

Needs and Constraints for Cardiac Rehabilitation Among Patients with Coronary Heart Disease Within a Community-Based Setting: A Study Based on Focus Group Interviews

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Objective: This study aimed to explore the needs and constraints to cardiac rehabilitation (CR) among patients diagnosed with coronary heart disease (CHD) in a community-based setting, and thereby facilitating the implementation of effective CR programs for this population.

Methods: Focus group interviews were used as the primary research methodology. A total of 11 community-dwelling individuals diagnosed with CHD were selected from a community hospital to participate in in-depth interviews, aiming to discern and analyze their requirements and constraints experienced concerning medical resources and healthcare agency. The textual data underwent examination using Colaizzi's method of descriptive data analysis.

Results: Deficits existed in the perceptions of patients with CHD within a community-based setting about their condition and CR, and in the social support for this disease. Patients expressed expectations for professional guidance during CR, gained an understanding about the beneficial effects of emotional stability on cognitive function. Patients expressed their thoughts and feelings regarding the diversity of physical exercise options. Two main themes and seven sub-themes were identified: (a) "Insufficient CR resources for patients": Lack of awareness about CHD; inadequate knowledge about secondary prevention/CR; insufficient support from family and friends. (b) "Patient CR initiative": Patient self-adjustment; expectation of professional rehabilitation guidance; stable emotions improving cognition; diverse attitudes and awareness of exercise.

Conclusion: For more effective CR, community-based medical teams should provide more comprehensive and individualized rehabilitation programs. They should focus on individual variations and preferences of patients, as well as enhance the autonomy of patients and improve their self-care ability through effective empowerment measures.

Keywords: coronary heart disease, cardiac rehabilitation, community sanitation service, self-care, patient needs

Introduction

Coronary heart disease (CHD) is a lifelong, chronic, and progressive cardiovascular disease that presents a significant challenge to the well-being and survival of patients.¹ CHD related deaths are projected to account for 13.1% of total deaths in the world by 2030.² In China, the prevalence of cardiovascular diseases in patients is approximately 11 million and is progressively increasing.³ The long-term course of CHD, complex treatment plans, and high incidence and mortality rates impose a heavy burden on patients and their families.

Cardiac rehabilitation (CR) has emerged as a pivotal therapeutic avenue, proficiently mitigating the recurrence rate and mortality risk while enhancing the quality of life for individuals diagnosed with CHD. This is achieved through a comprehensive approach encompassing multifaceted interventions, including medication, exercise, nutritional guidance, psychological support, smoking cessation, and moderation of alcohol consumption.⁴ CR is an evidence-based intervention aiming at improving secondary prevention outcomes for cardiovascular disease patients through patient education, health behavior adjustment, and exercise training.⁵

Although there has been some improvement in overall participation rates in CR, the actual participation rates among patients remain low.⁶ Consequently, a joint scientific statement from the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology has endorsed home and community-based CR as an alternative strategy.⁵ This introduces a new model for community-based cardiac rehabilitation in China. However, a survey-based study involving 1162 CHD patients discharged for one year found that only 40% of CHD patients continued to participate in CR,⁷ indicating that participation rates in community-based CR in China are still low.

Sustained adherence to lifestyle and exercise habits advocated by CR following discharge is critical for patients with CHD. This necessitates an enduring capacity for self-care and heightened compliance with the prescribed treatment regimen over the long term.⁸ However, medical staff often require patients to follow professional advice, but ignore the feelings and autonomy of patients themselves. This results in constraints to the compliance and self-care ability of patients.⁹ Empowerment is a positive collaboration and patient self-care strategy proposed by the World Health Organization to improve patient health and quality of life.¹⁰

This study utilized focus group interviews grounded in empowerment theory to examine the needs and constraints experienced by patients with CHD in a community-based CR program, aiming to provide insights that could assist community health workers in understanding the experiences of CHD patients in such settings, thereby enhancing the implementation of effective cardiac rehabilitation tailored to this population.

Materials and Methods

The interview outline was designed according to the objective and participants of the study. The focus group interview technique was used, with an interview time of a maximum of 1.5 hours. The study was conducted in accordance with the Declaration of Helsinki. The study was approved by Ethics Committee of the Affiliated Hospital of Hebei University (No.HDFYLL-KY-2023-130).

Interview Outline

In this study a semi-structured interview technique was used and conducted by comprehensively referring to the Guidelines for Cardiac Rehabilitation and Secondary Prevention in China¹¹ and the empowerment framework developed by Kabeer on resources, agency, and achievements.¹² The incorporation of guidelines provided the study with a professional context, offering practical recommendations regarding CR and preventive strategies for individuals diagnosed with CHD. Additionally, the scholarly work of Kabeer contributed an empowerment framework, facilitating an exploration of the resources and agency of patients within the study. The needs and constraints of patients were insightfully understood through a combination of the guidelines and the empowerment framework. The interview protocol encompassed four distinct inquiries:

1. Prior to this study, were you familiar with CR? Have you previously engaged in CR, and if so, where did you undergo the rehabilitation? How did participation in CR contribute to your well-being?
2. Kindly elaborate on your experiences and emotions subsequent to being diagnosed with CHD.
3. Describe your approaches to self-protection against CHD in your daily life.
4. What proactive measures would you be inclined to take for the improved prevention of CHD?

Selection of Interviewees

The interviewees were chosen through the application of the objective sampling method, with the aim of maximizing the diversity of the study subjects. CHD patients registered at a community hospital in Baoding City, Hebei Province were selected as the subjects.

Inclusion criteria for interviewees were as follows: (1) Patients who met the diagnostic criteria for coronary heart disease; (2) Patients who were stable and had not experienced any cardiovascular events for at least one year; (3) Patients who were assessed as low-risk for exercise; (4) Patients with normal cognition, vision, and hearing, capable of effective communication; (5) Aged ≥ 18 years old; (6) Residents of the community under the jurisdiction of the community hospital.

Exclusion criteria for interviewees were as follows: (1) Individuals with other severe medical conditions, such as severe liver and kidney dysfunction and malignant tumors. (2) Individuals with psychological and psychiatric disorders. (3) Individuals with severe physical activity disorders, such as severe pain, dyspnea, and severe fatigue. (4) Individuals with other conditions contraindicated to exercise rehabilitation, such as malignant tachyarrhythmia, musculoskeletal disorders that impede exercise, unstable blood pressure, and acute myocardial infarction.

The sample size was determined based on the point at which the data saturation was reached. A total of 11 patients with CHD in community-based setting were selected. The general data of patients are detailed in Table 1. Two separate focus group interviews were organized in this study, the first with four patients and the second with seven patients. All the participants in the study voluntarily participated in this study after providing informed consent. To protect the privacy of the interviewees, the interviewees were coded as P1 to P11.

Interview Process

For the focus group interviews in this study, the researchers pre-confirmed the time and location with the study participants via WeChat and telephone. They chose the conference room of the community hospital as the venue for the interview to ensure a relatively quiet and comfortable environment. The interviews were conducted collaboratively by three researchers, of whom one was the moderator and the other two were responsible for audio recording and transcribing the interviews, respectively.

Before commencing the interviews, the moderator briefed the participants on the background and objective of the study. The participants were solicited to sign an informed consent form and complete a demographic questionnaire designed by the research team. During the interviews, the moderator utilized interview strategies to guide both individual interviews and group discussions. For individual interviews, the moderator asked open-ended and in-depth questions to

Table 1 General Demographic Data of Interviewees

Interviewees	Gender	Age	Marital Status	Occupation	Education Level	Medical Insurance	Diagnosis Time
P1	Female	66	Married	Others	Senior high school/middle special school	Urban medical insurance	2018
P2	Male	59	Married	Retired	Junior high school	Employee medical insurance	2018
P3	Female	73	Married	Worker	Junior high school	Employee medical insurance	2000
P4	Female	77	Divorced/widowed	Worker	Senior high school/middle special school	Employee medical insurance	1997
P5	Female	55	Married	Others	Junior high school	Urban medical insurance	2013
P6	Female	77	Married	Retired	Junior high school	Employee medical insurance	2013
P7	Female	59	Married	Retired	Junior high school	Employee medical insurance	2022
P8	Female	80	Divorced/widowed	Retired	Senior high school/middle special school	Employee medical insurance	1997
P9	Male	68	Married	Worker	Senior high school/middle special school	Employee medical insurance	1994
P10	Female	67	Married	Retired	Junior high school	Employee medical insurance	2018
P11	Male	57	Married	Retired	Junior high school	Employee medical insurance	2003

encourage each participant to share individual experiences, perspectives, and feelings. The moderator listened patiently and attentively to answers given by the participants and asked follow-up questions when necessary to obtain more detailed information. In the group discussions, the moderator balanced the presentation opportunities of individual participants and facilitated in-depth discussions by asking questions, summarizing ideas, and encouraging the expression of different opinions.

The moderator ensured a clear understanding of the previous discussion by duly summarizing the opinions of the participants. This helped to validate that the research team had collected the key information. The moderator also consciously asked questions that had been asked before to observe consistency in the answers of the participants. Attention was given to new or different perspectives in the discussion to ensure that diverse and comprehensive information was acquired in the study.

Data Collation and Analysis

The audio recordings were transcribed by the two researchers within 24 hours after the interviews, and the transcribed information was verified by the two researchers. The researchers collaboratively integrated interview and observation notes, along with pertinent information, during the analysis phase. The textual data underwent examination using Colaizzi's method of descriptive data analysis, involving the following sequential steps: (1) Diligent perusal of the data. (2) Extraction of meaningful statements. (3) Summarization and extraction of underlying meanings from the statements. (4) Identification of common characteristics and thematic patterns within the meanings. (5) Establishing connections between the identified themes and the overarching phenomenon to construct a comprehensive narrative. (6) Formulation of narratives encapsulating the essential structures constituting the phenomenon. (7) Concluding review with the interviewees to ensure the study's overall quality.

Quality Control

The researchers in this study completed systematic courses and training in qualitative research to ensure the professionalism and reliability of the study. During the interviews, the objective of the interviews and the questions in the research were clarified and the scientific nature and comprehensiveness of the outline were verified. The interviewer remained objective and unbiased, avoided leading questions, and refrained from interpreting and judging the answers of the participants. The interview results were analyzed independently by two researchers. In the event of any discrepancies, they were discussed among the research group. Meanwhile, audio recordings and transcripts were combined to ensure the comprehensiveness and accuracy of the data for later collation and analysis.

Results

Theme I: Insufficient Resources for CR of Patients

Inadequate Knowledge of CHD

Patients had significant deficits in the knowledge of CHD. P7 conveyed, "I used to endure back pain and endured it for four or five days. At that time, I was oblivious to the nature of my ailment". P9 expressed, "I have experienced sensations akin to a stomach problem, and it never occurred to me that stomach pain could be indicative of CHD". P8 remarked, "I developed CHD at a young age but did not give it due attention". P3 articulated, "My cholesterol levels have consistently been elevated, and upon consulting my doctor, I discerned that it was linked to my dietary habits".

Inadequate Knowledge of Secondary Prevention/CR Following CHD

Inadequate Knowledge of Medication

Patients demonstrated suboptimal adherence to medication regimens, characterized by instances of forgetfulness, as well as lapses in taking medications at the prescribed times and in the correct dosages. Additionally, patients lacked knowledge about medications and were doubtful about the possible effects and actions of the medications. P9 conveyed, "I had been on medications for CHD for approximately a year, and I discontinued them when I perceived no apparent issues". P6 expressed, "I consistently forget to take my medications for CHD, and only recall to take them when

I experience a mild illness". P5 remarked, "There have been instances where I occasionally forgot to take my medications after discharge or took them intermittently". P6 expressed, "I held the belief that Western medicines come with side effects, whereas traditional Chinese medicines are considered safe. Consequently, I have predominantly opted for traditional Chinese medicines".

Inadequate Knowledge of Nutritional Diet

Patients had inadequate knowledge of diet, including excessive dieting, ignorance of the impact of disease on diet, and inadequate understanding of the relationship between diet and vascular health. P10 mentioned, "I have a particular inclination towards dieting and take note of it extensively". P2 articulated, "I did not pay much attention to my own health conditions and consumed food without adhering to any dietary restrictions". P7 stated, "My dietary habits have not undergone significant alterations since the onset of CHD". P4 conveyed, "I adhered to a vegetarian diet and abstained from consuming meat. However, my doctor cautioned that not incorporating meat into my diet might lead to the development of arteriosclerosis. Consequently, the doctor recommended including some meat in my dietary intake". P1 remarked, "I previously adhered to a diet high in salt and heavy foods, but presently, I consume more vegetables. I occasionally enjoy having a beer, and I am uncertain whether this poses any health concerns". P11 expressed, "In reality, I believe I should indulge in eating and drinking when it comes to my diet".

Attitudes Towards Exercise

Patients exhibited unfavorable attitudes toward physical exercise, with some expressing disinterest and concerns that exercise might be detrimental to their health. Additionally, certain patients curtailed their engagement in physical activity due to other physical limitations. P1) stated, "I engage in limited physical activity because I am not particularly fond of moving around. My routine mainly involves dropping off and picking up the kids, buying groceries, and returning to cook, unlike others who incorporate additional exercise into their routines". P7 conveyed, "I engage in exercise if it is deemed beneficial for my health, but I am limited to light activities. Heavy exercise is not feasible for me due to the condition of my knees". P3 mentioned, "I have been incorporating work as a form of exercise, engaging in physical activity through my work responsibilities".

Psychological Problems Following Diagnosis

Patients felt fear and anxiety in the initial stages following the diagnosis of CHD and were concerned about the possible life-threatening effects of the disease. P9 expressed, "Upon the onset of CHD, I experienced a sense of peril, perceiving that my life could be at risk". P1) remarked, "Following my diagnosis of CHD, I experienced a degree of pressure". P7 conveyed, "The diagnosis of CHD made me somewhat apprehensive, prompting contemplation about being more cautious in the future. It became evident that this disease is progressively worsening, not abating". P6 stated, "After experiencing an episode during the day, at night, I found myself worrying about the potential severity of future occurrences and whether they could be life-threatening". P11 expressed, "Following the diagnosis of CHD, I developed a fear of cerebral infarction".

Inadequate Sleep

Patients with CHD suffer from sleep deprivation, which might be related to their psychological condition, emotional disturbances, and physical diseases. P8 conveyed, "I struggle with sleep issues and find myself half asleep every night. However, I am hesitant to take additional medication for my sleep problems as I am already on a considerable amount of medication". P6 stated, "I experience difficulty sleeping due to frequent nocturnal urination. It becomes quite challenging to fall asleep again after each visit to the bathroom. Currently, insomnia has become a persistent concern for me". P5 noted, "My sleep patterns fluctuate. When my mind is not preoccupied, I can sleep soundly. However, if I am overthinking, it becomes challenging for me to fall asleep".

Inadequate Support from Family and Friends

Patients desired support from family and friends, but they felt a lack of social support during the treatment and rehabilitation of CHD. P4 conveyed, "My children provide limited assistance and seldom express concern about my

illness due to their work commitments. I intentionally refrain from discussing my CHD with friends and prefer not to delve into the topic". P8 expressed, "I have a specific desire for attention, particularly from my family, and ideally from my friends as well". P7 remarked, "Certainly, who would not wish to prolong their life after being diagnosed with a disease and simultaneously alleviate the burden on their children". P6 conveyed, "My children restrict my outings and often insist that I rest, believing that it is beneficial for my health". P5 mentioned, "I did not receive assistance from my family members, and since I began taking care of my children, I became disconnected from my friends". P1 expressed, "I desire that my family members would be more attentive and capable of reminding me to take my medications promptly, although I believe I take more care of myself. I also hope that forthcoming CR clinics will provide excellent programs that I can adopt, and that more effective medications will be developed". P2 stated, "I believe that having the support of my family members remains crucial, as they can serve as reminders for me to take my medication on time".

Theme 2: Agency of Patients in CR

Self-Adjustment of Patients

Patients showed self-adjustment in coping with CHD and had a unique perspective and attitude toward the disease. P8 expressed, "I strive to manage on my own and prefer not to be assisted or served". P11 conveyed, "Knowing that my discomfort may lessen when facing death, I am not as fearful of the prospect as others might suggest". P4 noted, "I observed that the more agitated I became, the more pronounced my symptoms of heart disease became. I am not particularly apprehensive about the disease, as it may become less distressing when I die". P6 conveyed, "Initially, I felt a bit nervous, but over time, I gradually acclimated and adapted to the situation". P3 opined, "I believe CHD is largely genetic, and there is no escaping it. While I might have felt discomfort with the disease in the past, I am becoming more accustomed to it as I age".

Expectation of Professional Rehabilitation Guidance

Patients had positive expectations for the rehabilitation and treatment of CHD and looked forward to having access to professional rehabilitation guidance, especially the exploration of integrated Chinese and Western medicine treatment modalities and the utilization of more comprehensive medical resources. P3 expressed, "I believe in a combination of Chinese and Western medicines, not solely relying on Western medicines. I incorporated Chinese medicines alongside Western medications, and I noticed a distinct difference, even experiencing a sense of relaxation upon waking". P6 remarked, "I perceive traditional Chinese medicines as safe, as I did not encounter any adverse events while using them". P4 expressed, "I find the activity you are conducting quite commendable, but it seems not widely known. It would be ideal to have printed pamphlets because, given our age, we may not be as adept at keeping up with the times like the younger generation. A printed pamphlet would enable us to read it at home when we are free". P5 stated, "I hope that you can devise favorable treatment options for CHD, and it would be most beneficial if you could furnish pamphlets that we can obtain and peruse at our convenience".

Enhanced Cognitive Function by Emotional Stabilization

Emotions experienced by patients were important for their cognitive ability on CHD, and emotional stabilization had the potential benefits in improving cognition. P10 conveyed, "Heart disease is notably intertwined with emotions; when one experiences anxiety about something, there is a corresponding sense of discomfort in the heart". P8 shared, "Following the death of my spouse, I encountered heightened stress, and during an episode of profound sadness, it culminated in a myocardial infarction". P3 mentioned, "When I became angry over certain household tasks, I swiftly noticed a pallor in my complexion". P6 articulated, "I comprehend this disease; it entails caring about fewer matters, refraining from allowing oneself to become angry, adopting a broad perspective, and avoiding getting caught up in trivialities when facing challenges. Although there were instances where I could not tolerate a few words from my spouse, presently, my focus is primarily on maintaining a relaxed state of mind". P4 conveyed, "I observed that the more agitated I became, the more exacerbated my symptoms of heart disease became. Consequently, I decided to refrain from getting angry and now engage in activities I enjoy, ensuring that external factors do not provoke me". P5 expressed, "I am now aware that anger exacerbates the condition".

Diversity in the Perceptions and Attitudes Towards Physical Exercise

Patients showed positive attitude toward daily physical exercise and expressed anticipation for engaging in exercise following a diagnosis of CHD. P6) reflected, “Several years ago, I used to engage in daily dancing sessions in the park for over an hour, breaking into a profuse sweat afterward. However, I can no longer partake in such activities, likely due to physical limitations and the aging process”. P8) stated, “Despite being over 80 years old, I am still capable of walking a considerable distance, exceeding 10,000 steps. I do not resist the effects of aging, and I believe if others can walk, so can I”. P5 expressed, “I have a strong desire to engage in exercise, but my knees are problematic, and I frequently experience falls. If my knees were in good condition, I would partake in exercises like walking. I am open to trying programs that involve exercising without putting strain on my knees”. P7 conveyed, “I used to enjoy strolling when I had leisure time, but presently, I am hesitant to engage in strolls due to the weakened state of my knees”.

Discussion

Patients with CHD in Community-Based Setting Exhibit a Lack of Knowledge About the Disease and CR

Patients with CHD in community-based setting exhibit a lack of knowledge about the disease and CR. This includes a lack of understanding of the symptoms, risk factors, and therapeutic approach of CHD and the importance of CR. This leads to a failure to promptly respond when they experience similar problems. Poor health behavior, such as untimely medical consultations and poor compliance, are common among patients with CHD in community-based setting, reflecting a generally low level of cognitive understanding about the disease. The lack of such information is recognized as a key barrier for maintaining healthy lifestyles and implementing health-promoting behaviors.¹³ It has been reported that health education plays a vital role in increasing the knowledge level of patients with CHD.¹⁴ However, current educational techniques have constraints in terms of coverage of all patients and sustained effects.¹⁵ Community health service personnel should adopt proactive strategies to enhance the knowledge and self-management of patients for their health conditions.¹⁶ Accordingly, community health service personnel should not only provide basic medical services but also actively participate in health education and promotional activities to increase awareness about CHD among patients, improve health related behaviors, and promote effective CR.

Social Support is Inadequate for Community-Based Patients with CHD During CR

Patients with CHD often experience insufficient support from their families and community health services when they return to live in the community following discharge from the hospital. In a previous study, it was revealed that increased social support from families was critical to enhance the knowledge of patients and their initiative in disease management.¹⁷ However, the extended duration of CHD and the complexity of treatment options place a heavy burden on patients and their families. This phenomenon partly stems from inadequate knowledge of the disease among patients and families, coupled with limited resources and lack of expertise and training in community health services. All this together hamper the effective implementation of CR programs.¹⁸ Hence, community health services should collaborate with professional medical teams to educate patients and families about CR through professional knowledge and skill training. It is important to develop comprehensive rehabilitation plans, to gain a deeper understanding of the needs of patients, and to provide comprehensive education, guidance, and support.

Patients with CHD Anticipate Professional Guidance During CR

Patients with CHD anticipate comprehensive medical care, including integrated Chinese and Western medicines, personalized health education, and specific CHD treatment plans. However, community health services are deficient in providing professional guidance during CR, contributing to the challenges in realizing the expectations of patients. Patients are highly interested in integrated Chinese and Western medicines since they believe that this method is an effective way to improve treatment outcomes. This aligns with the findings of Yu,¹⁹ whose research indicated that a combined approach involving Chinese and Western medicines contributed to enhanced prognostic outcomes and

a diminished occurrence of cardiovascular events among individuals diagnosed with CHD. In addition, easy-to-understand health education materials are urgently needed for patients to self-study at home, therefore increasing their knowledge and self-care ability about the disease. As reported, different health education materials should be used based on the needs, health literacy, and learning ability of patients, which can help patients in setting their goals, exercise, healthy diet, and risk factor management.⁵ As such, medical staff should respond to patient needs and provide more professional guidance during CR.

Perceptions of Patients with CHD in a Community-Based Setting Towards Physical Exercise Need to be Emphasized

Physical exercise is critical in CR for patients with CHD as it can improve cardiopulmonary function, slow down the progression of atherosclerosis, alleviate myocardial ischemia symptoms, and decrease cardiovascular mortality and event recurrence rates.^{20,21} Although a lack of physical activity is an important risk factor for cardiovascular disease,²² the importance of rehabilitation through exercise was under-recognized among patients with CHD in this study. The guidelines of the American Heart Society and the American College of Cardiology emphasize that patients with cardiovascular disease should exercise appropriately because even low-intensity physical activity produces health benefits that increase with gradually elevating intensity of physical activity.²³ Patients often reduce or give up exercise because of their physical condition, time, and interest, while another percentage of patients consider daily work as exercise. These diverse attitudes require medical staff to provide personalized physical exercise instructions. Therefore, to achieve effective CR, the healthcare team should pay attention to the needs and doubts of patients during exercise rehabilitation and encourage patients to participate in an exercise program appropriate to their physical condition through professional guidance.

Strengths and Limitations

The strength of this study lies in the use of empowerment theory, providing a new perspective on the challenges and available resources faced by patients in community-based CR. Additionally, this study accurately identifies a range of challenges such as underutilization of resources, poor disease management behaviors, insufficient understanding of CR, and lack of social support. These findings provide important insights for the development of more effective CR interventions. However, this study also has some limitations. The objective sampling method used may result in selection bias, making the sample unrepresentative of the overall population. Moreover, focusing only on specific communities or certain patients may fail to capture the diversity of viewpoints and needs comprehensively.

Conclusion

In this study, an empowerment theory approach was utilized to investigate the challenges and available resources for patients with CHD within a community-based setting with respect to CR. Challenges faced by these patients were identified including underutilization of resources, poor disease management behavior, lack of knowledge about CR, and absence of social support. Notably, these patients generally had impairments in self-care and the ability to carry out cognitive exercises. Furthermore, there exists a pervasive requirement for expert guidance in the field of CR, aimed at fostering a comprehensive comprehension among community health workers. In order to facilitate effective CR, the healthcare team should provide more comprehensive and personalized rehabilitation programs and give attention to the individual differences and preferences of patients. Additionally, they should strive to enhance the autonomy of the patients and self-care skills through effective empowerment strategies.

Data Sharing Statement

All data generated or analysed during this study are included in this article. Further enquiries can be directed to the corresponding author (Juan Liu).

Ethics Approval and Consent to Participate

The study was conducted in accordance with the Declaration of Helsinki. The study was approved by Ethics Committee of the Affiliated Hospital of Hebei University (No.HDFYLL-KY-2023-130). Written informed consent was obtained from all participants included publication of anonymized responses.

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Disclosure

The authors declare that they have no competing interests in this work.

References

1. Cieza A, Causey K, Kamenov K, Hanson SW, Chatterji S, Vos T. Global estimates of the need for rehabilitation based on the global burden of disease study 2019: a systematic analysis for the global burden of disease study 2019. *Lancet*. 2021;396(10267):2006–2017. doi:10.1016/S0140-6736(20)32340-0
2. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med*. 2006;3(11):e442. doi:10.1371/journal.pmed.0030442
3. Zhao D, Liu J, Wang M, Zhang X, Zhou M. Epidemiology of cardiovascular disease in China: current features and implications. *Nat Rev Cardiol*. 2019;16(4):203–212. doi:10.1038/s41569-018-0119-4
4. Manzoor S, Hisam A, Aziz S, Mashhadi SF, Haq ZU. Effectiveness of mobile health augmented cardiac rehabilitation on behavioural outcomes among post-acute coronary syndrome patients: a randomised controlled trial. *J Coll Physicians Surg Pak*. 2021;31(10):1148–1153. doi:10.29271/jcpsp.2021.10.1148
5. J TR, L BA, M BT, et al. Home-Based Cardiac Rehabilitation. *J Cardiopul Rehabil Prevent*. 2019;39(4):208–225. doi:10.1161/CIR.0000000000000663
6. Beatty AL, Truong M, Schopfer DW, et al. Geographic variation in cardiac rehabilitation participation in medicare and veterans affairs populations: opportunity for improvement. *Circulation*. 2018;137(18):1899–1908. doi:10.1161/CIRCULATIONAHA.117.029471
7. Wang J, Liu H, Chen C, et al. Physical activity and factors affecting its maintenance among patients with coronary heart disease not undergoing cardiac rehabilitation in China. *J Cardiovasc Nurs*. 2020;35(6):558–567. doi:10.1097/JCN.0000000000000698
8. Ambrosetti M, Abreu A, Corrà U, et al. Secondary prevention through comprehensive cardiovascular rehabilitation: from knowledge to implementation. 2020 update. A position paper from the secondary prevention and rehabilitation section of the European Association of Preventive Cardiology. *Eur J Prev Cardiol*. 2021;28(5):460–495. doi:10.1177/2047487320913379
9. Sadler E, Wolfe CD, McKeivitt C. Lay and health care professional understandings of self-management: a systematic review and narrative synthesis. *SAGE Open Med*. 2014;2:2050312114544493. doi:10.1177/2050312114544493
10. Neuhauser D. The coming third health care revolution: personal empowerment. *Qual Manag Health Care*. 2003;12(3):171–186. doi:10.1097/00019514-200307000-00007
11. Chinese Society of Rehabilitation Medicine. *Chinese Guidelines for Cardiac Rehabilitation and Secondary Prevention (2018 Edition)* in Chinese. Beijing: Peking University Medical Press; 2018.
12. Resources K. Agency, achievements: reflections on the measurement of women's empowerment. *Devel Change*. 1999;30:435–464. doi:10.1111/1467-7660.00125
13. Chahardah-Cherik S, Gheibizadeh M, Jahani S, Cheraghian B. The relationship between health literacy and health promoting behaviors in patients with type 2 diabetes. *Int J Community Based Nurs Midwifery*. 2018;6(1):65–75.
14. Shi W, Ghisi G, Zhang L, et al. Systematic review, meta-analysis and meta-regression to determine the effects of patient education on health behaviour change in adults diagnosed with coronary heart disease. *J Clin Nurs*. 2023;32(15–16):5300–5327. doi:10.1111/jocn.16519
15. Schwär M, Ullmann-Moskovits J, Farquharson M, Sennekamp M. The sudden switch to online communication training after 10 years in the classroom - comparing the evaluation results of a course on doctor-patient communication. *GMS J Med Educ*. 2022;39(2):Doc22. doi:10.3205/zma001543
16. Stepanian N, Larsen MH, Mendelsohn JB, Mariussen KL, Heggdal K. Empowerment interventions designed for persons living with chronic disease - A systematic review and meta-analysis of the components and efficacy of format on patient-reported outcomes. *BMC Health Serv Res*. 2023;23(1):911. doi:10.1186/s12913-023-09895-6
17. Gleason KT, Tanner EK, Boyd CM, Saczynski JS, Szanton SL. Factors associated with patient activation in an older adult population with functional difficulties. *Patient Educ Couns*. 2016;99(8):1421–1426. doi:10.1016/j.pec.2016.03.011
18. Zhang L, Zhang L, Wang J, Ding F, Zhang S. Community health service center-based cardiac rehabilitation in patients with coronary heart disease: a prospective study. *BMC Health Serv Res*. 2017;17(1):128. doi:10.1186/s12913-017-2036-3
19. Yu L, Wang Z, Xu C, et al. Integrated Chinese and Western medicine for stable angina pectoris of coronary heart disease: a real-world study including 690 patients. *Front Cardiovasc Med*. 2023;10:1194082. doi:10.3389/fcvm.2023.1194082
20. Li J, Li Y, Gong F, et al. Effect of cardiac rehabilitation training on patients with coronary heart disease: a systematic review and meta-analysis. *Ann Palliat Med*. 2021;10(11):11901–11909. doi:10.21037/apm-21-3136

21. Dibben GO, Faulkner J, Oldridge N, et al. Exercise-based cardiac rehabilitation for coronary heart disease: a meta-analysis. *Eur Heart J.* 2023;44(6):452–469. doi:10.1093/eurheartj/ehac747
22. Freene N, McManus M, Mair T, Tan R, Davey R. Association of device-measured physical activity and sedentary behaviour with cardiovascular risk factors, health-related quality-of-life and exercise capacity over 12-months in cardiac rehabilitation attendees with coronary heart disease. *BMC Sports Sci Med Rehabil.* 2022;14(1):169. doi:10.1186/s13102-022-00562-7
23. Wallert J, Olsson EM, Pingel R, et al. Attending Heart School and long-term outcome after myocardial infarction: a decennial SWEDEHEART registry study. *Eur J Prev Cardiol.* 2020;27(2):145–154. doi:10.1177/2047487319871714

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