# RESEARCH





Understanding frailty: a qualitative study of older heart failure patients' frail experience and perceptions of healthcare professionals with frailty

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# Abstract

**Background** Although frailty is highly prevalent in hospitalized older heart failure (HF) patients, its management is often delayed. Understanding the unique experiences of frail elderly HF patients and the perceptions of healthcare professionals (HPs) regarding frailty can facilitate the integration of frailty prevention and intervention into clinical practice. This study aimed to use a descriptive qualitative approach to obtain the experiences of frailty in older HF patients and the perceptions of HPs concerning frailty.

**Methods** Qualitative interviews were conducted with 16 frail elderly HF patients and 13 healthcare providers. Data were analyzed using thematic analysis.

**Results** The interviews yielded several themes with associated subthemes: "a state of predicament," "hope is gone and social isolation," "daily adjustment and attempts to do something," "thoughts on factors contributing to frailty," "the need for transformation of stakeholders' mindset regarding frailty," "management is imperative, but there is still a way to go".

**Conclusions** Both elderly patients with HF and HPs described frailty as a state of predicament, involving being caught in life difficulties and falling into a treatment dilemma. Due to the overlap of symptoms and evaluating indicators between frailty and HF, it's essential to thoroughly understand modifiable risk factors that could worsen frailty and develop a specific frailty assessment tool for HF patients. Adequate social support, multidisciplinary collaboration, and a frailty education program for patients, caregivers, and HPs are essential to facilitate frailty management and improvement.

Keywords Heart failure, Frailty, Perception, Qualitative study

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# Introduction

Frailty is a systemic syndrome with increased vulnerability to stressors due to a decline in the function and reserves of multiple physiologic systems, and it is often associated with advanced age and/or comorbid conditions [1]. The prevalence of frailty in the population aged 50–64 is 4%, rising to 17% in people aged  $\geq$  65 years, and reaching as high as 50% in the elderly population aged≥80 years [2]. A systematic review and metaanalysis found that 7 out of 10 frail adults present with multimorbidity, and nearly one-fifth of adults with multimorbidity also have frailty. Moreover, the presence of multimorbidity doubled the likelihood of frailty [3]. Frailty has an important impact on an individual's functionality and quality of life [4], and being frail increases the risk of falls, disability, rehospitalization and death [5, 6]. It is considered an urgent public health issue that needs to be addressed.

Heart failure (HF) is also a disease of aging. Elderly individuals (≥65 years of age) comprise over 80% of the population of HF patients, and 10 out of 1000 individuals age 65 and above have HF [7]. HF often coexists with frailty in the elderly population, and this phenomenon is more prominent with the advent of the aging era, advancements in treatment technologies, and extended lifespans. Pathophysiological pathways in persons with HF and frailty coincide including aging, chronic inflammation, oxidative stress and skeletal muscle abnormalities [8]. This intertwined clinical condition increases the all-cause hospitalization rate by 56% over 1.12 years, and raises the all-cause mortality rate by 69% [9]. Therefore, incorporating frailty into the management of HF patients is highly urgent. The European Society of Cardiology (ESC) guidelines on HF recommend that healthcare professionals (HPs) should 'monitor frailty and seek and address reversible causes (cardiovascular and noncardiovascular) of deterioration in frailty score in elderly patients' [10], and The Geriatric Group of Chinese Society of Cardiology also recommends frailty screening for elderly patients with HF [11].

Currently, there is no consensus on how to best define frailty in HF. In China, patients have limited awareness and understanding of frailty. One article reported that only 1.2% and 6.1% of the participants knew the symptoms and adverse outcomes of frailty, respectively [12]. Older HF patients often attribute symptoms such as decreased activity solely to HF. Many Chinese older HF adults experience what is clinically recognized as frailty but little is known about their perceptions of and attitudes toward being frail. Having a correct understanding of the disease and its status impacts the way patients cope and plays a crucial role in determining the progression of the illness. Despite the importance of frailty, several challenges exist in implementing frailty prevention and intervention into the routine clinical management of older patients with HF [13]. One of the barriers to implementation is the knowledge, ideas and attitudes about frailty among HPs. Many physicians focus more on the disease itself rather than integrating the disease with the patient's actual age-related conditions. Therefore, a comprehensive understanding of the unique experiences of frail elderly HF patients and the perceptions of HPs can help clarify the concept of HF frailty and refine management strategies. Qualitative research aims to comprehend and interpret personal experiences, behaviors, and social contexts to elucidate phenomena of interest and investigate reasons behind the lack of adoption of an intervention despite evidence of its effectiveness [14].

One recent report explored the lived experience of frailty in HF patients aged 60 years and above, but not all participants experienced frailty during interview which can lead to memory biases [15]. Furthermore, analyzing from the perspective of a single stakeholder may not be comprehensive enough. Exploring the similarities and differences in perceptions of frailty between elderly HF individuals and HPs can increase the overall understanding of frailty. This study aimed to use the descriptive qualitative approach to obtain the frail experience of older HF patients and the cognition of HPs in frailty, providing an opportunity to facilitate the frailty prevention and intervention into clinical practice.

# Methods

## Study design

This study used the descriptive qualitative approach to gain the frail experience of older HF patients and the cognition of healthcare professionals in frailty (Clinical Trial Number: IIT-2023-229 2.). The study was reported with reference to the Standard for Reporting Qualitative Research (SRQR) [16] (Supplementary material, Appendix A).

### Participants and setting

A purposeful sampling of patients was selected from the cardiology department of a comprehensive tertiary hospital in Nanchang Jiangxi, China. Patients were selected based on the following criteria: (i) conform to diagnostic criteria for HF issued by the Chinese Guidelines for Diagnosis and Treatment of Heart Failure 2018 [17]; (ii) age  $\geq 60$  years; (iii) in stable condition; (iv) FRAIL scale scores between 3 and 5; (v) ability to communicate independently; (vi) provided informed consent. Exclusion criteria were as follows: (i) patients with communication disorders and acute attack state; (ii) severe mental disorder and cognitive impairment.

HPs were invited by WeChat to take part in the study, selected by the following inclusion criteria: (i) general practitioners, cardiologists and nurses who have worked in the cardiology department or in the geriatric department for at least three years; (ii) had some knowledge about frailty and were able to attend 30–60 min interviews; (iii) written informed consent could be obtained.

### The research team and reflexivity

Interviews were conducted by Liu who is a Ph.D. candidate with clinical nursing experience in cardiovascular care and has received qualitative research training. Patients were not previously known to Liu before recruitment for the study, but some medical personnel had already known her before. The researcher maintained a reflective attitude throughout the entire interview process, for example, avoiding bringing the results of the previous interview into the next interview, as well as avoiding leading questions. The second author is a nursing professor specializing in cardiovascular studies. The third author is a head nurse in cardiovascular ward and has conducted in-depth research on frailty. The diverse experiences of the research team contributed to our continual adjustment of interview strategies and influenced the subsequent coding of interviews.

# Data collection

Interview guidelines were developed based on relevant literature and through panel discussions. For details see (Supplementary material, Appendix B). Semi-structured, face-to face interviews were conducted in conference rooms and health care providers' offices at the hospital between January and April 2024. Prior to the interview, participants were fully informed about the purpose of the interview and the recording methods. Written informed consent was obtained before data collection. During the interviews, only the researcher and the participant were present to ensure privacy. All participant information was de-identified, with codes replacing names, and any potentially identifying details were anonymized. Participants have the right to decline answering any questions they choose. During the interview process, researchers encouraged participants to freely discuss their perspectives and adjusted the interview content based on specific circumstances. All interviews were conducted by the same researcher using a voice recorder. The mean interview time was 32 min, with a range of 17 to 59 min. Some nonverbal information, such as shaking heads, sighs, cries and self-deprecation, was also recorded simultaneously. Data collection and thematic analysis were conducted simultaneously, and the research team found the interviews satisfactory when no new information emerged during the interview process.

# Data analysis

The audio-recorded interviews were transcribed verbatim in Chinese and independently verified by two researchers within 24 h post-interview, followed by a double-check against the digital recordings. Data were analyzed using thematic analysis [18]. To better empathize with and understand the participants' thoughts, we also referred to validated instruments in psychological and social health research [19]. (i)The authors listened to the interviews and read repeatedly the transcripts to improve familiarity with the content; (ii)the entire data set was divided into different initial codes; we used NVivo software to simplify this process; (iii) the initial set of codes was reviewed to ensure all data were coded and similar codes were collated to generate potential themes; (iv) all relevant themes were discussed and compared by the authors, and an initial thematic map was constructed; (v) the themes were reviewed and defined to ensure each theme was clear and related to codes; (vi) the themes and details were refined, producing the final results.

# Rigour

The study incorporated procedures to ensure rigor throughout. We referred to Lincoln and Guba's description of rigour in qualitative research [20]: credibility, dependability, confirmability, and transferability. Regarding credibility, the researchers established a trusting relationship with the participants, delving into their perspectives and experiences. Field notes were also recorded to improve data credibility. Additionally, the study findings were presented to the individuals involved to ensure credibility. To enhance dependability and confirmability, the researchers discussed the data throughout the analysis to ensure a consistent selection of themes. In developing the themes, we actively explored atypical experiences to refine our interpretations. To ensure transferability, we described the demographic and clinical characteristics of the participants in the findings.

# **Ethical approval**

This survey was approved by the ethics committee of The Second Affiliated Hospital of Nanchang University (No.202431) and conducted in strict accordance with the Declaration of Helsinki. All participants signed written informed consent.

## Results

A total of 16 older frail HF inpatients participated in the study. The ages of the participants ranged from 60 to 89 years old (mean=72.88 years). Of these, 9 were male (56.25%) and 7 were female (43.75%). Two participants had college diplomas, and seven had an elementary-school-level education or below. 93.75% of the frail individuals were in NYHA Class II-III. FRAIL scale scores during hospitalization ranged between 3 and 5. A summary of characteristics is presented in Table 1.

Table 1 Characteristics of the included patients

Characteristics	Number	%
Age (year)		
60–69	5	31.25
70–79	7	43.75
80–89	4	25.00
Gender		
Male	9	56.25
Female	7	43.75
Educational level		
Illiterate	2	12.50
Elementary school	5	31.25
Middle school	5	31.25
Secondary school	2	12.50
College school	2	12.50
NYHA functional classification		
II	9	56.25
III	6	37.50
IV	1	6.25
Left ejection fraction (%)		
≤30	3	18.75
31–49	6	37.50
≥50	7	43.75
FRAIL scale score		
3	3	18.75
4	10	62.50
5	3	18.75

Note: NYHA: New York Heart Association

Table 2 Characteristics of the included HPS
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Characteristics	Number	%
Age (year)		
30–39	6	46.15
40–49	4	30.77
50–59	3	23.08
Gender		
Male	3	23.08
Female	10	76.92
Educational level		
Bachelor	4	30.77
Master	7	53.85
Doctor	2	15.38
Profession		
Nurse in the geriatric department	3	23.08
Cardiologist	3	23.08
Nurse in the cardiology department	4	30.77
General practitioner	3	23.08
Professional experience (years)		
3–9	5	38.46
10–19	2	15.38
20–29	4	30.77
30–39	2	15.38

Totals of 13 HPs participated in the study. The median age was 41.76 years, and the average years of professional practice are 18.15 years. Of the included 13 HPs, 6 were doctors (46.15%) and 7 were nurses (53.85%). A summary of characteristics is presented in Table 2.

Six main themes were summarized from the analysis of the interviews: (i) a state of predicament; (ii) hope is gone and social isolation; (iii) daily adjustment and attempts to do something; (iv) thoughts on factors contributing to frailty; (v) the need for transformation of stakeholders' mindset regarding frailty; (vi) management is imperative, but there is still a way to go. Table 3 shows the themes, subthemes, and quotes from the interviews.

### A state of predicament

The current experiences of patients and the perception of frailty among HPs were the focus of our inquiry during the interview process. Both elderly HF patients and HPs described a prominent feature of frailty as the patient being in a state of predicament. This predicament involved activity ability reduction, self-care abilities decline and impacts on the patient's quality of life. It also represented a challenging condition that complicates the illness, increases negative outcomes, worsens prognosis, and shortens survival.

# **Caught in life difficulties**

Most patients described a sensation of chest tightness intertwined with a feeling of weakness. However, this tightness did not resemble the breathlessness of a disease attack but rather a persistent and tolerable state. The weakness in the legs was the most noticeable, like a feeling as if their feet were being held back, and even standing became difficult. Walking slowly and with effort were the most obvious feelings of patients, and some expressed a sense of overall fatigue. HPs also noted a significant characteristic of frail elderly HF patients as a decline in mobility and self-care abilities. Patients expressed a strong desire to walk and engage in activities, but they were often dominated by a sense of weakness. Despite many attempts, they still experienced an uncontrollable and unpleasant outcome, and their desire to walk and engage in activities declined. They required assistance from family members and are caught in life difficulties.

# Fall into a treatment dilemma

During the interviews, some patients expressed that the treatment effect of HF at the beginning of their medical visits was significantly different from the present. They mentioned that after controlling their symptoms in the hospital, they would return home feeling just like normal individuals. However, now they always feel a bit off, lacking the sensation of complete recovery, and are unable to achieve the initial therapeutic efficacy. Due to the overlap

Theme	subtheme	Example quotations
i. A state of predicament	(1) Caught in life difficulties	I can't walk fast; I have to walk slowly. My legs feel weak, and I get tired after a few steps. (P, N4) I just don't feel like moving at all. My husband basically has to serve me (sigh). (P, N10) One of their main characteristics is a significant decline in activity endurance. (HP, N5) And then perhaps fatique, which can easily lead to falls, might be my first impression.(HP, N9)
	(2) Fall into a treat- ment dilemma	I was hospitalized here in September of the year before last year. When I went home, my hands and feet were still very agile, and I did things well. However, I never felt the same and have felt weak all the time since being hospitalized again in the first half of last year. (P, N6) Last time, after the medication in the hospital, I felt like a completely normal individual. This time, after taking the medication, I always feel a bit off, like the medicine isn't working as well as before. (P, N3) And then, after the patient became frail, some inconveniences or reduced food intake triggered this heart failure episode, making it worse than before. (HP, N2) For conditions like heart failure and severe malnutrition overlapping, it's difficult to determine whether it's solely frailty or another illness. It's not easy to judge. (HP, N12)
ii. Hope is gone and social isolation		I'm just living day by day now, living year by year, it doesn't matter. People will die sooner or later, but feeling weak and uncomfortable, isn't that worse? It's better to die early(shake). (P, N7) They all went to reunite for Chinese New Year, and I was home alone. (P, N10) Once they become frail, these patients might feel exhausted, losing their health, incapable, and that they might be done for.( HP, N6)
iii. Daily adjust- ment and try to do something		However, it is still possible to walk in segments, I mean, walking for 10 min, then another 10 min, like that, and then another 10 min.(P, N14) I have no appetite, but I force myself to eat a little more. (P, N11)
iv. Thoughts on factors contribut- ing to frailty	(1) Physiologic factors	I was born in 1934 and I'm 90 years old in this year. Being old is associated with physical degeneration, which manifests as a decline in physical health. I think it's mostly degeneration rather than pathology. (P, N12) But I think frailty screening should consider some nutritional indicators. For example, the protein situation, because if it's a frail patient, there's usually some degree of malnutrition accompanying it, so we might tend to screen for that more.(HP, N3)
	(2) Psychologic factors	But he may carry a psychological burden due to the prolonged distress caused by this illness. To some ex- tent, he may also experience feelings of tension and anxiety, feeling chest tightness and discomfort. (HP, N2) Do you think it's possible that because he knows he's a heart failure patient, he might also suggest to him- self that I'm very weak? (HP, N1) For individuals with cognitive impairment, they are sometimes restricted from activities due to two factors: being limited by family members from going out and being afraid to go out themselves because they may get lost.(HP, N12)
	(3) Situational factors	The rate of decline in muscle mass in his lower limbs is quite fast from being bedridden every day, as frailty is closely related to muscle mass. (HP, N4) Considering his social support, including his economic status and the care provided by his family, all these factors can assess his risk of frailty.(HP, N8)
v. The need for transformation of stakeholders' mindset regard- ing frailty		I can eat, and it's simply that my sleep is very poor. This is also a common manifestation among the elderly. All elderly people are like this. Feeling weak without illness is frailty. (P, N12) Many caregivers just think the patient is being unreasonable, but the patient is genuinely feeling unwell, yet the family members cannot understand.(HP, N9) Perhaps we just don't pay much attention to this issue, like explaining lower limb weakness, we only analyze it from the perspective of the disease, rarely explaining it from the perspective of frailty. (HP, N4)

 Table 3
 Themes, subthemes, and quotes from the interviews

## Table 3 (continued)

Theme	subtheme	Example quotations
vi. Management is imperative, but there is still a way to go	(1) Frailty identifica- tion is challenging	Because frailty is influenced by subjective factors, some individuals may perceive certain discomforts as tolerable and may not express them, making it difficult to accurately quantify their experiences. (HP, N3) We may just have an overall impression that this patient is malnourished and frail.(HP, N11) Could a scale be automated? For instance, could it be generated directly based on his medical records or some objective indicators we use? (HP, N5)
	(2) Multidisciplinary collaboration and follow-up	We do provide him with corresponding nutritional support and encourage him to engage in early rehabili- tation exercises. However, there is no systematic approach, no quantification, and no scalability. I believe this is a problem. (HP, N11)
	improvement.	So, if frailty is included in the management of heart failure, the current stage may also do assessment. But what happens after the assessment? It is very difficult to implement the measures, It's just said to possibly enhance nurses' understanding.(HP, N4)
		I can only say that this question hits the nail on the head. I wouldn't call it challenging; I think it's extremely difficult. The difficulty lies in the fact that we cannot follow up subsequently. We can only provide guidance in the hospital, and after returning home, patients receive insufficient social support.(HP, N12) In fact, follow-up is still a major issue, because frailty is a long-term improvement process. You see, we may
		be facing this point where once you leave the hospital, you're already facing the problem of loss to follow- up.(HP, N6)
		The second is like our countryside, there is no good place for activities.(P, N5). I want to know how to exercise in my current situation. What should I do when I feel weak? And how should I exercise when I get back home? (P, N1)

Note: N: Number; P: Patient; HP: Health Professional; HF: Heart failure

of symptoms and evaluation indicators between frailty and HF, some HPs expressed difficulties in diagnosing whether frailty truly exists in patients, leading to delayed comprehensive interventions. Some HPs also believed that frailty and HF complement each other, acting not only as triggers for recurrent HF but also as catalysts for disease exacerbation and delayed recovery, making treatment challenging.

## Hope is gone and social isolation

Some patients showed visible pessimism during the interview process. They felt that being in this state for the rest of their lives was exhausting both mentally and physically, living day by day just to get by. Some even considered their days as a form of suffering and thought it would be better to leave this world earlier. After experiencing difficulty in walking and limitations in activities, going out became challenging, fearful, and even a matter of losing self-esteem for the patients. As a result, their desire for social interaction significantly decreased, leading to a noticeable reduction or even loss of their social circle. Most of the time, they were alone at home.

## Daily adjustment and attempts to do something

Some patients analyzed various symptoms they have experienced, considering the manifestations of this condition to be diverse and difficult to pinpoint, with various scenarios being possible. Additionally, some patients described strategies for managing this state, such as eating something or walking in segments to alleviate discomfort. Another group of patients, even in the midst of their struggles, held on to hope. They strived to make efforts towards improving their current situation or each day in the future.

# Thoughts on factors contributing to frailty

From interviews with elderly HF patients and HPs, it is concluded that the factors influencing frailty can generally be categorized into three levels: physiological, psychological, and situational. These three levels interact and influence each other, collectively determining the manifestation of frailty symptoms, and to some extent, they are influenced by the symptoms in return.

### **Physiologic factors**

The main physiologic factors involved include chronic heart failure (CHF) and multimorbidity, advanced age, nutritional deficiencies (poor muscle mass), poor sleep, recurrent hospitalizations, among others. Of these, disease, nutrition, and age were the top three factors mentioned most frequently. Both HPs and patients argued that these factors could serve as important triggers and identifiers of frailty. Some HPs expressed that under the same circumstances, higher levels of cardiac function may be associated with more mixed manifestations of frailty.

### Psychologic factors

The long-term burden of the disease has caused a certain psychological strain on patients. To some extent, the manifestation of feelings of tension and anxiety exacerbates symptoms such as chest tightness and fatigue in patients, even with similar objective indicators. The subjective perception of frailty is heightened, making it another point of confusion in frailty identification. Patients with depression and cognitive impairment also experienced a certain level of reduced activity, which gradually led to muscle atrophy, contributing to the occurrence of frailty.

### Situational factors

Sedentary behavior, prolonged bed rest and reduced physical activity were important contextual factors contributing to frailty in elderly HF patients. The decline in physical activity was not only a significant characteristic of frail patients but also an important mediating variable in the development of frailty. Healthcare providers consider patients' social support, particularly their economic capacity including medical insurance and income, as influential factors determining whether patients can seek medical treatment early and achieve timely recovery.

# The need for transformation of stakeholders' mindset regarding frailty

The popularization and understanding of "frailty" have not only been directed towards patients and caregivers but also targeted at medical staff. When asked about their comprehension of the term "frailty", some patients thought it as a state of exhaustion, while others equated it with feeling weak despite the absence of illness. Some family members or caregivers may interpret complaints of discomfort during stable periods, especially when the patient's test results were relatively favorable, as a sign of hypersensitivity in the patient. They may not fully grasp the significance of frailty and its potential adverse effects on the patient. For patients admitted to the hospital for a certain disease (not for frailty), some patients and caregivers might feel unbearable to pay attention to health issues that do not appear relevant to their emergent. Currently, many specialist physicians and nurses primarily concentrated on the disease itself, mainly around the disease diagnosis, treatment and care, rarely from the perspective of frailty to analyze the reasons why the patient's state could not be improved.

### Management is imperative, but there is still a way to go

All interviewed medical staff unanimously agreed that incorporating frailty into the management of elderly HF patients was necessary, especially within the realm of chronic disease management. This holds practical significance for enhancing treatment compliance, improving symptom experiences, and delaying disease progression. However, there remains a gap to be bridged between theory and practice in the identification screening and subsequent management follow-ups.

# Frailty identification is challenging

Currently, in the departments where our interviewed medical staff work, the assessment of frailty is integrated

into daily practice but is limited to the geriatrics department. It is included as part of comprehensive geriatric assessment, yet it has not been introduced in the cardiology wards. Due to subjective factors affecting patients' perception of frailty and HPs' screening, the precise identification of elderly frail HF patients presents certain difficulties. Meanwhile, HPs who have already implemented frailty assessment expressed that their ability to identify frailty still needs improvement, and they call for more specialty training opportunities. Most individuals relied on informal 'first impressions' to identify obviously frail patients or were prompted by typical warning signs such as 'malnutrition,' 'history of falls,' or 'prolonged bed rest' to alert themselves to the possibility of frailty in these patients. They thought that overly complex screening tools could also make it difficult to carry out this work and called for more objective indicators and intelligent scoring systems to be used in screening for frail patients with HF.

# Multidisciplinary collaboration and follow-up improvement

Specific clinical care or treatment is necessary for patients with frailty to achieve better outcomes. In geriatric wards, HPs indicated that they would provide certain nutritional support and early rehabilitation training to patients with obvious frailty. Dosage adjustments for medications were made for frail patients, and nurses also paid closer attention to their risk of falling. However, a multidisciplinary team has yet to be established to integrate the opinions of rehabilitation therapists, dietitians, pharmacists, etc., to provide individualized intervention measures and implement them effectively. Limited by the current situation, the interventions for elderly frail patients with HF have not been systematically implemented on a large scale, and closed-loop management has not been achieved. Some medical staff in the cardiology ward expressed that if only screening assessments were conducted without subsequent intervention measures, then the significance of such actions was limited. It was merely said to enhance HPs' awareness of frailty.

The improvement of frailty is not an overnight process, and aging is uncontrollable. In China, both the elderly population and the number of HF patients are significant. Chinese communities suffer from a lack of medical resources, especially for those living in rural areas. It is difficult to provide transitional care and continuity of care for patients after discharge. Many patients face loss to follow-up immediately after discharge. Due to the restrictions of family economic conditions and family structure, many elderly patients with CHF in China have poor healthcare-seeking behaviors, and family caregivers bring them to the hospital only when the illness becomes severe sometimes. After recovery, patients return home and miss the continuity of having someone to give them rehabilitation instructions, support them and follow up on results. And some patients also expressed that a lack of basic facilities and sport-related knowledge affected their physical activity. It is clear that social support is the key to implementing follow-up management.

# Discussion

To the best of our knowledge, this paper is the first study to explore the unique experiences of frail elderly HF patients and HPs' perceptions of frailty conducted in mainland China-a country with a large elderly population and a significant number of HF patients, yet with little awareness of the term 'frailty'.

In our research, both elderly patients with HF and HPs perceived frailty as a state of predicament, manifested primarily by feelings of weakness, decreased physical activity and reduced self-care abilities. This perception is consistent with the frailty phenotype proposed by Fried et al. based on data from the Cardiovascular Health Study in 2001 [21]. The presence of HF exacerbates these features, as HPs feel the dual plight posed by both disease and aging not only increases patients' dependency and susceptibility but also adds complexity to management [22, 23]. Similar to previous studies [24, 25], due to a lack of autonomy and partial deprivation of social rights, patients gradually developed feelings of guilt, a sense of fate, and depressive emotions. Therefore, clinical practitioners should have a comprehensive understanding its dynamic and multi-factorial nature, offering preventive care to improve the lives of individuals [26]. This study revealed that older frail patients with HF in China had little knowledge of frailty, as supported by wang et al. [27], some patients had never heard of the concept of frailty, while others misunderstood it as "exhaustion" and "end of life", which makes patients feel resistant to being labeled as "frail". Warmoth and colleagues [28] also discovered that older adults being labeled by others as "old and frail" contributed to the development of a frailty identity. Thus, it is crucial that elderly frail HF patients understand that the concept, causes and reversibility of frailty, as it helps to foster confidence in their participation in frailty management.

The occurrence of frailty in HF patients is influenced by physiological, psychological and contextual factors. Therefore, it is necessary to have a comprehensive understanding of modifiable risk factors that may contribute to the development of exacerbation of frailty. Nutritional status is a modifiable factor and a rapid identification point mentioned by both patients and HPs. Nutritional deficits, particularly those associated with lower estimated muscle mass, have also been identified in previous work as influencing frailty risk and overall functional reserve [29, 30]. Therefore, emphasizing nutritional screening and providing nutritional support will be beneficial in reducing the risk of frailty in patients with HF. Depression demonstrated a strong association with the occurrence of frailty in HF patients and played an important mediating role between influencing factors and frailty [31, 32]. The majority of patients in our study had depressive symptom, which further reduced activity, eating and healthcare-seeking behaviors, exacerbating the frailty condition. Hence, psychological issues should be confronted and dealt with to avoid stigma regarding mental health influencing health decisions [33, 34]. Although, a few studies demonstrated that higher physical activity levels and prolonged sedentary bouts reduction were associated with a lower incidence of frailty [35], modifying sedentary behavior is relatively easier for HF patients to accomplish than achieving higher levels of physical activity. While patients are in the hospital, clinical healthcare providers can educate them about the danger of prolonged sitting and encourage patients to reduce bed rest time.

Frailty screening is the first step in management, and it is beneficial to identify those patients at higher risk of adverse clinical outcomes and provide individualized care [36]. Currently, there is no specific frailty assessment tool for HF patients, which is a major obstacle to implementing frailty assessment in these patients and a significant reason why frailty in HF patients is difficult to identify. Therefore, it is urgent to promote the establishment of specific frailty assessment tools for HF patients [37]. Similar to our findings, although some physicians feel that frailty screening would affect their medical decisions, it can be considered futile without proper followup management [38], which serves as another reason why frailty assessment has not been widely implemented. In addition, the current workforce is already overwhelmed with existing complex clinical tasks [39]. Even simplified assessment tools would impose an additional burden on busy health professionals. They hesitate to conduct frailty assessments when they do not see any tangible benefits for the patient. A specific frailty management guideline could be helpful to make targeted practice, allowing HPs to see the meaningful value of frailty screening [40]. Information technology was also mentioned during our interviews as a potential solution to improve the availability of frailty screening. However, concerns about patient privacy and social isolation may impact the feasibility of implementing such technology [41].

After experiencing feelings of frailty for an extended period, patients gradually formed their own management practices. This included "adaption-positive- actions" such as segmented walking and eating, or "adaption-numbness-resignation" such as lying down all day or relying entirely on others, which reflected the patients' self-care beliefs and attitudes. Self-care is also defined as activities that contribute to well-being and happiness [42]. Therefore, improving self-management and maintaining independence in performing activities of daily living has been perceived as a contributor to well-being and happiness in frail, older HF patients.

Professionalization and individualization are two important principles in the management of frailty in HF, which have also been mentioned in other studies [43, 44]. The motivation to exercise at home or alone was negatively affected by the fear of falling, performing movements incorrectly and getting hurt. Patients were more inclined to participate in training under the supervision of professionals. To help maintain vitality and independence, a holistic approach is suggested for rehabilitation, with respect to both their complex medical needs and the perspective of the individual [45]. Establishing a multidisciplinary team is essential for designing personcentered, tailored interventions, and advising general practitioners. The need for interdisciplinary training on frailty and frailty tools has been previously highlighted by a UK study exploring the views of community care staff [46]. In this research, HPs also made the same appeal, particularly for the involvement of nutritionists and rehabilitation therapists, as well as support from primary caregivers.

Social support was identified in our study as a key factor in ensuring patient follow-up management, consistent with reported findings [15, 47]. Social networks allow rapid dissemination of health information, and the government could launch an awareness-raising campaign aimed at educating the public in the potential benefits of interventions for frailty prevention and management to enhance recognition. There is also an imperative need for education and training of HPs to raise the idea of the importance of managing frailty. Frail individuals with low socioeconomic status face challenges in accessing medical resources especially rehabilitation resources. Medicare's reimbursement system is closely related to this. A study indicated that transportation and mobility issues are barriers to patients' participation in frailty management like rehabilitation training [25], a challenge also observed in our research. As filial piety is a key behavioral pattern followed by most traditional Chinese families, HPs expressed that the positive attitudes of family caregivers (children) can help mitigate such barriers. Improving community rehabilitation resources also can alleviate the burden of travel for patients and facilitate resilience building. In a word, dedicated resources (human resources, material resources, financial resources) need to be invested to implement frailty management effectively in China.

### Limitations

We limited this study to elderly HF patients and HPs; however, family members or caregivers may have different perspectives on frailty due to their long-term caregiving experience. Additionally, some patients lacked the capability to communicate with HPs and maintain independence in daily life and disease management due to severe illness, hearing loss and language barriers, which may impede frailty screening and management. Caregivers serve as a bridge between frail patients and HPs, facilitating communication and implementing treatment, nutrition, and exercise management plans. Therefore, listening to caregivers, providing specific educational programs, and collaborating with them to enhance their skills in geriatric care and frailty management are essential steps to slowing the progression of frailty. The educational background of the patients was generally limited, with only two individuals holding college diplomas, which may have resulted in some variance in their understanding of the interview content and their ability to articulate their opinions. Because of geographical constraints, the data were collected in only one region of China. This may affect the transferability of the results to other geographic areas or cultural contexts. And the study focuses on current experiences but lacks an assessment of how perceptions or frailty management change over time. This limitation results in a static understanding of frailty and its management, overlooking individual patterns of change and restricting predictions of future trends.

### Conclusions

Both elderly patients with HF and HPs described frailty as a state of predicament, involving being caught in life difficulties and falling into a treatment dilemma. Due to the overlap of symptoms and evaluating indicators between frailty and heart failure, it's essential to thoroughly grasp modifiable risk factors that could worsen frailty and develop a specific frailty assessment tool for HF patients. While a gap persists between theory and practice in management, adequate social support, multidisciplinary collaboration, and a frailty education program for patients, caregivers, and HPs are essential to facilitate frailty management and improvement.

# Abbreviations

HF Heart Failure HPs Healthcare Professionals

- CHE Chronic Heart Failure
- ESC The European Society of Cardiology
- SRQR Standard for Reporting Qualitative Research

NYHA New York Heart Association

### Supplementary Information

The online version contains supplementary material available at https://doi.or g/10.1186/s12877-024-05602-0.

Supplementary Material 1

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# Author contributions

Si Liu: Conceptualization, interviews, coding and thematic analysis and writing-original draft. Xiao-yun Xiong: Conceptualization, supervision, validation and writing revision. Ting Guo: Thematic analysis and interpretation of data. Qin Xiang and Mei-jun Zhang: Contributed to the transcription of interviews and interpretation of data.Xing-lan Sun: contributed revisions to the manuscript. All authors read and approved the final manuscript.

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### Data availability

All data analyzed in this study are available from the corresponding author on a reasonable request.

### Declarations

### Ethics approval and consent to participate

This survey was approved by the ethics committee of The Second Affiliated Hospital of Nanchang University (No.202431) and conducted in strict accordance with the Declaration of Helsinki. All participants signed written informed consent.

### **Consent for publication**

Not applicable.

# Competing interests

The authors declare no competing interests.

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