the results were discussed by the researchers, and the consensus was reached on descriptions of the self-management strategies represented by the extracted meaning units.

## 2.5 | Rigor

Several factors enhanced the rigor of this study. Having two researchers conduct the interviews provided different points of view about the core questions. Also, two independent research members reviewed and coded the transcripts, followed by the third person member checking and an expert's review, which was used to ensure the emerging categories accurately represented participants' experiences. As well, a few participants who wanted to know of the findings received their transcripts and the summary of the self-management categories; their feedbacks were considered for further development.

## 3 | RESULTS

### 3.1 | Participants

A total of 29 participants were interviewed, but only 28 individual transcripts were analysed due to the difficulty in understanding one interviewee's pronunciation. Furthermore, one 5-min interview was still kept for the later analysis because it did provide adequate information from his perspective. Of the participants, 21 (75.0%) were men, and 7 (25.0%) were women. Ages range from 32 to 86 years, and the average was 62.5 years. Near half of the participants (42.8%) received high-school education, and only 1 (3.6%) person had no educational background. This hospital receives patients from all over China for its good reputation of cardiovascular diseases treatment, so that the majority (85.7%) were from Zhejiang Province, and the others (14.3%) came from different provinces. All the participants reported that they had hypertension, 8 (28.6%) of them only had one disease, and another 8 (28.6%) individuals had a second chronic condition. Over one-third (42.8%) reported that they had more than two chronic diseases. Except for hypertension, other reported chronic diseases including diabetes, hyperlipidemia, cardiovascular disease, cerebral infarction, gout and other illnesses. The demographic details are presented in Table 1.

### 3.2 | Reported self-management strategy

Reported self-management strategies included five categories, 17 types, and 110 specific descriptions (see Table 2). According to different contexts for actions and different meanings, the main categories were defined as follows: (1) medical and alternative therapy uptake, (2) risk assessment and avoidance, (3) resource seeking and utilization, (4) maintaining normality, (5) optional management. Overall, the participants described their use of multiple self-management strategies to deal with and live with chronic conditions individually or concurrently. The number of reported strategies by one participant ranged from 28 to 64. Because of the extent of self-management strategies used by participants, the findings reflect only the most cited or typical specific self-management strategies.

#### 3.2.1 | Medical and alternative therapy uptake

Participants described their use of prescribed medication and/or complementary treatments to control or relieve the consequences of their chronic conditions, especially when they were under hospitalization because of the acute symptoms. There was for two types, prescribed medication and complementary treatment. 13 specific strategies were described in the aggregate, respectively encompassing 6 and 7 strategies.

The use of prescribed medicines ( $n = 26$ ) was the most common strategy applied to participants' daily routines, particularly at the beginning of their diagnoses. For example, one patient said, 'I was retired in 1999. ... I

TABLE 1 Participants demographics

Characteristics	Percentage (%) of total (N = 28)
<b>Gender</b>	
Male	75.0 (21)
Female	25.0 (7)
<b>Age</b>	
Mean age	62.5
Range	32–86
<b>Marital status</b>	
Married	85.7 (24)
Divorced	3.6 (1)
Widowed	10.7 (3)
<b>Highest level of education</b>	
No education	3.6 (1)
Primary	14.3 (4)
Secondary	39.3 (11)
College/University	42.8 (12)
<b>District</b>	
Zhejiang province	85.7 (24)
Other provinces	14.3 (4)
<b>Employment status</b>	
Employed	57.1 (16)
Retired	42.9 (12)
<b>Religion</b>	
Christian	14.3 (4)
Buddhist	7.1 (2)
Atheist	35.7 (10)
Not reported	42.9 (12)
<b>Chronic conditions</b>	
Only one chronic disease	28.6 (8)
Two chronic diseases	28.6 (8)
More than two chronic diseases	42.8 (12)

started to take medicines to control hypertension' (P21). Once participants were found to additional complications or chronic diseases simultaneously with hypertension, they might be advised by their doctors to complement extra therapies to deal with the specific health problems, such as insulin injections ( $n = 5$ ), or coronary intervention/operation ( $n = 15$ ). For instance, 'Later the blood sugar was getting worse, then I needed to use insulin for better control' (P27).

TABLE 2 Category, type and frequency of the specific self-management strategies

Category	Type	Specific Self-management Strategy	Number and percentage: n (%)
Medical and alternative therapy uptake	Prescribed medication	Use of medicines	26 (92.9)
		Coronary intervention or an operation	15 (53.6)
		Insulin injection	5 (17.9)
		Combining with Chinese medicine	4 (14.3)
		Physical treatment	3 (10.7)
		Food therapy	1 (3.6)
	Complementary treatment	Supplementary medications	8 (28.6)
		Buying and using health products	8 (28.6)
		Energy consuming	7 (25.0)
		Topical drug <sup>a</sup>	6 (21.4)
		Traditional remedy	5 (17.9)
		Self-massage	3 (10.7)
		Relaxation	3 (10.7)
Risk assessment and avoidance	Lifestyle adjustment	Eating more reasonably and healthier	25 (89.3)
		Reducing physical activities or workload	15 (53.6)
		Controlling or quitting smoking	13 (46.4)
		Taking a rest	12 (42.9)
		Reducing or stopping drinking	9 (32.1)
		Changing living or workplace setup	8 (28.6)
		Avoiding or reducing the frequency of social meetings	7 (25.0)
		Controlling temper	5 (17.9)
		Doing more exercise	4 (14.3)
		Improvement of sleep hygiene	4 (14.3)
		Changing sedentary habits	1 (3.6)
		New behaviour adoption	Desire knowledge
	Being alert to preliminary symptoms		20 (71.4)
	Having a regular physical examination and review		19 (67.9)
	Preventative healthcare engagement		17 (60.7)
	Daily self-monitoring of symptoms using equipment		14 (50.0)
	New activities engagement		13 (46.4)
	Praying to God		5 (17.9)
	Keeping medical records	5 (17.9)	

TABLE 2 (Continued)

Category	Type	Specific Self-management Strategy	Number and percentage: n (%)
Resource seeking and utilization	Information acquirement	Consulting and discussing with professionals	27 (96.4)
		Following the doctor's advice	23 (82.1)
		Getting access to health-related materials	23 (82.1)
		Learning lessons from others and previous experiences	22 (78.6)
		Critical thinking	21 (75.0)
		Making notes of medical information	5 (17.9)
	Accessing health system and services	Related preferential organizational treatment, policy inquiry, and application	19 (67.9)
		Going to see a doctor in a timely fashion	12 (42.9)
		Signing a contract with the family doctor	8 (28.6)
		Eager for psychological counseling and emotional comfort	3 (10.7)
		Using Green Channel <sup>b</sup> to be admitted into the hospital	3 (10.7)
		Facilities utilization	Social facilities utilization
	Looking for a health organization or experts with good reputations		21 (75.0)
	Use of an electronic device for assistance		10 (35.7)
	Interpersonal connection	Asking peers/friends/family for help or support	15 (53.6)
		Sharing information with others	14 (50.0)
		Expressing admiration and appreciation to health practitioners	13 (46.4)
		Building and sustaining a good relationship with health practitioners	13 (46.4)
		Getting along with others	9 (32.1)
	Support acknowledgment	Relying on guanxi <sup>c</sup>	7 (25.0)
Receiving family/colleague support		28 (100.0)	
Sharing responsibility with health providers		24 (85.7)	
Receiving faith or spiritual support		15 (53.6)	
Receiving emergent medical care		14 (50.0)	
Receiving emotional comfort		13 (46.4)	
Maintaining normality	Attitude restructuring	Receiving financial assistance	6 (21.4)
		Positive thinking	24 (85.7)
		Expressing feelings	15 (53.6)
		Controlling stress	12 (42.9)
		Thinking less	9 (32.1)

(Continues)



TABLE 2 (Continued)

Category	Type	Specific Self-management Strategy	Number and percentage: n (%)
	Cognition-regulation	Improving awareness	26 (92.9)
		Acceptance of disease-caused consequences	25 (89.3)
		Self-reflection	25 (89.3)
		Acceptance of the role transition	24 (85.7)
		Adaption to psychological discrepancy	16 (57.1)
		Admission of ageing	15 (53.6)
		Adapting to listening to others' advice	7 (25.0)
	Self-maintenance	Maintaining daily routines	28 (100.0)
		Monitoring symptoms and managing side effects	28 (100.0)
		Paying attention to self-perceived body condition	27 (96.4)
		Maintenance of autonomy	24 (85.7)
		Regularly receiving prescribed medication	19 (67.9)
		Maintenance of self-esteem	17 (60.7)
		Maintenance of independence	8 (28.6)
		Ensuring things are remembered	8 (28.6)
	Problem-solving	Equipment maintenance	7 (25.0)
		Learning self-management skills	25 (89.3)
		Acquiring medical knowledge	24 (85.7)
		Consideration of the pros and cons	24 (85.7)
		Coping with the complications of the disease	24 (85.7)
		Facing the problem and difficulty	24 (85.7)
		Decision-making	21 (75.0)
		Cooperating with health practitioners	17 (60.7)
	Goal setting and navigation	Focusing on sicknesses rather than other distractions	13 (46.4)
		Taking timely actions of self-rescue	4 (14.3)
		Self-management strategy planning	23 (82.1)
		Future orientation	21 (75.0)
	Optional management	Negative perception	Reintegration into daily life
Worrying			17 (60.7)
Fear of death			12 (42.9)
Having a low quality of life			8 (28.6)
Denial			7 (25.0)
		Self-stigmatization	6 (21.4)

TABLE 2 (Continued)

Category	Type	Specific Self-management Strategy	Number and percentage: n (%)
		Loss of confidence	5 (17.9)
		Self-accusation	2 (7.1)
	Separation from others	Solving problems by oneself	6 (21.4)
		Avoiding contact with peers	4 (14.3)
		Dislike talking to family doctor	4 (14.3)
		Refusing to disclose	3 (10.7)
		Keeping diseases as secrets	2 (7.1)
	Ineffective management	Situational behaviour	9 (32.1)
		Having distractions	18 (64.3)
		Behaving contradictorily to the recommendations	16 (57.1)
		Clear understanding without taking effective action	16 (57.1)
		Episodic use of medication	12 (42.9)
		Bearing, neglecting, or ignoring the preliminary symptoms	12 (42.9)
		Situational physical examination and checking	6 (21.4)
		Stopping healthy behaviours	5 (17.9)

<sup>a</sup>Topical drug: medicated creams, Chinese herbal plaster and patch.

<sup>b</sup>Green Channel: a local Chinese expression that refers to a fast and efficient service system for critically ill patients in the Emergency Department of the hospital.

<sup>c</sup>Guanxi: a Chinese word that describes the interpersonal relationship, especially with higher social status, propriety, and/or prestige, through which the social networks can provide favour or service to the other(s) or individuals with mutual reciprocity.

Generally, in addition to prescribed medication, participants also valued complementary treatments, like taking supplementary medications ( $n = 8$ ), buying and using health products ( $n = 8$ ), and using self-massage ( $n = 3$ ). One participant said, 'I do acupressure massage on my hands' (P25). They learned about these treatments from personal experience and used them to improve their health. Some participants regarded these unprescribed treatments as useful ones or more effective than formal medications. One of the participants wasn't convinced he needed to see a doctor, so he insisted on using a traditional remedy ( $n = 5$ ) for a long time until severe complications arose. He said, '(I) just eat some garlic and drink vinegar (without taking prescribed medications)' (P17).

### 3.2.2 | Risk assessment and avoidance

After suffering with the condition(s), participants managed to adjust their current lifestyles or to start new health-related behaviours in normal life, to limit the risk of worsening their chronic conditions, as well as avoid unnecessary readmissions. The majority of interviewees ( $n = 25$ ) mentioned that they had made a lifestyle adjustment involving eating more reasonably and healthier ( $n = 25$ ), 'I used to eat a lot of meat, but now I reduce the

amount of meat, especially the fatty parts' (P8), reducing physical activities or workload ( $n = 15$ ), controlling or quitting smoking ( $n = 13$ ), reducing or stopping drinking ( $n = 9$ ), '(That's) why I gave up both cigarettes and alcohol' (P22), avoiding social meetings or reducing meeting frequency ( $n = 7$ ), 'Social entertainments are reduced' (P1), and so on, as they determined that they could benefit from avoiding or modifying these behaviours.

Meanwhile, most participants would be willing to adopt new behaviours, which included desiring knowledge ( $n = 22$ ), 'Although I am not a doctor, I'd like to figure that (purpose of the medicine) out' (P13), being alert to preliminary symptoms ( $n = 20$ ), having a regular physical examination and review ( $n = 19$ ), preventative healthcare engagement ( $n = 17$ ), 'As long as I am conscious of dizziness, I will squat down immediately to get rid of severe consequences' (P26), and new activities engagement ( $n = 13$ ). All the strategies and behaviours were triggered after participants assessed the risks associated to their condition by themselves.

### 3.2.3 | Resource seeking and utilization

Almost all participants talked that when living with an illness, they would proactively seek formal or informal information, access facilities and pursue supports to increase the effectiveness of their self-management behaviours. This management category included five dimensions and 26 specific strategies including information acquirement (six strategies), assessment of their health system and service (five strategies), use of facilities (three strategies), interpersonal connection (six strategies) and acknowledgment of supports (six strategies). The three most accessible and convenient ways to acquire adequate knowledge were consulting and discussing with professionals ( $n = 27$ ), following the doctor's advice ( $n = 23$ ), 'It was the physician who told me (to maintain medication adherence)' (P10), and getting access to health-related materials ( $n = 23$ ), 'I like spending my spare time reading the (subscribed medical) newspaper' (P10).

Participants described resources that were very helpful such as preferential organizational treatment, policy inquiry and application ( $n = 19$ ), 'I get 200 yuan every month (from the government)' (P17), social facilities utilization ( $n = 24$ ), 'The community hospital will help you' (P11), and asking peers/friends/family for help or support ( $n = 15$ ), 'After describing the situation to my friend, he suggested that I could have my brain, heart and cardiovascular system (checked out)' (P16). All participants received various supports from family ( $n = 28$ ), or supports were spiritual ( $n = 15$ ), 'If Jesus didn't help me, I would have already died three times or even four times' (P2), or emotional ( $n = 13$ ), 'The support is mainly (in the form of) help and care from other patients and caregivers' (P6).

### 3.2.4 | Maintaining normality

This category contained the most frequently used strategies in participants' all activities of daily living, with participants reporting 32 detailed strategies from five aspects. Participants accepted diverse life changes and were responsible for their diseases, and had a tendency to maintain the constancy of life. They used these strategies to help regulate their attitudes, adapt mentally to the changes occurring in their health and life, maintain their everyday health status, solve various problems that arose, and navigate their future pathway to plan or implement self-management behaviours. Within self-maintenance, the two most common approaches were maintaining daily routines ( $n = 28$ ), monitoring symptoms and managing side effects ( $n = 28$ ), 'I manage blood glucose by myself' (P15).

Many participants talked about maintenance of self-esteem ( $n = 17$ ), 'I can still take care of myself' (P21), and maintenance of independence ( $n = 8$ ), which meant participants preferred to be responsible for themselves and their families. They wished to retain their financial or individual autonomy, especially from their children, to reduce the burden on their children's family/ies. One participant said, 'The pension is already enough ... the children also have their heavy burdens' (P23).

Problem-solving was mentioned by 25 participants, which was mostly comprised of learning self-management skills ( $n = 25$ ), acquiring medical knowledge ( $n = 24$ ), consideration of the pros and cons ( $n = 24$ ), coping with the

complications of the disease ( $n = 24$ ), facing the problem and the difficulty ( $n = 24$ ), and decision-making ( $n = 21$ ). One participant described:

I started coughing on March 28<sup>th</sup>, and it lasts until this very moment. The frequency of coughing did significantly decrease yesterday after I stopped using the medicine I took. I guess... It might be the side effect caused by one of those medicines. Thus, I resolved to find out by myself. Like... Uh... What if I didn't take one (kind) of them today, and then stopped using another tomorrow? I could figure that out! But I don't want to try it at all, because now I am seriously ill. I do not mean to do that, because I can't stop (taking medications). (P4)

The remaining strategy types were attitude restructuring (nine strategies); cognition regulation (seven strategies); and goal setting and navigation (three strategies). Within these types, the three most prevalent in helping participants lead a normal life included positive thinking ( $n = 24$ ), 'I will appreciate it no matter I can live one day more or one year more' (P18), improving awareness ( $n = 26$ ), 'I gradually realized that I should pay attention to it' (P19), and self-management strategy planning ( $n = 23$ ), 'Maintain it, not to get worse' (P3).

### 3.2.5 | Optional management

Participants commonly described their perception of negative or ineffective aspects of self-management, which were primarily affected by their individual preferences. Optional management was broken down into 20 strategies: negative perception (seven strategies), separation from others (five strategies) and ineffective self-management (eight strategies), some of which could be abandoned or were regarded as helpless. The negative perception included worrying ( $n = 17$ ), fear of death ( $n = 12$ ), having a low QoL ( $n = 8$ ), denial ( $n = 7$ ), self-stigmatization ( $n = 6$ ), 'I am already a defective product now' (P28), and loss of confidence (17.9%), 'I used to be highly confident! ... After suffering the emergency event yesterday, my heart was broken into pieces' (P28), and self-accusation ( $n = 2$ ).

Six participants talked about separation from others, including strategies such as solving problems by oneself ( $n = 6$ ) and avoiding contact with peers ( $n = 4$ ). One participant said it was confident enough to manage conditions by himself, 'No talks, and no communications. I think that I am equipped with sufficient knowledge theoretically, as well as being clear with all the suggestions. ... There is no need for communicating with others' (P1). One reported that doctors were too busy to talk to him, 'You should explore everything by yourself, and you could find out the answers on the internet' (P12), and another participant's avoidance was caused by perceived stigmatization from others, 'We should stay mum rather than tell them we are sick' (P2).

Finally, having distractions ( $n = 18$ ) was treated as an ineffective management strategy by over half of the participants. They reported different situations and factors regarding why they could not have comprehensive or useful self-management behaviours. One participant said, 'Considering us front-line bus drivers, we have day and night shifts, high work intensity, and work pressure, while the income is so meager and the family burden is that heavy. ... It's a bit unrealistic to manage physical conditions well completely' (P19).

## 4 | DISCUSSION

To some extent, this article summarized some specific self-management strategies used by a part of chronically ill, hospitalized Chinese patients with cardiovascular diseases. All participants implemented multiple strategies in their disease self-management, suggesting that patients might share strategic approaches across different diseases,<sup>9</sup> or have alternative strategies when dealing with the same problem, which was similar with a Turkish study.<sup>26</sup> Notably, all participants had positively stated receiving a considerable amount of active strategies, but not all the reported

strategies were positive. Several participants tried complementary treatment (i.e., supplementary medications), and some participants used optimal management combined with quite a few negative strategy types: negative perception, separation from others, ineffective management. Compared to a previous mixed methods study, patients recruited from outpatient settings with heart failure also reported both positive and negative attitudes towards self-care management, which was weighed as a balance in a given point.<sup>27</sup> As presented in a Chinese cross-sectional study,<sup>28</sup> these confrontation strategies might have been associated with their cultural environment (i.e., Muslim), individuals' personality (i.e., extroversion), and demographic characteristics (i.e., educational background).

Before making an important decision, participants explained that they would gather and analyse the information for risk assessment and avoidance. Their final decision-making was deeply influenced by their past and present life experiences which had a profound impact on their perception and awareness of their self-management. They acquired more knowledge from these experiences to solve current problems and optimize results. Participants experiencing stressful or unpleasant events had more adverse self-management strategies included self-chosen ones (i.e., situational behaviour and behaving contradictorily to the recommendations), while patients experiencing especially positive interactions with people and surroundings, in turn, would like to discuss supportive behaviours (i.e., being alert to preliminary symptoms and preventative healthcare engagement) and decisions (i.e., eating more reasonably and healthier).<sup>29</sup> Consistent with the findings in a systematic review using qualitative meta-synthesis, heart failure patients' self-care strategies were often based on past experiences.<sup>30</sup> Further studies could focus on patients' attitudes to self-management in light of their life events. Knowing life events related to self-management could inform individualized interventions to advance supportive self-management.

The findings of this study have also identified that many participants have a strong desire for resource seeking and utilization, and information is a very crucial part. In this study, participants preferred to apply innovative electronic devices actively, since using social applications to access online information by themselves gradually becomes mainstream,<sup>31</sup> and it is a more private way to be disclosed rather than communicate with others in person.<sup>32</sup> Online venues offer the potential for more effective interactions between patients and professionals as well as enhance patients' adherence to therapeutic regimens.<sup>33</sup> eHealth programs or online visual tools may support patient engagement in self-management and improve an atmosphere of learning.<sup>34</sup>

Regarding medical services, primary healthcare at the community-level has played an essential role in supporting patients with their self-management in the contemporary province, so it does in other districts of China.<sup>35,36</sup> Except for medical services, health-related policy, and social networks weigh heavily as well. Some patients are willing to engage in social participation and exchanging information, which could help them with adherent using of medicines, improvement of sleep hygiene, and doing more exercise. Our findings also indicated that female patients significantly reported a higher frequency of adjustment of negative behavioural habits than male patients. This might be related to that women could receive more emotional support from these social networks and get access to health resources from family doctor services programs.<sup>37,38</sup> Some male patients tended to access more traditional healthcare assistance, such as organizational supports, policy advisory, or *guanxi*, rather than emotional supports. Such gendered responses may stem from patriarchy, which needs further evidence and inquiry to be substantiated.

These findings further emphasized that these cardiovascular patients are more proactive to comply with others' suggestions and implement better self-management behaviours in hospital than at home, especially in maintaining normality (i.e., monitoring symptoms and managing side effects, paying attention to self-perceived body condition, and adapting to listening to others' advice). Our finding was nearly the same as a Chinese survey, which showed that few participants had achieved optimal home blood pressure monitoring regimens in the morning and evening for 1 week.<sup>39</sup> These conditions may result from more attentive monitors and in-time feedback provided by the professionals. These also might be because they accepted the role transition: regarding themselves as vulnerable groups. Meanwhile, they have fewer distractions and more focus on the current poor health status. They get more time to do self-reflections about the reasons why they were admitted into the hospital and plan for later self-management strategy adjustment. However, a recent study showed that older patients after hospitalization were prone to face many challenges to deal with the possible repercussions of their body conditions at home due to

physical function decreasing and dependence increasing.<sup>40</sup> Therefore, in consideration of the adaption to the post-hospitalization life for the patients at home, further self-management interventions could start from the period of hospitalization to help patients make their self-management strategies more fit in the current health status and make the proper management more continuous with the community plan.

#### 4.1 | Implications for practice and research

Although rigor was maintained in this study, some limitations warranted careful considerations. First, all interviews took place when participants were receiving acute care under hospitalization; researchers did not conduct additional interviews before admission or after their hospital discharges. Future longitudinal studies could learn more about how cardiovascular patients' self-management developed and whether their perceptions of self-management differ in diverse illness stages and situations. Second, according to the purposive sampling method, there could have been more people recruited in this study. However, due to the limited time we were permitted to stay in the department, only a small number of participants were interviewed, especially not containing patients with a variety of cardiovascular categories. Additionally, most of the participants came from only one hospital in one Province, so later researchers can enrich the sample size by undertaking ethnographic data collection in diverse settings or using maximum variation sampling strategy to collect kinds of views and opinions. Third, cultural barriers were an important factor reflected in patients' behaviours. All interviewees used their local dialects to express their perspectives on daily self-management strategies. The researchers then translated those narratives into Chinese characters and then English words, which may have altered the original meanings.

## 5 | CONCLUSION

The self-management strategies used by some Chinese participants living with cardiovascular diseases included five categories: (1) medical and alternative therapy uptake, (2) risk assessment and avoidance, (3) resource seeking and utilization, (4) maintaining normality, (5) optional management. Participants in this study used various helpful strategies to assist them to adapt to their chronic conditions. By becoming more knowledgeable about the strategy implemented by these Chinese hospitalized patients with cardiovascular diseases, policymakers could consider integrating situation and culture into making policies to promote the self-management program. Additionally, local healthcare providers may recognize those patients' potential needs and challenges who dwell in Chinese communities around the world. It could also help multidisciplinary health practitioners provide much more personalized as well as culture-based services in managing ongoing cardiovascular diseases to improve outcomes and, ultimately, QoL.

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### CONFLICTS OF INTEREST

The authors declare no conflict of interest.

### DATA AVAILABILITY STATEMENT

Research data are not shared.

## ETHICAL APPROVAL

Ethical approval was provided by the Hospital Ethics Committee (20190814-5).

## AUTHOR CONTRIBUTIONS

Zhihong Ye and Leiwen Tang participated in the study the conceptualization and design; Kara Schick-Makaroff provided the methodology assistance; Ruolin Qiu and Qi Zhang both interviewed the participants and analysed the data; Ruolin Qiu and Xiyi Wang managed the data; Ruolin Qiu prepared the original draft; Kara Schick-Makaroff and Zhihong Ye helped review and edit the manuscript; Zhihong Ye provided the guidance during the whole study; Leiwen Tang administrated the project and funding. All authors approved the submitted version.

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