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Team approach and interprofessional collaboration in managing heart failure patients to improve health literacy

Podejście zespołowe i współpraca interdyscyplinarna w opiece nad pacjentami z niewydolnością serca w celu poprawy wiedzy na temat zdrowia

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STRESZCZENIE

PODEJŚCIE ZESPOŁOWE I WSPÓŁPRACA INTERDYSCYPLINARNA W OPIECE NAD PACJENTAMI Z NIEWYDOLNOŚCIĄ SERCA W CELU POPRAWY WIEDZY NA TEMAT ZDROWIA

Cel pracy. W niniejszym artykule przeanalizowano kluczowe elementy zoptymalizowanej opieki nad pacjentami z niewydolnością serca, w tym interdyscyplinarną pracę zespołową, współpracę międzysektorową, kompleksowe wsparcie psychospołeczne i edukacyjne oraz podnoszenie poziomu wiedzy na temat zdrowia, jako czynniki o kluczowym znaczeniu dla zapewnienia trwałej opieki skoncentrowanej na pacjencie.

Materiał i metody. Przeprowadzono badanie jakościowe w formie częściowo ustrukturyzowanych wywiadów, podzielone na dwa etapy. W pierwszym etapie uwzględniono doświadczenia dziewięciu pacjentów i pracowników służby zdrowia, identyfikując bariery i niedociągnięcia w systemie opieki zdrowotnej. W drugim etapie wzięło udział 23 pracowników w 12 słoweńskich szpitalach zajmujących się opieką po postawieniu diagnozy, kładąc nacisk na współpracę i wsparcie pacjentów. Dane poddano analizie tematycznej.

Wyniki. Do kluczowych czynników pozwalających zoptymalizować opiekę należą: wczesne rozpoznawanie objawów, wzmocnienie pozycji pacjentów oraz poprawa wiedzy na temat zdrowia w zakresie samodzielnego zarządzania stanem zdrowia i rehabilitacji. Zidentyfikowano bariery związane z dostępnością opieki i jej koordynacją. W proponowanych usprawnień podkreślono potrzebę zapewnienia spójnej opieki o wysokiej jakości, ciągłej obserwacji pacjentów oraz lepszej komunikacji między poszczególnymi szczeblami opieki zdrowotnej.

Wnioski. Skuteczne leczenie niewydolności serca wymaga wczesnego wykrywania, interdyscyplinarnego podejścia zespołowego oraz wsparcia społeczności lokalnej w ramach spójnej struktury opieki. Nadal istnieją wyzwania związane z dostępnością, koordynacją i ujednoliconymi wytycznymi. Aby osiągnąć trwałą poprawę, niezbędna jest zintegrowana ścieżka opieki nad pacjentem, angażująca wszystkie zainteresowane strony.

Słowa kluczowe: rehabilitacja, podejście interdyscyplinarne, komunikacja, koordynacja, poczucie własnej skuteczności pacjenta

ABSTRACT

TEAM APPROACH AND INTERPROFESSIONAL COLLABORATION IN MANAGING HEART FAILURE PATIENTS TO IMPROVE HEALTH LITERACY

Aim. The paper explores the essential components of optimized heart failure care including interdisciplinary teamwork, intersectoral collaboration, comprehensive psychosocial and educational support, and the enhancement of health literacy as critical factors for achieving sustainable and patient-centered care.

Material and methods. A qualitative study was conducted through semi-structured interviews in two phases. Phase one included experiences of nine patients and healthcare professionals, identifying barriers and shortcomings in the healthcare system. Phase two involved 23 healthcare professionals from all 12 Slovenian hospitals engaged in post-diagnosis care, emphasizing collaboration and patient navigation. Data was analyzed using thematic analysis.

Results. Key factors for optimizing care include early recognition of symptoms, patient empowerment, and improved health literacy for self-management and rehabilitation. Barriers were identified in accessibility and care coordination. Suggested improvements stressed the need for unified, high-quality care, continuous follow-up, and stronger communication across healthcare levels.
Conclusions. Effective management of heart failure requires early detection, a multidisciplinary team approach and community support within a unified care structure. Challenges remain in accessibility, coordination and standardized guidance. For sustainable improvements, an integrated patient pathway involving all stakeholders is essential.

Key words: rehabilitation, multidisciplinary approach, communication, coordination, patient self-efficacy

INTRODUCTION

Heart failure is a chronic condition that requires a comprehensive approach to treatment, rehabilitation, and symptom management, as it significantly impacts patients' quality of life. Effective care programs necessitate the coordination of multiple healthcare services [1]. Health literacy, defined as an individual's ability to access, understand, appraise and apply health-related information to make appropriate health decisions, is a key concept in the management of chronic diseases such as heart failure and plays a crucial role in patient engagement and self-management [2,3].

The importance of team-based care is reflected in the collaboration of specialists such as cardiologists, nurses, physiotherapists, clinical pharmacists, dietitians, and psychologists, who, through integrated care planning and coordinated instructions, effectively support heart failure patients in modifying health-related behaviors and strengthening self-efficacy [4,5]. Patient empowerment is a crucial element of heart failure management and the foundation of patient engagement in treatment and rehabilitation [6].

Healthcare professionals play an essential role in guiding patients along the healthcare pathway, from entry at the primary care level to hospital treatment and connecting with community-based services that provide support and guidance for lifestyle modification. They encourage patients to ask questions and seek useful information about their condition [7]. With adequate knowledge and understanding of the disease, patients can actively participate in treatment, which directly reduces hospitalization and improves quality of life [8]. Nurse-led educational interventions improve self-care and clinical outcomes in heart failure patients, including reduced rehospitalization rates [9]. The impact is evident in medication adherence, symptom monitoring, and adherence to dietary recommendations [8].

A team-based approach enhances clinical outcomes, reduces hospitalizations and costs, and increases patient satisfaction with care [4]. Healthcare professionals' efforts to understand the physical, psychological, and social experiences of living with heart failure, along with a holistic communication approach and the use of clear, patient-centered terminology, can significantly improve health literacy in these patients [10]. Low health literacy is associated with difficulties in understanding health information, insufficient knowledge of the disease, poor treatment adherence, higher hospitalization rates, increased mortality risk, inefficient use of healthcare services, and rising healthcare costs [11-12]. While interventions often focus on improving self-care, which is an essential component of heart failure management, the active role of patients in disease self-management is increasingly emphasized [13-14]. Promoting self-care through educational interventions that enhance health literacy is key to patient empowerment, enabling individuals to acquire the knowledge and skills needed to effectively manage their health and chronic illness [5,12].

AIM

The aim of this paper is to examine the key elements for optimizing heart failure care, with a focus on the team-based approaches, professional collaboration and integration of specialists, and strengthening patient support within both the healthcare system and the local community, particularly through activities that enhance health literacy and empower patients for effective self-care.

MATERIALS AND METHODS

This qualitative study explored the patient pathway for individuals with heart failure within the Slovenian healthcare system.

Description of the sample

The study was conducted in two phases using purposive sampling. In the first phase, seven patients with heart failure representing diverse demographics and experiences with treatment and rehabilitation were interviewed. Additionally, two experts involved in developing national programs for heart failure were included in the study.

In the second phase, 12 Slovenian hospitals with cardiology departments, heart failure clinics, or services involved in the hospital treatment and follow-up of patients with heart failure participated. Interviews were carried out with 23 healthcare professionals, including 12 specialist physicians and 11 registered nurses. One hospital reported not having a dedicated heart failure nurse.

Data collection and analysis

Semi-structured interviews were conducted face-to-face or remotely (telephone, Zoom, or secure platforms) depending on participant preference. All interviews were recorded with consent, transcribed verbatim, and anonymized.

Phase one explored patients' and healthcare professionals' experiences across the care continuum, from symptom onset to long-term management, addressing roles of different providers, barriers, and community support for health literacy. In phase two, 12 semi-structured questions focused on hospital-based care, including diagnostics, multidisciplinary treatment, rehabilitation, collaboration between secondary and primary care, and involvement of non-governmental organizations.

Thematic analysis was applied. Codes were clustered into categories for patients and healthcare professionals separately, enabling comparison of perspectives. Central themes involved team-based care, interprofessional collaboration, and strengthened patient support within healthcare and community settings.

Ethical considerations

The study adhered to the Declaration of Helsinki. Phase one was approved by the National Medical Ethics Committee of Slovenia (No. 0120-62/2022/3). The study participants received written invitations, information sheets and signed confidentiality agreements prior to participation and publication of anonymized data.

For phase two, consent was obtained from hospital management. Experts were informed about objectives, data handling, and publication procedures and oral informed consent was obtained for participation and confidentiality.

RESULTS

The results are presented separately for the first and second part of the study. In the first part, we analyzed the key points of care for patients with heart failure in the Slovenian healthcare system and identified both strengths and major barriers. Table 1 presents the categories derived from coding the interview transcripts: (1) Disease recognition and patient involvement, (2) Self-management and rehabilitation, (3) Accessibility and quality of the healthcare system, (4) Patient support and social environment, and (5) Suggestions for improvement.

Tab. 1. Coded results from interview with patients and health professionals

Category	Subcategory	Codes
Recognition of the disease and patient involvement	Recognition of disease and diagnosis	• Mode of detection (self-paying, referrals, diagnostic tests) • Role of physicians in diagnosis (general practitioner, specialist)
	Health literacy and information	• Key role of nurses, physicians, and specialists in patient education • Oral and written provision of information • Education on the importance of treatment and self-care • Guidance on lifestyle adjustments • Sources of information (leaflets, online resources, physicians) • Differences in understanding (age, cognitive abilities)
	Communication and shared decision-making	• Communication with healthcare staff (availability, time for discussion) • Shared decision-making in treatment • Understanding and adherence to instructions • Communication gaps and insufficient explanations
Self-management of the disease and rehabilitation	Self-management of the disease	• Regular medication adherence • Self-monitoring • Lifestyle modification
	Barriers of self-management	• Poor awareness of support resources • Irregular monitoring of health status • Lack of trust in the system
	Rehabilitation	• Importance of regular medical check-ups • Rehabilitation in hospitals and health resorts • Regular physical activity
Accessibility and quality of the healthcare system	Systemic barriers	• Overburdened healthcare professionals • Importance of collaboration across healthcare levels and specialists
	Standardization and best practices	• Need for protocols and structured procedures • Good practices from abroad (telemonitoring, community nurse)
	Accessibility and inequality	• Regional disparities in access to healthcare • Differences between urban and rural settings • Lack of and limited access to education and support services in rural areas
Patient support and social environment	Patient support in navigating the healthcare system	• Information on procedures and transitions between healthcare institutions • Assistance in guiding older and less experienced patients
	Family and social support	• Importance of caregiver education for elderly patients • Support from family members • Emotional support and social interaction
	Role of non-governmental organizations	• Exercise, counseling, information sharing • Positive experiences • Lack of connectedness in rural settings
Suggestions for improvements	Improving information	• Structured and standardized information • Clear written information • Lectures and workshops for patients
	Improving accessibility	• Reduction of waiting times • Improved access to rehabilitation • Increasing staffing levels and improving working conditions

The second part of the study presents an analysis of the process of patient management in heart failure during hospital care by healthcare professionals, and its integration with other levels of the healthcare system. Based on the transcripts, we identified the categories and subcategories presented in Table 2.

Both parts of the study highlighted the key elements for optimizing the management of patients with heart failure, which are presented and discussed in the discussion section.

Tab. 2. Coded results from interview with hospital healthcare professionals

Category	Subcategory	Codes
Ensuring high-quality healthcare	Diagnosis and treatment	• Non-invasive and invasive diagnostic procedures and interventions • Procedures and tests as part of treatment • Pharmacological treatment • Non-pharmacological treatment • Therapy adjustment • Referrals and additional diagnostics
	Implementation of nursing care	• Monitoring of vital signs (blood pressure, body temperature, heart rate) • Monitoring of mental health • Preparation for surgical and invasive procedures (coronary artery bypass graft – CABG, ablation, heart transplantation)
	Therapy monitoring	• Medication administration and dose titration • Prevention of complications and provision of immediate assistance
Education and empowerment of patients and caregivers	Education on self-care and lifestyle	• Education on lifestyle changes (salt reduction, regular exercise, smoking cessation) • Importance of regular medication adherence and symptom monitoring • Use of educational tools (brochures, diaries)
	Involvement of family members in the education process	• Individual conversations with patients and family members • Organization of group educational sessions
Collaboration within the interdisciplinary team	Division of tasks and responsibilities within the team	• Role of the cardiologist/internist: diagnostics, therapy determination • Activities of nurses: education, medication titration, discharge coordination
	Inclusion of other healthcare professionals in patient care	• Physiotherapist • Dietitian • Psychologist • Clinical pharmacist
	Team communication	• Improvement of communication across levels of healthcare • Communication between hospitals and referral clinics • Organization of working groups for professional experience exchange
Preparation of the patient for discharge and continuity of care	Hospital discharge process	• Assessment of patient readiness for discharge • Education of patients and family members on further home care
	Preventive measures for home support	• Coordination with home care services and referral clinics • Provision of written materials and self-care diaries • Regular check-ups, medication titration, and symptom monitoring with the family doctor • Verification of understanding of instructions (teach-back method)
	Post-discharge follow-up	• Patient follow-up via phone calls or outpatient visits • Use of technological and organizational tools (telemedicine)
Continuous follow-up and rehabilitation	Outpatient rehabilitation	• Management in cardiology outpatient clinics/specialized heart failure clinics • Organization of rehabilitation programs (cycling, physical activity under load) for all patients,at some hospitals only after myocardial infarction • Consists of 36 visits, 2-3 times per week over 12 weeks • Referral to spa rehabilitation due to space and staff limitations • Follow-up after program completion
	Community-based rehabilitation	• Involvement of patients in preventive workshops and lectures • Cooperation and connection with coronary clubs for additional support
Collaboration and communication between institutions	Coordination across levels of healthcare provision	• Linking primary, secondary, and tertiary levels of care • Strengthening the connection between hospital and outpatient care due to diagnostic and therapeutic possibilities • Regular consultations with other specialists • Referral to specialized clinics, Health Promotion Centers, Adult Mental Health Centers
	Professional training and exchange of best practices	• Professional meetings among cardiologists, nurses and other health specialists • Participation in cardiology sections and working groups • Organization of symposia and educational events on heart failure • Exchange of information and best practices

DISCUSSION

Based on the results obtained, we present thematic domains according to the key elements identified in both parts of the study.

Early recognition, diagnosis, individualized care and effective communication

The study results confirm that early recognition, timely diagnostics and individualized care are vital for successful management and improved quality of life in patients with heart failure [15]. The most common first symptoms were shortness of breath, chest pressure, interscapular pain, fatigue and cough. Some patients noticed symptoms during daily activities: "…shortness of breath, as if my nose was blocked" (Patient 3), "I felt dizzy, even minor exertion was difficult" (Patient 7), "I had to stop and move more slowly" (Patient 2). Others were diagnosed only after medical examinations: "They said my heart needed strengthening. After a few years it worsened" (Patient 5), "pulse increased, blood pressure dropped" (Patient 4), "they diagnosed me heart failure and implanted a pacemaker" (Patient 6). Most patients were referred by general practitioners, cardiologists or emergency departments. Experts stressed that in some regions "patients frequently reached hospitals mainly through emergency care" (Expert 5). Improving accessibility and continuous monitoring lowers rehospitalization rates, costs, and enhances quality of life [5,16].

Communication between patients and healthcare professionals was central to treatment adherence. While some felt well-informed: "At each visit, I got the information I needed" (Patient 7), "In the hospital I was given many brochures" (Patient 3), others reported insufficient explanations: "Nobody told me anything" (Patient 5). Time constraints often limited interaction. Clear, tailored communication that respects patient decisions fosters trust and supports lifestyle change, reducing unnecessary hospitalizations [17]. Patients recommended stronger education through both verbal guidance and written materials to improve awareness and self-care.

Team-based, multidisciplinary collaboration and comprehensive patient care

Multidisciplinary follow-up during hospitalization significantly improved self-care, quality of life and reduced rehospitalization [8]. Teams included cardiologists, nurses, pharmacists, physiotherapists, and when needed dietitians, occupational therapists, social workers, psychologists, and others. Through coordinated activities they supported lifestyle changes and strengthened self-efficacy.

After discharge, patients continued with follow-up in heart failure clinics: "We perform regular monitoring with diagnostics, drug titration, echocardiography… introducing telemedicine" (Expert 7). Telemedicine improved data processing, comorbidity assessment, and holistic follow-up [18]. Interdisciplinary hospital teams collaborated across healthcare levels, with experts highlighting the importance of cardiology sections, professional meetings, and inter-institutional cooperation for coordinated care.

Health literacy as the foundation of patient and caregiver education and empowerment

Health literacy was identified as key to self-management, requiring knowledge about etiology, prognosis, treatment and self-care [9]. Hospitals provided group education, while participants suggested "modern methods such as educational films in wards or waiting areas" (Expert 13). Education aims not only to inform but to develop skills, reduce burden, and improve self-care [7].

Nurses played a central role, assessing knowledge and providing individualized education: "we provide individualized education, reviewing vital signs to plan further activities" (Expert 2). This helped recognize early signs such as dyspnea, edema, or weight gain, enabling timely interventions. Strengthening self-efficacy and health literacy were prerequisites for effective management [5].

Although many patients reported an adequate understanding, nurses often identified gaps and involved family members. Some patients relied on phone consultations: "I have their phone number and whatever is bothering me, I call them" (Patient 3). Continuous nurse-led education significantly improved self-efficacy [9], while positive attitudes supported coping and disease management.

Lifelong rehabilitation, long-term support, and the role of community stakeholders

Long-term management requires lifelong rehabilitation and collaboration among stakeholders. Patients attended structured 12-week hospital programmes with physiotherapy and education, followed by annual check-ups: "We monitor their conditions and make the necessary treatment changes" (Expert 15). After discharge, they were referred to general practitioners, primary care nurses, and community health services, which are "essential for monitoring the patient, as they notice changes in a timely manner" (Expert 8).

Patients also participated in Health Promotion Centers'workshops on healthy lifestyle and risk reduction (Expert 4), as well as NGO programmes tailored to their needs. More complex cases were directed to mental health centers or spa rehabilitation. NGOs and associations provided lifelong rehabilitation and diverse activities to improve quality of life. Family involvement further promoted engagement, strengthened mental health and supported disease management [19]. The integration of professionals, communities and NGOs was crucial for home-based support and strengthening self-care [20].

System-level improvements for sustainable patient pathways

The study revealed the absence of unified clinical guidelines in Slovenia, with care largely dependent on individual professionals. Patients reported diagnostic delays, poor accessibility, long waiting times and limited consultations: "Doctors are often unreachable by phone, they don't have time to talk" (Patient 3). Workforce shortages and infrastructural barriers further constrained services.

Experts highlighted international models of nurse-led clinics and community-based nursing as examples of best

practice [21]. Stronger NGO involvement and collaboration across levels of care were emphasized: "Better tailored programmes and family involvement improve disease management" (Expert 1). Professional meetings and knowledge exchange were seen as necessary to develop standardized protocols and integrated pathways [22].

A comparison of patient and professional perspectives revealed both convergence and divergence. Patients primarily emphasized experiential aspects of care, particularly the need for sufficient time, clear explanations, accessible healthcare professionals and continuity across care settings. In contrast, professionals focused more strongly on organizational constraints, workload pressures, standardized protocols and system-level limitations. Despite these differences, both groups consistently identified health literacy as a central determinant of effective illness self-management. This shared recognition underscores health literacy role as a unifying concept linking individual patient experiences with professional and organizational responsibilities.

Developing structured, integrated patient pathways is essential for quality, safety and sustainability, as the current fragmentation causes duplication, poor communication and reduced effectiveness. A comprehensive model should integrate healthcare professionals, patients, families, social services, local communities and policymakers [23]. Through effective collaboration, clearly defined protocols and coordinated information transfer, patients can receive continuous and personalized care from diagnosis to long-term support. In this context, the findings of the present study may be transferable to other healthcare contexts where heart failure care is delivered by multidisciplinary teams and where patients navigate complex care pathways. The emphasis on coordinated teamwork, nurse-led education and community involvement reflects internationally recognized principles of integrated chronic care.

Limitations of study

This study was based on a relatively small, purposive sample, which limits the generalizability of the findings. The first phase included seven patients and two experts, while the second involved representatives from 12 Slovenian hospitals (one physician and one nurse per institution), which may not fully reflect the perspectives of entire multidisciplinary teams. In addition, reliance on self-reported experiences may have influenced the objectivity of the data. The research was conducted in a specific national context, which may affect the transferability to other systems. However, despite these limitations, the identified themes reflect widely reported challenges in heart failure care, such as fragmented care pathways, limited coordination and variability in health literacy support. These challenges are common across many healthcare systems internationally, suggesting that the findings may offer relevant insights beyond the Slovenian context.

CONCLUSIONS

This study demonstrated that early recognition, effective communication, multidisciplinary teamwork and continuous patient education are essential for high-quality care in heart failure. Persistent challenges include limited access to specialist care, fragmented coordination and the lack of unified guidelines. Community and NGO involvement were identified as integral to lifelong rehabilitation. To enhance quality and sustainability, structured and integrated patient pathways must be developed, involving all stakeholders and supporting continuous, personalized and safe care. Future research should focus on designing and implementing such models to improve outcomes and patient empowerment.

Practice implications

In nursing education, greater emphasis should be placed on health literacy, communication skills and patient education strategies tailored to chronic disease management. Simulation-based learning and interprofessional education can strengthen nurses' confidence in the patient empowerment roles. In clinical practice, the development and standardization of nurse-led clinics and structured educational interventions should be further promoted, as nurses are well positioned to assess health literacy, individualize education and coordinate care across settings. From a leadership perspective, healthcare organizations should support integrated care pathways, invest in nurse-led services and foster collaboration with community and non-governmental organizations to ensure continuity of care beyond hospital settings.

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