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A CIRCLE-CARE model in integrated care for patients with multimorbidity. An action research study

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Abstract

Purpose – This study aims to develop a model promoting integrated care for patients with multimorbidity based on patients' and healthcare professionals' needs to share knowledge in cross-sectoral communication and coordination in the local setting.

Design/methodology/approach – We used an action research design that involved healthcare professionals, patients and researchers. The research followed an interactive process through its four phases. This study focuses on phase two, developing interventions to strengthen integrated care. The data consisted of audio recordings of workshops and field notes.

Findings – An action research group and invited expert participants contributed to developing 25 proposals for improving cross-sectoral collaboration in integrated care. The fundamental principles were discussed among the action research group. Five key principles were identified to base the CIRCLE-CARE model: (1) collaboration, (2) involving patients and relatives, (3) relationships across sectors, (4) clear communication and (5) embrace knowledge.

Originality/value – An action research group developed the CIRCLE-CARE model to address the needs of integrated care communication in the local context. The model is ready for future studies of its applicability, impact on patient pathways and healthcare costs.

Keywords Cross-sectoral, Integrated care, Action research, Patient involvement

Paper type Research paper

Background

With the aging of populations and changes in lifestyle factors, the prevalence of multimorbidity and complex healthcare needs among patients is rising (Nguyen *et al*., 2019; Skou *et al*., 2022). This demographic shift demands enhanced collaboration among healthcare professionals from various disciplines and sectors to address the advanced care requirements of patients with multimorbidity (Allen *et al*., 2020; The Lancet, 2018). Challenges in current healthcare delivery for patients with multimorbidity include knowledge gaps due to transfer between different settings and across sectors (Petersen *et al*., 2019; Zurlo and Zuliani, 2018), which are associated

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Ethical statement: The Declaration of Helsinki (WMA, 2014) conducted the project. All participants were informed about the project before participating in the workshop and were invited to ask questions. Informed consent was obtained from all participants, and anonymity was secured. The study was approved by the Danish Data Protection Agency rules (Reg-050–2019). Ethical approval was waived by the Regional Ethical Committee in Region Zealand (No: EMN-2021–08483), as this type of project does not need approval according to Danish law.

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with an increased risk of adverse outcomes (Allen *et al*., 2018; Coffey *et al*., 2017; Høgsgaard, 2016). One of the critical issues identified among various professional organizations is silo thinking. The consequences of this fragmentation are well-documented, including gaps in clinical information The silo thinking occurs because different teams or team members within the same company deliberately do not share valuable information, which can adversely affect patients' experiences concerning the coherence and coordination of care. (Lau *et al*., 2024; Melin Emilsson *et al*., 2020; Shockney Lillie, 2017) The barriers to effective care coordination across sectors include differing perceptions of care values, inadequate communication, and interoperability issues among IT systems, resulting in the loss of vital information and misunderstandings. (Boye *et al*., 2019; Høgsgaard, 2016; Liljas *et al*., 2019; Schot *et al*., 2020) and inappropriate prescription of medications and treatments (Amelung *et al*., 2017; Goodwin, 2013; Goodwin *et al*., 2014; Kern *et al*., 2019; Rohwer *et al*., 2023). To address these challenges, the concept of integrated care has gained prominence. Integrated care aims to facilitate organizing interdisciplinary and cross-sectoral collaboration to enhance patient care quality and experiences through improved coordination (Shaw *et al*., 2011). Integrated care aims to combine fragmented elements of care and treatment for individuals in need, and it may be best suited for those with advanced and long-term care requirements (Goodwin, 2013). Various models and interventions have been developed to support integrated care. One of the earliest models to address these issues is the Care Transitions Intervention (CTI) (Coleman and Boult, 2003). Researchers developed the CTI model, which primarily focused on supporting the patient's self-care while emphasizing collaboration with the patient, relatives, and healthcare professionals (HCP) as secondary. Another model, Mary Naylor's Transitional Care Model (TCM) (Naylor *et al*., 2004), emphasizes transitional care for high-risk older adults moving from hospital to home. TCM highlights the education of clients and their families, promotes self-management, and improves communication among healthcare providers. While it doesn't focus on enhancing the work of the cross-sectoral team, there is a single point of coordination through an advanced nurse who oversees treatment. The foundational components of this model have been developed by a team of experts, patients, and caregivers (Naylor *et al*., 2017). The model primarily concentrates on transitioning from hospital to home. Another transitional care model is The Better Outcomes for Older Adults through Safe Transitions (BOOST), which focuses on older patients at risk of adverse events following hospital discharge. The model was developed by researchers (Hansen *et al*., 2013). This model prioritizes identifying risk factors for readmission and addresses them with an individualized discharge plan. BOOST employs a multiprofessional team that emphasizes accurate medication matching, comprehensive discharge planning, and thorough client education for self-care. Unlike other models, BOOST is embedded in the hospital setting and does not include home-based care. Each model offers unique approaches to addressing the complex needs of patients with multimorbidity, focusing on self-care support, education, and risk factor identification. However, the implementation of integrated care models is recognized as a complex process due to the involvement of multiple healthcare organizations and sectors (Amelung *et al*., 2017; Baxter *et al*., 2018; Valentijn *et al*., 2013; Zonneveld *et al*., 2018) This study aims to develop a model promoting integrated care for patients with multimorbidity based on patients' and healthcare professionals' needs to share knowledge in cross-sectoral communication and coordination in the local setting. Focusing on these vital aspects, the study seeks to improve cross-sectoral care delivery for patients with complex healthcare needs in an increasingly fragmented healthcare system.

Methods and materials

Action research was chosen to ensure the practical relevance of the developed model in which all participants can express their opinions and beliefs through a democratic and iterative process (Coghlan and Brannick, 2014; Reason and Bradbury, 2008; Svensson and Nielsen, 2006).

We followed the four phases in a cyclical process, as described by Coghlan (Coghlan and Brannick, 2014). This paper focuses on Phase II, which is highlighted in Table 1.

Before the present study, phase I was conducted. Here, we identified the challenges of cross-sectoral care from the interviewed participants' perspectives. During phase I, the findings indicated that the main challenge was insufficient knowledge among HCPs regarding other HCPs' practices and routines, which were crucial for the understanding of patients' pathways. Inadequate knowledge of patients' pathways generated uncertainty, misunderstandings, and mistrust between HCPs across sectors. An analysis of HCPs' communications revealed that it was insufficient, as the documented information was influenced primarily by the sender's perception of what was essential and did not reflect the recipient's informational needs. Finally, we interviewed patients about their experiences with coordination among HCPs. Their experiences showed that they felt insufficiently engaged. These identified problems served as guiding topics for the discussions in Phase II. Phase II included four workshops inspired by collaborative and dialogical co-creation methods (Phillips, 2016; Tsoukas, 2009) to develop a detailed implementation model for clinicians to promote integrated care. The setting was a hospital in Denmark, including health services and home care facilities in two Danish municipalities. The action research group (ARG) consisted of one patient, one relative, seven HCPs from two municipalities Municipality Healthcare Care Professionals (MHP), five HCPs from two hospital units Hospital Healthcare Care Professionals,(HHP), and two researchers. ARG members were recruited by manager leaders (HHPs and MHPs), through interviews in phase I (patient and two relatives) and from the

Table 1. Illustrates the overall action research design

Action research phases	Phase I Identification	Phase II Development	Phase III Test	Phase IV Evaluation
Aim	To identify which challenges users experience	*To develop a model promoting integrated care for patients with multimorbidity based on participants' and healthcare professionals' needs*	To conduct the CIRCLE-CARE model in a cross-sectoral context	To evaluate the CIRCLE-CARE model in a cross-sectoral context Significance it has for patients
Methods	Interview (n = 26) Questionnaire survey, SPOT(n = 75) UTH-analyze (n = 270) Field observations Thematic analyze	*Workshops (n = 4)* *Dialogical Approach* *Collaborative methods*	CIRCLE-CARE in context: Cross-sectoral video meetings	Analysis of video recordings Interviews Observations
Participants	Patients (n = 20) Relatives (n = 6) HHP (n = 6) MHP (n = 6) GP(n = 3)	*Patients (n = 6)* *Relatives (n = 6)* *HHP (n = 23)* *MHP(n = 36)* *GP (n = 1)*		
Result	Themes 1)Planning and coordination 2)To be seen and heard 3)Non-cooperation 4)Misunderstanding and distrust	*CIRCLE-CARE model IN CROSSS-SECTORAL CONTEXT* *C-collaboration* *I-involvement* *R-relationships* *CL-clear communication* *E-embrace knowledge*	–	–

Source(s): Created by authors

hospital advisory board committee. Based on the wishes of the ARG, specific experts were invited to participate in workshops II and III. Results were discussed with manager leaders from both sectors in workshop IV. The workshop design and content are illustrated in Table 2. The content and questions discussed in the workshops were developed through an iterative process, with the finalization of questions occurring at the end of each session.

Co-creation

The ARG agreed on the number of workshops based on the informational richness of the study's aim. To gain new insights into collaborative care, we employed dialogical methods

Table 2. Workshop design

Aim	Participants	Questions to discuss	Methods	Proposal
Workshop I: to co-create proposals that can strengthen cross-sectoral knowledge sharing	GP (n = 1) Patient/ relatives (n = 2) MHP (n = 5) HHP (n = 4) Researcher (n = 1)	- What knowledge do you feel is lacking in cross-sectoral collaboration? - What can strengthen collaboration based on shared goals and a comprehensive plan for chronically ill and multimorbid patients? - What do you consider to be essential knowledge about the patient from the other sector?	Speed-dating Narrative discussion (38) in sector-oriented groups Presentation and joint discussion of proposals	Create part-time employment between sectors Conduct exchange visits in the sectors Three months' placement in the other sector Discharge Nurse, Admission Nurse Management prioritization of admission and discharge process The case manager follows the patient Follow-home scheme Virtual planning meetings at admission and discharge Shared communications tools Hotline for professionals Joint care-guidelines
Workshop II: to co-create proposals that can strengthen patients' and relatives' involvement	GP (n = 1) Patient/ relatives (n = 4) MHP (n = 7) HHP (n = 5) Researcher (n = 1)	- How can the patient and relatives be involved in the hospitalization and discharge process? - How can the patients' network be involved?	Speed-dating Presentation from patients and relatives about their experiences Discussion of empiric text (from Phase I) in sectoral groups Presentation and discussion of proposals	Patient and relative participation in interviews at admission and discharge, physically or virtually Joint electronic patient record Information on which expectations of relatives

(*continued*)

Table 2. Continued

Aim	Participants	Questions to discuss	Methods	Proposal
Workshop III: to co-create proposals that can strengthen interprofessional and cross-sectoral collaboration	GP ($n = 1$) Patient/ relatives ($n = 3$) MHP ($n = 6$) HHP ($n = 4$) Researcher ($n = 1$)	- How can knowledge of each other's practices be developed and prioritized? - Which initiatives will benefit continuity of care?	Speed dating Discussion in sector-oriented groups of questions based on data, from the first phase Presentation and joint discussion of solution proposal	Case manager follows the patient Follow-home scheme Virtual planning meetings at admission and discharge Prioritization of time and resources for chronic and multimorbid patients Professional communication Hotline for professionals Joint professional guidelines
Workshop IV: to discuss the proposals with management networks	GP ($n = 1$) Patient ($n = 3$) MHP ($n = 10$) HHP ($n = 8$) Researcher ($n = 2$) L/M MHP ($n = 5$) L/M HHP ($n = 4$)	- Which proposals should be prioritized? - Which solutions are realistic? - What will require special attention?	Discussion of proposals from workshops 1–3 Cross-sectoral group discussions Presentation and joint discussion of recommendations	Professional meeting forums Hotline for specialists Cross-sectoral teaching programmes Theme days for frontline staff Joint cross-sectoral development and research projects Cross-sectoral dialog workshops

Source(s): Created by the authors

(Anderson, 2012; Olesen and Nordentoft, 2013). Workshop sessions during Phase II discussed empirical data from Phase I. In each workshop, we discussed proposals for enhancing cross-sectoral collaboration.

The data included audio recordings of workshop discussions, participant notes, and the researcher's logbook of ongoing reflections. Researchers also gathered statements and decisions from the workshop discussions, which lasted four to five hours and were transcribed.

Workshops I-III ended with ARG discussing and prioritizing their suggestions to improve integrated care. We used a dialogical approach inspired by Tsoukas (Tsoukas, 2009). At the workshop, they were divided into sector groups. The workshops concluded with the workshop participants analyzing all the group's proposals. The analysis was inspired by current research in which issues and themes are discussed within the action research group (Nielsen and Nielsen, 2006). We began the analysis by reviewing and advocating for the group's proposals. The proposals were then compiled into five overall principles. Researchers participated in the analysis by challenging their proposals. At workshop IV, the principles were discussed and ultimately decided. The description is inspired by the Standard for Reporting Qualitative Research (SRQR) (O'Brien *et al.*, 2014).

Ethics

The ethics followed the Declaration of Helsinki (WMA, 2014) guidelines. All participants were informed about the project before joining the workshop and encouraged to ask questions. Informed consent was obtained from all participants, and their anonymity was ensured. The study adhered to Danish regulations. The regional Ethical Committee in Region Zealand waived ethical approval, as this type of project does not require it.

Results

A total of 71 participants attended four workshops, including 23 HHP, 36 MHP, 6 patients, and 6 relatives. HCPs were nurses [1] (81%), physiotherapists (8%), occupational therapists (2%), and physicians (9%). The ARG co-created 25 proposals to improve integrated care based on workshop discussions. At workshop III, we discussed and analyzed 25 proposals into five principles, which collectively formed the CIRCLE-CARE model: (1) **C**ollaboration; (2) Involving patients and relatives; (3) Relationship across sectors; (4) Clear communication; and (5) **E**mbrace knowledge. Figure 1 illustrates the five principles in four contexts: home, hospital, general practitioners, and municipalities. Home reflected the views of patients and their families, the hospital reflected HCPs' views, general practitioners represented their views, and municipalities reflected MHPs' views. The principles in the model are interwoven and are directly related, indicating their mutual influence on each other. Therefore, it is essential to see these principles and perspectives in a joint model.

Principle 1) collaboration

The HHP pointed out that planning the patient's care continuum for the HCP in the other sector is challenging due to a lack of knowledge about follow-up services. A hospital nurse highlighted:

> We need more knowledge about the available services for patients in the municipality. Consequently, we develop care plans for patients at the hospital level that are difficult to implement during the follow-up process. (WS-I, HHP-5)

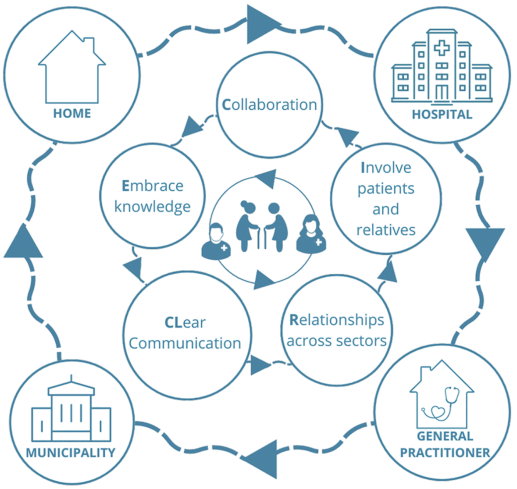

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Figure 1. CIRCLE-CARE communication in a cross-sectorial context

Moreover, a municipality nurse said:

> . . . We lack sufficient understanding of the patient's care process and the treatment options available at the hospital. We fail to recognize that not all patients' symptoms and health issues are reviewed, but only those associated with their medical specialization. (WS-I, MHP-4)

This reflects how MHPs perceived hospital staff as concentrating on only a few disease symptoms, overlooking the patient's overall burden of illness. Their suggested solutions at the workshop underscored the importance of gaining more knowledge about workflows, treatment options, and limitations in other sectors to improve the continuity of care across sectors. They emphasized the necessity of identifying what knowledge should be shared across sectors. What essential knowledge do you need related to our practice?

Principle 2) involving patients and relatives

One of the workshop questions focused on engaging patients and their relatives in integrated care settings. ARG emphasized that patients often needed to be better informed about their care plans after discharge. Relatives expressed that it was challenging to reach the hospital's healthcare provider.

> I often feel overlooked or disregarded in the hospital; everyone seems so occupied. (WS-II, relative 1)

These experiences prompted discussions about establishing cross-sector dialogs at the hospital to plan discharges with the involvement of patients and their families. Additionally, relatives shared feelings of unspoken expectations regarding what to anticipate when their loved ones returned home from the hospital.

> I want to collect my husband's medication from the pharmacy, but I did not know if they expected me to do so. I do not know how to contact the relevant professionals in the municipality or where to turn if something goes wrong. (WS-II, patient 1)

The ARG emphasized that communication must encompass shared expectations from healthcare providers, patients, and families regarding home care, hospital and municipal involvement, and discharge processes. The patient and family members proposed that healthcare providers include questions such as: *What is most important to you? What do you expect the outcome of your hospitalization to be?* H*ow can family members prepare for the patient's return home?*

Principle 3) relationship across sectors

During the discussions, there was considerable interest in improving cross-sector collaboration and cultivating a unified culture in which HCPs consider each other as colleagues. They suggested reflection questions such as: "*What can I do to support the HCP care plan across different sectors*?" HCPs frequently felt that their collaboration was affected by distrust, disrespect, and misunderstandings regarding the need for HCPs in various sectors to have more time to prepare for a patient's discharge.

> The hospital staff often fail to comprehend the challenges we face in the municipality when they rush through discharges. They do not respect our work environment or employees, especially when they insist on hastily pushing through a discharge. (WS-IV, MHP-2)

Discussions during the workshops offered insights into the challenges faced by chronically multimorbid patients during their admission and discharge processes. Furthermore, HHP recognized that:

> We are all colleagues who should collaborate towards our shared goal: doing what is best for the patient. That is why it is essential to create a sense of unity and teamwork. (WS-IV, HHP-5)

The workshop inspired positive impressions and professional growth by reflecting on healthcare professionals' challenges and dilemmas in all sectors. Additionally, the engagement

of healthcare professionals fostered a desire to cultivate a constructive cross-sector culture rooted in mutual understanding.

Principle 4) clear communication

HCP discuss inadequate communication about the care continuum in other sectors.

> It is a significant issue for patient safety that we lack access to data about patients from other sectors. (WS-III, HHP-3)

Across sectors, they encountered challenges related to improved access to information and a sense of relevance in the data provided. Knowledge is shared through summarized patient reports that often carry decontextualized and underlying meanings, making them difficult to interpret. Medical terminology differs by setting, and the information communicated does not meet the recipients' needs across various sectors. They proposed that the following questions could enhance integrated care: "*What information is essential for integrated care?*" and "*How can we avoid using sector abbreviations?*" The ensuing quotes illustrate how the current summary reports lack significance from the perspectives of both hospital and municipal staff:

> We do not always understand abbreviations used by the hospital . . .. (WS-III, MHP-4)

> We cannot see what it means when the municipality writes that the patient receives 110 minutes of help, for what, why, and how? (WS-III, HHP-1)

Patients and relatives were surprised and wondered why all HCPs did not have equal access to all the information about them. All HPs wanted clear and direct communication.

Several solutions were proposed, one of which was for HCP to accompany the patient during the transition from home to hospital or vice versa. The goal was to ensure an effective information handover, maintain continuity of care, and engage patients and their families in the care plan. Another suggestion was to conduct cross-sector meetings, either in-person or virtually, to facilitate efficient exchange and understanding of information. The rationale for these meetings was to establish shared goals and plans among primary caregivers. Additionally, they needed assistance in comprehending the plan laid out by HCP in the other sector. Conducting in-person or virtual meetings would allow for communication exchange, clarification, goal sharing, and discussion of specific concerns about the patient's situation.

Principle 5) embrace knowledge

Healthcare providers at the hospital and the municipality had differing perspectives on what fostered a shared understanding of the care continuum across various settings. Hospital care was highly specialized, emphasizing evidence-based and scientifically-oriented medicine focused on treating a single disease or alleviating a specific symptom. In contrast, home care took a more holistic approach, centering on understanding patients' daily lives with illness and their overall life circumstances.

> Sometimes, we observe patients discharged with more symptoms and illnesses than before admission. We're puzzled by what transpired. It's crucial to consider the patient's overall condition, not just focus on treating/curing an infection, but also address their other underlying diseases. (WS-V, MHP-3)

Healthcare providers (HCPs) face various perspectives and differing understandings of what matters most for patients. (HHP) must prioritize stabilizing the patient's acute illnesses, determining diagnoses, and initiating treatment, which may continue in the municipality if necessary. Conversely, MHP focused on patients' overall life circumstances and daily functioning. These two viewpoints represent opposing paradigms. They proposed developing various collective courses and teaching programs, such as symptom or treatment management (e.g. COVID-19), to encourage a mutual, shared, and aligned understanding across care

settings. One suggestion was to hold joint conference days for staff focused on cross-sectoral collaboration. This idea primarily arose from the observation that cross-sectoral collaboration and communication usually took place between specialist nurses and managers, rather than between the HCPs who cared for the patients daily. HCPs anticipated improvements in the coherence of patient care pathways once they understood the principles of their counterparts' perspectives. This understanding included knowing and comprehending the language and conditions necessary for continuity of care and treatment. Additionally, there was a proposal to enhance admission and discharge processes through cross-sectoral workshops featuring dialog-based exercises. They suggested exploring this question to advance integrated care: "*How do we effectively plan the patient's hospitalization and discharge?*"

The workshops are designed to tackle challenges in integrated care by promoting collaboration, engaging patients and families, strengthening relationships among sectors, enhancing communication, and facilitating shared knowledge among healthcare professionals. The analysis summary highlights the five principles, demonstrating the goals, relevant questions, and the expected impact of incorporating CIRCLE-CARE in integrated care (Table 3).

Five principles in CIRCLE-CARE

The workshop demonstrated five main principles that emerged as foundational elements for understanding how to enhance cross-sector collaboration and communication (Table 3). ARG emphasized key issues they considered essential. The five principles of the model, along with the associated questions, should be regarded as areas that can guide HCPs in their cross-sector communication. In phase III, we will assess the significance of using the model in a cross-sector setting with patients and their families. Throughout the discussion, it was noted that these principles are expected to improve collaboration. There was an emphasis on how sharing knowledge about practices and routines from other sectors could strengthen integrated care. The expectation is that including patients and their families in the planning of transitional care will result in a more secure process. Ultimately, fostering understanding among colleagues

Table 3. The five principles in CIRCLE-CARE

Principles	Aim	Question	Expected impact
C-Collaboration	In-depth knowledge sharing about each other's reasons and practices	what kind of knowledge is important for you to share? what is important to know about our practice?	Knowing about the other routine and practices will improve integrated care
I-Involve patient and relatives	Involving patient and relatives in integrated care	What is most important to you? What do you expect to be the outcome of your hospitalization? How can the relatives be prepared for the patient's return home?	Patient and relatives feel safety and informed in transitional settings
R-Relationship across sectors	Relationship To be colleagues	What can support HCP care plan in the other sector?	Avoid distrust
CL-Clear communication	Clear communication and sharing data	What information is needed for integrated care? How can sector abbreviations be avoided?	Dialogical communication
E-Embrace knowledge	Embrace knowledge Shared understanding of the need for care and treatment in integrated care	How to make the goal and plan for the patient's hospitalization and discharge?	Sharing specializes knowledge about treatment and care and develop a common plan

Source(s): Table created by the authors

who work together with the patient will lead to a safer and more efficient treatment journey, as they can coordinate how care and treatment will progress.

Discussion

This study aimed to develop a model that fosters cross-sector communication and coordination in integrated care for patients with multimorbidity, focusing on the need for patients and healthcare professionals to share knowledge, communicate across sectors, and coordinate efforts. The study illustrates how co-design has created a collaboration and communication model, CIRCLE-CARE, for healthcare professionals engaged in integrated care systems. What makes this model unique is its holistic perspective on the lives of patients with multimorbidity during the pre-, intra-, and post-hospitalization phases. Therefore, it is a model acknowledging that healthcare professionals must collaboratively establish shared goals and plans in partnership with patients and their families. Other transitional care models (Coleman *et al*., 2006) emphasize the importance of close cooperation but primarily concentrate on discharge coordination, placing less emphasis on co-developing goals and plans with the patient.

CIRCLE-CARE's five principles emphasize establishing partnerships to address issues across various healthcare settings. These principles highlight the need for intensive collaboration, acknowledging that patients transition among home, hospital, municipal care, and general practitioners. This necessitates a focus on diversity, as each context represents distinct paradigms, perspectives, and assessments of the patient's situation (Shaw *et al*., 2022). Research has shown (Petersen *et al*., 2019, 2020) that a lack of mutual understanding and knowledge about each other's roles fosters an atmosphere of disrespect and distrust among professionals. The CIRCLE-CARE model's fundamental aspect is facilitating dialogical communication (Phillips, 2011), where varied attitudes and values are valued and respected.

The model involves patients, their families, and multidisciplinary professional groups. It indicates that the starting point for transitional care should be the patient's needs and concerns rather than a purely biomedical approach that centers on medical treatment. With this emphasis, the model distinguishes itself from previous models of transitional care, which often prioritize health professionals' need for coordination and medical treatment (Allen *et al*., 2016; Hirschman *et al*., 2015; Ward *et al*., 2019). To maintain this perspective, ARG stressed that respectful collaboration and communication between healthcare professionals and patients are prerequisites for effective coordination. Our findings reflect research showing that interprofessional collaboration is crucial to enhance cross-sectoral coordination, particularly for patients with multiple diseases (Gittell *et al*., 2013; Reeves *et al*., 2011; Vestergaard and Nørgaard, 2018). ARG highlighted that cross-sectoral collegiality is fundamental to coordination. Surprisingly, at all workshops, ARG highlighted the necessity of strengthening a common—and thus circular—approach to continuity through close cross-sectoral collaboration. Today, health professionals frequently exchange knowledge and data in writing, which can lead to misunderstandings (Schot *et al*., 2020). In our study, ARG suggests that patients and their families should be more deeply involved in transitional care and that the focus should be on living with multiple diseases rather than a disconnected and fragmented perspective. Patients and their families provide a vital voice in a circular understanding, as they know what it is like to live with their illness 24/7 (Mold, 2022). Previous studies have examined communication during transitions, particularly regarding the support of interdisciplinary teamwork. They indicate that from a multidisciplinary perspective, it is challenging to incorporate the patient's situation at home (Coleman *et al*., 2006). This challenge arises because the home environment and support systems are typically unfamiliar to the other therapists (Naylor *et al*., 2013). We believe that the CIRCLE-CARE model can address this issue by emphasizing the inclusion of knowledge from before admission and the understanding of the possibilities and limitations within different sectors.

Further research in phase III

Further research is required to evaluate the acceptability and feasibility of the model for patients and carers and to test the effectiveness of the communication tool across the patient transition. The developed intervention will be tested in phase III of the action research project (Table 1). We will do this by analyzing cross-sectoral collaboration and communication in a cross-sectoral context. The context is virtual four-party meetings (Wentzer and Høgsgaard, 2022), which are video meetings held during the patient's hospitalization with the participation of relatives, the nurse in charge, the doctor at the hospital, municipal actors, and the GP via video screen. In the upcoming study, the model's influence will be examined.

Strengths and limitations

This study's strengths include the active involvement of patients, relatives, and healthcare professionals (HCPs) in developing proposals, highlighting the importance of patient inclusion in cross-sectoral collaboration initiatives. We view the action research methodology as strength because it facilitated a deep understanding of the complex challenges in cross-sectoral collaboration. It enabled iterative problem identification and solution development, ensuring practical relevance and real-world applicability (Coghlan and Brannick, 2014). Action research fosters a democratic approach where all participants' voices and perspectives are central and equally important. This approach paves the way for stakeholder ownership, engagement, and collaboration (Nielsen and Nielsen, 2006).

The predominance of female and nursing participants may limit the generalizability of the findings. Involving a more diverse array of healthcare professionals, including general practitioners and other groups, could have offered a broader perspective. Another concern is the small sample size of patients and relatives. While central to the study, including only six patients and six relatives might restrict the depth and breadth of insights gained from their perspectives. The dialog format may have prevented some participants from fully engaging in the process, potentially limiting the representation of diverse viewpoints, even though it aimed to address such weaknesses.

While the study benefited from the active involvement of stakeholders and an action research approach, addressing limitations such as participant diversity and sample size could enhance the robustness and applicability of the findings in future research. The researchers engaged in discussions and facilitated workshops. One researcher was a trained nurse with experience in transitional care, whereas the other was not, which may have influenced the results. This provided contextual understanding but also posed a limitation, as the researchers were not part of the practice from which the participants came. The researchers acted as facilitators and contributed to discussions by integrating research literature.

Conclusion

The CIRCLE-CARE model represents an approach to cross-sectoral collaboration and communication in integrated care for patients with multimorbidity. It complements existing transitional care models such as CTI, TCM, and BOOST and makes novel contributions by including the perspectives of various healthcare professionals, patients, and relatives.

The CIRCLE-CARE model is expected to facilitate well-functioning cross-sectoral integrated care, addressing the need to share knowledge among all involved parties to benefit patients with multimorbidity. However, research on working with the CIRCLE-CARE Model is essential. An ongoing study will explore whether the model improves care quality, enhances quality of life, and reduces healthcare costs and readmissions for patients with multimorbidity and advanced care needs.

Notes

1. Most nurses were included, as both the municipality and the hospital are the group that participates in cooperation and coordinating tasks at the patient's admission and discharge.

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