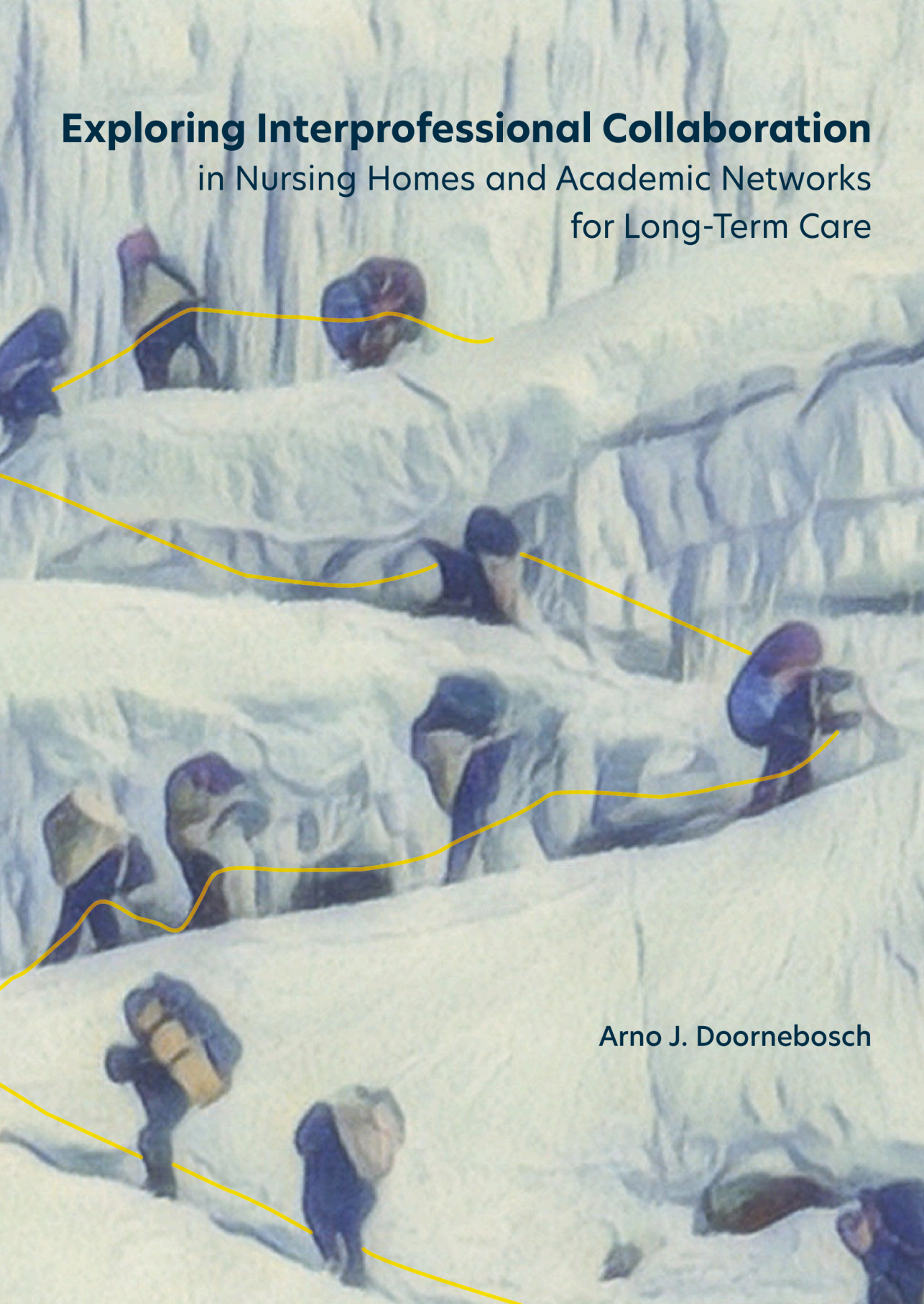


The background of the cover is a painting of a snowy mountain landscape. Several figures are depicted climbing the steep, snow-covered slopes. A yellow line is drawn across the image, starting from the left side and winding its way across the mountain, connecting different points of interest or perhaps representing a path or a sequence of events. The figures are dressed in dark clothing, contrasting with the white snow. The overall style is somewhat impressionistic or painterly.

Exploring Interprofessional Collaboration

in Nursing Homes and Academic Networks
for Long-Term Care

Arno J. Doornebosch

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Colofon

Academic network for research in elderly care

The studies in this thesis took place in the University Network for the Care Sector South Holland (UNC-ZH). In this network, the Leiden University Medical Center (LUMC) collaborates structurally with 13 elderly care organisations in South Holland (Aafje, ActiVite, Argos Zorggroep, Florence, Haagse Wijk- en Woonzorg, Laurens, Marente, Pieter van Foreest, Saffier, Topaz, Woonzorgcentra Haaglanden, Zonnehuisgroep Vlaardingen, Zorgpartners Midden-Holland).

Caregivers, policy makers, researchers, students, residents and relatives work together to improve the quality of care and quality of life for vulnerable older people. The UNC-ZH is a regional platform, inspirator and learning network for innovation in long-term care. Research, education and training, and practice are closely related.

In addition, several studies were conducted in collaboration with the other Dutch Academic Collaborative Networks for long-term care, united within the Samenwerkende Academische Netwerken Ouderenzorg (SANO), thereby enabling participation of elderly care organisations across the Netherlands.

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“Nepal Traverse Expedition 2004: ascending the Amphu Labtsa Pass”

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Exploring interprofessional collaboration in nursing homes and academic networks for long-term care

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op gezag van rector magnificus prof. dr. S. de Rijcke,
volgens besluit van het college voor promoties
te verdedigen op dinsdag 17 november 2026
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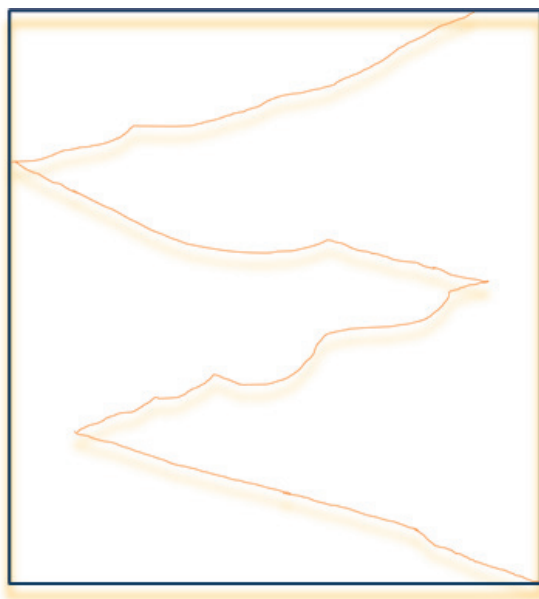
Prof. Dr. J.P.H. Hamers (University of Maastricht)

Dr. J.J.J.G. van Dongen (Zuyd University of Applied Sciences)

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Chapter 1



General introduction

Personal Case Description

During my early career as a physiotherapist in primary care, I became fascinated by the treatment of patients who had suffered a cerebrovascular accident or stroke. This fascination grew after I met an older patient who had had a stroke. The multimorbidity and associated complexity faced by this older patient challenged me to further develop my skills. To meet this challenge, I switched from my role in primary care to a position in a nursing home. During that period, the majority of older patients with complex conditions were residing in nursing homes. I soon realised that simply improving my own abilities and becoming an expert physiotherapist in the treatment of stroke patients was not enough. The complexity of the conditions necessitated the involvement of various types of expert professionals. Working with older patients showed me the importance of collaborating with professionals from various disciplines to provide person-centred care in response to these complex challenges. By combining our efforts, we were able to make significant progress towards achieving our shared goals, i.e., enhancing person-centred care.

“By acting together on a common vision, we can make the whole greater than the sum of its parts.” Aristotle

However, working with colleagues from various professional backgrounds in a nursing home setting quickly revealed that there are many types of collaboration, each with its own set of challenges. It became clear that bringing people together enables collaboration; however, the manner in which collaboration is organised in practice varies considerably. One type of collaboration that appears particularly suited to both nursing home care and academic networks for long-term care (LTC) is interprofessional collaboration (IPC).

Despite its increasing relevance in complex care settings, little is known about IPC within nursing homes and academic networks for LTC. This raises the questions: ‘How is IPC operationalised within nursing homes and academic networks for LTC?’ and ‘How do various stakeholders experience and perceive this collaboration, and what factors facilitate or hinder its functioning?’

“Coming together is a beginning. Keeping together is progress. Working together is success.” Henry Ford

Case

It is 10:30 am on a typical working day in a nursing home. Mr B. arrives for admission following a stroke. He has been discharged from hospital and transferred to the nursing home for further recovery. After an early start at 7:00 that morning and a bumpy ride, Mr B., who is accompanied by his partner, arrives at the nursing home already feeling somewhat tired. Both are warmly welcomed.

After being greeted by the receptionist, a secretary arranges the necessary administrative procedures. Mr B.'s partner stays close by throughout the admission procedure. Mr B. is then seen by a nurse for an intake, which is followed by an assessment with a physician. As the clock strikes 12:30 pm, everyone in the nursing home has lunch. This includes Mr B., who attempts to eat while simultaneously answering intake questions. His partner is seated nearby, present but not involved in the admission activities.

During lunch, a physiotherapist arrives to assist Mr B. with the transfer from his chair to the bed. While this is taking place, an occupational therapist measures him for another wheelchair, as the current one must be returned to the hospital. By the time Mr B. has completed the transfer, he has already had a long and demanding day, the longest and most exhausting since his stroke.

Later that afternoon, several other disciplines attempt to visit Mr B. at his bedside. However, they are not successful, as he is in a deep sleep. His partner is still present, but none of the staff have asked her for input.

Context of the Study

The research in this dissertation examines interprofessional collaboration (IPC) at the micro and meso levels in nursing homes and at the macro level within academic networks for long-term care (LTC). Consistent with the work of D'Amour (2005), IPC is conceptualised as a dynamic process occurring across interconnected micro, meso, and macro levels of healthcare practice and organisation. ⁽¹⁾ At the micro level, IPC in the nursing home setting is established by the regular interactions between patients, informal caregivers or care partners, and professionals. At the meso-level, IPC is established by organisational structures, team processes, leadership, and the availability of resources. Finally, at the macro level, IPC extends beyond individual teams or organisations and is embedded within overarching systems, such as academic networks for LTC. This multilevel perspective aligns with the World Health Organisation Framework for Action on Interprofessional Education and Collaborative Practice (2010), which emphasises the interdependence of individual, organisational, and system-level factors in strengthening collaborative practice and improving health outcomes. ⁽²⁾ Figure 1 presents a conceptual framework at the micro, meso, and macro levels. ⁽³⁾

The central questions, 'How is IPC operationalised within nursing homes and academic networks for LTC?' and 'How do various stakeholders experience and perceive this collaboration, and what factors facilitate or hinder its functioning?' can be addressed from the multilevel perspective. From this perspective, the effectiveness of collaboration depends not only on interactions between professionals in direct care but also on the organisational and network structures that facilitate knowledge integration, collective learning, and continuous quality improvement across the LTC sector.

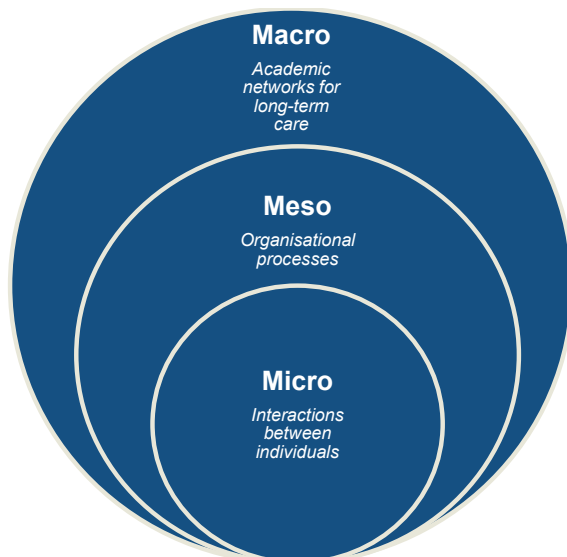


FIGURE 1. Conceptual framework on micro-, meso-, and macro-level interprofessional collaboration.

The multilevel perspective is reflected in the design of this dissertation. The first part, addressing micro- and meso-level IPC, was conducted in Dutch nursing homes that provide LTC and geriatric rehabilitation (GR) for older adults with complex conditions and impairments.^(1, 4-8) At these levels, IPC facilitates the integration of complementary professional expertise to deliver coordinated, person-centred care. The second part of this dissertation focused on the macro level within the Dutch academic networks for LTC.⁽⁹⁾ Conceptually, these networks can be viewed as an extension of IPC from the clinical to the system level, providing an infrastructure through which healthcare professionals, researchers, and educators integrate knowledge to support evidence-informed practice, innovation, and quality improvement.

“Collaboration is the key to innovation.” Jeff Weiner

Long-Term Institutional Care

In long-term institutional nursing home care, a diverse group of professionals collaborates to provide care for the residents. These residents are unable to live independently at home due to complex conditions and limitations, and they require 24/7 care.^(4, 7, 10, 11) The care team comprises specialist physicians for older people, psychologists, speech and language therapists, occupational therapists, physiotherapists, nurses, care assistants, spiritual counsellors, social workers, and activity coordinators.⁽¹²⁾ Care teams in Dutch nursing homes are led by specially trained physicians (i.e., ‘elderly care’ physicians) who work closely together with all other healthcare professionals.^(5, 13, 14)

Geriatric Rehabilitation

In GR, a specialised multidisciplinary team provides therapy and care that is more intensive than in long-term institutional care. ⁽¹⁵⁻¹⁷⁾ GR primarily focuses on frail older adults with complex multimorbidity and a reduced capacity for learning and training. ⁽¹⁸⁾ While the length of stay in GR can extend up to six months, it is typically much shorter, after which patients generally resume their daily lives. ^(6, 19) Generally, GR patients have a significant prospect of returning to their own homes. ⁽¹⁷⁾ Delivering intensive therapy and care over a relatively short period requires effective collaboration that continuously anticipates change. ^(20, 21)

Academic Networks for Long-Term Care

In the context of LTC and GR, academic networks for LTC have emerged as essential structures for integrating scientific research into everyday practice in Dutch nursing homes. Academic networks for LTC are long-standing partnerships between universities, university medical centres, nursing homes, and other educational institutions, such as universities of applied sciences. On average, these networks have been in existence for two decades. Figure 2 provides an overview of the locations of the six academic networks. ⁽²²⁾



FIGURE 2. Overview of the locations of the six Dutch academic networks for long-term care.

They were created to provide an infrastructure for conducting scientific research that facilitates continuous innovation and the development of evidence-based LTC. ^(9, 23, 24) By integrating practical

experience and contextual knowledge about the challenges and needs in nursing homes with academic expertise in scientific methodologies and theoretical frameworks, these networks enable systematic analysis of complex practical issues and support the development of evidence-based solutions. The overall aim of these academic networks is to maintain and improve quality of life, quality of care, and employment conditions in nursing homes. ⁽²⁵⁻²⁸⁾ By forming bridges between clinical practice, research, and education, these networks are more effective and efficient than any organisation working autonomously. ^(23, 29, 30) It is essential that collaboration is well-coordinated in order to enable full interaction between the partners in these networks. ^(14, 29, 31)

Interprofessional Collaboration

In 2010, the World Health Organization (WHO) defined interprofessional collaboration (IPC) as a comprehensive service provided by multiple complementary healthcare providers from various professional backgrounds who collaborate with patients, their families, care partners (i.e., family, friends, and volunteers), and communities to provide the highest quality of care in all settings. ⁽²⁾ Whereas multidisciplinary and interdisciplinary approaches mostly focus on collaboration among healthcare professionals, IPC specifically includes patients and informal carers. ⁽³²⁾ IPC emphasises complementary, coordinated collaboration, which implies strengthening and complementing each other through partnership. ⁽³³⁾ This may create promising opportunities for collaboration at the micro- and meso-levels, with a focus on the complex care of older people in nursing homes, and a emphasis on the challenges of collaboration at the macro-level within an academic network for LTC. In this dissertation, the concept of IPC and the definition provided by the WHO are employed.

Other Types of Collaboration

The literature describes various types of collaboration, which can also be observed in clinical practice. Given this variety, we provide a concise overview of the most common types of collaboration found in nursing homes, which range from monodisciplinary collaboration to multidisciplinary, interdisciplinary and transdisciplinary collaboration.

In monodisciplinary collaboration, professionals with the same professional background (for example, physicians) work together. In multidisciplinary collaboration, professionals from different backgrounds, such as physiotherapists, occupational therapists and nurses, work in parallel. Disciplines largely remain within their own professional silos and boundaries. ⁽³⁴⁾ Interdisciplinary collaboration involves professionals from diverse backgrounds who work closely together to exchange knowledge and methodological approaches. ⁽³⁵⁾ In transdisciplinary collaboration, disciplines transcend their usual professional roles, and professionals may carry out tasks that traditionally are the responsibility of other disciplines. ^(32, 36-39) While both interdisciplinary and transdisciplinary approaches utilise the expertise of professionals from various backgrounds to address complex issues, they differ from IPC in that they do not focus on coordinated collaboration. Specifically, they lack a mutually developed plan with clearly defined shared objectives.

In clinical practice, these terms are often used interchangeably and they are inconsistently defined in literature or are assumed to be self-evident. As a result, it is unclear whether professionals intentionally choose a particular type of collaboration or whether the type used effectively supports high-quality, coordinated, person-centred care. The lack of shared understanding and consistency of practice may lead to fragmented care, unclear responsibilities, and suboptimal outcomes for older people in nursing homes.

Interprofessional Collaboration in Nursing Homes and Academic Networks

Variation in how teams collaborate across nursing homes leads to inconsistent quality of care, creates barriers such as fragmented communication and unclear roles, and ultimately affects patient outcomes by hindering coordinated, person-centred care. ^(14, 40) Research into IPC has increased substantially in recent years, which highlights the importance of complementary and coordinated collaboration among healthcare professionals, patients, and their care partners. ^(14, 33, 41, 42) However, there is still only limited research specifically addressing coordinated complementary collaboration at the micro- and meso-level, in relation to the complex needs of older people residing in nursing homes. These limitations also extend to the macro level, including partnerships, such as academic networks for LTC, which aim to enhance complex care for older people.

“Collaboration is the art of working with others to create something better than you could have created alone.” Ed Catmull

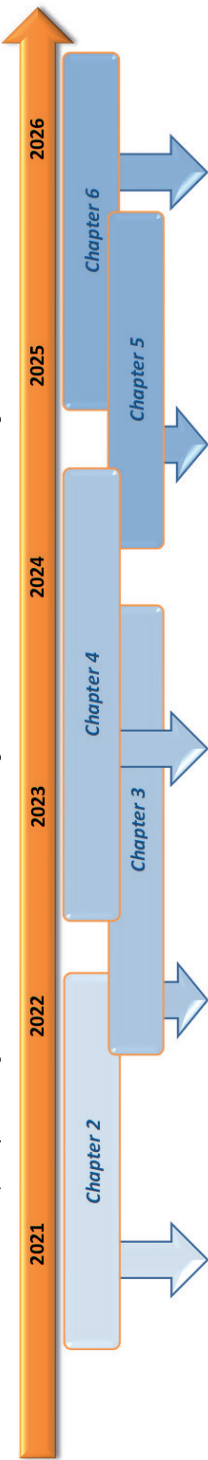
Aims and Design of the Thesis

This doctoral research focuses on IPC in nursing homes and academic networks for LTC. It presents the results of the INTERACTION study and provides comprehensive insights into the complexity of IPC at the micro, meso, and macro levels. The central questions are ‘How is IPC operationalised within nursing homes and academic networks for LTC?’ and ‘How do various stakeholders experience and perceive this collaboration, and what factors facilitate or hinder its functioning?’ are addressed from a multilevel perspective.

This dissertation extends the conceptual work of D’Amour (2005) and the World Health Organization (2010) by applying and further developing their perspectives on interprofessional collaboration within the contexts of LTC, GR, and academic networks for LTC. ^(1, 2) The primary aim is to explore the factors that influence IPC and to take an important step towards increasing awareness of how IPC strengthens interactions among all stakeholders in LTC, GR, and academic networks for LTC.

Table 1 provides an overview of the studies (chapters) conducted within this PhD trajectory. It includes details on the methods employed, the participants involved, the settings in which the studies were conducted, the aims of the research and the types of analyses performed.

TABLE 1. Overview of the PhD trajectory on Interprofessional Collaboration in Nursing Homes and Academic Networks for long-term care



Design	Systematic review	Qualitative research	Qualitative research	Qualitative research	Qualitative research
Method	Integrative review methodology	Focus groups and semi-structured interviews	Observations and additional questionnaires	Survey	Interviews and additional questionnaires
Participants	-	Healthcare professionals, managers, patients, and family caregivers	Participants of multidisciplinary team meetings	Chairs of LTC facilities, chairs of academic networks for LTC, members of scientific committees, researchers, and linking pins.	Linking pins
Setting	LTC and GR	LTC and GR	GR	Academic networks for LTC	Academic networks for LTC
Aim of study	1) To examine facilitators of and barriers to IPC. 2) To provide an overview of instruments used to assess IPC.	1) To examine which facilitators of and barriers to IPC are experienced in general and during MDTMs including differences between LTC and GR. 2) To examine if and which patient-outcome measures are being used in MDTM.	1) To examine IPC during MDTMs a. To describe observed aspects of IPC. b. To examine the participants' satisfaction with IPC. c. To describe the use of standardised patient outcome measures.	1) To examine the perceptions of and perspectives on IPC within academic networks for LTC. 2) To examine the differences between the groups of participants	1) To examine personal experiences of linking pins with IPC in academic networks for LTC. 2) To examine perceived factors influencing IPC, according to linking pins.
Analysis	Thematic analysis	Thematic analysis	Narrative and descriptive analysis	Quantitative descriptive, Kruskal-Wallis H test with a post-hoc Bonferroni correction, ANOVA, and a content analysis	Hermeneutic phenomenological analysis and descriptive analysis
Protocol	Prospero [CRD42020177696]	METC [N22.027]		nWMO [24-3058]	

PhD: Doctor of Philosophy; LTC: Long-Term care; GR: Geriatric Rehabilitation; IPC: Interprofessional Collaboration; MDTMs: Multidisciplinary Team Meetings; ANOVA: Analysis of Variance; METC: Medical Ethics Review Committee; nWMO: non-Medical Research Involving Human Subject Act.

Research questions examined in the studies (chapters)

Chapter 2: Research Questions

Primary question: What are facilitators of and barriers to interprofessional Collaboration (IPC) in institutional long-term care (LTC) and geriatric rehabilitation (GR)?

Secondary question: What instruments are being used to assess interprofessional Collaboration in LTC and GR?

Chapter 3: Research Questions

Primary question: What facilitators of and barriers to IPC are experienced by patients, informal caregivers, and healthcare professionals involved in LTC and GR, both in general and during multidisciplinary team meetings (MDTMs)? This includes differences between LTC and GR.

Secondary question: Are patient-outcome measures being used during multidisciplinary team meetings, and if so, which?

Chapter 4: Research Questions

Primary question: What does IPC look like during MDTMs in GR, and how is it experienced by participants?

- a. What aspects of IPC are observed during MDTMs in GR?
- b. How satisfied are participants with IPC in these MDTMs?
- c. How are standardised patient-outcome measures being used during MDTMs?

Chapter 5: Research Questions

Primary question: What perceptions of and perspectives on IPC do directors of LTC facilities, chairs of academic networks, researchers, members of scientific research committees, and linking pins within academic networks for LTC have?

Secondary question: What are the differences regarding perceptions and perspectives among directors of LTC facilities, chairs, researchers, members of scientific research committees, and linking pins?

Chapter 6: Research Questions

Primary question: What are the personal experiences of linking pins with IPC in the academic networks for LTC?

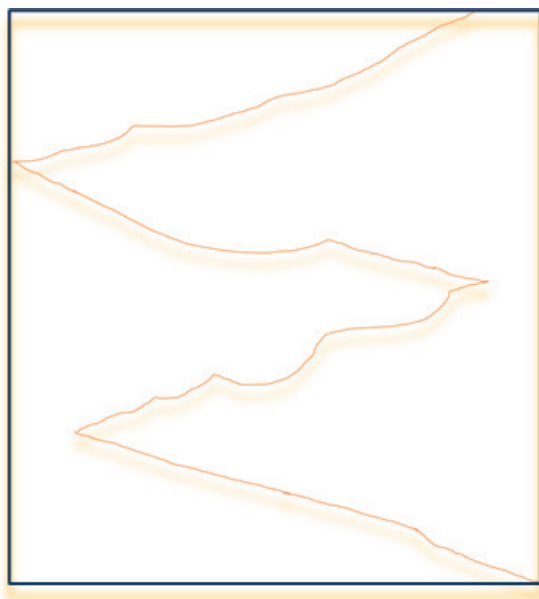
Secondary question: What factors influence IPC according to linking pins?

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Chapter 2



Interprofessional collaboration in long term care and rehabilitation: a systematic review

Arno J. Doornebosch, Hanneke J.A. Smaling, Wilco P. Achterberg

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Abstract

Objectives

To examine facilitators of and barriers to interprofessional collaboration (IPC) in institutional long-term care (LTC) and geriatric rehabilitation (GR), and to provide an overview of instruments used to assess IPC in LTC and GR

Design

Systematic integrative review

Setting

Institutional long-term care and geriatric rehabilitation

Methods

We systematically searched relevant databases for papers using the terms: interprofessional collaboration, interdisciplinary, long-term care, geriatric rehabilitation, elderly, facilitators and barriers. We conducted a systematic integrative review following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis method. Papers containing empirical data about barriers to and facilitators of IPC in LTC and GR were included. The Mixed Method Appraisal Tool was used for quality assessment. Data were analyzed using qualitative thematical analysis.

Results

Three interdependent themes regarding facilitators of and barriers to IPC emerged: Team performance, Organizational conditions, and Sharing information. Eight instruments were used to assess IPC in LTC and none for GR. Limited descriptions and insufficient psychometric qualities of the instruments were reported.

Conclusion and implications

To enhance IPC, it is necessary to stimulate facilitators and limit barriers on all three themes. Furthermore, a reliable, validated instrument to assess IPC in LTC and GR, based on a clear definition of IPC is needed. Successful IPC when caring for patients with multimorbidity in LTC and GR requires integration, understanding, and recognition of the interdependency from all persons involved, including patients and family caregivers.

Introduction

Multimorbidity is common in older patients in institutional long-term care (LTC), and geriatric rehabilitation (GR).^(1,3) Older patients with multimorbidity are affected by the complexity of more than one chronic disease during a certain period of time, are known to have poorer quality of life, increased risk of functional decline, and increased morbidity.^(2,4,5) To be able to provide the best care possible, these older patients, due to the complexity of multimorbidity, need comprehensive care by multiple healthcare professionals.^(3,5-9) This necessitates an approach that enables optimal collaboration between healthcare professionals from various professional disciplines.^(3,6,7,10-18) The World Health Organization (WHO) defines interprofessional collaboration (IPC) in healthcare as multiple health workers from different professional backgrounds providing comprehensive services by working with patients, their families, carers, and communities to deliver the highest quality of care across settings.⁽¹⁹⁾

To accomplish IPC in LTC and GR, healthcare professionals are faced with profound challenges. Due to their monodisciplinary education, they are used to functioning within their role boundaries.^(12,13) Healthcare professionals also have their own treatment preferences and speak their own professional language.⁽¹⁴⁾ Appreciation of other professionals' roles, and recognizing the importance of interdependence is often challenging in practice, due to the limited knowledge of each other's professional competences.⁽²⁰⁾ To accomplish effective IPC in order to optimize comprehensive care for older patients with multimorbidity, effective communication and beneficial relationships are a prerequisite.^(21,22) To date, research on IPC has focused mainly on primary care and hospital settings in which patients generally are treated for medical care over short time periods. In comparison, older patients in LTC and GR are affected by multimorbidity and geriatric syndromes requiring treatment for multiple and extensive time periods. The complexity involves multiple domains (e.g., medical, physical, psychological, and social) which necessitates comprehensive treatment by professionals with complementary knowledge collaborating for an extensive time period.^(3,23,24) With insight into facilitators of and barriers to IPC in LTC and GR, we can optimize collaboration to improve care for the increasing complexity in older patients with multimorbidity.^(3,6,7,10-18) This study focuses on identifying facilitators of and barriers to interprofessional collaboration in LTC and GR.

The primary aim of this systematic review is to examine the facilitators of and barriers to IPC in LTC and GR settings. A secondary aim is to provide an overview of instruments used to assess IPC in the LTC and GR. This study provides recommendations which can guide decision makers and care practice in the LTC and GR.

Methods

This review used a systematic approach following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guideline for the identification of articles ^(25, 26), and an integrative review methodology ⁽²⁷⁻²⁹⁾ to allow for a synthesis of qualitative, quantitative and mixed method empirical studies relevant to the research question. In this way findings were maximized to gain knowledge on facilitators of and barriers to IPC. The flow diagram in Figure 1 displays the selection process. The protocol of this systematic review was registered at PROSPERO International prospective register of systematic reviews at the University of York Centre for Reviews and Dissemination on July 5, 2020.

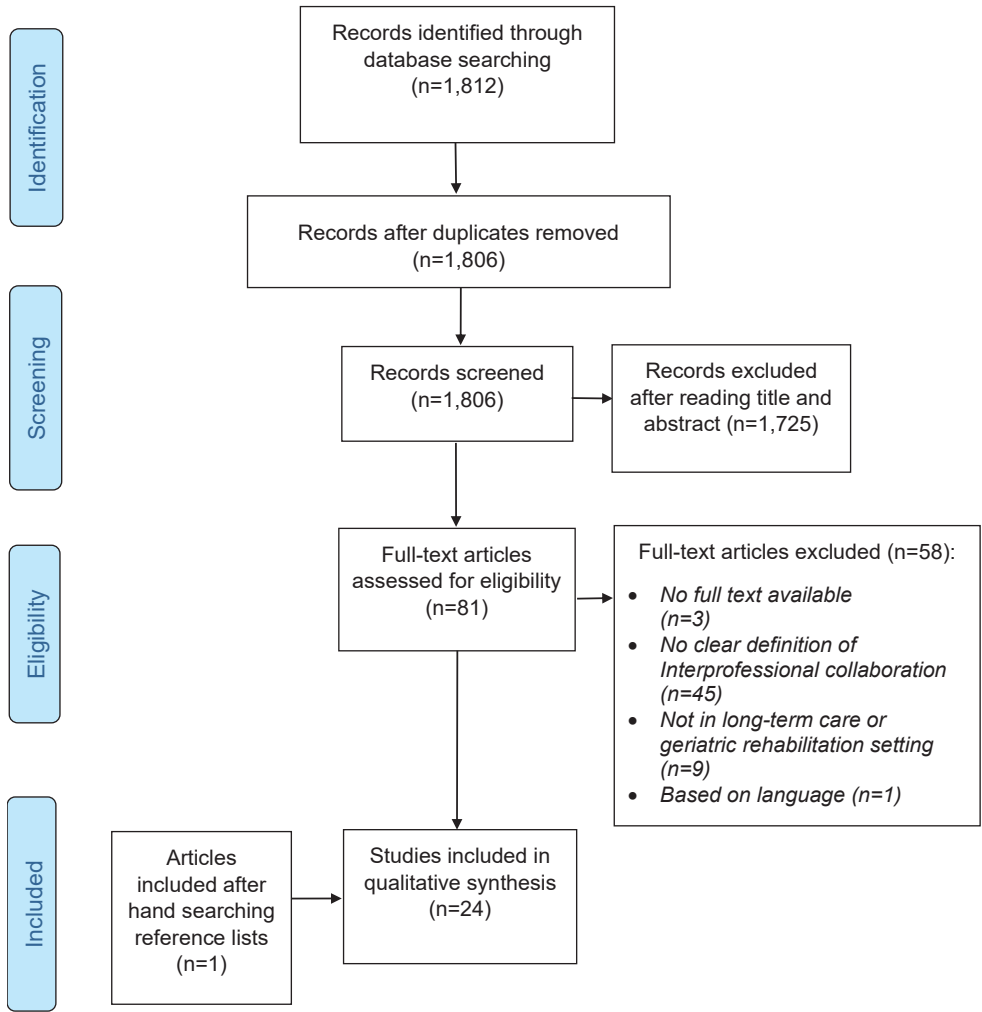


FIGURE 1. Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow Diagram.

Search strategy

A systematic literature search in the databases of PubMed, Embase, Emcare, Web of Science, Cochrane Library, Psycinfo, and Academic Search Premier was conducted on March 12, 2020 and was updated on June 4, 2021. An additional search was performed on September 30, 2021, in the CINAHL database. These databases were chosen because of the scope of disciplines represented, in conjunction with the wide representation of international journals deemed relevant for this topic. The search involved the following key words; interprofessional collaboration, interdisciplinary, long-term care, geriatric rehabilitation, elderly, facilitators and barriers, as well as their corresponding MeSH terms (Supplementary Material 1).

After removing duplicates, the selection included a two-stage process.⁽³⁰⁾ First, two researchers (AD, HS) independently screened records based on their title and abstract to determine whether the articles met the inclusion criteria as shown in Table 1. During the second stage, the remaining full text articles were retrieved. Two researchers (AD, HS) independently screened the full text articles against the inclusion criteria. After each step, results were compared and discussed. In case of disagreement a third researcher (WA) was consulted.

TABLE 1. Inclusion and exclusion criteria

Types of studies to be included	Types of studies to be excluded
• Human studies • Studies about interprofessional collaboration in institutional long-term care and inpatient geriatric rehabilitation for elderly people aged 65+ • Studies using instruments to measure interprofessional collaboration in institutional long-term care and inpatient geriatric rehabilitation • Original research articles, irrespective of design, including quantitative and qualitative or mixed methods studies, case studies, cohort studies and editorials by key opinion leaders, comparative studies, conference abstracts, theses • Studies using clear definitions of interprofessional, multidisciplinary and interdisciplinary collaboration within the scope of the definition of the WHO⁽¹⁹⁾ • Languages: English, Dutch, Chinese, Japanese, Hebrew • Publication dates: no restrictions	• Animal studies • Studies about collaboration outside healthcare or institutional long-term care or inpatient geriatric rehabilitation • Studies with elderly people with a specific chronic disease outside institutional long-term care or inpatient geriatric rehabilitation • Web pages, study protocols, articles without abstract • Studies using the terms interprofessional, multidisciplinary and interdisciplinary collaboration without providing a definition of the concepts used and not falling within the scope of the definition used by the WHO⁽¹⁹⁾

To identify instruments for assessing IPC, the same inclusion criteria were used. To maximize findings the definition of IPC was left out. Five studies ^(12, 31-34) were identified that described instruments for assessing IPC. The original references mentioned in the included studies were then checked for any additional descriptive information about the instruments.

Next, the methodological quality of the included studies was independently assessed by two researchers (AD, HS) independently using the Mixed Methods Appraisal Tool (MMAT). ⁽³⁵⁾ Results were compared and discussed. In case of disagreement a third researcher (WA) was consulted. The MMAT is designed to appraise the methodological quality of qualitative studies, randomized controlled trials, non- randomized studies, quantitative descriptive studies, and mixed methods studies. The MMAT starts with two screening questions that address clarity of the research question and whether the data collected are sufficient to answer the research question.

TABLE 2. An overview of the codes, categories and themes of the included studies

<i>Themes</i>	<i>Categories</i>	<i>Codes</i>
		<i>Facilitator</i>
Team performance	Collaboration between healthcare professionals, patients and family caregivers	• Team members perceiving themselves as having equivalent status to other team members ^(21, 44, 50) • Understanding the contributions of team members ^(20, 31, 40, 41, 43-45, 47, 51-53) • Eagerness for cooperation ⁽⁴⁶⁾ • Team members being flexible and supportive ^(20, 44, 46, 47, 50) • A personality that enables to take on various new roles ⁽⁵¹⁾ • Developing a team mentality ⁽⁴⁴⁾ • Establishing norms for individual behaviors and the group as a whole ⁽⁴¹⁾ • Solid relationships building on a history of working together and communication between team members ^(20, 34, 38-42) • Team bonding through frequent social exchange ^(20, 40, 43) • Maintaining a dynamic balance between attachment to a professional reference group and attachment to the team ⁽⁴¹⁾ • Members promoting, maintaining, engaging and sustaining the team ^(21, 31, 40, 44, 47, 50) • Engaging the whole team to encourage a culture shift toward a more engaged team dynamic ^(38, 48) • Creating and maintaining positive working relationships ^(38, 49) • Team members feeling acknowledged for contributions ⁽³¹⁾ • Achieving consensus in case of disagreements ⁽⁴⁰⁾ • Collaboratively solving problems ⁽²¹⁾ • Making recommendations concerning patient care with the whole team ^(40, 46) • Using interventions designed to improve communication and cooperation between staff and families ⁽²²⁾ • Avoiding conflicts and misunderstandings by exposing team members to each other's cultures ⁽⁵¹⁾ • Organizing an ethnically diverse team ⁽⁴²⁾ • Creating ethnic concordance between the patient and the professional team members ⁽⁴²⁾ • Involving families ^(22, 48) • Early and consistent involvement of patients ^(41, 43) • Holding team members accountable for their actions ^(40, 47) • Use teamwork approach to address the task at hand ^(40, 47)

Additionally, there are five specific sets with five quality criteria for each type of research. Ratings vary between 0% (no quality criteria met) and 100% (all five quality criteria met).

Data analysis

A thematic analysis was performed.⁽³⁶⁾ It enables a systematically grounded synthesis to bring together findings from the different types of research being used in this study.⁽³⁷⁾ Codes were derived inductively and clustered in categories, which were then labelled to form the themes. Two researchers (AD, HS) independently identified themes across the included studies followed by several sessions to reach consensus. A third researcher (WA) was consulted in case of any disagreement. Table 2 provides an overview of the codes, categories, and themes.

<i>Codes</i>
<i>Barriers</i>
• Not knowing team members due to a high turnover of practitioners⁽⁴⁰⁾ • Working with many part-time and temporary staff⁽³⁸⁾ • Conflicts within a team⁽⁵¹⁾ • Not reaching consensus about how to confront a problem⁽⁴⁰⁾ • Tension amongst groups of staff or team members^(20, 32) • Intergroup boundaries^(20, 43) • Pressure by team members to change clinical judgements based on non-clinical factors⁽⁴⁴⁾ • Team members having difficulty with transition towards a more engaging and interactive team dynamic⁽³⁸⁾ • Health Care Assistants positioning themselves outside the wider team⁽²⁰⁾ • Presence of professional autonomy^(49, 51) • Absence of responsibility for making the groups work as a team⁽⁴³⁾ • Mismatch between expectations and reality of tasks by team members, patients, and family caregivers^(34, 39, 41) • Lack of awareness of teamwork⁽⁴⁰⁾ • Cultural barriers between professionals⁽⁵¹⁾

<i>Themes</i>	<i>Categories</i>	<i>Codes</i>
		<i>Facilitator</i>
Team performance	Behavior and attitude of team members	• Pitching in and expanding the capacity for working together ⁽⁵⁴⁾ • Seeking assistance, being approachable, and reciprocating to promote connections between staff ⁽⁵⁴⁾ • Showing appreciation by expressing a positive opinion of other people's actions ^(34, 54) • Giving respect and valuing others in a team ^(34, 40, 44, 46, 51, 53, 54) • Paying attention, by making a conscious effort to stop, watch and act ⁽⁵⁴⁾ • Sharing and celebrating small successes within the team ⁽⁴⁰⁾ • Willingness to listen to each other ^(40, 47) • Supporting and being sensitive to one another's needs to protect others from varying physical aspects of care and unpleasant and disturbing sides of the job ^(20, 39, 40, 51, 53) • Having a positive attitude and perception towards work and other team members ^(20, 51) • Building trust and relying on each other ^(20, 40, 47-49, 53) • Team members feeling comfortable by team members to propose ideas in a team ⁽⁴⁰⁾ • Members support flexibility and adaptability to change ⁽⁴⁴⁾ • Tolerance amongst team members ⁽⁴⁴⁾ • Team members have sense of belonging on a unit ^(47, 52) • Team members are having the ability of providing one another with amusement ⁽²⁰⁾ • Enthusiasm of staff ⁽⁴³⁾ • Emotional support for family caregivers when making difficult decisions ⁽⁴⁸⁾
	Shared goals	• Making joint interdisciplinary decisions ⁽²¹⁾ • Having a shared vision ^(39, 43, 47) • Understanding the team's goal ^(40, 45) • Making the prioritization of goals evident by using a goal matrix (long term vs. short term, and task goal vs. maintenance goal) ^(41, 44) • Setting priorities with the team to pursue the shared goals ^(34, 40, 43, 53) • Sharing accountability by relying on the team to validate findings ⁽³¹⁾ • Moving the team from best possible outcome to specific goals ⁽⁴⁴⁾ • Stimulating patient's input when establishing treatment goals ^(44, 48) • Differentiating whether goals benefit the patient or the team ⁽⁴⁴⁾ • Making the patient and family responsible for the care plan with shared goals and a shared approach ^(39, 41, 49) • Using objective measures to enhance the process of goal-setting ⁽⁴¹⁾
	Clarity of roles	• Recognizing roles and skills within a team ^(20, 32, 38, 41, 43-45, 50, 51) • Clarity about roles in family - staff partnership ^(47, 55) • Using common language to clarify professional roles ⁽³⁸⁾ • Teambuilding exercises to allow for better understanding of other providers roles ⁽³²⁾

Codes

Barriers

- Behavior patterns like blaming others, criticizing others, being unfriendly, act busy, doing the minimum, not doing tasks, not including key staff in collaboration ^(47, 54)
- Trust, respect, and commitment of team members is hindered by poor identity dynamics ⁽²⁰⁾
- Disregarding other team members ⁽²⁰⁾
- Team members ignoring each other ^(20, 40, 47, 51)
- Showing dismissive behavior towards one profession ⁽⁵¹⁾
- Disrespecting more highly educated care workers ⁽³⁹⁾
- Conflicts due to disagreements between team members on day-to-day issues ⁽³⁹⁾
- Team members showing contempt by recognizing team shortcomings ⁽⁴²⁾
- Team members assigning a status to themselves ^(44, 45)
- Team members taking matters into own hands, thereby ignoring leadership roles ⁽⁴³⁾
- Absence of confidence ⁽⁵⁰⁾
- Absence of critical thinking due to reactive nature of staff ⁽³⁸⁾
- The practice of postponing work tasks ⁽³⁹⁾
- Disregarding decisions defined in the patient care plan ⁽³⁹⁾
- Making a decision without the input of all team members ⁽²¹⁾
- Disliking working in teams ⁽⁴⁰⁾
- Team members feeling pushed by teamwork ⁽⁴⁰⁾
- Reported problems do not reflect the goals identified in the interdisciplinary treatment plan ⁽²¹⁾
- Involving patients who are not mentally competent in the goal-setting process ⁽⁴⁴⁾
- Embracing own personal and professional goals to the exclusion of others ⁽⁴⁴⁾
- Unclear definition of shared goals ⁽⁴⁴⁾
- Absence of a shared vision ^(43, 47)
- Unclear capabilities and responsibilities in relation to specific goals ^(41, 49)
- Conflicting or misaligned expectations regarding professional roles ^(22, 38)
- Team members are not recognized and underrepresented within the team ^(43, 52)
- Limited knowledge regarding the roles and expertise of other disciplines ^(22, 41, 43, 44)
- Not knowing the impact of one's involvement within a team ⁽⁴⁰⁾
- Unclear who is responsible for bringing disciplines and information together ⁽⁴³⁾
- Role conflict between staff and family ⁽⁵⁵⁾

<i>Themes</i>	<i>Categories</i>	<i>Codes</i>
		<i>Facilitator</i>
Organizational conditions	Workplace process	• Involving team members when making changes in processes and procedures ^(40, 46) • Involving one or more team members who make it easier or possible to achieve the objectives of teamwork ⁽⁵⁴⁾ • Authorizing staff and promoting the adoption of proactive models to work with other practitioners ⁽⁵⁰⁾ • Establishing a shared mental model, which allows individuals to coordinate their efforts to complete interdependent tasks more consistently ⁽³⁸⁾ • Working with a comprehensive and planned approach ^(21, 41) • An institutional philosophy that endorses interdisciplinary coordination ^(21, 41-44, 46, 53) • Attending to formal and social processes to minimize conflict ⁽⁴³⁾ • Influencing procedural boundaries (who and what enters the team, and how) ⁽⁴⁴⁾ • Formal team-based care ^(38, 43) • Joint evaluation of projects to strengthen organizational ties ⁽⁴⁶⁾ • Ongoing reflection for continuous improvement of the full team, through formal mechanisms like quality audits, as well as regularly scheduled team meetings ^(43, 53) • Appointing observers within a group to evaluate and report dynamics of the groups relevant for discussion ⁽⁴¹⁾ • Staff working both day and evening shifts to create better understanding and knowledge exchange across shifts ⁽³⁹⁾ • Policies that reflect a strong family orientation ⁽²²⁾ • Rotating responsibility for chairing meetings to provide the experience for all members ⁽⁴¹⁾ • Structure working with GPs by contracting them, working with a small number of them and having them visit frequently ⁽⁵⁰⁾
	Availability of resources	• Working together to apply, revise, and develop IPC processes through access to necessary resources (e.g. materials, time, budget, and space) ^(31, 34, 40, 42, 44, 46, 47, 49, 52) • Organizational capacity for successful influencing of implementation ^(38, 39) • Organizational security for adequate staffing to function (sustainably) as a team ⁽⁴⁴⁾ • Willingness of administration to support a team with necessary resources ⁽⁴⁶⁾ • Dedicating human resources to support collaboration ⁽⁴³⁾ • Continuous management attention to and investment in interpersonal and team skills training ⁽⁴²⁾ • Spending time and effort to make the team work and to maintain this ⁽⁴⁰⁾ • Institutional support to improve interaction with other professions ^(43, 51)
	Leadership	• Supportive leadership encouraging and involving all members on a team to participate ^(31, 40, 42, 47, 48, 52) • Shared leadership during meetings ⁽³¹⁾ • Dual leadership by dividing leadership into two areas: Task related versus Team related ⁽⁴⁴⁾ • Strong leadership based on organizational mandates ^(38, 40, 42, 43) • Balance between responsibility (achievement expectation) and authority (organizational freedom and influence) ^(44, 49) • Leader facilitating regular communication between all members of the care team ^(38, 40, 42, 43) • Leaders representing all parties involved ⁽⁴⁶⁾ • Providing guidance through supervision and feedback ^(39, 47) • Decisive managers providing direct problem solving and coordination ^(39, 41, 42, 47) • Providing a managerial framework for the day-to-day work tasks ⁽³⁹⁾ • Identifying a team coordinator to address disagreements over leadership ⁽⁴¹⁾ • Openly recognizing and discussing the tensions between traditional and interprofessional discourses of collaborative leadership ⁽⁴³⁾ • Providing leaders with training on team management and quality improvement ⁽³⁸⁾

Codes

Barriers

- Ignoring what is happening in the current environment as result of relying strongly on rules and policies ⁽⁵⁴⁾
 - Prioritizing institutional goals over more patient-centered discussions ⁽²¹⁾
 - Interprofessional collaboration not equally supported by professed and actual values of the institution ^(41, 44)
 - Absence of organizational leadership for implementation of practice development ⁽³⁸⁾
 - Structurally nested organizational hierarchies ^(20, 45)
 - Inadequate organization of out-of-hours services ⁽⁵⁰⁾
 - Relocating team members and patients ⁽⁵⁵⁾
 - Disruption of team composition ⁽⁴⁴⁾
 - Evaluating processes with monodisciplinary personnel ⁽⁴⁴⁾
 - Regulatory constraints such as limited reimbursement for services for particular team members ⁽⁴¹⁾
 - Implementing a collaborative framework without considering the strong identity of some disciplines ⁽²⁰⁾
 - Scheduling conflicts leading to limited ability to attend meetings ^(40, 52)
 - General Practitioners (GPs) fail to keep promises about visits ⁽⁴³⁾
 - Absence of coordination of care to create integrated care plans ⁽⁴³⁾
 - Working with a large number of GPs from different practices ⁽⁵⁰⁾
 - Duplication of services ⁽⁴¹⁾
 - Different work practices across units making it difficult to take on tasks in other units ⁽³⁹⁾
 - A sense of ownership in the own unit ⁽³⁹⁾
 - A sense of insecurity and unfamiliarity with other units ⁽³⁹⁾
 - Long distances between physical locations making it difficult to relieve each other within and between care units ^(32, 39)
-
- Resource-constrained environment ^(47, 55)
 - Limited opportunity for appropriate team consultation moments and poor availability of space for all disciplines ⁽⁴²⁻⁴⁴⁾
 - Fragmented, profession-specific or inaccessible support ⁽³⁸⁾
 - Limited reimbursement for services for particular team members ⁽⁴¹⁾
 - Staff shortages ⁽⁴⁴⁾
 - Time constraints regarding the care ^(21, 22, 32, 40, 43, 44)
-
- Assuming that leadership is monolithic and unitary ⁽⁴⁴⁾
 - Believing that leadership is a trait, a genetic quality, fate or professional discipline ⁽⁴⁴⁾
 - Missing the necessary conflict resolution skills ⁽³⁹⁾
 - Failing to bring together team members ⁽⁴⁰⁾
 - Minimal leadership and support from management ^(34, 55, 49)
 - Absence of leadership at administrative level ⁽⁴⁰⁾
 - Disagreement over leadership and the distribution of authority ⁽⁴¹⁾
 - Absence of training in skills necessary for successful team leadership ⁽⁴¹⁾

<i>Themes</i>	<i>Categories</i>	<i>Codes</i>
		<i>Facilitator</i>
Sharing information	Basic communication skills	• Talking with other people to make sense of confusing information or situations ⁽⁵⁴⁾ • Clarifying the meaning of exchanged information ⁽⁵⁴⁾ • Verifying that shared information is understood by others ⁽⁵⁴⁾ • Actively engage in direct communication with others ⁽³¹⁾ • Active dialogue to exchange information ^(38, 47) • Listening to promote new information exchange ^(32, 54) • Asking questions to explain when feeling uneasy about something and when feeling not heard ⁽⁵⁴⁾ • Exchanging (timely) feedback ^(22, 31, 32, 39, 42, 43, 46, 48, 50-53) • Suggesting alternatives giving different options for others to consider before taking action ⁽³⁸⁾ • Effective communication ^(34, 58, 65, 66, 73, 76, 79, 81, 83-86) • Using a common language to effectively convey the same message to an entire team ⁽³⁸⁾ • Defining unique disciplinary terms used by different team members, to improve communication ⁽⁴⁶⁾ • Speaking with one voice within a team ⁽⁴⁰⁾ • Realizing that most communication is nonverbal ⁽⁴⁴⁾ • Caregivers feeling comfortable talking directly with managers ⁽⁴⁸⁾
	Communication process	• Interactions facilitate strong connections, information exchange, and diversity in cognitive schema ⁽⁵⁴⁾ • Enhancing team functioning and address critical issues through meetings/ bedside sessions (with patients) ^(21, 31, 34, 40, 41, 43-45, 48, 50, 52) • Multidimensional assessment to facilitate communication among team members ^(31, 41, 48) • Constructing communication processes in caring for patients with complex needs ⁽³¹⁾ • Using (semi)- structured action plans during meetings to elicit engagement from all team members and setting priorities ^(41, 45, 52) • Following up issues discussed and reaching consensus in team meetings ⁽⁴⁰⁾ • Designating a team manager for communication to apprise team members of progress and changes in care plans ⁽⁴¹⁾ • Reviewing action plans during meetings ⁽⁵²⁾ • Meeting face-to-face during shift overlaps ^(39, 40) • Completing written treatment plans in order to communicate with the rest of the team ⁽²¹⁾ • Positive interactions with another profession to improve negative or dismissive behavior ⁽⁵¹⁾ • Using (new) technologies for communication ⁽⁴⁶⁾ • Implementation of protocols and processes by staff and practitioners together ^(40, 48)

*Codes**Barriers*

- Avoiding interaction, ignoring others ⁽⁵⁴⁾
 - Reprimanding staff instead of turning a negative situation into a learning experience ⁽⁵⁴⁾
 - Use of (professional) terminology by different team members ^(38, 51, 54)
 - No shared dialogue about mutual expectations, cooperation, and project support ⁽⁴⁹⁾
 - Lack of information from management ⁽⁴⁹⁾
-
- Absence of communication between team members ^(20, 38, 40, 41, 46, 48, 54)
 - Absence of internal communication within nursing homes ⁽⁴³⁾
 - Feeling that meetings are a waste of time ⁽²¹⁾
 - Little formal or informal communication between team members of different hierarchical levels ^(20, 34, 48)
 - Absence of communication between day and evening shifts or disciplines ^(39, 40)
 - Communicating through others ⁽⁵⁴⁾
 - Differences in perception about information obtained from assessments among team members, patient and family ^(75, 81, 88)
 - Inadequate sharing of detailed information about patients ^(41, 48, 55)
 - Absence of support and preparation for family caregivers and care recipient prior to admission ⁽⁵⁵⁾
 - Infrequent formal meetings ⁽⁴⁸⁾
 - Formal meetings without a client specific agenda ⁽⁴⁸⁾

Themes	Categories	Codes
		Facilitator
Sharing information	Developing and utilizing knowledge	• Training team members didactically and experientially to communicate constructively, unambiguously and consciously ^(44, 48, 52) • Active exchange information and knowledge between team members ^(20, 31, 32, 38, 43, 48, 49, 52, 54) • Learning from other team members ^(21, 38, 40, 44, 53) • Using champion teams to enhance training ⁽⁴⁵⁾ • Using action-oriented learning to increase knowledge ^(31, 49) • Using interactive, innovative activities, discussions, case studies, readings, and games for education to promote the application of teamwork skills ⁽³²⁾ • Providing team members with opportunities to improve their skills ^(42, 47) • Using interprofessional shared learning ^(31, 38, 45, 51) • Enhancing knowledge to increase confidence within a team ^(31, 40, 45, 50) • Providing information and education for patients and family caregivers ^(22, 38, 55) • Family caregivers having knowledge of dementia care ⁽⁵⁵⁾ • Awareness that strong IP communication and documentation are the pillars of good care ⁽³¹⁾ • Suitably qualified staff with the skills to assess patient needs ⁽⁵⁵⁾ • Use clinical issues to simulated teamwork ⁽⁴⁰⁾ • Teaching to help others develop their ability to care for patients ⁽⁵⁴⁾ • Knowledge of team members about the meaning, value, and implication of clinical data for integrated evaluation ⁽⁴⁴⁾ • Utilizing first-hand observations from patient assessment of all team members ⁽⁴⁶⁾ • Knowing and understanding the definition of Interprofessional Collaboration (IPC) ⁽⁴¹⁾

Results

Of the 24 included studies, 3 studies were published between 1987 and 1999, 5 studies between 2000 and 2009, 12 studies between 2010 and 2019, and 4 studies in 2020-2021. Most articles were published in the United States (n=9), followed by Canada (n=6), the United Kingdom (n=3), Denmark (n=2), Australia (n=1), Germany (n=1), Belgium (n=1), and Lithuania (n=1).

Almost all studies were conducted in institutional long-term care settings (n=22) with only two in inpatient geriatric rehabilitation. Included studies had qualitative (n=10), quantitative (n=6), and mixed method (n=3) designs or were editorials (n=5) (Table 3).

Based on the MMAT, the quality of the qualitative studies was high with an average score of 92%. The quality of the quantitative studies was moderate to low with an average score of 44% and the quality of the mixed method studies was low with an average score of 33%. The main issue with the quantitative studies was incomplete outcome data. The main issues with the mixed method studies were insufficient integration of the qualitative and quantitative components in the interpretation of the results, and divergences and inconsistencies between the quantitative and qualitative results not being adequately addressed. The quality of the editorials could not be checked due to the absence of a quality assessment instrument for this type of article.

Codes

Barriers

- Reluctance to share skills with other team members ⁽⁵⁰⁾
- Absence of trust due to limited training by unregulated health care workers ⁽⁴⁵⁾
- Rarely teaching team skills ⁽⁴²⁾
- Team members do not recognize present knowledge in their team ⁽²⁰⁾
- Fragmented external (profession or role-specific) educational support ⁽³⁸⁾
- Absence of incentives to develop Interprofessional Collaboration among clinicians and educators ⁽⁵¹⁾
- Few opportunities to meet and share knowledge about patients with team members ^(20, 51)
- Relatives tend to withhold suggestions for improving care for fear of negative consequences for the patient ⁽²²⁾
- Absence of knowledge on patients and their condition ^(20, 32, 38, 50, 52)
- Clinical isolation due to a narrow perspective on health and illness ^(49, 51)
- Lack of support in knowledge sharing ⁽⁴⁹⁾

Themes

Table 2 provides an overview of the codes, categories, and themes found. Three themes emerged regarding facilitators of and barriers to IPC: 1) Team performance, composed of the categories ‘collaboration between healthcare professionals, patients, and family caregivers’, ‘behavior and attitude of team members’, ‘shared goals’, and ‘clarity of roles’; 2) Organizational conditions, categorized into ‘workplace process’, ‘availability of resources’, and ‘leadership’; and 3) Sharing information, composed of ‘basic communication skills’, ‘communication process’, and ‘developing and utilizing knowledge’.

TABLE 3. Summary of characteristics of included studies

<i>Author, year, country</i>	<i>Design</i>	<i>Method</i>	<i>Participants and setting</i>
Aagaard et al., 2020, Denmark	Qualitative, embedded, multiple-case study	Interviews, observations	41 multidisciplinary healthcare providers 3 nursing homes LTC
Anderson et al., 2014, United States	Qualitative, comparative, multiple-case study	Observations, interviews, and document reviews	406 multidisciplinary healthcare providers 48 nursing homes LTC
Badger et al., 2012, United Kingdom	Mixed method	Survey and case study	75 multidisciplinary healthcare providers 49 nursing homes LTC
Bokhour, 2006, United States	Qualitative	Observation, interviews, and sociolinguistic discourse analysis	16 multidisciplinary healthcare providers 2 teams LTC
Boscart et al., 2017, Canada	Qualitative	Observations, semi-structured interviews using a social constructivist interpretive framework	30 multidisciplinary healthcare providers 2 nursing home units LTC
Bramble et al., 2011, Australia	Quantitative, multiple arms pre- and post-intervention	Quasi-experimental with randomized allocation of sites but not participants	59 multidisciplinary healthcare providers 57 families LTC
Chafetz et al., 1987, United States	Editorial	n/a	n/a LTC
Clay et al., 2003, United Kingdom	Editorial	n/a	n/a GR
Cranley et al., 2020, Canada	Qualitative	Interviews	3 staff 3 patients 3 family caregivers 1 nursing home LTC

<i>Aim of study</i>	<i>Main findings</i>	<i>MMAT</i>
Evaluate implementation process of an oral care intervention in nursing homes in a Danish municipality.	Situated learning facilitates trust and knowledge translation between patients and healthcare professionals and supports nursing staff in developing competencies in performing sufficient oral care.	100%
Describe relationship patterns and management practices in nursing homes that facilitate or hinder better outcomes for patients and staff.	Besides a standard type, a second type of management practice is identified, referred to as Local Interaction Strategies. Using these Local Interaction Strategies can improve the outcomes for the nursing home population.	100%
Evaluate the impact of a training program to improve end-of-life care in nursing homes on collaboration between nursing home staff and other health practitioners.	Using the Gold Standards Framework in Care Homes program can improve communication and collaboration between nursing home staff and other health practitioners.	80%
Examine professional communication practices in interdisciplinary team meetings.	Collaborative discussions during team meetings were indicated to coordinate care and make shared decisions about patient care.	100%
Examine the preliminary impact on staff of the implementation of an interprofessional communication and collaboration intervention to improve knowledge on heart failure.	Increased communication and knowledge on heart failure through a committed interprofessional collaboration was shown as result of establishing core teams.	100%
Explore the effect on knowledge of dementia, and family and staff well-being of family involvement in a care intervention.	The major barrier to the success of family involvement in achieving beneficial psychosocial effects for family and staff was a lack of resources and leadership.	80%
Outline common problems in interdisciplinary teams and present suggestions for overcoming these common problems.	Organizational support, leadership, team goals, communication and the interactions between team members are important in interdisciplinary teams.	n/a
Examine key factors relating to the rehabilitation of older people	To meet the needs of all older people in healthcare settings, an interdisciplinary, goal planning approach to rehabilitation is necessary. Nurses play a crucial role in this.	n/a
Explore shared decision-making among residents, their families and staff to determine relevant strategies to support shared decision-making.	Shared decision-making can be facilitated by a relational approach to care and will develop further through effective communication and collaboration.	100%

<i>Author, year, country</i>	<i>Design</i>	<i>Method</i>	<i>Participants and setting</i>
Desveaux et al., 2019, Canada	Qualitative	Interviews	29 interviews 13 nursing homes LTC
Foli et al., 1992, United States	Quantitative	Survey	4 teams 120 nursing homes and dental services LTC
Huijbregts et al., 2012, Canada	Mixed methods	Participatory action approach with interviews, focus groups, and surveys	90 multidisciplinary healthcare providers 29 patients 13 family members LTC
Jakobsen et al., 2018, Denmark	Qualitative	Focus group	33 multidisciplinary healthcare providers 6 nursing homes LTC
Kaasalainen et al., 2017, Canada	Quantitative, a cross-sectional design	Survey	317 surveys 4 nursing homes LTC
Kaldy et al., 2007, United States	Editorial	n/a	n/a LTC
Lloyd V. et al., 2011, United Kingdom	Qualitative	Ethnographic using observations and interviews	30 individual interviews 3 focus groups 3 nursing home units LTC
MacEntee et al., 2011, Canada	Editorial	n/a	n/a LTC

<i>Aim of study</i>	<i>Main findings</i>	<i>MMAT</i>
Evaluate an intervention designed to improve fall management and quality of care in nursing homes. Explore whether, how and why the intervention can improve evidence uptake and identify perceived changes to inform outcomes appropriate for quantitative evaluation.	There is a knowledge to practice gap with respect to fall management. Involving a complete team in personalized team interventions can reduce conflicting expectations about expert roles, a disconnection in assumed and received information, and challenges created by a large number of temporary and part-time team members. To improve evidence uptake, strong team functioning with effective communication and clarity about roles is needed.	100%
Describe the collaborative process between nursing homes and dental services in the assessment and evaluation of oral hygiene	Interdisciplinary collaboration is enhanced through suitable disciplinary representation, leadership, clear language, immediate assessment, and well-timed feedback	0%
Implement a mental health guideline in a LTC residence in order to improve interprofessional care (enhance interprofessional collaboration, improve staff satisfaction and team processes) for clients with mood and behavioural issues.	Implementation of a mental health guideline can improve interprofessional care (enhance interprofessional collaboration, improve staff satisfaction and team processes). Implementation can be established by using implementation and educational interventions, and all members attending team meetings.	20%
Identify barriers to and facilitators of collaboration among eldercare workers, and describe the processes leading to effective collaboration.	Managers are important to ensure effective collaboration by outlining collaboration between team members and providing policies and processes. Managers also need to be attentive, take action when needed, and deal with conflicts.	100%
Compare the differences across occupational groups related to their end-of-life care-specific educational needs and reported intensity of interprofessional collaboration.	Delivering optimal palliative care requires appropriate education and incorporation of all occupational groups on the interdisciplinary team.	60%
Describe best practices of teamwork.	Interdisciplinary teamwork is demanding work, organizing team members, building relationships to address specific tasks, and work thoroughly.	n/a
Reveal identity dynamics at the frontlines of care, with reference to social identity theory and discuss implications for delivering multi professional and interprofessional care.	Low group identity combined with strong monodisciplinary behavior result in barriers to effective teamwork.	80%
Addresses oral health and frailty in older patients. Addresses interprofessional healthcare teams and their knowledge and skills on oral health. Addresses the representation of dental professionals on healthcare teams.	Barriers for dental professionals to contribute to an interprofessional team are limited experience on healthcare team and ignorance of other team members about significance of oral health.	n/a

<i>Author, year, country</i>	<i>Design</i>	<i>Method</i>	<i>Participants and setting</i>
Mager et al., 2014, United States	Mixed methods	Focus groups, surveys, and pre- and post-interventions	97 multidisciplinary healthcare providers 5 nursing homes or home care agencies LTC
Poškutė et al., 2021, Lithuania	Qualitative	Focus groups	54 policymakers, service organizers, and administrators LTC
Reese et al., 2021	Quantitative	Surveys	345 nurses 63 physicians LTC
Robison et al., 2007, United States	Quantitative	Random Controlled Trail	388 family members 384 multidisciplinary healthcare providers 20 nursing homes LTC
Saltz et al., 1992, United States	Editorial	n/a	n/a GR
Temkin et al., 2004, United States	Quantitative	Surveys	1860 multidisciplinary healthcare providers 1220 surveys 26 nursing homes LTC
Tsakitzidis et al., 2017, Belgium	Qualitative, descriptive methodology	Focus groups and semi-structured interviews	23 multidisciplinary healthcare providers LTC

Note: MMAT, Mixed Method Appraisal Tool; LTC, Long Term Care; n/a, Not applicable; GR, Geriatric Rehabilitation.

<i>Aim of study</i>	<i>Main findings</i>	<i>MMAT</i>
Improve communication and teamwork among interprofessional healthcare providers by using innovative teambuilding activities.	Barriers in communication and teamwork skills can be overcome by multidisciplinary team using the interprofessional small group methodology.	0%
Examine to what extent and in what ways stakeholders collaborate in the planning, organizing and delivery of LTC to older persons in Lithuania. Examine the key facilitators and constraints of this collaboration.	Facilitators of and barriers to collaboration were found on a national, organizational, and individual level. Examples of constraints on collaboration are shortage of human resources, increased workload, and bureaucratic requirements. A lack of financial resources was not perceived as a major barrier.	100%
Assess interprofessional collaboration between nurses and physicians in LTC facilities and determine if there are differences between subgroups of nurses.	Nurses evaluated interprofessional collaboration more critically than physicians. Between subgroups of nurses the general trained nurses, as well as the ones in higher management positions evaluated interprofessional collaboration more critically than geriatric nurses.	20%
Improve communication and cooperation between staff and families of patients in the Partners in Caregiving in a Special Care Environment program.	The Partners in Caregiving in a Special Care Environment program enhanced family communication with staff, participation in care, and decreased disagreements between family and staff.	60%
Present relevant team dynamics and describe key elements and activities associated with GR team practice.	The combined energy and expertise of individual healthcare professionals is essential for organization of GR teams.	n/a
Test reliability and validity of a survey instrument for assessing interdisciplinary team performance in LTC settings and measure the perceived interdisciplinary team performance in the Program of All-Inclusive Care for the Elderly.	The survey instrument showed good reliability and validity. Team organization and team efficiency are positively associated in the Program of All-Inclusive Care for the Elderly. A decrease in team effectiveness is shown with a longer duration of the program.	80%
Gain understanding of the perception of professionals toward interprofessional collaboration in nursing homes and the factors that have an impact on interprofessional collaboration.	Interprofessional collaboration is situational and inadequately organized. Often a shared vision or responsibility sharing are absent. Roles are not well-defined.	100%

TABLE 4. Overview of the instruments used to measure interprofessional collaboration in the included studies

<i>Author, year, country</i>	<i>Instruments used to measure IPC</i>	<i>Aspects of IPC measured</i>
Halabisky et al., 2010, Canada	Collaborative Practice Survey ⁽⁶¹⁾	Experienced collaborative practice Satisfaction with collaborative experience
Heckman et al., 2018, Canada	Interprofessional Socialization and Valuing Scale ⁽⁶²⁾	Ability to work with others Value in working with others Comfort in working with others
Kaasalainen et al., 2017, Canada	The Intensity of Inter-Professional Collaboration Questionnaire ⁽⁶³⁾	Care sharing activities Interprofessional co-ordination between various groups of professionals
Mager et al., 2014, United States	The GITT Demographic questionnaire ⁺ ^(64, 65)	Information about trainees that is expected to influence knowledge and attitudes about geriatric teams and team training (gender, age, ethnic background, discipline, part-time or full-time student status, current employment, year in training, and amount of prior experience working in teams or working with geriatric patients)
	The GITT Team Skill Scale ⁺ ^(64, 65)	Self-perceptions regarding team skills
	The GITT Case Study Test of Interdisciplinary Geriatric Care Planning ⁺ ^(64, 65)	Knowledge of interdisciplinary geriatric care planning
Reese et al., 2021, Germany	The Team scale ⁽⁶⁶⁾	Internal participation from the perspectives of both patients and staff
	Work Situation Questionnaire for nurses/physicians ⁽⁶⁷⁾	Hierarchy between manager and physician or nurse Conflict resolution ability of the team Work conditions at the ward Cooperation of physicians and nurses

Note: IPC Interprofessional Collaboration; GITT Geriatric Interdisciplinary Team Training; ⁺ Reference used in the included study was invalid. A search on the website of the John A. Hartford Foundation and Pubmed resulted in two studies describing the GITT. Only the parts that were used in the Mager et al. study were included in the table.

1. Team performance

Solid relationships with good connections between team members enhances team performance, thereby enabling IPC. ^(20, 34, 38-43) Team performance further increases by having a shared vision and goals, and sharing responsibilities with patients and family caregivers. ^(39-41, 43-49) IPC additionally benefits from an equal status amongst team members within a team along with understanding the contributions and recognizing the roles and expertise of each team member. ^(20, 21, 31, 32, 38, 40, 41, 43-45, 47, 50-53)

Individual team members can also enhance team performance by promoting, maintaining, engaging, sustaining, and trusting each other. Additionally, a positive attitude, being flexible, supportive, respectful, and valuing other team members increases IPC. ^(20, 21, 31, 34, 39, 40, 44, 46, 47, 49-51, 53, 54)

Barriers to IPC related to team performance include boundaries within a team and tension among team members. ^(20, 32, 43) This is emphasized by negative behavior and attitude of team members, for example by ignoring each other or assigning oneself a superior status. ^(20, 40, 44, 45, 47, 51) Additional barriers are limited knowledge about roles, expertise, and expectations of other team members. ^(22, 38, 40, 41, 43, 44) This results in a team where members are not recognized and are underrepresented. ^(43, 52)

2. Organizational conditions

Facilitators of IPC related to organizational conditions are having established values and supporting interdisciplinary coordination, processes, and procedures. ^(21, 38, 41-44, 46, 53)

Organizational conditions further improve by having a supportive and decisive leader with access to the necessary resources. ^(34, 38, 40, 42, 43, 47-49) Additional facilitators related to organizational conditions are having involved formal teams with constructive interactions between all team members and working with a comprehensive and planned approach. ^(21, 31, 38-44, 46-48, 51, 52)

Organizational barriers to IPC increase by clinging to known concrete values and by maintaining structurally established hierarchies. ^(20, 41, 44, 45) Time constraints to plan the care and failing to bring team members together, for example due to poor availability of team members or physical distances between locations, further obstruct IPC. ^(21, 22, 32, 39, 40, 42-44, 52)

3. Sharing information

Effective communication will enhance sharing information and is a pronounced facilitator of IPC. ^(22, 31, 32, 39, 42, 43, 46, 48, 50-53) To achieve efficient communication, the use of common language, multidimensional patient assessments, the use of action plans, addressing critical issues during meetings, exchanging feedback, and setting priorities are essential. ^(21, 31, 34, 38-41, 43-46, 48-50, 52, 54) This communication improves by interprofessional shared learning and training team members, patients, and family caregivers didactically and experientially to exchange information and knowledge. This enables constructive, unambiguous, and conscious communication, which in turn facilitates IPC. ^(20-22, 31, 32, 38, 40, 43-45, 47-52, 54, 55)

No or poor communication within a team or between different shifts are noted to be sizeable barriers to IPC. ^(20, 38-41, 46, 48, 54) This can be exacerbated by the use of (professional) terminology or different team members having different perceptions about patient assessments. ^(38, 41, 48, 51, 54, 55) Insufficient opportunities to meet and share knowledge within a team obstructs IPC, resulting in a lack of knowledge about the patients and their condition. ^(20, 32, 38, 50-52) A schematic overview of the facilitators and barriers is included in supplement 2.

Measuring instruments for IPC

Five studies ^(12, 31-34) were identified that described eight instruments used to assess IPC in an LTC setting (see Table 4). None of the instruments was used in more than one of the included studies. The studies did not provide comprehensive descriptions of the instruments, reported insufficient psychometric qualities, or the instruments were not validated for use in the LTC or GR setting. The main aspects of IPC measured in these studies were experienced collaboration and communication.

Discussion

This systematic review examined facilitators of and barriers to IPC in LTC and GR. The facilitators and barriers were categorized into three themes: 1) Team performance (collaboration between healthcare professionals, patients and family caregivers; behavior and attitude of team members; shared goals; clarity of roles), 2) Organizational conditions (workplace process; availability of resources; leadership), and 3) Sharing information (basic communication skills; communication process; developing and utilizing knowledge). Many of the identified facilitators of and barriers to IPC were related to team performance and sharing information. Although fewer facilitators and barriers were related to organizational conditions, these conditions enhance effective IPC, which can optimize comprehensive care for older patients with multimorbidity in LTC and GR settings. IPC is enhanced by connecting and stimulating facilitators related to team performance, sharing information, and organizational conditions.

Facilitators of team performance, for example good relationships between team members who understand each other's involvement, enable IPC. ^(20, 31, 34, 38-45, 51, 52) These relationships between team members further improve IPC through effective communication. ^(22, 31, 32, 39, 42, 43, 46, 48, 50-54) However, to deliver comprehensive care for older patients with multimorbidity, relationships need to evolve into solid relationships. This will be achieved when relationships between team members match with established values related to organizational conditions. The significant contribution of solid relationships to effective service delivery is in line with research in other settings than LTC and GR. ⁽⁵⁶⁻⁵⁸⁾

Additional examples of facilitators of IPC related to sharing information are conducting shared multidimensional patient assessments, working with a shared vision, and shared goals related to team performance. ^(31, 34, 38-41, 43, 45, 47, 48, 52, 53) However, IPC will only be enhanced when factors related to team performance and sharing information are also facilitated by appropriate organizational conditions. For example, unfavorable conditions within the organization will negatively impact team performance and sharing information, and thereby limit IPC. Studies in different settings reveal the importance of working with multidimensional patient assessments, shared goals, and the necessity of a shared planned approach related to organizational conditions. ^(57, 59, 60) Additional

research in other settings provides evidence of increased patient satisfaction with care when team members shared knowledge, and worked with shared goals. ^(56, 59, 61)

To enhance research on IPC, to contribute to the generalizability and comparability of studies, and to avoid interchangeable use of concepts with different meanings, a clear shared definition of IPC is necessary. ^(6, 19, 62) When collaborating to provide the best care possible in the LTC and GR, the quality of care and therefore the quality of IPC, based on all three interdependent themes, has to be evaluated regularly. Evaluations will support teams, managers, and policy makers, to anticipate frequently on changing factors that influence IPC.

Strength and limitations

The strengths of this review include the comprehensive search strategy utilized, followed by a systematic evaluation of the presented data. Another strength is the systematic and solid integration of qualitative and quantitative results. All themes were covered by studies with varying methodologies; only minor differences were observed. Consequently, the themes resulting from our analysis reveal the most essential facilitators and barriers regarding IPC in LTC. Another strength relates to including only studies with a clear definition of IPC, although this may have led to missing studies. However, there are also some limitations. One limitation is the relatively small number of studies in GR, so caution is indicated when generalizing the results to this setting. Other limitations are that the quality of the five included editorials could not be checked, and we did not perform a separate search specifically for instruments to assess IPC.

Conclusions and Implications

Our study identified three main themes in which the facilitators of and barriers to IPC in the LTC and GR setting could be grouped, i.e. Team performance, Sharing information, and Organizational conditions. The themes can be viewed as interdependent. To optimize IPC, it is necessary to stimulate facilitators and limit barriers related to all three themes. The few studies within the GR setting highlight the need to further examine IPC within this setting to optimize care. In addition, we advise teams, policy makers, and future studies to begin with a well-defined description of IPC, and to use or develop a reliable, validated instrument to assess IPC in LTC and GR. ^(6, 19, 62, 63) Evidently, successful IPC when caring for patients with multimorbidity in LTC and GR requires integration, understanding, and recognition of the interdependency of themes by all persons involved, including patients and family caregivers. ⁽³⁾

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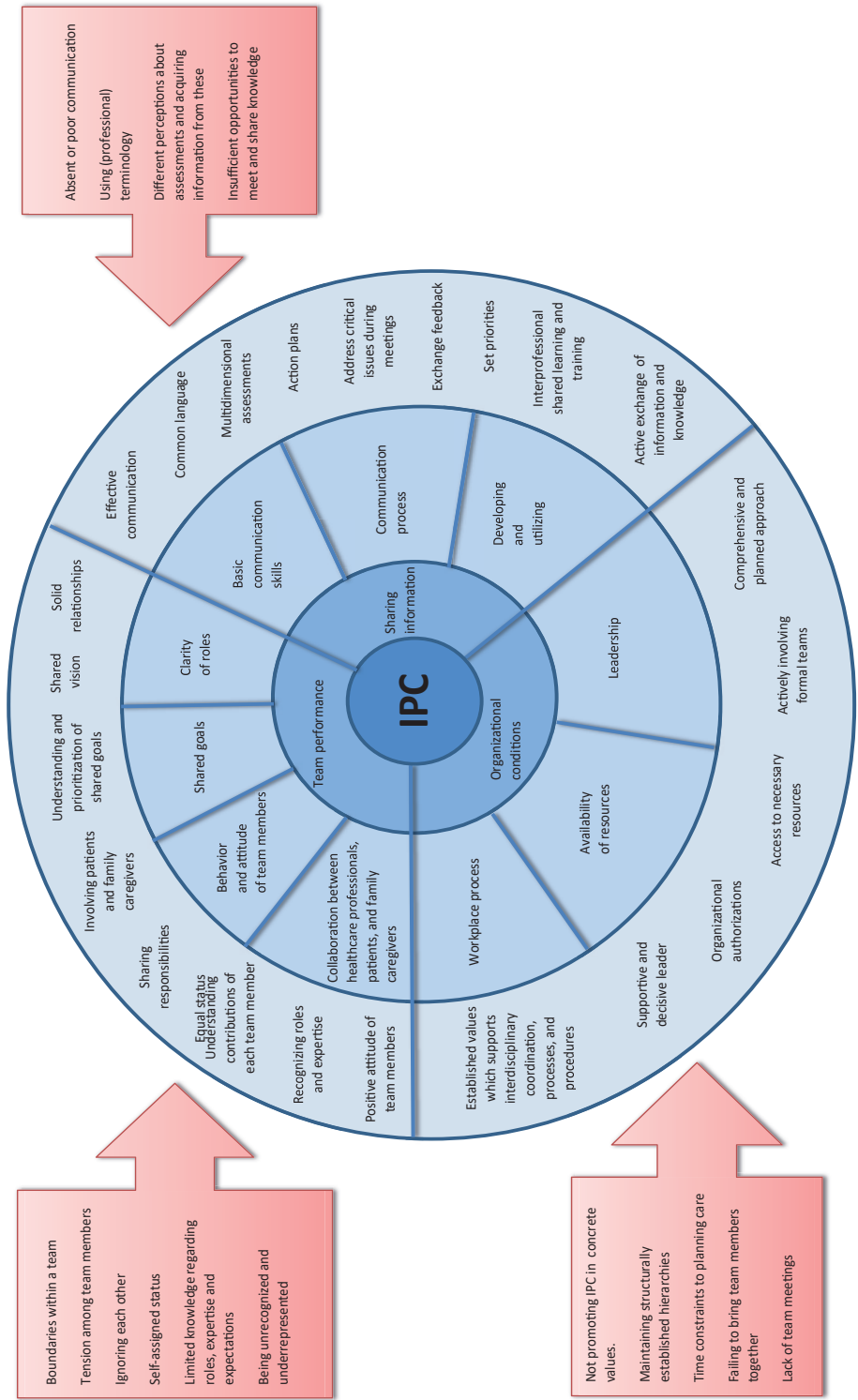
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Supplementary Materials

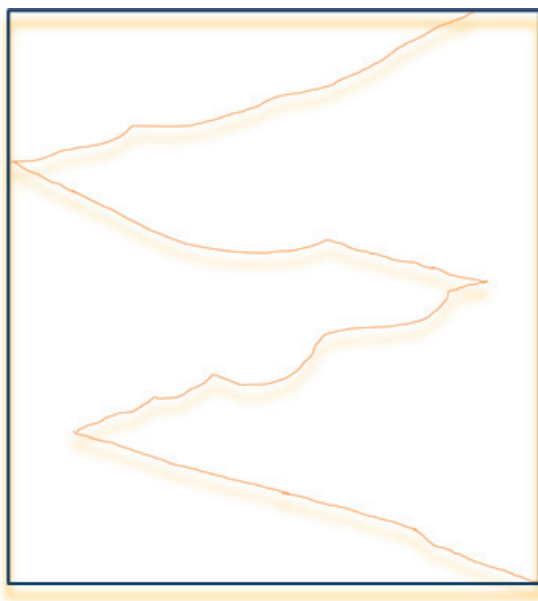
SUPPLEMENTARY MATERIAL 1. Search strategies PubMed, Embase, Emcare, Web of Science, Cochrane Library, Psycinfo

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SUPPLEMENTARY MATERIAL 2. A schematic overview of facilitators of and barriers to Interprofessional Collaboration in long-term care and Geriatric Rehabilitation



Chapter 3



Factors influencing interprofessional collaboration in general and during multidisciplinary team meetings in long-term care and geriatric rehabilitation: a qualitative study

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Abstract

Background

Interprofessional collaboration is essential to maintain high-quality care in long-term care and geriatric rehabilitation. However, little is known regarding perceived factors influencing interprofessional collaboration by people involved in care. This concerns both long-term care and geriatric rehabilitation. Moreover, knowledge of using patient outcome measures to enhance interprofessional collaboration during multidisciplinary team meetings is insufficient. This study examined the perceived facilitators of and barriers to interprofessional collaboration in general and during multidisciplinary team meetings, specifically according to healthcare professionals, patients, and informal caregivers. Differences between long-term care and geriatric rehabilitation were also investigated. Finally, it was examined which patient outcome measures were used in multidisciplinary team meetings.

Methods

A constructivist qualitative study using 10 focus groups and 18 semi-structured interviews with 14 patients, 13 informal caregivers, 10 managers, and 22 healthcare professionals from eight Dutch long-term care and geriatric rehabilitation facilities. A combined inductive and deductive approach to a thematic analysis was performed.

Results

The perceived influencing factors of interprofessional collaboration were classified into two general themes: 1) 'Involvement of patient, informal caregiver, and healthcare professional', categorised into: 'participation of patients and informal caregivers', 'behaviour and attitude of team members', 'expectations of team members towards each other', and 'exchange of information, knowledge, and reciprocity in communication'; and 2) 'A systematic approach to providing care for older people', consisting of: 'coordination of team procedures', and 'coordination of organisational procedures'. Also, one theme for multidisciplinary team meetings was identified: 'Organised participation of patient, informal caregiver, and healthcare professional in multidisciplinary team meeting, categorised into: 'team procedures', 'working systematically', and 'participation in multidisciplinary team meetings. Standardised patient outcome measures were scarcely used in multidisciplinary team meetings.

Conclusion

People involved in long-term care and geriatric rehabilitation indicated that, apart from working systematically, being involved in care and multidisciplinary team meetings are essential factors for interprofessional collaboration. These factors must be taken into consideration to provide valuable, high-quality care to older people residing in long-term care and geriatric rehabilitation through interprofessional collaboration.

Keywords

Interprofessional collaboration, long-term care, geriatric rehabilitation, multidisciplinary team meetings, facilitators, barriers, patient outcome measures.

Background

Long-term care (LTC) and geriatric rehabilitation (GR) have become increasingly complex in recent years due to more multimorbidity and complex geriatric syndromes.^(1, 2) Providing valuable, high-quality care for a growing population of older people requires multidisciplinary knowledge, treatment, and appropriate interprofessional collaboration (IPC).^(1, 3, 4) The World Health Organisation defines IPC as: multiple healthcare professionals from different professional backgrounds providing comprehensive services by working with patients, their families, carers, and communities to deliver the highest quality of care across settings.⁽⁵⁾

Factors influencing IPC can roughly be categorised as interdependent factors related to team performance, sharing information, and organisational conditions.⁽⁴⁾ For effective IPC, relationships are essential, not only within the team but also when delivering care to patients and their families.^(4, 6, 7) Research by Gittel et al. has shown that effective IPC requires a mutually reinforcing process of communicating and relating for the purpose of task integration.^(6, 8) Herewith, all involved individuals, including patients and informal caregivers, can work collaboratively with shared knowledge on shared goals in mutual respect.^(4, 6, 9) Their involvement will be enhanced by factors such as communication about preferred roles, having solid relationships, and receiving adequate information from those involved in the care.^(4, 10-12) Additionally, effective IPC also requires helpful organisational circumstances, such as supportive relational structures that enhance connections across different groups of people involved in LTC and GR.^(4, 13)

There are still challenges to overcome to accomplish effective IPC with the involvement of all stakeholders (i.e., patients, their informal caregivers, and healthcare professionals) in LTC and GR. So far, only a few studies on IPC have been conducted in GR, and patients and informal caregivers are often not included. Besides, comparative research between LTC and GR is limited. Although both LTC and GR provide complex care for older people, delivered by healthcare professionals from various disciplines, little is known about differences in facilitators of and barriers to IPC between both settings.^(1, 2)

Facilitating IPC requires knowledge of perceived influencing factors in general and during multidisciplinary team meetings (MDTMs). A MDTM is a formal meeting for the purpose of sharing information, discussing the health status of patients, and evaluating the care using standardised patient outcome measures to improve communication.⁽¹⁴⁻¹⁷⁾ Understanding each other's expertise and conditions to facilitate MDTMs is essential.^(4, 6, 15) The MDTM provides an ideal opportunity for all stakeholders to meet, evaluate, and coordinate care. It is also one of the

places where IPC happens. When MDTMs are well organised and coordinated, they can enhance the relational and communication processes. ^(6, 7, 18-20) This improves IPC and the quality of care. ^(6, 15, 21)

The primary aim of this study is to examine which facilitators of and barriers to IPC are experienced by patients, informal caregivers, and healthcare professionals involved in LTC and GR. Specifically, a distinction is made between a) facilitators of and barriers to IPC experienced in general and specifically during MDTMs; and b) differences between LTC and GR. A secondary aim is to explore if and which patient outcome measures are used in MDTMs.

Methods

By conducting constructivist research ^(22, 23), we were able to develop an understanding of the perceived facilitators of and barriers to IPC according to patients, informal caregivers, and healthcare professionals in general and during MDTMs. Both focus groups and individual interviews were used in this qualitative study to make use of the strengths of each method to enhance the understanding of IPC in LTC and GR perceived by all stakeholders. ^(23, 24) Interviews provide the opportunity to explore subjects in more detail, centred around the unique experience of a participant that can offer comprehensive perceptions. ^(23, 25) Whereas focus groups reveal how participants respond to group dynamics that may influence their thinking and behaviour. Focus groups also enable participants with similar backgrounds to use their values and norms. ^(23, 25) The Consolidated Criteria for Reporting Qualitative Research Checklist (COREQ) was used for reporting. ⁽²⁶⁾

The Medical Research Ethics Committee Leiden Den Haag Delft (METC LDD) [N22.027] judged the study to be exempt from the Medical Research Involving Human Subjects Act. Participants received a 20-Euro gift card for their participation. Data were collected between March and December 2022.

Setting

This study was conducted in Dutch nursing homes that provided LTC and GR care to older people with complex diseases and disabilities. ⁽²⁷⁻³⁰⁾ Patients residing in nursing homes are permanently or temporarily unable to live at home and receive 24/7 care. Patient care is provided by a multidisciplinary team consisting of elderly care physicians, psychologists, speech therapists, occupational therapists, physiotherapists, nurses, healthcare aides, spiritual counsellors, social workers, and activity supervisors. Healthcare teams in Dutch nursing homes are led by elderly care physicians, who work closely together with all other healthcare professionals. ⁽²⁸⁾ GR facilities specifically focus on frail elderly people who have complex multimorbidity and reduced learnability and trainability. Generally, GR patients have a reasonable chance of returning to their homes. ⁽²⁾ A multidisciplinary team specialising in GR delivers treatment and care with a higher intensity than

the treatment and care provided in LTC. ⁽²⁹⁾ The length of stay in GR is up to six months, but mostly shorter, after which patients can again participate in society. ⁽³¹⁾

Participants

First, the scientific research committees of the nursing homes were asked whether the organisation wanted to participate in the study. An information package about the study was sent to chair of the scientific research committee, and an additional appointment with the researcher (AD) was scheduled if needed to explain more about the study. After receiving permission, potential participants were approached by the manager. They received an information letter and informed consent form. After agreement to enrol in the study, purposive sampling ⁽²³⁾ was used to ensure the minimal number of participants per group for the focus groups and interviews (see ‘Data analysis’ for more details about the sample size). All participants had to work, reside, or have a relative residing in LTC or GR, and have sufficient knowledge of the Dutch language to participate in a focus group or interview. Additional inclusion criteria for healthcare workers were a minimum age of 18 and working in LTC or GR for longer than three months. Informal caregivers had to be actively involved in their relative’s care.

Data collection

When the appointment for the interview or focus group was confirmed, participants received the definition of IPC by the World Health Organisation. Also, they received a link via Castor to a short online questionnaire about their demographic characteristics. A paper version was provided for patients, and for participants unable to fill in the questionnaire online. If needed, the researcher provided help with filling in the questionnaire.

Focus groups

Each focus group consisted of at least four participants to enable discussion of the emerging issues. ^(23, 25) To reduce the possibility of hierarchical influences, we chose to work with separate groups according to the positions in Dutch LTC and GR facilities. ⁽²⁸⁾ Separate focus groups were held for: 1) physicians and therapists; 2) nurses and healthcare aides; 3) managers; 4) patients; and 5) informal caregivers. Participants in a single focus group were all working in the same organisation, however, they could work in different departments or locations.

Focus groups lasted 90 to 120 minutes and were conducted at the participating organizations. One researcher (AD; male, background in physiotherapy, experience with qualitative research) led the focus groups, assisted by a second researcher (HS; female psychologist with ample experience with qualitative research, or one of the three research interns with a background in medicine or psychology: TV, LS, MD). The second researcher also made field notes.

Researchers used elicitation techniques to facilitate the group discussions and encourage participants to share their ideas. ^(25, 32) The focus group started with participants being invited

to write down facilitators of and barriers to IPC that they experienced. Next, the factors were discussed within the group. The second researcher collected the individual sheets and added those to the transcript of the focus group. Using an inversion technique, participants were then invited to think of hurdles in order to obstruct a MDTM. Following, they were asked how to revolve and solve the hurdles together with the group. The focus group ended with discussing two statements within the group: 1) The use of patient outcome measures during MDTMs enables communication between healthcare professionals, patients, and informal caregivers; and 2) Using patient outcome measures facilitates care.

Semi-structured interviews

Semi-structured interviews lasted 45 to 60 minutes and were conducted with participants represented in each of the five groups. Four researchers (AD, TV, LS, and MD) conducted live or online interviews, depending on the participant's preference. The research interns received elaborate instructions on how to conduct the interviews. The interview topic guide is presented in Supplement 1.

Focus groups and semi-structured interviews were conducted simultaneously. The coding took place during the data collection. Both the focus groups and semi-structured interviews were audio-recorded and transcribed verbatim. The participants did not receive a transcript or summary of the meeting as a member check. Field notes were made during the focus groups and interviews.

Data analysis

A sample size of at least 40 participants for ten focus groups (two per group) was deemed sufficient to generate a general idea of the factors perceived by the stakeholders as influencing IPC in LTC and GR. ^(23,33) For the semi-structured interviews, a sample of 10- 20 interviews corresponding the five groups was deemed sufficient to reach data saturation. ⁽²³⁾

Data were coded by combining an inductive and deductive approach to a thematic analysis. ^(23, 34, 35) The coding was performed by a team of four researchers (AD, TV, LS, and MD). Two researchers independently coded the transcripts, followed by a consensus meeting. A third researcher was consulted in case the two researchers could not reach an agreement.

The development of the initial coding tree was based on the themes from a review of IPC in LTC and GR. ⁽⁴⁾ These themes were: A) team performance, which involves clarity of roles and goals, attitude and interaction between participants; B) organisational conditions, which included procedures, resources, and leadership; and C) information sharing, which consisted of communication between and involvement of participants and the exchange of information. Additional codes were added to the coding tree based on inductive coding. Herewith, we generated data-driven codes in addition to theory-driven codes. ⁽³⁴⁾

The six phases of Braun and Clarke for a thematic analysis were followed. ^(34, 36) During an iterative

process, the researchers (AD and HS) searched for relations in codes to develop candidate themes and sub-themes. These themes were discussed between the researchers and the research team to develop an interpretative story. Atlas.ti version 22 facilitated the ordering and structuring of the data.⁽³⁷⁾ The demographic data of participants was descriptively analysed using SPSS version 25.

Results

A total of ten focus groups and eighteen semi-structured interviews were conducted in eight facilities providing LTC and GR. A total of 14 patients, 13 informal caregivers, 10 managers, and 22 healthcare professionals participated. The demographics of participants are shown in Table 1.

TABLE 1. Demographics of participants from long-term care and geriatric rehabilitation involved in the study per group and per setting

		Healthcare professionals			Patients	Informal care-givers
		Physicians and therapists	Nurses and healthcare aides	Managers		
Focus groups	LTC	3	6	4	4	6
	GR	3	2	3	5	5
Interviews	LTC	5	1	2	4	1
	GR	1	1	1	1	1
Mean age in years (SD)	LTC	35.3 (6.8)	51.3 (12.8)	50.8 (8.7)	80.5 (10.2)	72.7 (9.8)
	GR	31.5 (7.9)	46.3 (10.1)	53.3 (12.9)	75.3 (7.2)	55.5 (13.8)
Gender (n male /female)	LTC	0 / 8	0 / 7	0 / 6	2 / 6	4 / 3
	GR	0 / 4	2 / 1	2 / 2	2 / 4	4 / 2
Mean years working in care team (SD)	LTC	4.8 (6.8)	3.9 (1.9)	7.7 (6.9)		
	GR	4.8 (2.9)	7.0 (5.6)	2.7 (1.5)		
Mean hours working per week (SD)	LTC	22.0 (7.1)	29.7 (6.0)	33.7 (7.8)		
	GR	34.0 (2.3)	29.3 (8.3)	30.0 (12.0)		
Mean length of stay in months (SD)	LTC				18.1 (4.3)	
	GR				1.3 (0.6)	
Mean hours actively involved in patient care per week (SD)	LTC					20.1 (17.1)
	GR					20.2 (19.7)

		Healthcare professionals			Patients	Informal care-givers
		Physicians and therapists	Nurses and healthcare aides	Managers		
Mean years actively involved in patient care (<i>SD</i>)	LTC					18.5 (16.5)
	GR					3.6 (4.5)
Relationship to the patient	Partner		LTC			3
		GR		2		
	Son/daughter		LTC			2
		GR		2		
	Brother/sister		LTC			1
		GR		1		
	Son-/daughter-in-law		LTC			1
		GR		0		
	Neighbour		LTC			0
		GR		1		

LTC, Long-Term Care; GR, Geriatric Rehabilitation

Factors influencing IPC

Patients, informal caregivers, and healthcare professionals reported numerous factors influencing IPC in LTC and GR. These were grouped into two general themes and one specific theme regarding MDTMs. An overview of all themes, categories, and codes is presented in Table 2.

The first theme related to general IPC was ‘Involvement of the patient, informal caregiver, and healthcare professionals’, consisting of the categories: a) participation of patients and informal caregivers; b) behaviour and attitude of team members, c) expectations of team members towards each other, d) the exchange of information, knowledge, and reciprocity in communication.

The second theme was ‘A systematic approach to providing care for older people’. It was composed of the categories: a) coordinating team procedures, and b) coordinating organisational procedures.

The theme specific for facilitators of and barriers to IPC during MDTMs was ‘Organised participation of patient, informal caregiver, and healthcare professionals in MDTMs’. This theme was composed of the categories a) team procedures of MDTMs, b) working systematically in MDTMs, and c) participants of MDTMs.

Themes for IPC in general

- Involvement of the patient, informal caregiver, and healthcare professional

Participants emphasised that the involvement of all stakeholders, including patients and informal caregivers, is essential for IPC. More specifically, they indicated that the participation, behaviour,

and attitude of people in LTC and GR were important influencing factors. Emerging facilitating factors of IPC, such as engaging with each other, having an open attitude towards others, and giving feedback to each other, are discussed by all groups.

“We have no problem saying things to each other, for example a psychologist who thinks I should approach a patient in a different manner. He will come to me directly: ‘please say it in more in a positive way instead of giving commands’. And that often helps.” Healthcare professional (therapist) - GR in interview 26701

According to the participants, engaging with each other also creates a sense of responsibility and responsiveness towards each other. They underlined that connecting with each other enables communication between them.

“We intentionally pay attention to each other, and our cooperation is improving more and more, so we are increasingly open towards each other. It becomes easier to bring up and discuss collaboration problems.” Healthcare professional (Manager) - GR in focus group 16701

However, mainly appointed by informal caregivers was their experience of not being involved – for instance, not being informed about potential changes in the care, or not having clarity about the involvement of others – can be a barrier to IPC.

“I never see a nurse or therapist when visiting my husband. They never call or communicate otherwise concerning my husband. We are hardly informed because my husband is not able to speak clearly due to his health situation.” Informal caregiver – GR in focus group 16901

“When I have a complaint about the care of my stepmother, to whom do I go? You see healthcare professionals with blue, lilac, and white uniforms. Some have name tags, others don’t. You don’t know who to turn to because you are insufficiently informed.” Informal caregiver – LTC in focus group 15901

Knowing the expectations of team members was also mentioned by participants as an influencing factor. Involvement can be enhanced by factors such as mutual coordination with regard to expectations and having shared goals.

“The power of taking care of people and doing that together, especially to empower the client. Being in charge in life, looking for goals that are important to that particular person, because I can think up all kinds of stuff, but it has to benefit the person in question.” Healthcare professional (therapist) - LTC in interview 25702

Nevertheless, aligning expectations can be challenging. Examples mentioned were when people do not keep agreements or when different healthcare professionals have different expectations of the goals of a patient.

“Should someone undergoing rehabilitation be able to make their own bed, or does care staff do it for them?” Patient - GR in interview 26801

Within the theme of ‘involvement of patient, informal caregiver, and healthcare professionals’, factors related to ‘the exchange of information, knowledge, and reciprocity in communication’ were regarded as important for IPC. Participants noted that factors such as sufficient and efficient communication with each other about the care process and listening to each other were enabling factors that can result in a sense of well-being.

“No matter how busy they are, they take the time to listen to you, I think that’s very important and that feels good.” Patient - LTC in interview 25810

However, when the communication between people involved in LTC and GR is insufficient, it will create discontent among those involved in the care and restrict IPC.

“This morning my father was informed in like five seconds, your wife is going to move. I think, as her daughter I would like to be there. Why am I not told beforehand?” Informal caregiver - GR in focus group 16901

- A systematic approach to providing care for older people

Healthcare professionals noticed the coordination of team procedures as important for IPC. They stated, for instance, that when a patient is overburdened, the care for this patient requires adequate coordination between all stakeholders. With this, they can align their involvement with the patient’s needs. They also noticed that IPC is enhanced when team members work in ways that complement each other and use comprehensible methods.

“I am currently facilitating team collaboration. I don’t do that myself, others do this together and I am the one who makes sure that everyone actually can and will do it. So I walk the wards, am visible, approachable, and I solve things that are mine to solve. But others solve things where they need to.” Healthcare professional (manager) - GR in interview 26702

“Now, we often call the therapist in the morning to say the patient will be 15 minutes late because he is getting dressed. The effort of getting washed and dressed is also often an exhausting activity the patient has to learn, besides the activities learned by a specific therapist, before returning home.” Healthcare professional (nurse) – GR in interview 26703

Participants furthermore emphasised that coordination of organisational procedures is an important overall category within the theme of systematic approach. The availability of supportive organisational policies for IPC was a frequently mentioned influencing factor. They also indicated the importance of multidisciplinary healthcare professionals having the opportunity to work together in providing care. However, participants also noted the possibility of diverse interpretations in the work process as a potential pitfall. For anyone involved in care, implicit working processes and unclear policies regarding working methods are reported to hinder collaboration and reaching joint objectives.

“Recently, communication between planning staff and rehabilitation staff has improved by working according to guidelines. We now know better what to expect of each other, which supports the sharing of information even before the patients arrive at the department. This helps to organise to have the right people at the right place at the right moment.” Healthcare professional (nurse) – GR in interview 26703

“And those rules, because the more rules there are, the more leeway you have to bypass them. You need a shared vision rather than a whole bunch of separate rules.”

Patient - GR in interview 26801

Specific theme for MDTMs

- Organised participation of patient, informal caregiver, and healthcare professionals in MDTMs

Participants specifically emphasised factors influencing IPC during MDTMs. They stated that working with team procedures and using a systematic approach in MDTMs are important. They noticed that a clear process and well-defined goals of MDTMs facilitated IPC during these meetings.

“In MDTMs, you are digging a little deeper and searching; you specifically look into a patient. Actually brainstorming on how you can best solve potential problems with each other.” Healthcare professional (therapist) – LTC, in interview 25705.

The participants also revealed that the involvement of a variety of people in MDTMs must be clear. However, they also felt that an unclear vision of team functioning generates uncertainty regarding the involvement of the participants in MDTMs.

“All disciplines have their contribution during a MDTM. Their input will be discussed by the team. Finally, the team concludes, sets goals, and determines the date on which the patient returns home.” Healthcare professional (therapist) – GR, in interview 26701

“Also a difference in vision. Whether you see the MDTM as no more than chatting for an hour, or that it is where actions and evaluations are agreed upon. That really is a huge difference.” Healthcare professional (healthcare aide) - LTC in focus group 15702

In general, there are similarities in many of the factors reported to influence IPC in LTC and GR. However, with regard to MDTMs, differences are reported for organisational procedures, such as a higher frequency of MDTMs in GR (once a week) than in LTC (once every six months). Furthermore, the involvement of patients and informal caregivers during MDTMs is regularly seen in LTC, but not in GR. Here, patients and informal caregivers are mainly informed prior to MDTMs and afterwards.

TABLE 2 A. Overview of the themes, categories, and codes of facilitators of and barriers to interprofessional collaboration in general

Potential Themes	Categories	Codes
<i>Involvement of patient, informal caregiver, and health-care professional</i>	Informing each other	• Clear information exchange between healthcare professionals • Balance between sharing information in writing and through conversation • Up-to-date handover information • Informing family caregivers about policy decisions • Clarity about care process among all persons involved (patient, family caregiver and healthcare professional)
	Mutual communication	• Mutual communication among stakeholders • Short lines of communication between professionals in nursing home and hospital care • Uniform use of language • Listening to each other
	Participation of all persons involved	• Engaging with each other • Willingness of patient, family caregiver and health care professional to help • Open attitude • Interest in each other • Positive team atmosphere • Equality of permanent and temporary team members
	Behaviour and attitude of team members towards each other	• Low-threshold accessibility of healthcare professionals • Calling each other to account/giving feedback • Showing empathy • Social activities with team to get to know each other • Self-reflection
	Team members' expectations towards each other	• Agreement on goals • Mutually attuned expectations
<i>Systematic approach to providing care for older people</i>	Coordinating team procedures	• Clear procedures • Joint coordination regarding treatment plan • Working in complementary manner to each other • Systematically planned evaluation moments with persons involved
	Coordinating organisational procedures	• Availability of multidisciplinary health professionals for treatment • Policy support for collaboration between care professionals

Codes

Barriers

- Healthcare professionals do not know who is informal caregiver
 - Informal caregiver is not informed, or not in a timely manner, or is informed retrospectively
 - People involved are not or insufficiently informed about the care process
 - Family caregivers are not or insufficiently informed about the roles of healthcare professionals
 - Ignoring family caregiver contribution
 - No or limited communication between persons involved
 - No or limited contact between family caregiver and healthcare professional
 - Limited communication between healthcare professionals
 - Unclear attitude towards each other
 - Family caregiver not or not actively involved
 - Not knowing each other
 - Showing no interest in each other
 - Little or no empathy
 - Failure to honour agreements
 - No or limited attuning
 - No clear procedures
 - No or limited coordination between care professionals about their contribution
 - Healthcare professionals having no or limited control regarding treatment process
 - Unclear policy on procedures
-

TABLE 2 B. Overview of the themes, categories, and codes of facilitators of and barriers to interprofessional collaboration specific for multidisciplinary team meetings.

Potential Themes MDTM	Categories MDTM	Facilitators
<i>Organised participation of patient, informal caregiver, and healthcare professional in MDTMs</i>	Participants in the MDTM	• Patient and/or family caregiver attending the MDTM • Multidisciplinary healthcare professionals attending the MDTM • Decisive MDTM chairperson • Patient-tailored presence of disciplines at MSTM
	MDTM - Team procedures	• Patient and family caregiver influence on content of MDTM • Clarity about MDTM process • Clarity about goal of MDTM • Clarity about chairmanship of MDTM
	Methodical approach to MDTM	• Planned actions during MDTM • Organized consultation structure for providing feedback from MDTM to patient and family caregiver

Patient outcome measures

An overview of the mentioned patient outcome measures used during MDTMs is shown in Table 3. Standardised patient outcome measures were not often used in MDTMs, according to the participants. Measures mentioned related to the status of physical and psychological functioning and patient safety.

TABLE 3. Overview of the mentioned patient outcome measures used in Multidisciplinary Team Meetings in Long-Term Care and Geriatric Rehabilitation

<i>Patient outcome measures</i>
Activities of Daily Living
Assessment of Motor and Process Skills
Medication management
Barthel Index
Blood pressure
Blood test (blood sampling)
Body Mass Index
Canadian Occupational Performance Measure
Day curves
Decubitus risk score/ Time model
Delirium observational screening
Fall risk
Fluid (intake/output) list
Geriatric Depression Scale
Glucose measurement
Hand squeeze test
Heart rate
Incident report Client
Incident report Staff

Codes MDTM

Barriers

- Patient and family caregiver not involved in MDTM
 - Ignoring team agreements regarding MDMT
 - No clear vision about conducting the MDMT
-

Patient outcome measures

Mini-Mental State Examination

Montreal Cognitive Assessment

Neuropsychiatric Inventory

Neuropsychological examination

Pain score

Risk inventories

Short Nutritional Assessment Questionnaire

Temperature

Utrecht scale for the evaluation of clinical rehabilitation

Weight, Bioelectrical Impedance Analysis

6-minute walking test

Discussion

This study examined perceived facilitators of and barriers to IPC in general and specifically for MDTMs experienced by patients, informal caregivers, and healthcare professionals in LTC and GR. Facilitators of and barriers to IPC in general were classified into two general themes: 1) 'Involvement of patient, informal caregiver, and healthcare professional', 2) 'Systematic approach to providing care for older people'. One specific theme was identified for IPC in MDTMs: 'Organised participation of patient, informal caregiver, and healthcare professional in MDTMs'. The standardised patient outcome measures were scarcely used during MDTMs.

Effective IPC in LTC and GR is associated with the involvement of patients, informal caregivers, and healthcare professionals. It is person-centred in that it addresses the individual needs of the stakeholders. ⁽³⁸⁻⁴⁰⁾ Working together with patients and informal caregivers contributes to person-centred care, which is often mentioned as the golden standard for LTC and GR care. ^(41, 42) It also enables 'shared decision-making' through an open attitude and behaviour and the sharing of information between healthcare professionals, patients, and informal caregivers. ^(42, 43) However, working with patients and informal caregivers can be challenging. ^(44, 45)

To reach a level of collaboration in which all stakeholders work in complementary ways, an open attitude towards others is imperative. ^(4, 9, 43) An open attitude supports the opportunity to align expectations. ⁽⁴⁶⁻⁴⁸⁾ This enables substantial reciprocity, which is related to a sense of well-being and thus facilitates IPC. ^(47, 49) However, when, for example, people are not honouring agreements, it may lead to misaligned expectations, which is confirmed in the literature. ⁽⁴⁷⁾ This may impede involvement and thus hinder IPC.

Besides, we also must consider that being involved with each other can take place at different levels, concern different circumstances, and may change over time, as shown by Lakin (2022). ⁽³⁹⁾ So, effective IPC warrants continuous attention and regular evaluation by all stakeholders, including the patient and informal caregiver. For a more in-depth insight into facilitators of and barriers to IPC, future studies should examine differences between stakeholders.

The identified theme of a systematic approach (or lack thereof) to providing care is in line with previous studies by Gittell et al. as well as 'organisational conditions' in a systematic review on IPC in LTC and GR. ^(4, 6, 8) Effective coordination will enable healthcare professionals, patients, and informal caregivers to better adapt to often changing situations in the complex care of older people. It can foster their collaboration, which is in line with findings in other studies. ⁽⁵⁰⁾ This will be supported by having organisational policies about working methods and explicit work processes, as stated in earlier research. ⁽⁵¹⁾ So, working systematically should be carefully considered by organisations and teams working in complex care. It enables teams to anticipate frequently changing situations, and anticipatory behaviour benefits group coordination and collaboration. ⁽⁵⁰⁾ However, more research is needed to examine the role of anticipatory behaviour in LTC and GR with regard to enhancing IPC.

Previous research has shown that a well-organised approach to MDTMs stimulates IPC. ^(9, 52, 53) Transparency and a systematic approach are beneficial for supporting the involvement of all stakeholders to facilitate person-centred care. ^(2, 9, 46, 54) It requires the well-coordinated involvement of stakeholders, clear procedures, and aligned communication. ⁽⁶⁾ Especially in GR, due to the pace of the care process and a noticeable shorter admission time, the involvement of patients and informal caregivers is challenging. Besides, managing expectations in a relatively short period of time appears challenging. To be able to swiftly respond to changing circumstances calls for anticipatory behaviour. ⁽⁵⁰⁾ However, as a result of an unclear vision of team functioning in MDTMs, collaboration within a group can easily deteriorate. ^(9, 52, 53) So, to enhance IPC in general, facilities for LTC and GR can benefit from a well-defined context of MDTMs.

Interestingly, we found that standardised patient outcome measures were used scarcely in MDTMs. Although the literature shows it has various beneficial factors such as sharing information, discussing the health status of patients, and evaluating the care, which supports a comparable view of patients' functional status. ⁽⁵⁵⁾ In addition, it ensures uniformity in language, which is a facilitator to IPC. ⁽⁴⁾ These factors can be supportive and align the mutual expectations of patients, informal caregivers, and healthcare professionals. Besides, using patient outcome measures can be supportive of team coordination for the appropriate involvement of healthcare professionals to fit patients' needs. In this way, LTC and GR can benefit from using patient outcome measures to facilitate IPC in MDTMs and in general. Future studies should examine perceived barriers to using patient outcome measures in MDTMs.

Strength and Limitations

The strengths of this qualitative research include working with a clear definition of IPC, the active involvement of patients, informal caregivers, and healthcare professionals from both LTC and GR, and the use of separate focus groups to provide an opportunity for the various stakeholders to elaborate on their experiences in a setting created to avoid hierarchical influences. Although conducting homogeneous focus groups may have led to missing discussions with mixed participants groups, the semi-structured interviews allowed for an in-depth examination to cover all important topics regarding IPC. It should be noted that this study focused primarily on facilitators of and barriers to IPC. Patient outcome measures to enhance IPC and differences between LTC and GR were discussed less extensively. This study was performed in the Netherlands. In other countries or cultures, where the care for elderly persons is organised differently, other themes may come up. However, the perceived facilitators of and barriers to IPC may still provide useful for optimising IPC in other countries and settings.

Conclusions

Interprofessional collaboration is necessary for the provision of person-centred, high-quality care in LTC and GR. The complexity of caring for older people residing in these facilities requires coordinated multidisciplinary knowledge, care, and treatment. This necessitates the well-organised collaboration between healthcare professionals, patients, and informal caregivers, both in general and in MDTMs. Enhancing such a collaboration involves a systematic approach with clear policies regarding working methods and effective coordination.⁽⁶⁾ Also essential to enable responding to the often changing circumstances is anticipatory behaviour from all stakeholders. Acknowledging the often changing circumstances also means acknowledging that effective coordination is essential.^(6, 8) It supports regulating and evaluating the involvement of all stakeholders to meet patients' needs, which will enhance IPC.^(40, 46, 47, 54) Besides to improve care, the use of patient outcome measures in MDTMs may enhance IPC by facilitating the use of a common language, sharing information, which in turn improve team coordination and communication. Thus, interprofessional collaboration in complex care in LTC and GR requires a well-coordinated team consisting of all stakeholders involved to facilitate person-centred high-quality care.

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Supplementary materials

Supplement 1. *The interview topic guide*

Interview guide for study on factors influencing interprofessional collaboration

Questions for healthcare professionals

- How would you describe the daily collaboration within your team?
- Can you name any factors that facilitate Interprofessional collaboration (IPC) that you experience in your daily practice?
- Can you name any factors that impede IPC that you experience in your daily practice?
- Can you describe what the multidisciplinary team meeting looks like?
- How do you experience cooperation in the multidisciplinary team meeting (MDTM)?
- Can you name any factors that facilitate IPC that you experience during the MDTM?
- Can you name any factors that impede collaboration that you experience during the MDTM?

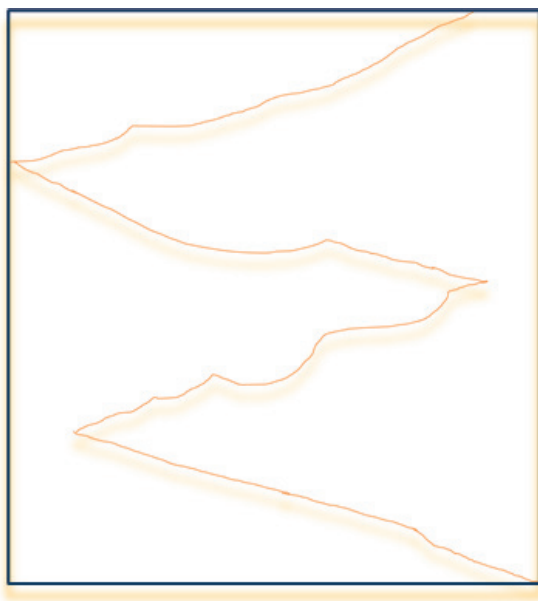
Questions for patients

1. How do you experience collaboration in the ward?
2. Can you name conditions you experience in the ward that encourage collaboration?
3. Can you name conditions you experience in the ward that impede collaboration?
4. Have you ever attended a MDTM? If so, can you name any circumstances that encourage and/or impede collaboration?

Questions for family caregiver:

1. How would you describe your experience of the collaboration in your relatives ward?
2. Can you name conditions you experience in the ward that encourage collaboration?
3. Can you name conditions you experience in the ward that impede collaboration?
5. Have you ever attended a MDTM? If so, can you name any circumstances that encourage and/or impede collaboration?

Chapter 4



Interprofessional collaboration during multidisciplinary team meetings in geriatric rehabilitation: an observational study

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Abstract

Background

Interprofessional collaboration (IPC), which involves healthcare professionals from different professions collaborating with patients and informal caregivers, is essential for the provision of high-quality person-centred geriatric rehabilitation. This involves addressing each patient's unique needs throughout geriatric rehabilitation and multidisciplinary team meetings (MDTMs), where patients' condition, goals, and treatment are discussed and evaluated; IPC is essential. However, there is a lack of knowledge about essential factors that influence IPC during MDTMs in geriatric rehabilitation. This study examined the factors affecting IPC during MDTMs, including the participants' perceptions of IPC during the MDTM and the patient outcome measures used.

Methods

The research is a naturalistic observation study performed during 7 MDTMs with 41 participants from four geriatric rehabilitation facilities situated in nursing homes in the Netherlands. After the MDTM, participants completed a brief survey that included a VAS to determine their IPC experiences. They used the VAS to score their satisfaction with collaboration, MDTM conditions, and communication.

Results

Chair roles, time management, clear procedures, and actively participating healthcare professionals who share information and ask clarifying questions are all necessary for effective IPC during MDTMs. Involving patients and informal caregivers is also essential. Participants' VAS scores were 7.9 (mean), 8.0 (median), and [7.3-8.9] IQR for collaboration, 7.8, 8.0, and [7.1-8.5] for sharing knowledge, and 6.6, 6.6, and [5.8-8.0] for MDTM conditions. Nonetheless, they identified areas for improvement, such as increasing interdependence. Occasionally, patient outcome measures were used.

Conclusion

Effective leadership and communication among the participants enhances IPC during MDTM. Being inactive and adopting a wait-and-see strategy during the MDTM hampers IPC and thereby potentially hinders optimal person-centred care. To establish effective MDTMs for high-quality person-centred geriatric rehabilitation, participants must be involved, accept responsibility, and collaborate with the chair.

Introduction

To maintain high-quality geriatric rehabilitation and to anticipate changing circumstances in the rehabilitation process over time, such as changing goals, interprofessional collaboration (IPC) is essential. ⁽¹⁻⁴⁾ IPC is defined as healthcare professionals from different professional backgrounds working collaboratively with patients and their informal caregivers. Everyone contributes unique knowledge and experience to achieve a shared goal. ^(5, 6) In the context of geriatric rehabilitation, IPC frequently takes place during and is essential for effective multidisciplinary team meetings (MDTMs). ^(4, 7)

MDTMs in geriatric rehabilitation involve discussion and evaluation of patients' condition, goals, and treatment to determine the next phase of rehabilitation. ⁽⁸⁻¹⁰⁾ Coordinating each patient's individual needs during geriatric rehabilitation and MDTMs is an essential element of person-centred geriatric rehabilitation. ^(2, 4) During the rehabilitation process, a variety of healthcare professionals provide diagnostic and therapeutic interventions in a relatively short time span. ⁽²⁾ All parties have to work together to enable the patient's safe and timely return home or, if necessary, transfer to a long-term care facility. ^(2, 11) In order to collaboratively provide person-centred care and to achieve mutual understanding of patients' problems and goals, MDTMs require adequate IPC. ⁽⁴⁾

Previous research on IPC has shown that effective communication, patient and informal caregiver involvement, as well as clear, coordinated procedures, processes, and shared goals are all required. ^(4, 6-9, 12-14) Furthermore, it has also been suggested that the use of patient outcome measures is beneficial for exchanging information, discussing patients' health status, and evaluating rehabilitation, allowing for a more comparable evaluation of patients' functional status. ^(4, 15) In addition, meetings involving more than two persons, such as MDTMs, have been shown to be essential platforms for organisational communication, knowledge, and culture. ⁽¹⁶⁾ To date, most studies on this topic have been conducted in settings outside of geriatric rehabilitation, such as hospitals or long-term care facilities. Currently, there is a lack of knowledge about the essential factors and processes that influence IPC in geriatric rehabilitation, especially during MDTMs. To optimise IPC and thereby improve person-centred care, more knowledge is needed regarding the facilitators of and barriers to IPC during MDTMs in geriatric rehabilitation.

The current observational study of essential factors and processes influencing IPC during MDTMs in geriatric rehabilitation provides a better understanding of the topic and allows us to enhance IPC for better person-centred geriatric rehabilitation. This study examines IPC during MDTMs in geriatric rehabilitation by 1) describing observed aspects of IPC in a naturalistic setting, 2) examining the participants' satisfaction with aspects of IPC, and 3) describing the use of standardised patient outcome measures.

Methods

The study was designed as a naturalistic observation study, that is, a study in which a passive observer observes phenomena in their natural, non-manipulated environment. ^(17, 18) This method enables researchers to observe IPC during MDTMs in everyday situations, ensuring high ecological validity. ⁽¹⁸⁾ Using the fly-on-the-wall approach, a researcher observed the MDTM. Participants in the MDTM were asked to complete a short questionnaire after the MDTM to assess their subjective experience of IPC during the meeting. The Standards for Reporting Qualitative Research were used to report this study. ⁽¹⁹⁾ The study was deemed exempt from the Medical Research involving Human Subjects Act by the Medical Ethics Committee Leiden - The Hague - Delft (METC LDD) [N22.027]. Participating teams received a box of chocolates for their participation. Data were collected between May and December 2022.

Setting

The study was performed in seven MDTMs from four geriatric rehabilitation facilities in the Netherlands. These geriatric rehabilitation facilities are generally situated in nursing homes and provide care to older people with complex diseases and disabilities after an acute event. ^(2, 20) Due to their temporary inability to stay at home, geriatric rehabilitation patients receive 24/7 care from a multidisciplinary team that includes elderly care physicians, psychologists, nurses, nurse aides, speech therapists, occupational therapists, physiotherapists, spiritual counsellors, social workers, activity coordinators, and healthcare intermediary. Elderly care physician is an officially recognised medical discipline. ⁽²¹⁾ Patients receive rehabilitation and care based on a care plan to improve their functional abilities, advance activity, maintain functional reserve, and enhance social involvement. ⁽²⁾ The elderly care physician is responsible for the care plan. ⁽²¹⁾

Participants

Using purposive sampling, scientific research committees of geriatric rehabilitation facilities (n=12) received an information package about the study and were invited to participate. Reasons not to participate were a lack of time to organise observations by approached departments (n=2), and not responding to the invitations (n=3). After they agreed to participate, the researcher contacted the managers of the geriatric rehabilitation departments (n=7) via mail and phone. The managers received information regarding the study and they informed their teams. If the team decided to participate, they received an informed consent form. The study included all persons participating in the observed MDTMs at the geriatric rehabilitation departments, with no additional inclusion or exclusion criteria.

Data collection

Observations

Two researchers (AD, HS) developed an observation guide and form to instruct observers on what to observe, how to document their observations, and how to inform participants at the beginning of the observed MDTM. The observation form was created based on the themes (i.e., team performance, organisational conditions, and information sharing) identified in a systematic review of facilitators of and barriers to IPC in long-term care and geriatric rehabilitation.⁽⁷⁾ Two researchers (AD, HS) pilot tested the observation form by independently observing two MDTMs, followed by a consensus meeting to compare observations and to optimise the form.

The form contained five topics: 1) Team composition: The observer records who and how many members attended the MDTM, as well as their professional and additional roles, such as chairing or taking minutes. Furthermore, they recorded the number of patients discussed, took notes on agenda management, and noted when team members were replaced by colleagues; 2) Team performance: The researcher observes the clarity of team responsibilities, such as recognising roles and expertise; team goals, such as mutual objectives and the setting of priorities; the conduct and attitudes of participants, such as being respectful and whether everyone is given the opportunity to provide input; and interaction between participants, for example, discussing items with the whole group or in a subgroup, or looking at laptops instead of each other while discussing patients; 3) Organisational conditions: This includes observing the visible procedures that were followed, such as clear and coordinated procedures; available resources, such as sufficient time for the meeting and available operational technical facilities; and clarity of leadership, such as leadership style and clear vision; 4) Information sharing: Observation includes descriptions of the participants' behaviour during the MDTM, such as body language and intonation; how participants interact, for example, whether all participants are involved; active sharing of information and expertise (e.g., sharing of additional patient information, such as the psychologist sharing the results of a recent neuropsychological test); and 5) The use of patient outcome measures: The researcher documents whether and which patient outcome measures were discussed during the MDTM.

Based on previous studies, the researcher then rated the observed level of team performance, organisational conditions, and information sharing in the MDTM using a Visual Analogue Score (VAS).^(4, 7) VAS is a line (0-100 mm) where 0 is 'not observed at all' and 10 is 'very clearly observed'. Finally, the researcher made additional field notes in the text fields below each IPC-aspect. The observation form can be found in Supplement 1.

Participants' experience of IPC

To evaluate participants' subjective experience of IPC during MDTMs, the researchers developed a brief questionnaire. First, participants were asked to provide demographic information, such as their professional position. Second, participants used a VAS to rate their satisfaction on the following items: 1) How satisfied are you with the collaboration in the MDTM?, 2) How satisfied are you with the communication in the MDTM? and 3) How satisfied are you with the essential

conditions of the MDTM? (e.g., time, meeting room, technical facilities, structure of the MDTM). The VAS ranges from ‘very dissatisfied’ (0) to ‘very satisfied’ (10). Third, participants could elaborate on their ratings of the IPC components during the MDTM by writing down additional comments in an open text field. The short questionnaire can be found in Supplement 2.

Procedures

At the beginning of the MDTM the researchers introduced themselves and briefly explained the goal of the observation and the World Health Organisation’s definition of IPC to the participants. Participants were asked to continue with the MDTM as if the researcher was not present. The researcher was ‘a fly-on-the-wall’, so they took a position in the room where they could observe what was happening without attracting too much attention. The MDTMs were audio recorded. Three researchers (AD, HS, MC) carried out the observations. Observers were not affiliated with the teams they observed. To ensure data quality, four of the seven MDTMs were observed independently by two researchers, followed by a consensus meeting. The consensus forms were then used in the analyses. To ensure data accuracy, two researchers (AD, MC) checked the observation forms against the audio recordings of the MDTMs to ensure that no relevant information was missed. Audio recordings were deleted after the check.

Data analysis

A sample size of five to ten observations was predetermined. Data collection could be stopped if no new information about IPC in MDTMs emerged. ⁽¹⁸⁾ Two researchers (AD, MC) independently coded observation forms using both inductive and deductive coding. Three researchers (AD, MC, HS) created a codebook with four pre-developed topics based on a review examining IPC in long-term care and geriatric rehabilitation. ⁽⁷⁾ The topics included: A) Team performance: including defined roles and goals, attitudes towards each other, interaction between team members, and performance across roles); B) Organisational conditions: including procedures, resources (such as technical facilities, time to prepare and attend meetings), and leadership (for example, what kind of leadership); C) Information sharing: communication between participants (e.g., listening to each other and using a common language), involvement of participants (such as an active exchange of information and knowledge between participants); D) Patient outcome measures: their impact on IPC in MDTMs. The codebook can be found in Supplement 3. Any additional topics and codes that emerged during the coding process were added to the codebook.

The researchers (AD and HS) conducted a qualitative content analysis to gain insight into MDTMs in geriatric rehabilitation and to better understand IPC in order to enhance person-centred care. ^(18, 22) During the analysis, the researchers immersed themselves in the data, allowing themes to emerge from the data. By refining and developing the codebook categories and integrating them with field notes from both participants and researchers, they were able to combine findings and interpretations. Atlas.ti version 22 facilitated the ordering and structuring of the data. Descriptive analyses were carried out using SPSS version 29 to present the participants’ demographics and perspectives on IPC.

Results

The researchers observed seven MDTMs from seven departments in four geriatric rehabilitation facilities. A total of 41 participants took part in the MDTMs: 39 healthcare professionals, one patient, and one informal caregiver (M=7.0 per MDTM, range 2.5-11.0). Table 1 shows the characteristics of the participants.

TABLE 1. Demographics of the participants in the observed multidisciplinary team meetings (N=7) in geriatric rehabilitation.

		Participant in the MDTM	Mean age in years (SD)	Gender (female %)
Healthcare professionals	(Elderly care) physician	8	44.3 (14.5)	62.5
	Nurse (practitioner)	10	48.7 (11.1)	50.0
	Nurse aide, intern	8	29.6 (11.8)	87.5
	Psychologist, Physiotherapist, Occupational therapist, Healthcare intermediary	13	30.6 (7.4)	69.2
	Patient, Informal caregiver	2	76.5 (7.8)	50.0
Total		41	40.0 (15.8)	65.9

MDTM: multidisciplinary team meeting; SD: Standard Deviation.

Organisation of MDTMs

During the seven MDTMs, 70 patients were discussed. The agendas included 65 patients (M=9.3 per MDTM, range 1 to 19). In addition, one discharged patient was discussed, and during three MDTMs, a total of four patients were added to the agenda. Seven MDTMs required a total of 356 minutes to discuss and evaluate the patients (M=5.1 minutes per patient). All MDTMs were chaired by a designated chairperson. This was usually the elderly care physician or the nurse practitioner who also took notes; only three MDTMs had a designated note taker. Interestingly, there was only one MDTM during which a patient was present and one MDTM which was joined by an informal caregiver.

Observed IPC-influencing factors during MDTMs

Team performance

A distinctive aspect was the clarity of team roles. This included not only professional roles but also tasks such as chairing, maintaining an agenda, and reporting on team objectives. The role of the

chair was clear in all MDTMs. Each of the seven MDTMs was chaired by an elderly care physician or nurse practitioner. In two meetings the role of chair was shared between two individuals: one person focused on the content while the other focused on the rehabilitation process. The clear role of the chair resulted in well-coordinated meetings, which included working with clear objectives, a well-prepared agenda, and the involvement of persons relevant to the patients' rehabilitation.

During one MDTM, due to illness of team members, one person had to combine several roles, e.g., the role of physician combined with the role of chair, note taker, and agenda manager. This resulted in insufficient time to discuss all the issues on the agenda within the time allotted for the MDTM, and required a high level of skill from the MDTM leader.

Active participation of all participants in the MDTMs had a notable facilitating influence on IPC. When participants actively responded to each other's perceptions, the team was able to establish common goals. This implies effective team performance.

However, participants were regularly distracted, which resulted in decreased focus. This was especially due to the use of phones, which frequently led to subgroup discussions or the stagnation of an MDTM.

Organisational conditions

Resources for conducting MDTMs were identified within the organisational conditions. It was evident that sufficient time to meet each other and conduct MDTMs was essential to manage the number of patients on the agenda.

However, due to time constraints and the large number of cases on the agenda, patients were often discussed less thoroughly. For example, the longest MDTM lasted 82.5 minutes and addressed 18 patients, an average of 4.6 minutes per patient.

Reduced team concentration and participation, partly caused by the length of MDTMs, occasionally resulted in ambiguous follow-up agreements. Following specific procedures, such as setting an agenda, planning, and scheduling tasks, enhanced IPC during MDTMs. However, discrepancies or the lack of procedures reduced IPC. Reduced concentration was also observed when climate control was lacking or suboptimal. MDTMs were occasionally conducted in small rooms without climate control.

Furthermore, the possibility of sharing information on a large screen while discussing patient issues and the rehabilitation process with all participants enhanced participant engagement and IPC during MDTMs.

Information sharing

A variety of topics under the heading of Information sharing influenced IPC during MDTMs. For example, communication between participants was highlighted as a critical component. The active exchange of information about patient issues and rehabilitation processes stimulated group discussions, which enhanced IPC. However, a lack of information sharing made it unclear who did what during the rehabilitation, which hindered IPC during the MDTM.

Listening was an important aspect that was observed repeatedly during MDTMs. During MDTMs, IPC increased when participants asked clarifying questions to gain a deeper understanding of unclear or incomplete information. Finally, when patients and informal caregivers' were involved during MDTMs - or when they were explicitly represented by a team member who collected information from them prior to the MDTM - IPC was enhanced by the identification of well-defined, person-centred shared goals.

Patient outcome measures

Four of the seven MDTMs included patient outcome measures. During these four MDTMs, 53 of the 70 patients were discussed. However, only five patients were discussed using four different measures. Three measures of a patient's cognition were observed: the Mini-Mental State Examination, Montreal Cognitive Assessment, and Delirium Observation Screening Scale. In addition, the Barthel Index for Activities of Daily Living was observed during one MDTM. In conclusion, the use of patient outcome measures during MDTMs appears to be incidental rather than methodical.

Figure 1 is showing facilitators of and barriers to interprofessional collaboration in multidisciplinary team meetings in geriatric rehabilitation.

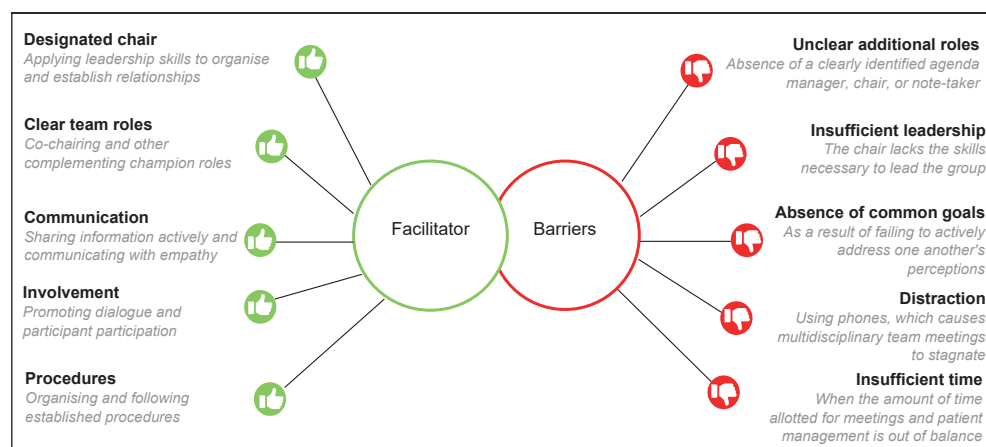


FIGURE 1. Facilitators of and barriers to interprofessional collaboration in multidisciplinary team meetings in geriatric rehabilitation.

Observers' rating on the visibility of IPC during MDTMs

Supplement 4 shows the researchers' VAS scores for each observed IPC component across all seven MDTMs. A mean score of 7.1 with a median of 7.7 on team performance (interquartile range [IQR] 6.0-8.2), a mean of 7.7 score (median = 7.9, IQR 7.1-8.1) on organisational conditions, and a mean score of 7.1 (median = 6.9, IQR 6.1-8.1) on information sharing.

Participants' perceptions of IPC during MDTMs

Supplement 5 summarises participant satisfaction with IPC during MDTMs. It is divided into three categories: a) collaboration, b) MDTM conditions, and c) communication.

Satisfaction with collaboration

Participants' mean subjective rating of collaboration was 7.9 with a median of 8.0 (IQR 7.3-8.9). Although the overall score was good, participants identified areas for improvement in IPC during MDTMs:

"Everyone is still focused on doing their own thing, we need a more transdisciplinary focus." Therapist - MDTM 36706

"The usual participants were not present, which made things go less smoothly than normal. There were many extra tasks due to colleagues being off sick." Physician - MDTM 36704.

Participants and observers had comparable scores on collaboration, with the MDTM participants scoring somewhat higher.

Satisfaction with MDTM conditions

Satisfaction with MDTM conditions differed among the observed MDTMs. MDTM conditions are scored with a mean of 6.6 (median = 6.6, IQR 5.8-8.0). During two MDTMs, it was noticeable that the (elderly care) physicians and nurses (nurse practitioners) were the least satisfied with the available resources. They mentioned the lack of videoconferencing possibilities and climate control for the meeting room:

"Dialing in affects the quality of the meeting; it would be good to have video conferences." Physician - MDTM36701

"The MDTM room is not always ideal; this one, for example, it's too small and too hot." Physician - MDTM 36705.

Another factor acknowledged by participants was the lack of time to prepare for meetings. Some participants noted that team members' attempts to prepare for MDTMs often failed. However, some participants mentioned noticeable improvements:

"Over the past few months, the MDTM has become more structured, so things are running better and it is a pleasure to work with this team." Therapist - MDTM 36707.

Compared to collaboration, participants rated MDTM conditions lower than observers.

Satisfaction with communication

Participants were satisfied with the communication with an average score of 7.8 (median = 8.0, IQR 7.1-8.5). However, they identified areas for improvement, such as clear communication about different tasks and agreement on common goals. Similar to collaboration, observers' ratings are slightly lower than those of MDTM participants.

Discussion

Throughout geriatric rehabilitation and during MDTMs, IPC is essential as it enables working with common goals addressing patients' unique needs suitable for person-centred geriatric rehabilitation.^(8, 23-28) This study examined interprofessional collaboration during MDTMs in geriatric rehabilitation and how these MDTMs are organised. Effective MDTMs require a designated chair, clear team roles, involvement of all parties, effective procedures, and communication to ensure coordination.

In line with previous studies, this research shows that IPC in MDTMs improves when the meeting is led by a designated person with leadership skills, such as the ability to organise and build strong team relationships.^(9, 29, 30) Moreover, a chair is also accountable for coordinating and adhering to established procedures and enhancing participant involvement by encouraging discussion and contributions during MDTMs and monitoring person-centred goal setting.^(8, 23-27) Coordinating procedures and involving participants enhances the shift from interdisciplinary, multidisciplinary, or monodisciplinary objectives to common interprofessional goals.^(4, 7, 30) Assigning a designated chair is therefore essential for IPC in MDTMs in geriatric rehabilitation.

All these tasks together require a higher level of skills from a chair. Therefore, during MDTMs, a chair should not be asked to perform any additional tasks outside their professional role. Team members can enhance their MDTMs by taking on complementary championship roles, such as co-chairing MDTMs and committing to improving IPC.⁽³¹⁾ Having distinct complementary team roles and effective interaction improves IPC during MDTMs. In line with person-centred care, future research should examine the most effective ways to provide these complimentary team responsibilities in MDTMs.

Collaboration enhances person-centred rehabilitation by enabling shared decision-making.^(28, 32-34) For true and efficient IPC during MDTMs, the active involvement of patients, informal caregivers, and healthcare professionals is essential. However, their involvement in MDTMs in geriatric rehabilitation is inadequate. As indicated in previous studies and diverse settings, they experience 'person-centred moments', but only few experience 'person-centred care'.^(35, 36) Yet the involvement of patients and informal caregivers in all aspects of care delivery and design is essential for IPC to establish high-performing person-centred teams with common objectives, as shown in previous studies.⁽³⁰⁾ To facilitate patient and informal caregiver involvement during MDTMs, it

is important to utilise well-coordinated procedures in which active information sharing and open empathetic communication based on trust are essential factors. ^(7, 30, 37, 38) If it is not possible for patients or informal caregivers to participate during MDTMs, a chairperson must ensure that their perspectives are represented. Having procedures for the chair to obtain information ahead of time, or to delegate this to another healthcare professional, and to inform the patient and informal caregiver afterwards, allows for patient and informal caregiver involvement. ^(8, 12, 25) Further research will enhance IPC even more by examining the most effective ways to involve patients and informal caregivers in MDTMs while providing person-centred rehabilitation.

Organisational conditions influence how procedures are carried out. ^(4, 39) Support for clearly defined procedures for MDTMs, facilitated at the organisational level, will encourage and enable participants to complete necessary preparations prior to the meeting. This increases involvement and active information sharing to improve IPC during MDTMs. ^(4, 9) Adequate resources, as well as minimal distraction from external sources during MDTMs, improve IPC by enhancing mutual attention. ⁽⁴⁰⁻⁴²⁾ Future research at the organisational level, through investigating the minimum resources and procedures required by MDTMs to provide person-centred rehabilitation, could help geriatric rehabilitation facilities and enhance IPC.

In conclusion, this study showed that patient outcome measures were not much used during MDTMs; however, literature suggests that their application will result in a consistent and comprehensive perspective of patients' conditions, improved common language and, consequently, IPC. ^(7, 15) To understand why they are so rarely used, future research should examine the barriers to using patient outcome measures in MDTMs in geriatric rehabilitation in order to better understand why they are utilised so rarely. Besides, conducting studies that measure the clinical impact of MDTMs will further support the need for using outcome measures in MDTMs.

Strength and limitations

The strengths of this study's include the naturalistic observation method, which enables a passive observer to observe events in their natural, non-manipulated setting. The use of an observation form provided the observer with information about which factors to observe, thereby structuring the observation. Conducting multiple observations with two observers, followed by a consensus meeting, allowed for thoroughness. In addition, the researchers were able to identify the observed participants' perceptions of IPC by having them complete brief questionnaires.

Although the observer was not actively involved, being in the same room as the participants' during the MDTMs may have influenced their behaviour. Therefore, having a passive observer present can be both a strength and a limitation. The observations were conducted in a variety of Dutch geriatric rehabilitation settings, which may differ from MDTM circumstances in other countries or cultures. Nonetheless, the observed factors influencing IPC during MDTMs may

provide useful recommendations for improving IPC during MDTMs in different settings and countries. Another limitation was the small number of patients and family caregivers who were present during the MDTMs. Unfortunately, this is in line with clinical practice, as family and patient involvement during MDTMs is not common practice.

Conclusions and Implications

IPC has been demonstrated to be essential for MDTMs in geriatric rehabilitation. IPC is necessary to enable achieving common goals, to evaluate, and establish a shared plan for person-centred geriatric rehabilitation. In order to achieve person-centred goals in geriatric rehabilitation, patients, healthcare professionals, and informal caregivers must collaborate. ^(4,7) IPC during MDTMs will benefit from chairpersons with excellent leadership abilities who are able to interact with every individual involved. ^(9, 29, 30) IPC improves when all persons involved who attend MDTMs are prepared and communicate emphatically using common language, for example by using patient outcome measures, and listening to each other. ^(6, 8, 29) When all of these influencing factors are supported at the organisational level, IPC improves during MDTMs. ^(7,29) However, when all parties adopt a wait-and-see strategy, collaboration declines, barriers to IPC persist, and person-centred rehabilitation is hindered. Team members and their leaders need to understand how MDTMs are conducted and what factors need to be adjusted in order to achieve improvement. To increase the effectiveness of MDTMs, participants must actively participate, accept responsibility for their actions, communicate with each other, and engage, for example by asking MDTM members, including the chairperson, clarifying questions. It implies a collaborative culture that places less emphasis on performance and individualism, resulting in improved IPC during MDTMs and enabling high-quality person-centred geriatric rehabilitation.

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Supplementary material

Supplement 1. MDTM Observation form

To be completed by researcher

ID- observer

ID-code of organisation

ID-code of MDTM

Date (DD/MM/YYYY)

/

/

Start time

End time



1. Team composition during MDTM:

Role	Number	Additional role (e.g. chair, note taker, timekeeper)	Comments (e.g., agenda management, substitute)
Elderly care physician			
Nurse practitioner			
Nurse			
Nurse aide			
Physiotherapist			
Occupational therapist			
Speech therapist			
Psychologist			
Dietitian			
Social worker			
Activity coordinator			
Patient			
Informal caregiver			
Other, namely			
Patients discussed	Discharged:	Agenda:	Extra patients discussed:

Field notes:

2. Team performance:

<i>Observation item</i>	<i>What do you notice? (write down literally what you see happening)</i>	<i>Comments (e.g., in what way is this apparent) Always complete!</i>
Clarity of roles		
Clarity of team goals		
Conduct towards each other		
Interaction between team members		

Field notes:

3. Organisational conditions:

<i>Observation item</i>	<i>What do you notice? (write down literally what you see happening)</i>	<i>Comments (e.g., in what way is this apparent) Always complete!</i>
Work in accordance with procedures		
Resources available for conducting MDTM		
Leadership during MDTM		

Field notes:

4. Use of patient outcome measures (standardised measuring instruments):

<i>Yes*</i>	<i>No</i>	<i>Which measures?</i>	<i>Does it contribute to IPC? Why? (write down literally what you see happening)</i>	<i>Comments (e.g., in what way is this apparent) Always complete!</i>

Field notes:

To be completed by observer afterwards:*(indicate the extent to which present/observable with a cross on the line)***1) Team performance during MDO was clearly observable?**

Totally unobservable _____ **Very observable**
 Very poor cooperation Very good cooperation
 (0 mm) (100 mm)

2) Organisational conditions required for conducting MDTM were clearly present?

Not present at all _____ **Very much present**
 Very poor cooperation Very good cooperation
 (0 mm) (100 mm)

3) Information sharing between MDTM participants, was clearly present?

Not present at all _____

Very much present

Very poor cooperation

Very good cooperation

(0 mm)

(100 mm)

Field notes:

Supplement 2. Short questionnaire: Experiences with the MDTM

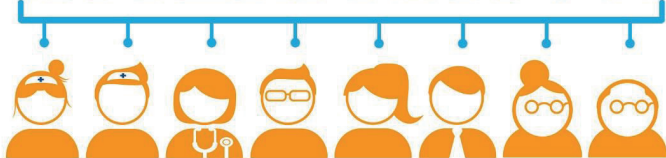
To be completed by researcher:

ID-code MDTM

ID-code respondent

Date: __ / __ / __

INTERACTION



Interprofessional collaboration in nursing homes

Dear participant of the Multidisciplinary Meeting

With this short questionnaire, we would like to ask you how you have experienced the Multidisciplinary Consultation (MDO) you just participated in. It will take a maximum of 5-10 minutes to complete. The answers will be used only for research purposes to enrich the data from the observations.

Questions following the MDTM

1) What is your position? *(tick appropriate box)*

☐	Elderly care physician
☐	Nurse practitioner
☐	Nurse
☐	Nurse aide
☐	Physiotherapist
☐	Occupational therapist
☐	Speech therapist
☐	Psychologist
☐	Activity coordinator
☐	Dietitian
☐	Social worker
☐	Activity coordinator
☐	Patient
☐	Informal caregiver
☐	Other, namely

2) What is your age?

	years
----------------------	-------

3) What is your gender? *(tick appropriate box)*

☐	Female
☐	Male

4) How satisfied are you about the collaboration in the MDTM?

(indicate degree of satisfaction with an X on the line)

Very dissatisfied _____

Very poor cooperation
(0 mm)

Very satisfied

Very good cooperation
(100 mm)

5) How satisfied are you with the collaboration in the MDTM?

(indicate degree of satisfaction with an X on the line)

Very dissatisfied _____

Very poor cooperation
(0 mm)

Very satisfied

Very good cooperation
(100 mm)

6) How satisfied are you with the preconditions for the MDTM? (e.g. time, space, technical facilities, structure)

(indicate degree of satisfaction with a cross on the line)

Very dissatisfied _____

Very poor preconditions
(0 mm)

Very satisfied

Very good preconditions
(100 mm)

Any additional comments:

On behalf of the INTERACTION research team:
Thank you very much for your cooperation



Supplement 3.

Code tree INTERACTION observation study

Version 05-12-2022

Work process:

- Read the observation form.
- Select relevant textual units during second reading.
- Select the text and assign a content code to the textual unit.
- Observation forms are categorised by "context code"; these codes consist of 3 characters:

Research method

1 = Focus group

2 = Interview

3 = Observation

Setting

5 = Long-term care

6 = Geriatric rehabilitation

Participant

7 = Healthcare professional

8 = Patient/ Informal caregiver

9 = Informal caregiver

(e.g. observation form 367 is an observation in geriatric rehabilitation with professionals)

Explanation of code tree:

[D] and [O] after the codes are for personal use to determine the origin of the code

[D] = Deductive code, based on the review by Doornebosch et al., 2022

[O] = Open code, new code from observation forms sub-study 2

For negative wording put – after the code, e.g. A1bii-[D]

Examples are described in blue.

During coding the code tree is added to as necessary.

A. Team performance during MDTM [D]

1. Clarity of roles [D]

(e.g. specific roles are substantiated by using clear language that the other participants understand).

a. Position [D] *(e.g. professional role is clear)*

b. Additional role [D] *(e.g. role additional to professional role)*

i. Chair [D]

ii. Note taker [D]

- iii. Agenda management [D]
 - iv. Other [D]
- c. Other [D] (e.g. attendee has another role, such as patient)
- 2. Clarity of team goals [D]
(e.g. what will the team work on in the coming period, is there coordination among participants).
- a. Evaluation of goals [D] (e.g., team goals from the past period are reviewed to see if they have been achieved or adjusted)
- b. Setting new goals [D] (e.g. new team goals for the coming period and a timeframe are agreed upon jointly)
- c. SMART formulated [D]
- d. Clear timeframe linked to goals [D] (a goal is linked to a timeframe; this is clearly discussed)
- e. Indication for admission is discussed [O]
- f. Coordination between team members [O]
- 3. Attitudes towards each other [D]
(e.g. input from all participants is viewed as equal during the meeting, people are respectful and listen to each other)
- a. Open attitude [D] (team members are open to each other's input)
- b. Talking about absent (team) members [O] (e.g. talking about, not talking to (team) members)
- c. Atmosphere [D]
- 4. Interaction between team members [D]
(e.g. is cooperation between participants clearly visible, do participants react to each other, do participants influence each other)
- a. Team members are actively involved [D] (e.g. participants are actively asked for their input, initiating the conversation between multiple/all participants)
- b. Participants are actively engaged during the meeting [D] (participants are focused on the meeting, not distracted by e.g., phones, conversations in subgroups etc.)
- c. Participants are hesitant towards each other [O] (participants wait to present input until the chairperson starts a discussion)
- 5. Performance across roles [O] (e.g. team members contribute information that is outside their own domain)

B. Organisational conditions MDTM [D]

- 1. Working in accordance with procedures [D]
(e.g. is there a fixed order of discussion such as scheduled discharges first, admitted patients, any other questions, rehabilitation plan, etc)
- 2. Resources available for conducting MDTM [D]
 - a. Workable space [D] (e.g. separate room where participants can confer together)
 - b. Time [D] (e.g. participants have (sufficient) time to confer)
 - c. Technical facilities [D] (e.g. availability of screen to view file, or possibilities for participants to participate online)
 - i. Large shared screen for ECR data [D] (e.g. the electronic client record data of the discussed patient is displayed on a large screen, visible for the whole team)
 - ii. Laptops and tablets [D] (e.g. attendees use a laptop/tablet during the meeting)
 - iii. Online applications [D] (e.g. TEAMS, ZOOM etc.)
 - iv. Phones [D] (Phones present that are used by participants during the meeting)

- v. Access to ECR [D] *(during the meeting, participants have access to the ECR)*
- d. Staff [D] *(e.g. workdays of disciplines are coordinated with the MDTM)*
- 3. Leadership during MDMT [D] *(e.g. there is clear guidance, clear direction)*
 - a. Laissez-faire [D] *(meeting is left to run its course)*
 - b. Democratic [D] *(team members are central, the team is made responsible)*
 - c. Directive [D] *(team members are steered in the right direction)*
 - d. Shared [D] *(all members of the team are fully involved)*

C. Information sharing [D]

- 1. Communication between team members [D] *(e.g. are sender, receiver and message clear)*
 - a. Actions are agreed upon [D] *(e.g. team jointly sets actions)*
 - b. Listen to each other [D] *(e.g. participants let each other speak, but also speak in an intelligible manner)*
 - c. Use common language *(participants use language that all participants understand)*
 - d. Appropriate tone [D] *(meetings are held in a tone that is appropriate to the participants and engages everyone, e.g. a calm tone)*
 - e. Colleagues attending online are clearly involved in the communication [D] *(e.g. present with image and sound)*
 - f. Participants engage in non-verbal communication during the discussion [D] *(participants look at each other during the conversation, have an active work attitude)*
 - g. Social talk [O] *(content of conversation is not work related)*
- 2. Structured involvement of all team members [D] *(e.g. all team members actively participate and contribute ideas)*
 - a. Continue to ask questions for clarification [D] *(e.g. stakeholders ask further questions to create more clarity, which may clarify involvement of other team)*
 - b. Answer questions that are asked [D] *(e.g. participants answer questions posed to them, or reflect on questions to other participants)*
 - c. Patient/family caregiver is involved [D] *(information from patient or family caregiver is included during meeting)*
 - i. Patient/family caregiver is involved live [D] *(is actually present)*
 - ii. Patient/family caregiver is indirectly involved [D] *(is not present but was clearly able to share information beforehand)*
- 3. Active exchange between team members [D] *(e.g. transfer of data and professional competences)*
 - a. Participants fill in for each other and share information from the other discipline(s) [D] *(e.g. discipline that is actually present provides information from the absent discipline)*
 - b. Information from absent discipline is available in form of reports [D] *(e.g. in the absence of a discipline the team has access to a report from this discipline)*
 - c. Transfer from hospital or other facility [D] *(e.g. transfer from hospital, rehabilitation centres, GP etc.)*
 - d. Information is visible for the entire team simultaneously [D] *(e.g. Information is shared on a screen)*

D. Use of patient outcome measures in MDTM [D]

1. Instruments or methods [O]
 - a. None [O]
 - b. ADL assessment
 - i. USER (Utrecht Scale for Evaluation of Rehabilitation) [D]
 - ii. BI (Barthel Index) [D]
 - iii. Katz [D]
 - iv. COPM (Canadian Occupational Performance Measure) [D]
 - c. Cognition
 - i. MOCA (Montreal Cognitive Assessment) [D]
 - ii. MMSE (Mini-Mental State Examination) [D]
 - iii. Heteroanamnesis [D]
 - iv. Allen Cognitive Level Screen (ACLS) [O]
 - d. Delirium
 - i. DOS (Delirium Observation Screening Scale) [D]
 - e. Mood
 - i. HADS (Hospital Anxiety and Depression Scale) [D]
 - ii. Hammond score [D]
 - iii. Cornell score [D]
 - f. Pain
 - g. Nutritional status
 - i. SnaQ (Short Nutritional Assessment Questionnaire) [D]
 - ii. BMI (Body Mass Index) [D]
 - iii. FFMI (Fat-free mass index) [D]
 - iv. Weight [D]
 - h. Fluid balance chart [D]
 - i. Muscle strength
 - i. MRC (Medical Research Council scale) [D]
 - ii. Hand Held Dynamometer [D]
 - j. Wound assessment [D]
 - i. Braden Scale (pressure ulcer risk) [D]
 - k. Incident reports (for patients) [D]
 - l. Risk analysis [D]
 - m. Fall risk assessment [D]
 - n. Blood pressure [D]
 - o. Temperature [D]
 - p. Blood sugar level [D]
 - q. BEM score (assessment of self-management of medication) [D]
 - r. Mobility [D]
 - i. Tinetti test or POMA (performance-oriented mobility assessment) [D]
 - s. Pulse/heart rate [D]
 - t. Respiratory rate [D]
 - u. Blood oxygen level [D]
 - v. INR value [D]

2. Contribution of patient outcome measure to IPC in MDTM [O]

Supplement 4. Researcher observations of team performance, organisational conditions, and information sharing during multidisciplinary team meetings in geriatric rehabilitation.

Visual Analogue Scale			
	Team performance	Organisational conditions	Information sharing
MDTM 1	7.8 (7.8) [n/a]	7.9 (7.9) [n/a]	7.8 (7.8) [n/a]
MDTM 2 [*]	5.2 (5.2) [n/a]	8.0 (8.0) [n/a]	5.7 (5.7) [n/a]
MDTM 3 [#]	6.9 (6.9) [n/a]	8.0 (8.0) [n/a]	7.2 (7.2) [6.3]
MDTM 4	8.5	8.3	7.9
MDTM 5	7.9	6.6	8.9
MDTM 6	7.8	8.0	7.0
MDTM 7	7.3 (7.3) [n/a]	7.0 (7.0) [n/a]	6.3 (6.3) [n/a]
Total mean score	7.1	7.7	7.1
(Median)	(7.7)	(7.9)	(6.9)
[IQR]	[6.0-8.2]	[7.1-8.1]	[6.1-8.1]

MDTM: Multidisciplinary Team Meeting; ^{*} patient/family caregiver present; [#] patient/family caregiver present; n/a=(n=too few); IQR: interquartile range

Supplement 5a. The subjective rating of participants' satisfaction with collaboration during observed multidisciplinary team meetings in geriatric rehabilitation, per group and per multidisciplinary team meeting.

Visual Analogue Scale Satisfaction with collaboration	Groups of Participants	n	MDTM 1	MDTM 2	MDTM 3	MDTM 4	MDTM 5	MDTM 6	MDTM 7	Mean (Median) [IQR]
	(Elderly care) Physicians	8	9.0	9.0	-	6.6 (6.6) [n/a]	6.7 (6.7) [n/a]	-	8.5 (8.5) [n/a]	7.8 (7.6) [7.1-8.4]
	Nurse (practitioner)	10	8.2 (8.2) [n/a]	8.2 (8.2) [n/a]	8.9 (8.9) [n/a]	5.4	7.5 (7.5) [n/a]	7.0	-	7.8 (8.0) [6.9-8.3]
	Nurse aides, interns	8	-	-	-	7.5 (7.5) [n/a]	7.2 (7.2) [n/a]	8.8 (8.8) [n/a]	7.6 (7.6) [n/a]	7.8 (7.6) [7.1-8.4]
	Psychologists, Physiotherapists, Occupational therapists, Healthcare intermediaries	13	7.7	7.7	9.5	8.1	7.5 (7.5) [n/a]	7.4 (8.4) [4.9-9.0]	8.1 (8.0) [n/a]	7.8 (7.9) [7.6-8.9]
	Patients, Informal caregivers	2	-	10	9.8	-	-	-	-	9.9 (9.9) [n/a]
	Total participants	41	4	5	4	6	8	7	7	
	Mean (Median) [IQR]		8.3 (8.2) [7.8-8.8]	8.6 (8.3) [7.9-9.5]	9.3 (9.7) [8.4-9.8]	7.1 (7.5) [5.4-8.3]	7.3 (7.2) [7.0-7.8]	7.7 (7.9) [7.0-9.0]	8.1 (8.0) [7.4-9.0]	

MDTM= Multidisciplinary Team Meeting; n/a= (n= too few); IQR: interquartile range

Supplement 5b. The subjective rating of the participants satisfaction with MDTM conditions during the observed multidisciplinary team meetings in geriatric rehabilitation, per group and per multidisciplinary team meeting.

Visual Analogue Scale Satisfaction with MDTM conditions	Groups of participants	n	MDTM 1	MDTM 2	MDTM 3	MDTM 4	MDTM 5	MDTM 6	MDTM 7	Mean (Median) [IQR]
	(Elderly care) Physicians	8	6.0	6.0	-	5.6 (5.6) [n/a]	4.2 (4.2) [n/a]	-	7.8 (7.8) [n/a]	5.9 (6.3) [3.8-7.9]
	Nurse (practitioner)	10	5.8 (5.8) [n/a]	5.8 (5.8) [n/a]	5.7 (5.7) [n/a]	2.6	5.5 (5.5) [n/a]	8.0	-	5.6 (5.7) [5.0-6.4]
	Nurse aides, interns	8	-	-	-	5.8 (5.8) [n/a]	6.7 (6.7) [n/a]	8.2 (8.2) [n/a]	7.3 (7.3) [n/a]	7.0 (7.0) [5.8-8.2]
	Psychologists, Physiotherapists, Occupational therapists, Healthcare intermediaries	13	6.7	6.6	9.1	7.2	6.7 (6.7) [n/a]	7.6 (7.7) [6.7-8.3]	6.7 (7.3) [n/a]	7.2 (7.3) [6.5-8.0]
	Patients, Informal care-givers	2	-	10	8.0	-	-	-	-	9.0 (9.0) [n/a]
	Total participants	41	4	5	4	6	8	7	7	
Mean (Median) [IQR]			6.1 (6.2) [5.3-6.6]	6.8 (6.4) [5.6-8.3]	7.1 (7.0) [5.6-8.8]	5.4 (5.8) [3.0-7.4]	5.8 (6.2) [4.8-7.3]	7.8 (8.0) [7.5-8.3]	7.2 (7.6) [6.0-8.0]	

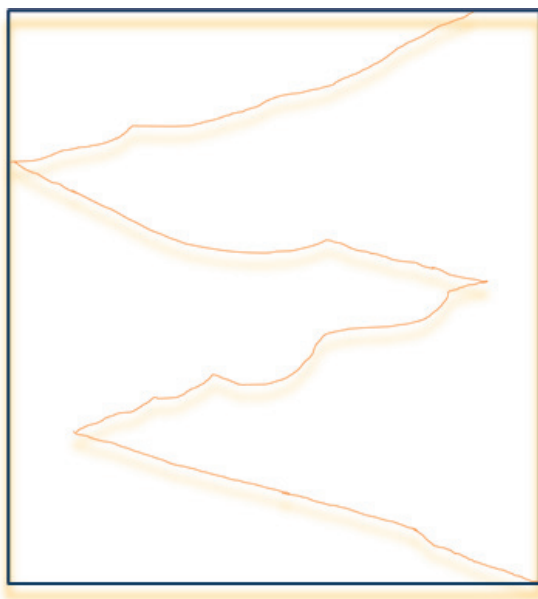
MDTM= Multidisciplinary Team Meeting; n/a= (n= too few); IQR: interquartile range

Supplement 5c. The subjective rating of the participants satisfaction with communication during the observed multidisciplinary team meetings in geriatric rehabilitation, per group and per multidisciplinary team meeting.

Visual Analogue Scale	Groups of participants	n	MDTM 1	MDTM 2	MDTM 3	MDTM 4	MDTM 5	MDTM 6	MDTM 7	Mean (Median) [IQR]
Satisfaction with communication	(Elderly care) Physicians	8	9.0	9.0	-	7.2 (7.2) [n/a]	6.7 (6.7) [n/a]	-	9.2 (9.2) [n/a]	8.0 (8.7) [6.5-9.0]
	Nurse (practitioner)	10	7.5 (7.5) [n/a]	8.0 (8.0) [n/a]	9.0 (9.0) [n/a]	6.7	7.9 (7.9) [n/a]	7.0	-	7.8 (7.9) [6.9-8.4]
	Nurse aides, interns	8	-	-	-	7.6 (7.6) [n/a]	6.7 (6.7) [n/a]	8.1 (8.1) [n/a]	8.2 (8.2) [8.2- 8.2]	7.6 (7.7) [7.1-8.2]
	Psychologists, Physiotherapists, Occupational therapists, Healthcare intermediaries	13	7.9	8.0	8.6	6.6	7.7 (7.7) [n/a]	6.5 (7.3) [4.3-7.9]	7.9 (8.0) [n/a]	7.4 (7.9) [7.2-8.0]
	Patients, Informal care-givers	2	-	10	9.9	-	-	-	-	10.0 (10.0) [n/a]
Total participants		41	4	5	4	6	8	7	7	
Mean (Median) [IQR]			8.0 (8.1) [7.0-8.8]	8.6 (8.2) [7.9-9.5]	9.1 (9.3) [8.2-10.0]	7.1 (7.1) [6.4-7.9]	7.2 (7.2) [6.5-8.0]	7.0 (7.1) [7.0-8.0]	8.4 (8.2) [8.0-9.0]	

MDTM= Multidisciplinary Team Meeting; n/a= (n= too few); IQR: interquartile range

Chapter 5



Academic networks for long-term care: a survey study on interprofessional collaboration

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Abstract

This study utilises a survey to investigate interprofessional collaboration (IPC) in academic networks for long-term care (LTC). The results reveal that researchers often express lower levels of satisfaction with IPC compared to other stakeholders. This dissatisfaction appears to stem from divergent perspectives, limited interaction, and insufficient open communication among stakeholders.

The study emphasises several critical factors for fostering effective IPC:

- Active stakeholder involvement throughout collaborative processes
- Clear definition of roles and responsibilities to prevent ambiguity
- Establishment of shared goals to ensure alignment and mutual commitment
- Continuous support and development of mutual understanding to maintain collaboration over time

These findings highlight the need for deliberate strategies to enhance communication, clarify expectations, and promote inclusive participation across disciplines within academic networks for LTC.

Objectives

This survey study examined IPC in academic networks for long-term care, especially in nursing homes, and investigated differences among key stakeholders, including LTC directors, academic network chairs, researchers, research committee members, and linking pins.

Design

Cross-sectional survey study

Setting and Participants

109 stakeholders from academic networks for LTC, including professionals working in nursing homes, universities, and university medical centres.

Results

Researchers reported significantly lower satisfaction with IPC compared to other stakeholders, especially regarding coordination, adaptability to shared goals, and overall interaction quality. Differences were also noted in perceptions of communication effectiveness and in foundational conditions for collaboration.

Conclusion and Implications

Interprofessional collaboration (IPC) between stakeholders in long-term care (LTC) facilities and universities has significant potential to strengthen academic networks for LTC and improve LTC outcomes. However, various perceived barriers, such as unclear roles, a lack of structured

involvement, and insufficient mutual respect, can hinder effective collaboration. To maximise the benefits of IPC, it is essential to establish clear roles, foster respectful partnerships, and implement structured approaches that support meaningful stakeholder involvement.

Introduction

Academic networks have been established to enhance the infrastructure and enable continuous innovation and development of long-term care with evidence-based practices. These academic networks for long-term care conduct scientific research with the objective of improving quality of life, care, and employment in nursing homes. ⁽¹⁻⁵⁾ Increasingly, network structures and interprofessional collaboration (IPC) facilitate developments and innovations in long-term care. ^(6, 7) Collaborations between universities and long-term care facilities built on established relationships, aim to enhance health outcomes, both direct and intermediate, in ways that are more effective, efficient, and sustainable than each organisation could achieve independently. ^(6, 8) Coordinated collaboration among the involved stakeholders through IPC is essential to establishing comprehensive interaction between nursing homes and universities and enhancing the potential for effective developments and innovations. ⁽⁸⁾

IPC is defined as collaborating with a network, team, or group of individuals from diverse disciplines, which may include patients or informal caregivers. Each member contributes their expertise to achieve shared goals. ^(6, 8, 9) Involving a diverse group of complementary stakeholders from universities and nursing homes is considered essential for bridging the gap between scientific research and clinical practice, enhancing long-term care. These stakeholders include directors of long-term care facilities, chairs of long-term care academic networks, researchers, members of scientific research committees, and ‘linking pins’, who facilitate collaboration between nursing homes and universities to advance scientific research. These individuals are known by different names across various networks.

Research on IPC in academic networks for long-term care is limited. Understanding the varying perspectives of network stakeholders on IPC is important for effectively using research results to enhance long-term care. The aim of this study is to investigate the perceptions and perspectives on IPC of directors of long-term care facilities, chairs of academic networks, researchers, members of scientific research committees, and linking pins within these networks. By gaining greater knowledge of the various perspectives, stakeholders can strengthen collaboration through IPC and ultimately contribute to improving long-term care.

Methods

A cross-sectional survey study of IPC in the six academic networks for long-term care in the Netherlands. Data were collected from August to December 2024. This study was reported using the Checklist for Reporting of Survey Studies (CROSS).⁽¹⁰⁾

Ethics

The Non-Medical Ethics Committee (non-WMO) division 3 of Leiden University Medical Centre (Protocol ID: 24-3058) reviewed this study and deemed it exempt from the Medical Research Involving Human Subjects Act (WMO). All participants provided electronic informed consent prior to participating. No financial or other incentives were provided for completing the survey.

Setting

The study was conducted within all of the six academic networks for long-term care in the Netherlands. These networks are based in the regions of Amsterdam, Groningen, Leiden, Maastricht, Nijmegen, and Tilburg.⁽³⁾

Participants

The goal was to recruit at least 100 participants from the six academic networks for long-term care.⁽¹¹⁾ Potential participants received an invitation from the network coordinators via email, which included information about the study and a link to the online survey. Voluntary response cluster sampling was used to select participants from the five stakeholder groups: directors of long-term care facilities, chairs of long-term care academic networks, researchers, members of scientific research committees, and linking pins.⁽¹¹⁾ Participants had to have at least six months of work experience in their role and be part of one of the six networks.

Directors of long-term facilities

Directors who govern LTC facilities within academic networks. They provide governance and strategic direction by setting organisational objectives and managing administration to accomplish them.

Chairs and vice-chairs

The network's chairs and vice-chairs have two roles. In addition to leading an academic network for LTC, they are also researchers. For this study, they were asked to complete the survey in their capacity as (vice-)chair.

Researchers

Researchers fulfil the role of PhD researchers within an academic network.

Members of scientific research committees

The members are multidisciplinary healthcare professionals, policy makers, researchers, and other LTC facility workers responsible for stimulating, guiding, and implementing scientific research.

Linking pins

Linking pins are individuals who facilitate collaboration between nursing homes and universities to advance scientific research. They fulfil this role in addition to their professional roles as healthcare professionals, policy workers, or researchers. Moreover, they are frequently involved in scientific research committees. For this study, we will present their data separately.

Data collection

The survey was administered through the Castor electronic data capture system. First, participants were presented with an informed consent form. Then they were asked to respond to a series of items capturing demographic and professional characteristics, including age, gender, years of experience in their primary professional role, any additional roles within the network, affiliation with an academic network for long-term care, and stakeholder classification. To assess IPC between university and nursing home representatives involved in academic networks for long-term care, the Coordinated Action Checklist was subsequently employed.

Coordinated Action Checklist

The Coordinated Action Checklist consists of 26 items that are scored using a 5-point Likert scale, with scores ranging from completely disagree (score 0) to entirely agree (score 100). The checklist was developed by Wagemakers in 2010. It composed of five dimensions: 1) partners' relevance, 2) network outcomes, 3) interaction among the participants, 4) effectiveness and development, and 5) network visibility.⁽¹²⁾ To calculate the mean scores of the participant groups for each dimension, the item scores were summed and then divided by the total number of items. The Coordinated Action Checklist shows sound psychometric properties, including internal consistency reliability, construct validity, and practical usability across all stages of collaboration. It effectively supports and assesses collaborative efforts among diverse healthcare stakeholders. The checklist is adequate for supporting and assessing collaboration among diverse healthcare partners.⁽¹²⁾

Six Visual Analogue Scales (VAS) were used to assess IPC further. Participants were asked to rate their level of satisfaction on a 10-centimeter line with anchor statements on the left (extremely unsatisfied) and on the right (very satisfied), to evaluate 1) IPC, 2) communication in general, 3) communication with directors, 4) communication with linking pins, 5) communication with researchers, and 6) preconditions in academic networks. These additional VASs were based on previous studies in long-term care that identified essential factors for IPC.⁽⁵⁾ IPC replaced the team performance category from previous studies due to differences in how participants perceive collaboration and goals across academic networks for long-term care that deliver comprehensive, coordinated, and patient-centred care.^(13, 14)

These differences particularly concern improving health outcomes for specific populations by coordinating services and resources versus patient-care teams. Additionally, two open-ended questions focused on the factors that promote and hinder interprofessional collaboration (IPC) within academic networks for long-term care. Finally, to ensure interpretive validity, a respondent validation process was conducted by sharing the outcomes in a meeting with chairs and researchers.⁽¹⁵⁾

Data analysis

SPSS version 29 was used for the analysis. Participants' characteristics were analysed using descriptive statistics. Depending on the sample size and data distribution, mean scores (including standard deviations) or medians (with interquartile range [IQR]) of the Coordinated Action Checklist's five dimensions were calculated per group. Kruskal-Wallis H tests with a post-hoc Bonferroni correction were conducted to examine group differences. Additionally, an ANOVA test was used to examine participants' satisfaction with the aspects of IPC, communication, and preconditions. Content analysis was conducted on the open-ended questions regarding facilitators of and barriers to IPC in academic networks for long-term care.

Results

The survey was viewed by 311 individuals, with 109 participants completing it (35%). Figure 1 shows the flowchart of the survey study. The results for the additional role of linking pins are provided separately because their responses were related to their professional roles. Additionally, eight participants did not fall within the predefined stakeholder categories. These included a health scientist, an innovation director, and a board secretary. They were therefore grouped under the "other" category. Table 1 shows the characteristics of the participants.

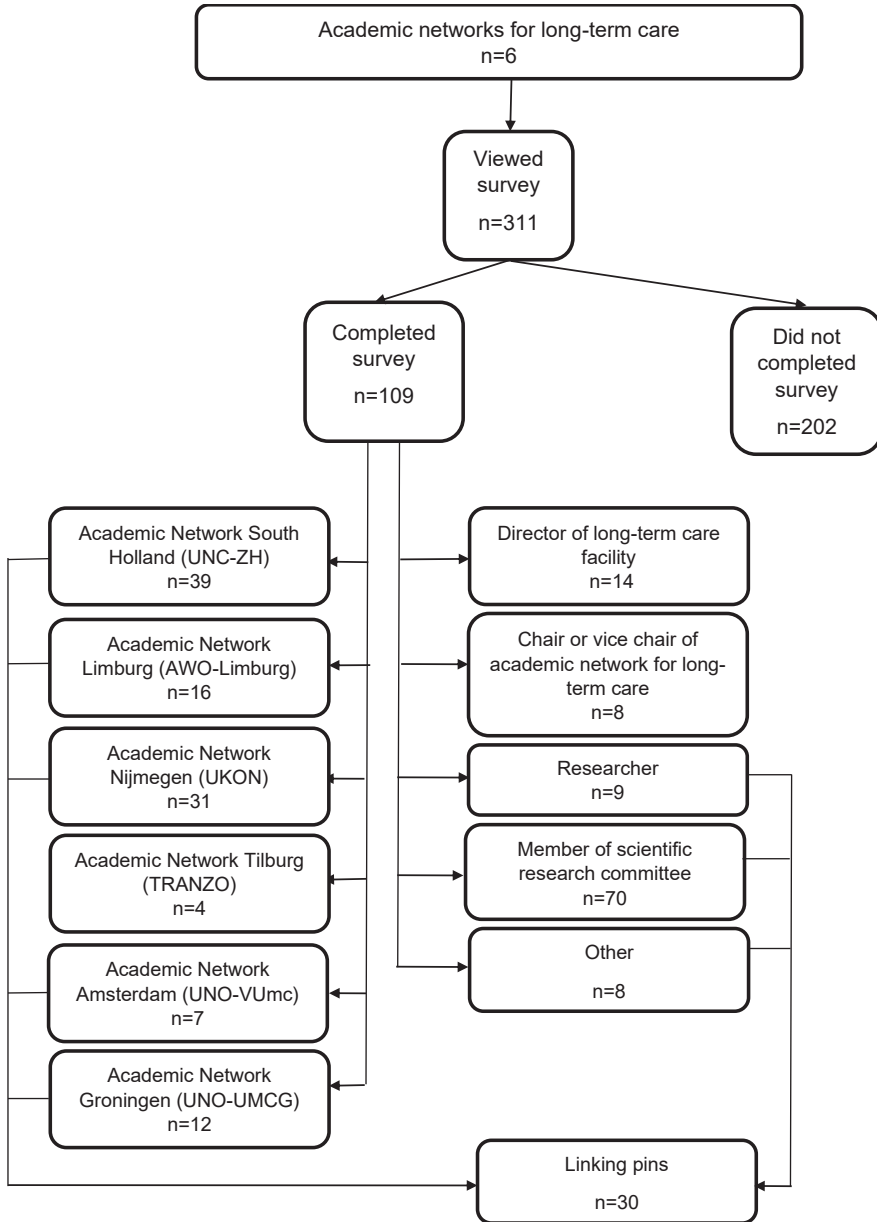


FIGURE 1. Flow chart of survey on interprofessional collaboration in the academic networks for long-term care

TABLE 1. Participants' characteristics (N=109)

Groups	n	Years of work experience in professional role Mean (Median) [IQR]	Additional role as a Linking pin ⁵ % (n)	Years of work experience as Linking Mean (Median) [IQR]	Mean age in years (SD)	Female gender % (n)
Director of long-term care facility ¹	14	5.3 (4.5) [3.0-6.3]	0 (0)	n/a	55.1 (5.0)	57.1 (8)
Chair or vice chair of academic network for long-term care ²	8	9.2 (9.0) [1.0-18.0]	0 (0)	n/a	56.0 (7.6)	50.0 (4)
Researcher ³	9	8.7 (6.5) [5.0-13.0]	33.3 (3)	3.9 (3.5) [1.9-6.3]	39.4 (8.5)	100 (9)
Member of scientific research committee ⁴	70	13.4 (10.0) [5.0-20.0]	32.9 (23)	3.8 (2.5) [1.0-5.3]	45.4 (12.0)	78.6 (55)
Other [*]	8	4.4 (5.0) [3.0-6.0]	50.0 (4)	1.9 (1.1) [0.5-4.1]	41.8 (12.1)	87.5 (7)
Total	109	11.0 (7.0) [4.0-17.0]	27.5 (30)	3.2 (2.5) [1.0-5.0]	46.6 (11.4)	76.1(83)

IQR: interquartile range; SD: standard deviation; n/a: not applicable; 1: Directors who govern LTC facilities within academic networks; 2: (Vice-)chairs who lead an academic network; 3: Researchers who fulfil the role of PhD researcher within an academic network, 4) multidisciplinary healthcare professionals, policy makers, researchers, or other LTC facility workers responsible for stimulating, guiding, and implementing scientific research; 5: individuals who facilitate collaboration between nursing homes and universities to advance scientific research; *: additional experts such as health scientist, innovation director and a board secretary.

The Coordinated Action Checklist

Table 2 presents the mean satisfaction ratings for collaboration within academic networks for long-term care, as measured using the Coordinated Action Checklist. To assess differences across stakeholder groups, mean scores were calculated according to the checklist's guidelines.

⁽¹²⁾ Compared to other groups, researchers reported lower median ratings on four out of five dimensions. The only exception was the dimension related to the effectiveness and development of academic networks, where the "other" stakeholder group scored lower.

TABLE 2. Mean scores of satisfaction with collaboration in academic networks for long-term care measured with the Coordinated Action checklist. (N=109)

Groups	Five dimensions of the Coordinated Action checklist					Total mean scores per group (0-100) (SD)
	Partners' relevance in academic networks. Mean (SD)	Academic network outcomes. Mean (SD)	The interaction among the participants in academic networks. Mean (SD)	Effectiveness and development of academic networks. Mean (SD)	Academic network visibility. Mean (SD)	
Director of long-term care facility	77.1 (8.8)	79.3 (5.4)	74.3 (4.8)	78.6 (8.4)	75.5 (4.7)	77.0 (2.1)
Chair or vice chair of academic network for long-term care	82.1 (11.2)	81.9 (8.7)	70.6 (3.6)	77.4 (8.6)	80.5 (4.7)	78.5 (4.8)
Researchers	71.8 (21.5)	61.1 (10.2)	58.9 (5.3)	72.2 (10.6)	70.1 (17.8)	66.8 (6.3)
Members of scientific research committees	72.1 (7.3)	70.1 (4.4)	67.4 (5.5)	72.2 (5.5)	70.7 (7.9)	70.5 (2.0)
Other	77.7 (3.3)	70.6 (6.5)	71.3 (13.5)	71.9 (3.6)	75.8 (16.0)	73.5 (3.1)
Total mean score per dimension (0-100) (SD)	76.2 (3.8)	72.6 (7.4)	68.5 (5.3)	74.5 (2.9)	74.5 (3.8)	Overall mean score per dimension: 73.3 (2.6) and per group: 73.3 (4.8)
Linking pins	78.6 (8.7)	72.0 (5.6)	70.3 (8.7)	75.6 (5.3)	75.2 (11.5)	74.3 (3.3)

Note: The mean scores can range from 0-100; SD: Standard Deviation.

Significant differences were observed between researchers and both long-term care directors and chairs of academic networks. The most notable differences in perceived IPC were found in the dimensions concerning academic network outcomes and participant interaction. These findings suggest that researchers are the group least satisfied with IPC, particularly with regard to the results achieved and the level of involvement among stakeholders in academic networks.

To further explore these differences, Kruskal-Wallis H tests were conducted to assess variations in responses to the Coordinated Action Checklist statements across five stakeholder groups. A post-hoc Bonferroni correction identified significant differences in eight of the twenty-six statements,

spanning four of the five dimensions. Table 3 provides a detailed overview of the results for all 26 statements.

Within the dimension Partners' relevance in academic networks, significant differences emerged in three statements. Statement 4 *"The contribution of the different partners is to everyone's full satisfaction"* – researchers were significantly less satisfied than the "other" stakeholder group. Statement 7 *"I feel involved in the partnership"* – scientific research committee members (mean rank = 48.5) reported lower satisfaction than chairs or vice-chairs of academic networks (mean rank = 81.0); $H(4) = 13.00$, $p = 0.01$. Statement 8 *"I can contribute constructively to the partnership because of my expertise"* – scientific research committee members (mean rank = 51.3) were less satisfied than chairs or vice-chairs (mean rank = 80.0); $H(4) = 11.81$, $p = 0.02$. In the Academic network outcomes dimension, three statements showed significant group differences. Statement 9 *"There is agreement on the mission, goal, and planning within the partnership"* – researchers were less satisfied than long-term care facility directors. Statement 10 *"The partnership achieves regular (small) successes"* – showed significant differences among chairs/vice-chairs (mean rank = 89.0), scientific research committee members (49.4), and the "other" group (47.0); $H(4) = 18.77$, $p = 0.00$. Statement 12 *"The partnership evaluates progress at regular intervals and makes adjustments if necessary"* – long-term care facility directors (mean rank = 74.4) were more satisfied than researchers (42.0) and scientific research committee members (52.0); $H(4) = 11.35$, $p = 0.02$. In the dimension Interaction among members in academic networks, one statement revealed a significant difference: Statement 14 *"The partnership partners communicate in an open manner"* revealed that researchers (mean rank = 35.1) reported significantly lower satisfaction than the "other" group (78.0); $H(4) = 11.91$, $p = 0.02$. Finally, in the dimension Academic network visibility, Statement 26 *"The partnership takes care of continuation after the project period"* showed that researchers (mean rank = 34.5) were significantly less satisfied than long-term care facility directors (72.0) and (vice-) chairs (81.0); $H(4) = 17.18$, $p = 0.00$. Overall, researchers consistently reported the lowest levels of satisfaction with IPC in academic networks. Key areas of concern included partner contributions, alignment of missions and goals, progress evaluation and adjustment, open communication, and post-project continuity.

TABLE 3. The Coordinated Action Checklist statements analysed per group, including group comparisons.

Dimensions	Questions	Mean score					<i>Kruskal-Wallis H Test*</i>	<i>P-value</i>	<i>Significant after Bonferroni correction</i>
		Director of long-term care facility	Chair or vice chair of academic network for long-term care	Researchers	Members of scientific research committees	Other			
Partners' relevance in academic networks	1. The network is an asset for health promotion.	61.1	60.3	44.0	54.0	64.0	3.31	0.51	N/A
	2. The right partners are involved to attain the goals of the partnership.	63.6	63.0	41.0	53.0	68.0	7.96	0.09	N/A
	3. Equity of the partners is essential for good collaboration.	64.6	52.0	47.4	55.0	50.0	2.56	0.63	N/A
	4. The contribution of the different partners is to everyone's full satisfaction.	57.3	63.0	27.0	56.0	69.3	11.70	0.02	Yes
	5. I have a special interest in participating in the partnership because of my position or organization.	58.0	70.3	70.2	52.0	45.0	6.49	0.17	N/A
	6. I am able to contribute to the partnership in a satisfactory way (time, means, etc.).	60.1	62.0	66.3	50.0	73.3	7.99	0.09	N/A
	7. I feel involved in the partnership.	64.2	81.0	68.3	48.5	55.0	12.92	0.01	Yes
	8. I can contribute constructively to the partnership because of my expertise.	48.4	80.0	71.2	51.3	56.3	11.81	0.02	Yes
Academic network outcomes	9. There is agreement on the mission, goal and planning within the partnership.	70.1	65.0	29.2	56.3	36.3	17.13	<0.001	Yes
	10. The partnership achieves regular (small) successes.	64.0	89.0	62.0	49.4	47.0	18.77	<0.001	Yes
	11. The partnership functions well (working structure, working methods).	64.3	70.4	55.0	51.0	60.0	6.19	0.19	N/A
	12. The partnership evaluates progress at regular intervals and makes adjustments if necessary.	74.4	67.0	42.0	52.0	51.0	11.35	0.02	Yes
	13. The preconditions for the existence of the network are sufficient.	63.0	72.3	57.0	50.0	68.0	8.76	0.07	N/A

Dimensions	Questions	Mean score					<i>Kruskal-Wallis H Test*</i>	<i>P-value</i>	<i>Significant after Bonferroni correction</i>
		Director of long-term care facility	Chair or vice chair of academic network for long-term care	Researchers	Members of scientific research committees	Other			
Interaction among the participants in academic networks	14. The partnership partners communicate in an open manner.	61.0	41.3	35.1	55.3	78.0	11.91	0.02	Yes
	15. The partnership partners work together in a constructive manner and know how to involve each other when action is needed.	58.0	54.3	39.0	56.1	60.0	4.11	0.40	N/A
	16. The partnership partners are willing to compromise.	70.4	63.6	42.2	53.7	45.4	7.79	0.10	N/A
	17. Conflicts are dealt with in a constructive way in the partnership.	68.0	68.0	38.0	54.0	49.0	9.14	0.06	N/A
	18. The partnership partners will carry out decisions and actions loyally.	62.0	64.0	45.3	54.0	57.1	3.27	0.51	N/A
Effectiveness and development of academic networks	19. I create goodwill and involvement for the partnership within my organization.	68.0	66.0	63.0	52.0	42.0	8.19	0.09	N/A
	20. Giving feedback to the local officials on behalf of the partnership is satisfactory.	69.0	52.0	49.4	52.4	64.0	5.64	0.23	N/A
	21. The partnership is willing to recruit new partners over time.	71.0	67.0	43.0	53.0	50.4	7.51	0.11	N/A
	22. The partnership succeeds in mobilizing others to take action.	57.4	58.3	64.0	53.4	52.4	1.44	0.84	N/A
Academic network visibility	23. The partnership maintains the external relationships in an accurate way.	63.0	62.1	52.2	52.2	62.1	2.93	0.57	N/A
	24. The partnership is seen as reliable and legitimate by external relations.	58.2	65.3	58.3	52.2	60.0	2.19	0.70	N/A
	25. My partnership has a positive image in the outside world.	61.1	64.0	63.0	49.4	75.0	8.41	0.08	N/A
	26. The partnership ensures that there is continuity following the project's conclusion.	72.0	81.0	34.5	53.0	43.0	17.18	<0.001	Yes

*: degree of freedom (df)=4; N/A: not applicable

VAS ratings of collaboration

ANOVA tests were performed to examine differences in the stakeholders' ratings of 1) IPC, 2) communication in general, and specifically communication with (vice)chairs, linking pins, and researchers, and 3) preconditions in academic networks for LTC. No differences were found between the stakeholders regarding IPC and preconditions. However, on communication, a significant difference with regard to satisfaction with communicating with chairs was found among the five groups, $F(4, 109) = 6.9$, $p = 0.01$. Researchers were less satisfied ($M = 5.5$, $SD = 1.9$) with communication with (vice-)chairs than directors of LTC facilities ($M = 7.7$, $SD = 1.1$). Table 4 summarizes participants' satisfaction with IPC, communication, and preconditions in academic networks for long-term care.

TABLE 4. Participants' satisfaction with interprofessional collaboration, communication, and preconditions in the academic networks for long-term care measured with a Visual Analogue Score. (N=109)

Group	n	Interprofes- sional collabora- tion	Communication				Precondi- tions
			In general	With chairs	With Link- ing pins	With re- searchers	
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Directors of long-term care facility	14	7.8 (1.2)	8.1 (1.1)	7.7 (1.1)	7.9 (1.4)	7.8 (1.0)	7.7 (1.3)
Chair or vice chair of academic network for long-term care	8	7.6 (1.1)	7.2 (0.9)	7.0 (0.9)	8.2 (0.6)	7.9 (0.8)	7.1 (0.4)
Researchers	9	6.6 (1.0)	7.2 (0.9)	5.5 (1.9)	6.8 (2.0)	7.1 (1.4)	6.8 (1.3)
Members of scientific research committees	70	7.4 (1.1)	7.8 (1.0)	6.9 (1.5)	8.0 (1.5)	7.0 (1.4)	6.8 (1.6)
Other	8	7.1 (0.7)	7.6 (0.8)	6.7 (1.4)	7.7 (1.5)	7.6 (0.7)	7.1 (1.6)
Total participants (N)	109						
Mean (SD)		7.3 (1.1)	7.7 (1.0)	6.9 (1.5)	7.8 (1.5)	7.2 (1.3)	7.0 (1.5)
Linking pins	30	7.8 (1.2)	8.2 (0.9)	7.1 (1.7)	8.3 (1.3)	7.6 (1.3)	8.0 (1.1)

SD: Standard Deviation.

Facilitators and barriers to IPC

A content analysis of open-ended text fields was conducted to identify facilitators and barriers to IPC in academic networks for long-term care. Supplement 1 contains the facilitators and barriers to IPC as perceived by stakeholders in these networks. The responses regarding perceived facilitators and barriers to IPC were classified into the following categories: 1) resources, 2) involvement, 3) meeting each other, 4) shared vision, 5) organisational procedures, 6) collaboration, 7) attitude and behaviour of participants, and 8) communication. The analysis identified essential facilitators and barriers to IPC. Facilitating factors included regular opportunities for interaction (e.g., meetings and events), clear communication, positive attitudes and behaviours (e.g., openness and motivation), and adequate resources (e.g., time and budget). In contrast, barriers were primarily linked to resource constraints (e.g., limited time and high workload), lack of a shared vision between organisations, scheduling challenges and organisational complexity, and inconsistent involvement due to staff turnover.

To assess the validity of our findings, we conducted a feedback session involving six stakeholders, including chairs, researchers, and a manager. Participants were invited to reflect critically on whether the findings corresponded with their experiences of IPC within academic networks. Their recognition and affirmation of the results supports the credibility and relevance of the findings.

Discussion

Academic networks for LTC are essential for enhancing health outcomes more effectively, efficiently, and sustainably than can be achieved by the organisations independently. ^(6, 8) By integrating the expertise of healthcare professionals and academics across various disciplines, LTC can benefit from scientific research, innovations, and a solid evidence base. This collaborative approach enables integration of state-of-the-art knowledge into care delivery, driving continuous improvement and innovation in the sector. ⁽⁹⁾ Similarly, to create sustainable societal impact, researchers need to closely collaborate with clinical practice. This survey examined the perceptions of IPC among various stakeholders of academic networks for LTC, including the linking pins, and found some differences in satisfaction with IPC.

Among the various stakeholders, researchers involved in academic networks for LTC report lower levels of satisfaction with aspects such as the network's mission, goals, and organisational structure. These elements are essential for defining an academic network's overall purpose and strategic direction. Misalignment or disagreement in these areas can lead to conflict, neglected priorities, and diminished motivation. Conversely, when all stakeholders share a clear understanding of the network's mission, objectives, and strategy, IPC and the achievement of its goals are significantly enhanced. ^(16, 17) Researchers' lower satisfaction with the mission, objectives, and structure of academic networks may stem from differing perspectives. While academic networks primarily aim to establish relationships, facilitate knowledge exchange, and promote collective initiatives,

research objectives tend to focus on the specific goals and outcomes of individual studies. ^(3, 11, 18) Previous research has shown that the absence of shared goals can result in fragmented development and dissatisfaction with IPC. Conversely, when academic networks foster a more effective and innovative environment for all stakeholders, including researchers, they tend to experience stronger growth and enhanced IPC. ⁽¹⁹⁾

Researchers indicate a lack of coordination and adjustments that align with objectives. Achieving alignment and synchronisation within academic networks requires anticipatory behaviour, such as adjusting activities to meet common goals, responding to new information, and adapting to unforeseen circumstances. ⁽⁵⁾ Without regular evaluations and flexibility to make necessary changes, IPC efforts run the risk of stagnation or becoming ineffective. ^(20, 21) Lower levels of researcher satisfaction with academic networks may be attributed to divergent perspectives, unclear objectives, and inadequate communication, particularly in interactions with (vice-)chairs, where coordination and timely adjustments are often lacking. ^(18, 21) Prior research emphasises the importance of open communication in advancing an effective and supportive work environment. ⁽²¹⁻²⁵⁾ Such openness can improve interactions between researchers and (vice-)chairs by promoting mutual understanding, trust, and a willingness to share information. This can ultimately strengthen IPC and reduce the risk of counterproductive behaviours related to information sharing, commonly referred to as knowledge sabotage. ⁽²¹⁻²⁵⁾

Furthermore, unlike (vice-)chairs of academic networks, researchers experience a lack of ongoing support after a project period. This discrepancy may stem from differing experiences and priorities, namely, research-focused versus network-oriented objectives. ^(3, 11, 18) As previous studies have shown, sustained support, such as assistance in implementing research findings, requires a culture that fosters open communication, mutual respect, and alignment around shared goals. ⁽²⁸⁾

In academic networks for LTC, fostering a deeper understanding of stakeholders' contributions and actively recognising and integrating each other's expertise can significantly enhance IPC. By fully utilising the diverse strengths of their members, such networks are better positioned to achieve shared goals and generate a broader impact. ^(5, 26, 27)

Strength and limitations

Strengths include the participation of all six existing academic networks for LTC and respondent validation. However, not all stakeholder groups were well represented. The Dutch context may limit generalisability.

Conclusions and Implications

The study supports existing research on IPC, emphasising the substantial effects of stakeholder involvement, clear role definitions, and open communication on perceived value and satisfaction with IPC. ^(28, 29) IPC enables continuous development and innovation in a more effective, efficient, and sustainable manner than could be accomplished separately. ^(6, 8) However, barriers to IPC can result in decreased motivation, conflicts, inefficiencies, and even knowledge sabotage. ^(24, 25) Nonetheless, involvement and communication will facilitate IPC. Academic networks can improve their outcomes by increasing collective expertise through structured involvement, role clarity, and mutual respect among stakeholders. ^(5, 26-29)

The implications for future research are substantial. To enhance the generalisability of results, subsequent studies should involve a broader and more diverse group of participants, including researchers, patients, and informal caregivers. Expanding the scope beyond Dutch academic networks is essential to capture a broader spectrum of perspectives and practices. Furthermore, conducting focus groups with varied stakeholders could enable a more in-depth application of the Coordinated Action Checklist. These approaches are critical for advancing person-centred care and improving the quality of LTC for older people.

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Supplementary material

SUPPLEMENT 1:An overview of perceived facilitators and barriers to interprofessional collaboration in the academic networks for long-term care

Facilitators	
Resources	1. We aim to facilitate our colleagues as best we can by providing time and space. 2. Sufficient time, budget, and support from leadership/management are facilitating factors. 3. Having time and space to meet, both in person and online, is a facilitating factor. 4. Compensation for time spent in the role of linking pin is a facilitating factor. 5. Access to implementation advisors is an enabling factor. 6. The involvement of linking pins within the network is supportive. 7. Having enough room to express needs and preferences is helpful. 8. Having sufficient opportunities to make agreements is facilitating. 9. When the organisation creates space for collaboration, it supports the process. 10. Effective communication tools are facilitating.
Involvement in the network	1. Attention to networking during the (pre)education of healthcare professionals is a facilitating factor. 2. The engagement of network members and professionals has a positive impact. 3. A clear structure and active involvement of linking pins are helpful. 4. Encouragement through research is a facilitating factor. 5. Fostering a sense of engagement among participants in interprofessional collaboration is beneficial. 6. Inspiration gained through collaboration motivates continued connection and deeper engagement on specific topics. 7. Intrinsic motivation, interest, and commitment from participants facilitate collaboration. 8. Flexibility in participation supports the process. 9. Being approachable facilitates collaboration.
Meeting each other	1. Meeting online and the willingness to meet in person, even if it requires some travel, helps facilitate collaboration. 2. Retreats and Linking Pin Days provide positive networking moments, allowing people to connect both formally and informally in enjoyable ways. 3. Annual symposia and other networking events contribute positively to the network and collaboration. 4. In-person meetings across various disciplines are a facilitating factor. 5. Structured meetings support effective collaboration. 6. Low-threshold gatherings encourage participation and engagement. 7. Short lines of communication and accessibility within the network are facilitating factors. 8. Site visits foster collaboration. 9. Being able to reach each other when needed stimulates collaboration. 10. Regular in-person contact with linking pins is a facilitating factor. 11. Meeting each other helps build relationships and mutual understanding, which facilitates collaboration both within and beyond the network. 12. Joint projects stimulate cooperation and engagement.

Facilitators	
Shared vision	1. Ensuring that everyone is aware of current developments and the collective direction facilitates collaboration. 2. Working together toward a common goal is a key facilitator. 3. The willingness of network staff and structures to innovate and adapt to practical needs is a facilitating factor. 4. A shared passion for elderly care enhances collaboration. 5. A common vision promotes progress and unity. 6. A strong network is built on science as a key pillar supporting evidence-based professional care. 7. The collective and its shared interests and ambitions facilitate cooperation and development. 8. A clear focus on care, treatment, research, education, and training is a facilitating factor.
Organizational procedures	1. The presence of an organisational structure is a facilitating factor. 2. Clear work processes within the network are helpful. 3. Effective relationship management is a facilitating factor. 4. Administrative commitment within the structure encourages collaboration. 5. Strong knowledge and infrastructure facilitate progressing. 6. Research outcomes, such as PAIC, are valuable for practical application.
Collaboration	1. Strong connections within affiliated organisations facilitate progressing. 2. The network putting significant effort into maintaining connection and collaboration is beneficial. 3. Collaboration encourages deeper engagement in the work. 4. It is helpful that relationships are often sustained after the initial collaboration. 5. Positive contact with linking pin colleagues is helpful. 6. Following developments from various disciplines supports collaboration. 7. The network facilitates collaboration. 8. Short communication lines between organisations are helpful. 9. Building relationships with early adopters stimulates IPC. 10. Linking pins and scientific research committees are important in contributing ideas and building support for research.
Attitude and behaviour of participants	1. Equality enables collaboration. 2. A positive attitude toward and experience with interprofessional collaboration within healthcare institutions is also enabling. 3. Curiosity is helpful. 4. Openness encourages. 5. Being easily approachable has a positive effect. 6. Enthusiasm (when we meet) is stimulating. 7. An open atmosphere enables progressing. 8. Accessibility is stimulating. 9. Everything is allowed, you're free to take the initiative, which is encouraging. 10. Radiating and sharing joy positively affects others. 11. Having motivating colleagues is stimulating. 12. Enthusiasm from project participants is enabling. 13. Allowing room for reflection and improvement is encouraging.

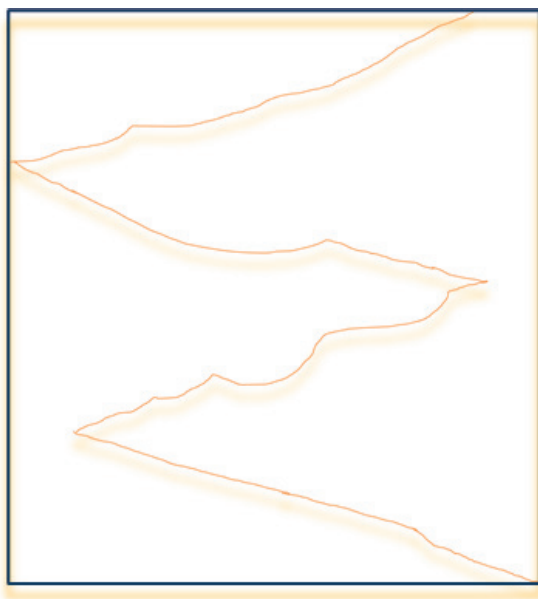
Facilitators	
Communication	1. The network and collaboration encourage communication among members. 2. The network communicates well, is easily accessible, and produces attractive informational brochures, which facilitates communication. 3. Clear communication through multiple channels is a positive aspect. 4. Communication via linking pins and chairpersons is clear. 5. The network is active on social media to share developments, which facilitates communication. 6. Open communication is helpful. 7. The network is always easy to reach and responds quickly, which is encouraging. 8. There is strong knowledge exchange within the network. You can learn a lot from each other, which is a facilitating aspect. 9. The use of clear and understandable language facilitates communication. 10. It is easy to retrieve information from colleagues. 11. Communication is accessible and effective, which facilitates collaboration. 12. Many tips and advice are exchanged via apps and email, even outside of linking pin meetings, this is stimulating.
Barriers:	
Resources	1. Due to workload and time constraints, research and networking activities often become an afterthought, which is a impeding factor. 2. Time pressure in general and the need to prioritize can sometimes be obstructive factors. 3. Limited availability to meet (in terms of day and time) is a barrier. 4. Time pressure during implementation is a hindrance. 5. Time constraints in practice hinder active participation in research or adoption of new insights. 6. Numerous meetings within the network sometimes lead to time pressure, which obstructs progress. 7. Limited capacity to take action within healthcare organisations due to staff shortages and heavy workloads is a barrier. 8. Sometimes we cannot forward a question to practice due to healthcare workers being overburdened, which hinders progress. 9. Everyone is extremely busy, which is a hindrance. 10. Many initiatives in the field lead to limited staff availability and many different projects with relatively small teams, which is a barrier. 11. Research often takes longer than developments in the outside world or organisations, which can be a barrier. 12. Insufficient time allocated by the organisation is a hindrance. 13. The ability and willingness to take on a leading role in a project are not equally distributed due to lack of time. 14. Full calendars create friction between patient care and linking pin activities, which is a barrier. 15. Since I serve on the scientific research committee without allocated hours, it is sometimes very difficult to find time to participate in network activities. 16. In my role as linking pin, I have to be flexible to meet enough people. With only 8 hours a week, this can conflict with my other responsibilities. This is a barrier. 17. Insufficient time to adequately carry out activities or research.

Barriers:	
Resources	18. Reduced hours available for participating in research is a barrier. 19. There is a lot of work, and choices must be made about what to do and what to leave undone. 20. I work in primary care, where the time pressure (billable hours) is very high. This limits participation in overarching or quality-enhancing activities. 21. Frequent cancellations by members due to being busy are a hindrance. 22. Pressure on available resources due to high overhead demands from the university medical centre and the desire to solve issues quickly versus the slower pace of research is a barrier. 23. Although it is often possible to assemble a team, it remains difficult to stimulate participation due to time pressures (in reference to project teams and knowledge/scientific committees). 24. Difficulty finding colleagues within the organisation who have time for network activities. 25. There are too few staff members, too much work for the group of researchers we have. 26. Lack of time for meetings due to the daily demands of care and treatment. 27. There are not enough workspaces, which is a barrier.
Involvement	1. Frequent participant changes hinder progress. 2. Constantly changing meeting attendees continuity and slow progress. 3. Concerns about whether all relevant disciplines are adequately represented in network decision-making (currently mainly driven by staff with backgrounds in nursing and psychology). 4. Healthcare professionals are not sufficiently involved in discussions. 5. Limited number of representatives per organisation, typically only the chair and the linking pin, which restricts broader engagement. 6. Many participants demonstrate fluctuating levels of attention and commitment, which hampers collaboration. 7. High staff turnover across various organisations disrupts continuity and collaboration. 8. Geographical distance reduces involvement in research conducted within the academic workplace region and impedes collaboration. 9. The role of steering committee member often remains unfilled, and executives are not always able to attend leadership meetings. This place too much pressure on the linking pin and makes it difficult to engage the entire organisation. 10. Physical distance and being located outside the network's operational area weaken organisational connection. Much of the collaboration relies on linking pins, who lack decision-making authority. To implement changes, responsibilities should be assigned to executives or steering committee members. Organisations should be held more accountable for active participation (less optional involvement).

Barriers:	
Meeting each other	1. Having many researchers with very small appointments is inconvenient, because it makes it difficult to find each other, which is a hindrance. 2. It is challenging to find a time when everyone can meet or schedule a meeting, which obstructs progress. 3. Coordinating remotely can be difficult and doesn't happen naturally, which is a barrier. 4. Although the number of administrative meetings per year is limited, it is important that (almost) all organizations are present during those meetings. 5. People rarely or never see each other in person (mostly via Teams), which hinders progress. 6. Many colleagues work from home, which limits opportunities for in-person interaction. As a result, there is not enough insight into what is happening within the network. 7. Much is done digitally nowadays, which I partly appreciate for the time efficiency. However, this makes it harder to truly get to know each other and collaborate effectively. 8. Organisations are very large, making it difficult to always meet the right people or build relationships. 9. There is little contact between researchers and linking pins/staff from member organisations, and between researchers themselves. This impedes collaboration. 10. Actually getting together is difficult due to everyone's busy schedules, which is a barrier. 11. Physical distances within the network also hinder collaboration. 12. There are not enough accessible opportunities to meet each other.
Shared vision	1. There is not always consistent steering based on the shared vision and goals set by the network. Daily pressures and enthusiasm often take over. This hinders progress. 2. Research questions are often aligned with our "daily grind" rather than with strategic needs. Too many questions focus on "nice to have" topics. 3. Who is in control of the research lines? The practitioners or the network? Currently, it is the network, but I do not think that is working well. Many themes add little to daily practice or to improving the quality of care or treatment. 4. At the governance level, we could do more to define, develop, and share the long-term vision and results. 5. There are differences in understanding the goal: What does the client actually want? 6. A lack of clear vision regarding science/investment by the organisation hinders collaboration. 7. Much of the scientific research lacks connection with practice-oriented staff. 8. A multitude of interests, themes, and assignments under societal and organisational pressure. 9. The goals and expectations of care organisations versus universities don't always align, and this is not always openly discussed. 10. A limited innovative mindset makes it difficult to prioritise in the current societal climate. 11. Different views on the value and necessity of a network. 12. Expertise is not effectively clustered; there is often too much focus on multidisciplinary thinking. A network is also necessary for advancing a profession. There is too much emphasis on large-scale and complex research (e.g., mixed methods), which is not always accessible to practitioners. 13. Lack of a research culture/focus in our nursing home.

Barriers:	
Shared vision	14. Not all topics are equally relevant to the organisation's daily practice. 15. Different priorities among different staff members. 16. It can be difficult to align everyone to achieve the network's goals. 17. Ultimately, care always takes precedence.
Organizational procedures	1. The linking pin function varies across organisations; responsibilities assigned to the linking pin in one organization may be handled by other departments in another organisations. This lack of uniformity in approach hinders collaboration. 2. The UMC and funding agencies have procedures and requirements that do not sufficiently align with the realities of elderly care practice, which obstructs effective collaboration. 3. It is not always clear who is responsible for which tasks or actions based on their role, which impedes teamwork. 4. The pressure to be productive acts as a barrier. 5. For many participants, involvement often has to be squeezed in between other responsibilities. 6. Work processes are not always efficient. 7. The pace of research is slower than the pace of practical implementation, which hinders collaboration.
Collaboration	1. Affiliated organizations often focus solely on their own operations and overlook opportunities for exchange or collaboration with other organizations within the network. 2. Processes can be slow, as both the network and the healthcare organizations are large entities. 3. Tunnel vision and a tendency to solve issues independently due to daily pressures can lead to undervaluing or overlooking the benefits of interprofessional collaboration. 4. Domain boundaries between professions create inequality (which is different from hierarchy). 5. Differing interests and organisational cultures act as barriers. 6. The gap between science and practice requires constant attention and is under increasing pressure. 7. We are currently working on building a connection with vocational education (MBO), which is necessary. 8. Not all linking pins are equally effective, and underperformance has no consequences. It seems their performance is not evaluated after being appointed. 9. The connection between organisations largely depends on the linking pins. 10. There are insufficient opportunities for collaboration.
Attitude and behaviour of participants in an academic network for long-term care.	1. To be honest, I don't think I make enough time for it.
Communication	1. Information exchange is not always adequate, which hinders collaboration. 2. There is a lack of transparent communication from the board/senior researchers. 3. The language used at different educational levels differs from scientific language, which creates barriers. 4. Different language and different perspectives hinder joint reflection. 5. Uncertainty about what to share and with whom; not everyone is equally well-informed or involved by their constituency. 6. There is too little open communication.

Chapter 6



Interprofessional collaboration in academic networks for long-term care: a qualitative study of experiences of linking pins

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Abstract

Background

Academic networks for long-term care (LTC) are long-standing partnerships between universities, university medical centres, other educational institutions, and LTC organisations. In the six Dutch academic networks for LTC, 'linking pins' are practice-based professionals who connect practice, research, and education. They act as the central coordinator who ensures these domains inform and strengthen one another. This requires interprofessional collaboration (IPC).

Objectives

This study explores the experiences of linking pins with IPC and the factors that are perceived to influence IPC within academic networks for LTC.

Methods

A qualitative interview study with 19 linking pins on IPC in six Dutch academic networks for LTC. The data were examined using hermeneutic phenomenology. Visual Analogue Scales (VAS) were used to assess satisfaction with IPC in these networks.

Results

Based on experiences, IPC was deemed to be built on three interdependent themes: formal organisational structure, communication processes, and a systematic approach. As to the influencing factors, clear roles, accessible resources, and well-organised meetings supported clarity and involvement. Transparent and timely communication fostered trust, alignment, and informed decision-making. Shared annual plans and structured evaluation reinforced coordinated collaboration. Barriers included limited accessibility to people and resources, unclear expectations, fragmented communication, and inconsistent structural support. Linking pins generally reported high satisfaction with overall IPC, communication processes, and structural preconditions, with median scores of 8.0 on all three VAS measures. Structural preconditions showed the greatest variability in ratings. Overall, strong structures, clear communication, and a systematic approach mutually reinforced effective IPC.

Conclusion and Implication

The study shows that formal organisational structure, communication processes, and a systematic approach collectively shape IPC in Dutch academic networks for LTC. Linking pins highlight the need for clear structures, balanced formal and informal communication, and embedded knowledge-sharing. Professionalising the linking pin role, and creating open, accessible network strategies are key to strengthening IPC, enhancing knowledge uptake, and improving care, research, and innovation.

Introduction

Academic networks for long-term care (LTC) in the Netherlands are long-standing partnerships established with the objective of enhancing and innovating care for older people by means of scientific research. ⁽¹⁻⁶⁾ They have been in existence for approximately two decades. Within these networks, universities, university medical centres, LTC facilities, and other educational institutions, such as universities of applied sciences or vocational training institutions, collaborate in scientific research, with the shared goal of improving quality of life, quality of care, and quality of work in nursing homes. ⁽¹⁻⁶⁾ However, research has shown that achieving these aims is challenging. Reasons for this include differences in aims, priorities and language use between stakeholders in these networks. ⁽⁷⁾ The complexity of the networks, which involve diverse organisational partners, requires coordinated interprofessional collaboration (IPC). ⁽⁸⁻¹⁰⁾

IPC is defined as the coordinated collective involvement of individuals from diverse professional backgrounds, including patients and care partners, who work within a network, team, or group to accomplish shared goals. ⁽¹⁰⁻¹³⁾ Through this coordinated collaborative process, each individual contributes distinct and complementary knowledge and expertise to achieve shared objectives. ^(11, 14, 15) Within academic networks for LTC, coordinated IPC is essential for the co-creation and dissemination of scientific knowledge in the LTC sector. ^(1, 2) Despite its importance, empirical research on IPC within academic networks for LTC remains limited.

The successful application of IPC within academic networks for LTC depends on structured and coordinated collaboration between stakeholders from different organisations. In the case of academic networks, these stakeholders include LTC directors, chairs of these networks, healthcare professionals, researchers, patients, and care partners. In order to complement one another systematically, it is important that stakeholders recognise each other's roles and expertise, communicate openly, and engage in shared goals. ^(10, 12, 13, 16-18) In addition, successful IPC requires clear communication, active knowledge sharing, and alignment through the embedding of shared research priorities around common objectives. ^(10, 16)

A key element in academic networks for LTC are 'linking pins'. These professionals bridge the gap between LTC and academia, and are also known as 'embedded researchers', 'boundary spanners', 'researchers-in-residence', 'brokers', or 'science practitioners'. Linking pins are allocated time to bridge organisational boundaries between universities, university medical centres, LTC facilities, and other educational institutions within the network. In addition to their role as linking pins, they are employed in practice in professions such as healthcare professional, researcher, or education professional at universities, university medical centres, other educational institutions, or nursing homes. They operate at the intersection of practice, science, and education to strengthen collaboration and ensure effective knowledge dissemination across organisational boundaries. ^(7, 19, 20) Linking pins play a central role in facilitating conditions for IPC through their knowledge of and connections within these academic networks. ⁽¹⁹⁾

Although a knowledge gap remains regarding the specific roles and experiences of linking pins in relation to IPC within academic networks for LTC, they are considered essential actors. Their added value lies in their ability to gather knowledge and research questions, stimulate research activities, and support the dissemination and implementation of research findings in nursing homes. ^(7, 19, 20)

However, research on how linking pins experience IPC in academic networks for LTC remains limited. Within these networks, a few studies have been conducted on linking pins, including a study on scientific linking pins and a Dutch-language self-evaluation. However, these studies focused specifically on the role of the linking pin in the broader context rather than IPC specifically. ^(19, 20) This study aims to explore the experiences of linking pins with IPC in the Dutch academic networks for LTC, as well as the factors they perceive to influence IPC. Their narratives offer insights into authentic experiences of linking pin practices. These insights provide a more comprehensive understanding of the linking pins' experiences with IPC and offer opportunities to enhance IPC and to strengthen partnerships within academic networks. Furthermore, the findings on linking pins and IPC in academic networks for LTC are internationally relevant, as they provide insights into strengthening evidence-based practice by enabling the cross-boundary exchange of knowledge between academia and practice.

Methods

This qualitative interview study examined the experiences of linking pins with IPC in the academic networks for LTC. This study was reported in accordance with the Standards for Reporting Qualitative Research guideline. ⁽²¹⁾ Data were collected from September to December 2024.

Ethics

The Non-Medical Ethics Committee (non-WMO) division 3 of Leiden University Medical Center (Protocol ID: 24-3058) reviewed this study and deemed it exempt from the Medical Research Involving Human Subjects Act (WMO). All individuals provided online consent. They received a ten-euro gift voucher for participating.

Setting

The study was conducted across all six academic networks for LTC in the Netherlands. These networks are self-funded partnerships, co-funded by the Ministry of Health, Welfare, and Sport. The networks are located in the regions of Amsterdam, Groningen, Leiden, Maastricht, Nijmegen, and Tilburg. ⁽³⁾

Participants

Participants were eligible for participation if they had the role of linking pin in one of the academic networks for LTC. Additionally, they were required to have spent at least eight dedicated hours per week in this role during the six months preceding the study. Potential participants were recruited through an earlier survey on IPC in academic networks for LTC. At the end of that survey, linking pins could indicate their willingness to participate in future research. Additionally, the coordinators of the different academic networks invited potential participants directly.

Participants were selected using purposive sampling based on their (relevant) experience, and recruited through convenience sampling in the order in which they registered.^(22, 23) The objective was to recruit approximately 18 linking pins, i.e. three per network, from six academic networks for LTC.⁽²⁴⁾ Data collection stopped when a hermeneutic saturation of understanding was reached. This means that further interviews no longer changed the emerging shared understanding between participants and researchers, and revealed no additional meanings.⁽²⁵⁾

Data collection

Prior to the interview and after providing informed consent, participants were asked to complete a brief online participant characteristics questionnaire using the Castor electronic data capture system. The questionnaire included questions on network affiliation; professional background (i.e., specialised elderly care physician, physician, nurse practitioner, nurse, healthcare aid, occupational therapist, physical therapist, speech therapist, spiritual counsellor, psychologist, policy officer, manager, director, researcher, or otherwise); age (in years); gender (i.e., male, female, or other); years of work experience in professional and linking pin roles; and number of hours per week working as a linking pin.

In addition, three Visual Analogue Scales (VASs) with anchor points at 0 cm (very dissatisfied) and 10 cm (very satisfied) were used to assess the satisfaction of linking pins with IPC in their respective academic networks. The three scales assessed satisfaction with: 1) satisfaction with IPC in their network in general; 2) the manner of communication across organisations in their network; and 3) preconditions for IPC (e.g., time, resources) in their network. The mean, median and interquartile range (IQR), defined as the range between the 25th and 75th percentiles, were used to describe the variability in self-reported satisfaction. A score of ≥ 8 cm was interpreted as indicating 'satisfactory'.

⁽²⁶⁾ Finally, participants could elaborate on their responses in an open text box.

Semi-structured interviews

During the interviews, a predetermined list of topics was used to encourage participants to reflect on their personal experiences and to establish understanding regarding IPC within academic networks for LTC. The topic list included key themes relevant for IPC identified in prior research^(13, 16), including influencing factors, communication, preconditions for IPC, and organisational conditions. This approach ensured that all participants were asked about the same topics while

also allowing space for emergent themes to arise. All interviews were performed online, using Microsoft Teams. The interviews were conducted by three female researchers (LA, a Master's student in medicine; JU, a network coordinator and researcher; and IE, a network researcher), and lasted between 45 and 60 minutes. All interviews were recorded, and automatic transcripts were generated. The transcripts were checked against the recordings by two researchers (AD and LA) and subsequently anonymised.

To ensure reliability and consistency in the interviewing process, the researchers received instructions from AD (who conceived the study, performed the analyses, and drafted the manuscript) prior to the interviews taking place. These instructions emphasised the importance of focusing on the dialogue, elaborating on participants' responses, being aware of one's own experiences with IPC, and creating a private and trusting interview environment. Within one week of the interview, participants received a summary for member checking to which they could provide feedback.

Data analysis

A hermeneutic phenomenological analysis was conducted to explore the personal experiences of linking pins with IPC within the academic networks for LTC. ^(27, 28) During the analysis AD and HS (female researcher) applied reflexivity according to hermeneutic phenomenological principles. ^(27, 29) In this way they acknowledged their pre-understandings at the beginning and documented reflexive notes throughout the research process. Using an interpretative analytic approach based on the hermeneutic circle, the researchers engaged through iterative interaction between parts and the whole of linking pins' narratives to reveal meanings and situate them within broader theoretical and contextual frameworks of IPC. ^(27, 28)

An inductive coding process was employed to allow themes and meanings to emerge directly from the participants' experiences. ⁽³⁰⁾ The coding process was conducted by four coders (AD, EdV, AB, MH) using ATLAS.ti version 24. Two researchers independently coded the transcripts prior to a consensus meeting. When agreement could not be reached, a third researcher was consulted. Coding took place in parallel to the data collection in order to determine when data saturation was achieved. ⁽²⁵⁾ VAS responses and participant characteristics were analysed in SPSS (version 29) using descriptive statistics. The quantitative and qualitative data were used complementarily, with the VAS scores supporting the experiences, while the narrative data provided in-depth, refined patterns for the quantitative findings.

Results

A total of 19 interviews were conducted across six academic networks for LTC. Table 1 shows the characteristics of the participants. Besides age and gender, Table 1 also shows differences in the mean years of experience in the roles of professional and linking pin. In addition, it shows that the number of weekly working hours as a linking pin varied widely among participants. Four networks

provided three linking pins, one network provided two linking pins instead of three due to workload constraints, and one network provided five linking pins. The participating linking pins represented a variety of professional backgrounds, including researchers in care for older people ($n = 6$), psychologists ($n = 3$), policymakers ($n = 2$), physiotherapists ($n = 3$), and nurses ($n = 2$). Three of the linking pins were employed in roles related to education or innovation. Although 29 individuals were eligible to participate, hermeneutic saturation was reached after 19 interviews.⁽²⁵⁾

TABLE 1. Characteristics of the participants

Academic Network for Long-Term Care	n	Mean years of professional experience (Median) [IQR]	Mean years of experience as a linking pin* (Median) [IQR]	Mean weekly hours as linking pin* (Median) [IQR]	Mean age in years (Median) [IQR]	Female gender % (n)
AWO-Limburg	5	7.0 (7.0) [3.5-10.5]	3.9 (2.0) [1.3-7.5]	7.2 (8.0) [4.0-10.0]	40.0 (34.0) [30.5-52.5]	100 (5)
AWO-Tranzo	3	4.3 (5.0) [1.0-1.0]	4.3 (5.0) [1.0-1.0]	25.3 (32.0) [12.0-12.0]	48.3 (50.0) [35.0-35.0]	100 (3)
UKON	3	20.0 (16.0) [4.0-4.0]	4.3 (4.0) [2.0-2.0]	12.7 (8.0) [8.0-8.0]	47.7 (38.0) [38.0-38.0]	100 (3)
UNC-ZH	3	12.0 (10.0) [7.0-7.0]	4.8 (6.0) [0.5-0.5]	9.3 (8.0) [8.0-8.0]	42.7 (44.0) [40.0-40.0]	66.7 (2)
UNO-UMCG	3	26.7 (26.0) [22.0-22.0]	3.0 (3.0) [1.0-1.0]	4.3 (4.0) [1.0-1.0]	50.7 (52.0) [48.0-48.0]	66.7 (2)
UNO-Amsterdam	2	7.5 (7.5) [5.0-5.0]	3.5 (3.5) [1.0-1.0]	1.0 (1.0) [1.0-1.0]	50.5 (50.5) [35.0-35.0]	100 (2)
Total	19	12.6 (9.0) [5.0-19.0]	4.0 (3.0) [1.0-6.0]	10.2 (8.0) [4.0-12.0]	45.7 (44.0) [35.0-52.0]	89.5 (17)

IQR: Inter Quartile Range; AWO-Limburg: Academic Network for long-term care Limburg; AWO-Tranzo: Academic Network for long-term care Tilburg; UKON: Academic Network for long-term care Nijmegen; UNC-ZH: Academic Network for long-term care South-Holland; UNO-UMCG: Academic Network for long-term care Groningen; UNO-Amsterdam: Academic Network for long-term care Amsterdam; * linking pin: practice-based professional who connects practice, research, and education within an academic network for long-term care.

Self-reported rating of IPC

The three self-reported IPC ratings were obtained using VAS assessments. Table 2 provides an overview of the three self-reported ratings by linking pins in academic networks for LTC.

Satisfaction with overall IPC in the academic networks for LTC was rated as satisfactory (≥ 8) by 68.4% of linking pins, with a mean score of 7.9 and a median score of 8.0. All respondents scored at least 7 out of 10.

Satisfaction with communication processes was rated satisfactory by 57.9% of linking pins, with a mean of 7.8 and a median of 8.0. The distribution of scores as presented in Supplement 1, showed a wider range than that for overall IPC, with the lowest score being 6.5.

Satisfaction with structural preconditions for IPC (e.g., time and resources) was rated satisfactory by 52.6% of linking pins, with a mean of 7.6 and a median of 8.0. The distribution of these scores showed the widest range, including two respondents (10.5%) who rated conditions as average (score of 5).

TABLE 2. Linking pins’ self-reported satisfaction with Interprofessional Collaboration (IPC) in general, with communication, and with preconditions in academic networks for long-term care using Visual Analogue Scales (N=19)

N=19	Satisfaction with IPC in general	Satisfaction with communication	Satisfaction with preconditions (e.g., time and resources)
Mean (SD)	7.9 (0.6)	7.8 (0.7)	7.6 (1.1)
Median	8.0	8.0	8.0
IQR	7.5-8.5	7.3-8.2	7.0-8.1
% rating ≥ 8	68.4%	57.9%	52.6%

IQR: Interquartile Range; SD: Standard Deviation; Satisfaction scores were rated on a 1–10 visual analogue scale: 1 indicates very dissatisfied, 10 indicates very satisfied.

Linking pins’ personal experiences regarding IPC

The experiences of linking pins revealed three interdependent themes influencing IPC: 1) formal organisational structure, 2) communication processes, and 3) a systematic approach. Figure 1 provides a visual representation of these themes and their interdependency. Sub-themes common to all three themes emerged, including strong accessibility to people and resources, working methodically, network evaluations, clear shared expectations, and attention to infrastructure-related issues. Supplement 2 provides an overview of the themes influencing IPC, including the sub-themes common to all three themes.

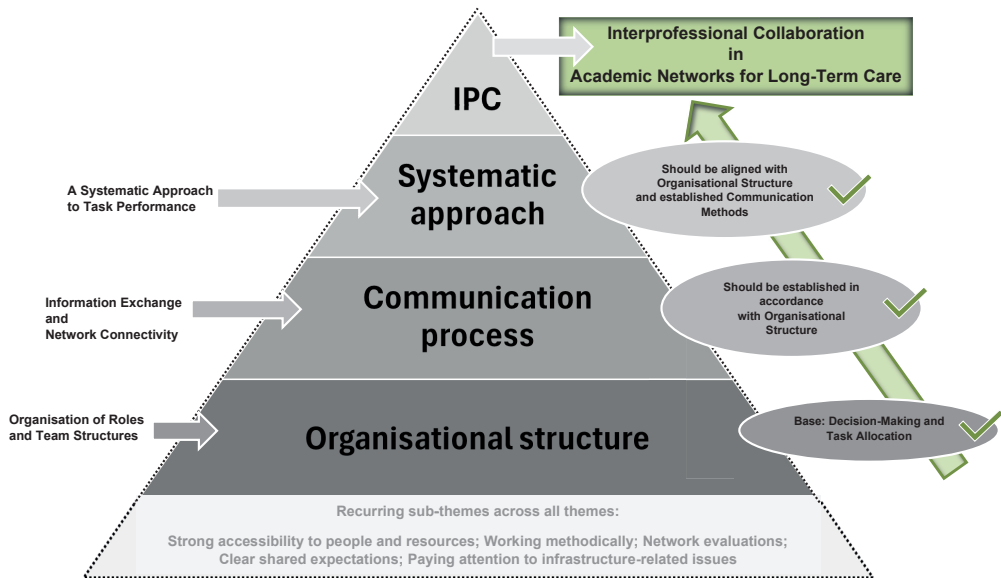


FIGURE 1. Visual representation of the themes, their interdependencies, and their alignment with interprofessional collaboration within academic networks for long-term care, based on linking-pin experiences

Formal organisational structures

According to linking pins, formal organisational structures are essential for supporting task allocation and coordinating activities for IPC within academic networks for LTC. Linking pins emphasised several conditions for strengthening formal organisational structures that enhance IPC. Linking pin experiences showed that 1) there must be strong accessibility to people and resources, such as having approachable network members, and 2) work practices need to be well-structured, with clear roles including responsibilities and an understanding of who does what and why, and 3) attention to infrastructure-related issues is important; this includes the timely anticipation of changes in network and team composition, and 4) meetings should be well organised; for instance, structurally organised meetings with network chairs, coordinators, and LTC directors for consistent involvement to discuss the network's functioning, objectives, and exchange of information and knowledge.

According to the linking pins, well-designed, formal organisational structures, particularly the structurally organised meetings, are essential for decision-making, communication, and fostering collaborative research and practice within academic networks for LTC.

“The network is run by a relatively small team, and you have a clear sense of everyone’s role, so you know exactly who to approach for what.” Interview 110018

“It is really about accessibility. I feel that because of the [academic network], even directors of long-term care facilities seem much more approachable. It feels like the barrier is lower; it is pretty easy to get in touch with the people you want to speak with.” Interview 110025

Conversely, the involvement in IPC of participants who work less than 7.2 mean hours per week working as a linking pin showed a greater decline in their involvement in IPC, particularly when access to individuals and resources within academic networks for LTC was limited.

“Since I’m not familiar with those people of the network, I am not sure which contacts I need or what their roles are. So I will just build my own network or do some research online; that is usually the quickest way to move forward, I think.” Interview 11021

Furthermore, a lack of familiarity with the people in the network results in unfounded assumptions, which in turn create misunderstandings and hinder progress, and thereby negatively impact IPC.

“So I thought: you’ve got all these implementation specialists, just give me one for a day a week on the work floor. Instead of telling us from a distance how to do things, come work in my organisation and actually do it with us.” Interview 11021

Linking pins regard structured working practices, such as coordinating work with structural meetings, applying clear agendas and plans, as an important condition for establishing consistent processes, which strengthen the reliability and predictability of academic networks.

“There is now a clear and extensive network structure in place. Compared to how it started, with just two people who thought it would be interesting to set up a network, it has grown significantly. Many more people have joined, and as a result, a formal structure has become necessary.” Interview 110020

“The network structure is well organised, which strongly facilitates collaboration within the organisation. You can also see that the different layers work together effectively. Most organisations have established a solid foundation for this kind of collaboration.” Interview 110025

The linking pins also noted attention to infrastructure-related issues of academic networks for LTC, especially regarding network and team evaluations. These are experienced as crucial for supporting efficiency and optimising processes, thereby enhancing involvement and IPC.

“What I notice is that we are running more and more projects as an academic network. We have grown tremendously over the past few years, and sometimes I lose sight of the bigger picture. We are working on it, though. So how can we make our

communication processes clearer? I think if we get that right, it will make the work even more enjoyable.” Interview 110028

“With one partner, things run smoothly; they’re smaller, have clear oversight, and have long been part of the network. The other is in the middle of a reorganisation, which makes things a bit more challenging, but I’m still well involved. Together we set goals to improve visibility and streamline processes. Overall, I feel very well included, which is great. Interview 110030

Linking pins indicate that explicit, well-structured meetings advance IPC. Meeting each other supports trust and organisational structure of academic networks for LTC, which enables the network to operate in a coordinated way.

“I think we have built some great structures that allow different professions to meet on a fairly regular basis and share knowledge. Bringing those different layers together, the truly interprofessional part, is a step more challenging.” Interview 110025

“Board members meet twice a year, and policy staff and linking pins meet several times, alongside groups for older adults and communication advisors. Different disciplines collaborate across organisations in similar roles, and we do this very well.” Interview 110025

Communication processes

Linking pins with 7.2 or more working hours per week indicated effective IPC in academic networks for LTC requires clear communication processes and procedures. These enable the exchange of information and knowledge within the network. Linking pins highlight specific aspects of communication, including the dissemination of information and knowledge and the timely delivery of updates on research projects, for example to ensure that all stakeholders remain involved. They point out that this fosters access to accurate and timely information for all stakeholders, reduces ambiguity and improves decision-making within the network, such as directors providing consent to participate in specific research. Moreover, they experience that effective information exchange builds trust, clarifies expectations, and facilitates the alignment of actions, synchronisation of tasks, and progress towards shared goals.

“Overall, the communication works well, and I feel well informed. However, dissemination of research results could be improved; feedback often ends up in general newsletters instead of reaching the specific departments that need it.” Interview 110032

Sharing information and knowledge is essential for creating impact and it enables stakeholders to make informed decisions and strengthen IPC.

“Communication is excellent; updates come proactively through newsletters, reports, emails, and even personal visits or invitations to relevant events. I really value that. The contacts are also very accessible; whether it’s a professor or a network coordinator, they are always willing to think along when you call or visit. Finally, their connecting role is invaluable. Because they know what’s happening across many areas, they can quickly point you to the right people or resources. That’s a major reason everything works so well.” Interview 110027

“Yes, those linking pin meetings I mentioned, I really think they are essential for the role. They are about sparring with colleagues and sometimes diving deeper into a topic, which I find very valuable. They also force you to write down everything you have done and make a plan. Then I think, ‘Oh right, I have actually accomplished quite a bit.’ Sometimes you feel like you are just winging it, but once you put it on paper, it becomes a much more coherent whole.” Interview 110032

By communicating openly using a common language, linking pins’ experience, having clear expectations and minimal conflict strengthens IPC through trust and relationships among stakeholders across the network.

“Of course, I have the strongest connection with the linking pins. But even when I step in for the chair of the science committee in the steering group, I still feel free to ask questions or share my opinion.” Interview 110023

“The [academic network], as I just mentioned, is in transition... It is moving forward, beginning a new policy cycle, and within [care institution] we are also looking at how we can shape certain structures even better. So that means we are exploring the best way to implement things. But the communication about this is really pleasant and very open, and everyone is working together to figure it out. In the end, this will lead to a joint plan.” Interview 110018.

“Processes in research often take longer than expected, just as in healthcare. Recruitment is a clear example: studies must first be approved by the ethics committee and assigned a contact person, so a lot of time can pass before participants are actually approached. We also noticed that care organisations have many administrative coordination steps. These are important for alignment and communication, but they do slow things down. The same is true in education; the processes are quite similar.” Interview 110030

“Overall, I find the collaboration positive. There is plenty of communication. The linking pins meet once a month, and we have good contact with them. I also have a

good relationship with the director in our organisation and with the researchers. What I sometimes feel, though, is that things could be a bit more integrated.” Interview 110017

Facilitating communication across all organisational levels, from operational to strategic, promotes broad involvement and strengthens the overall network, according to the linking pins.

“Verbally, yes. But of course, there are also newsletters. There are large meetings where everyone is invited, all the theme groups and all the board members, so a lot is being done to maintain the best possible communication.” Interview 110018

“I work closely with my team and the valorisation team on communication, design, and education support. Effective collaboration is essential. Communicating across different levels can be challenging, but teaching practical courses taught me to use simple language and avoid jargon. I see knowledge as a spectrum where everyone contributes, so clear communication is key to shared understanding.” Interview 110030

A systematic approach

Linking pins with 7.2 or more working hours a week emphasised the importance of adopting a systematic approach to task performance, which they experience as fostering IPC. A systematic approach provides a structured and methodical process for completing tasks and achieving shared goals within an academic network for LTC. Additionally, linking pins emphasised the need for adequate resources and structural coordination to support effective IPC.

“We look out for one another and keep an eye on what’s going on. We follow an annual plan with clear priorities, and although we organise extra activities like meetings, we always have to make sure everything fits within our limited resources.” Interview 110016

“Collaboration works very well: coordination is strong, we work systematically, and there’s room for new ideas. We use structured methods and an annual plan. We also have a shared data drive for archiving and sharing information. With support from the coordinators, all these elements strengthen our interprofessional collaboration.” Interview 110016

Linking pins experiences indicate that IPC is enhanced through the alignment of network objectives. This alignment provides a clear direction and establishes a structural foundation.

“A new policy plan introduces a more integrated structure. Instead of separate management, steering committee, and linking pin meetings, organisations will

now be linked to specific policy topics that match their research agendas. This allows researchers to participate directly. The linking pin role will remain but will operate within these topic-based connections.” Interview 110023

Furthermore, they noted that integrated evaluations support systematic progress and improve quality.

“The network feels well organised and forward-looking. Even without experience in other networks, I see a positive, proactive approach: we continue to develop, evaluate, and try new ideas rather than repeating old habits. The new chair has brought fresh energy, and regularly welcoming new people with new perspectives helps strengthen our collaboration.” Interview 110033

Finally, linking pins indicate that a clear and integrated structure for IPC facilitates a systematically organised academic network. This structure ensures that linking pins are connected with each other and to other relevant stakeholders, thereby enabling coordinated IPC.

“I sometimes wonder how things used to work without linking pins and all the collaborative activities. I think there would have been a lot more obstacles, and the network probably would not have been implemented as effectively as it is with linking pins in practice.” Interview 110023

“We have a monthly linking pin meeting. In the past, it was always at the hospital, but now we usually combine it with a site visit to one of the organisations. It’s great because we get to see each other’s main locations and look behind the scenes. We still meet at the hospital occasionally, but much more often at each other’s sites, which makes it more interesting and finding each other easier.” Interview 110016

Linking pins indicated that effective formal organisational structures, communication processes and a systematic approach contributed to clarity, trust and stakeholder involvement, which were positively experienced as facilitating IPC within their academic networks. Nevertheless, participants working less than 7.2 hours per week as linking pin experienced several barriers to IPC, including limited access to stakeholders and resources. Furthermore, unclear role expectations, slow or fragmented communication processes, and variability in structural preconditions were reported. Linking pins experienced these barriers as hindering efficiency, progress, and integration within academic networks for LTC.

Discussion

This study explored the experiences of linking pins from the academic networks for LTC with IPC within their network. These experiences revealed three interdependent overarching themes that influence IPC in these academic networks: formal organisational structure, communication processes, and a systematic approach. Overall, linking pins experienced that systematic coordination facilitated by resource allocation enables consistent information exchange, trust and alignment around shared objectives, thereby strengthening IPC. In contrast, unclear roles, limited access, or fragmented communication hinder effective IPC within academic networks for LTC.

Linking pins consistently emphasised that formal organisational structures (e.g., the organisation of roles and team structures) are essential for achieving shared objectives. These findings align with existing literature on IPC and organisational coordination, which shows that organisational clarity, such as clearly defined roles, responsibilities, and decision-making accountability for individuals as well as network organisations, reduces ambiguity and supports stronger collaborative relationships within complex healthcare systems, including academic networks for LTC. ^{((10, 13, 16, 31-36)}

Conversely, organisational ambiguity in both academic networks and network organisations, such as unclear roles or restricted access to resources, was perceived as diminishing efficiency by slowing decision-making, disrupting coordinated work and hindering IPC. Ultimately, formal organisational structures, such as clearly defined roles and allocated resources, serve not only to enhance the functioning of academic networks but also to shape the communication processes essential to their development. Linking pins actively utilise these communication processes to connect across various organisational levels in both academic networks for LTC and their individual network organisations. ^(13, 31, 32)

Moreover, linking pins experienced communication processes as another essential factor for IPC. Linking pin experiences showed that while comprehensive communication channels (e.g., newsletters and emails) are commonly used, the dissemination of research findings to relevant stakeholders remains insufficient. This deficiency emphasises the need for more targeted and interactive communication strategies that integrate the involvement of various stakeholders and facilitate the sharing of information and knowledge. ⁽³⁷⁾ According to the literature, communication processes are the formal and informal ways of exchanging information and knowledge. They constitute a relational process that forms collaborative dynamics and are more than an operational function. ⁽³⁸⁻⁴¹⁾ This highlights that communicative relationships influence factors such as trust and mutual understanding, which directly influences effective IPC.

Linking pins were clear about the importance of a systematic approach for completing tasks by following clear, organised steps, such as applying annual plans and clearly defined goals. According to linking pins, this ensures consistency across diverse network organisations and disciplines and enables networks to address complex issues and achieve shared goals. In their experience, structured coordination, planning, and integrated evaluations provide context for continuous

development of academic networks for LTC, as indicated by referring to ongoing evaluations and using annual plans and policy updates. This iterative cycle of planning, implementation, and evaluation strengthens the flexibility and reliability of academic networks by integrating learning, feedback, and adaptation into the network's functioning. It also optimises resource use and ensures continued alignment with evolving policy and practice priorities. ^(10, 34, 42, 43) These findings align with systems theory, which emphasises structured processes and feedback circles. ⁽⁴⁴⁻⁴⁷⁾ Herewith, a systematic approach enables linking pins to manage alignment within the complexity of academic networks for LTC and maintain IPC.

Although the three themes reinforced each other, their relative degree of formalisation varied per academic network for LTC. This may be related to the observed variation in the mean hours per week worked as a linking pin, as presented in Table 1. This variation suggests that IPC in academic networks is organised in noticeably different ways and is influenced by local organisational choices, resources, and the specified function of the linking pin. While there is no evidence for a minimum number of weekly working hours for IPC, there is evidence that interaction over time is essential. ⁽⁴⁸⁾ This highlights that relationships in these academic networks develop through repeated interactions and collaboration. This contributes to more commitment and enables linking pins to recognise structures, processes and methods and enhance their relationships in academic networks for LTC. Despite the variation per network, findings are in line with literature: all three themes, formal organisational structure, communication processes, and a systematic approach are interdependent; each reinforces or weakens the effective functioning of the other. ^(48, 49) This illustrates that successful IPC between stakeholders, such as linking pins within academic networks for LTC, is dependent on the interaction among the three themes.

Strengths and limitations

A key strength of this study is its grounding in hermeneutic phenomenology, which recognises the researcher as an integral part of the interpretative process. The familiarity of the researchers with the phenomenon offered valuable pre-understanding that deepened engagement with participants' reports and supported the iterative movement of the hermeneutic circle. This involvement, when paired with reflexive awareness and transparency, enriched interpretative depth. The study is further strengthened by the diversity of its participants. Recruiting through national and multicentre networks brought together individuals from a variety of professional backgrounds, expanding the range of experiential perspectives and contributing to a more nuanced interpretation of the phenomenon. Finally, the rigorous reflexive approach, iterative interpretative cycles and critical team dialogue helped ensure that the researchers repeatedly reflected on their own biases, re-examined the data and challenged each other's interpretations. This process guaranteed that the findings accurately reflected participants' experiences rather than the researchers' assumptions.

Despite the study's strengths, several limitations should be noted. The use of convenience sampling may have introduced self-selection bias and reduced the sample's representativeness, as participants with greater interest or availability may have been more likely to take part. Furthermore, the variation in the mean weekly hours spent as a linking pin extended to the development of the linking pin role, and experiences with IPC may have introduced developmental confounding. Finally, as with most qualitative and phenomenological research, the findings are not intended to be widely generalisable. Instead, they offer nuanced, context-specific insights into processes and experiences that other research-practice partnerships in LTC can use for critical reflection and contextual adaptation in settings characterised by similar conditions.

Implications for Practice and Research

Academic networks for LTC should prioritise communication strategies that combine structured, formal channels with opportunities for informal dialogue. This will enhance communication among network stakeholders such as chairs, researchers, and linking pins. These strategies should focus on the network's goals, activities, decisions, collaboration opportunities, and shared challenges, in order to promote openness, involvement, and accessibility.^(38, 39) Furthermore, to enhance IPC in academic networks for LTC, it is essential to embed the sharing of information and knowledge as a central component. This should involve both explicit forms of communication, such as structured reports and policies, and implicit forms, including observations and practices during multidisciplinary team meetings, to maximise involvement and impact.^(31, 33, 36, 50)

Future research should place a greater emphasis on how IPC processes and the specific contributions of linking pins translate into outcomes such as knowledge uptake, network performance, and improvements in care practices. A refined understanding of these processes can guide further professionalisation of this pivotal role.⁽⁵¹⁾ To further strengthen IPC within an academic network for LTC, research into the coordinating skills of linking pins is essential. Methods such as competency analysis, which systematically identifies the knowledge, skills and behaviours required for effective performance, or focus groups could help to identify which skills are needed for effectively connecting stakeholders across different facilities in an academic network for LTC.

Conclusions

The three interdependent themes identified in this study illustrate how IPC is shaped by 1) organisational structure, which determines formal network relationships and roles; 2) communication processes, which involve everyday interpersonal interactions and procedural coordination; and 3) a systematic approach, which is reflected in annual plans and clearly defined goals that connect various stakeholders. This study provides new empirical insights into IPC

and the linking pin role within academic networks for LTC. These insights reveal substantial opportunities for network leaders, researchers, policymakers, and educators to strengthen IPC through linking pins within these academic networks. Moreover, the findings provide a more profound understanding of interprofessional collaboration by highlighting the interconnectedness of organisational structures, communication processes, and systematic approaches, which mutually influence one another and can either facilitate or hinder interprofessional collaboration.

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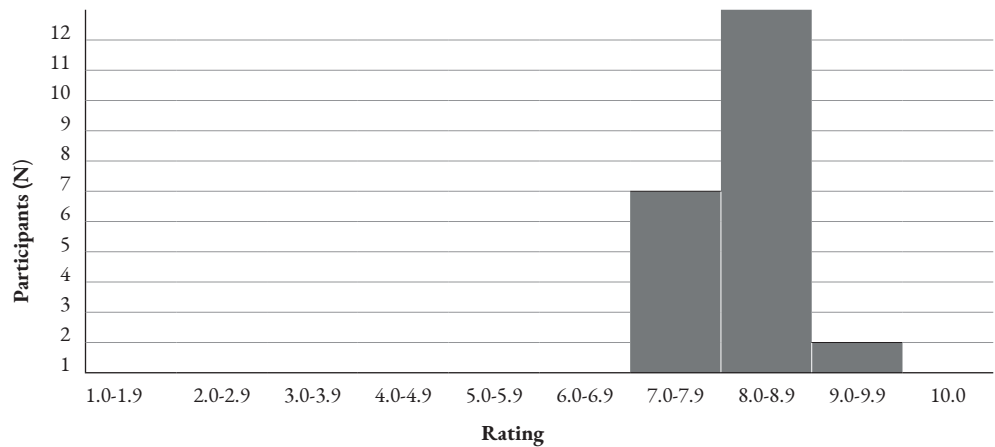
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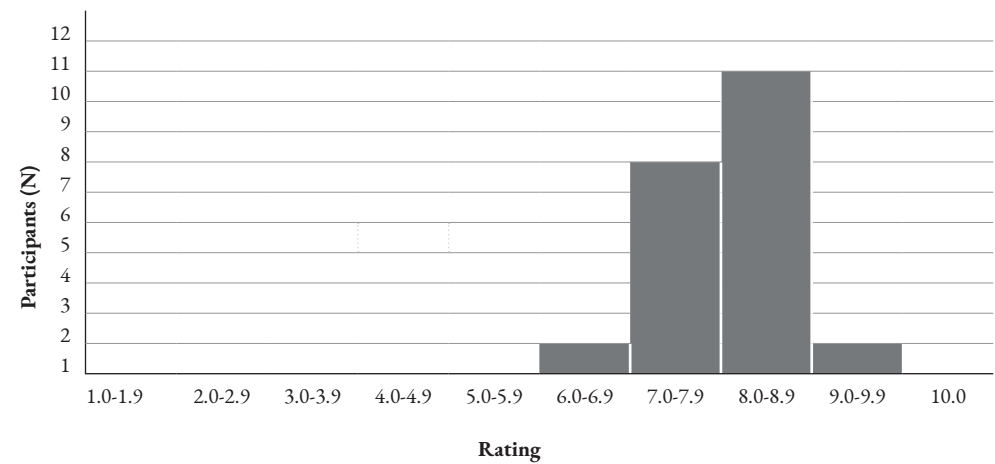
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Supplementary material

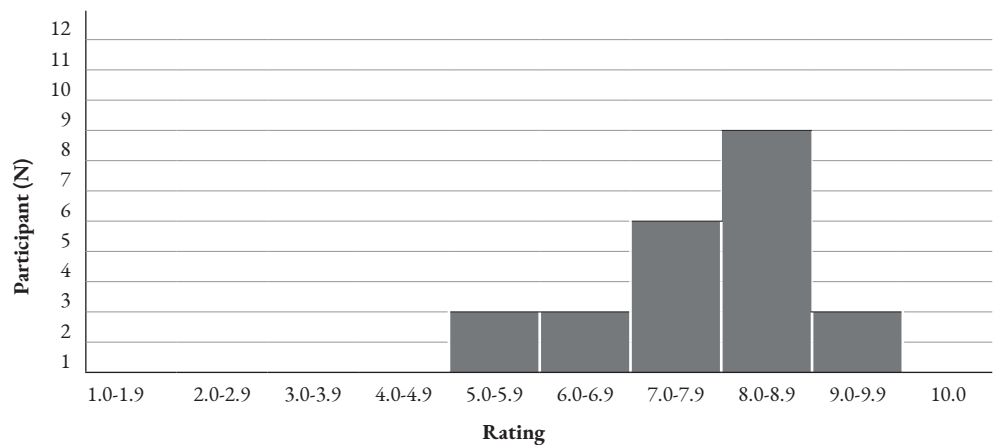
SUPPLEMENT 1



Note: Satisfaction scores were rated on a 1–10 visual analogue scale: 1 indicates very dissatisfied, 10 indicates very satisfied.
FIGURE 1. Linking pins' general satisfaction with the interprofessional collaboration within the academic for long-term care.



Note: Satisfaction scores were rated on a 1–10 visual analogue scale: 1 indicates very dissatisfied, 10 indicates very satisfied.
FIGURE 2. Linking pins' satisfaction with communication within the academic network for long-term care.



Note: Satisfaction scores were rated on a 1–10 visual analogue scale: 1 indicates very dissatisfied, 10 indicates very satisfied.

FIGURE 3. Linking pins’ satisfaction with preconditions for interprofessional collaboration within the academic network for long-term care (e.g., time, resources)

SUPPLEMENT 2

Themes and sub-themes influencing interprofessional collaboration based on the linking pins' experiences in academic networks for long-term care, with examples.

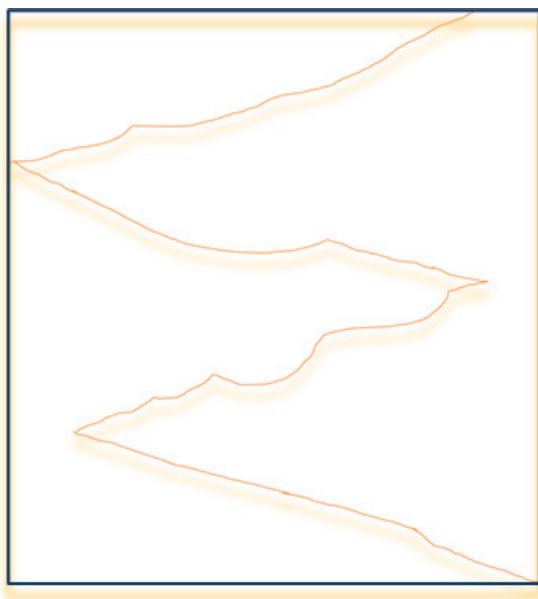
Themes	Sub-themes	Examples
<i>Organisational structure of an academic network for long-term care</i>	• Strong accessibility to people and resources*	• Having approachable network members and shared data drive for sharing information
	• Working methodically*	• Working with clear objectives and processes
	• Network evaluations*	• Using annual plans and policy updates to enhance continuous development within a network
	• Clear shared expectations*	• Having clear expectations strengthens trust and relationships between stakeholders in academic networks
	• Paying attention to infrastructure-related issues*	• Timely anticipation of network changes
	• Knowing the organisational structure of a network	• Having knowledge about the organisational structure enhances efficient and aligned collaboration
	• Meetings to promote collaboration	• Bringing people together structurally to share information, align goals, and build mutual understanding which enhances collaboration
	• Working together with different groups	• Collaboration between different groups in a network fosters involvement and clarity, which enhances achievement of shared goals
	• Meeting each other	• Meeting each other shapes interactions in networks and influences how decisions are made.

Themes	Sub-themes	Examples
<i>Communication processes in an academic network for long-term care</i>	• Strong accessibility to people and resources*	• Having access to clear processes to share information and knowledge
	• Working methodically*	• Open communication with well-structured processes and clear procedures
	• Network evaluations*	• Clear communication on annual plans and policy updates within a network
	• Clear shared expectations*	• Sharing expectations in academic networks strengthens clarity, trust, and relationships between stakeholders
	• Paying attention to infrastructure-related issues*	• Timely communicating about infrastructure-related issues with stakeholders in network
	• Attention to the dissemination and timing of information	• Carefully planned distribution of information to stakeholders through appropriate channels
	• Sharing knowledge for impact	• New insights refined through feedback to enable effective translation into practice.
	• Aligning communication level between different stakeholders	• Providing each group with the right amount of information to ensure everyone stays aligned and informed
	• Open communication	• Building trust and reducing misunderstandings to improve collaboration
	• Meeting each other	• Personal interaction enhances verbal and non-verbal communication
	• Networking at different levels	• Exchanging information across individuals, teams, the organisation, and network partners to support collaboration and achieve shared goals
	• Reciprocity	• Network members respond to each other's needs by offering support and adjusting actions so all network members can achieve their goals
	• Basic coordination	• Using shared communication tools and procedures so everyone receives the same information at the right time and stays aligned

Themes	Sub-themes	Examples
<i>Systematic approach in an academic network for long-term care</i>	• Strong accessibility to people and resources*	• Having clear procedures to enhance the collaboration of network members and the access to information
	• Working methodically*	• Working with clear common network collaboration objectives
	• Network evaluations*	• Using common plans to collaborate within a network
	• Clear shared expectations*	• Using expectations management to improve collaboration between stakeholders in academic networks
	• Paying attention to infrastructure-related issues*	• Structurally embedding monitoring the network to anticipate changes in the collaboration
	• Attention to the dissemination and timing of information	• Applying a procedure that schedules regular updates, assigns clear dissemination responsibilities, and uses coordinated release timelines to ensure all stakeholders receive essential information
	• Sharing knowledge for impact	• Using structured communication methods, and continuously measuring and improving their effect
	• Sufficient resources for the role of linking pin	• By securing dedicated time and tools, to establish structured communication process and continuous knowledge exchange
	• Alignment of vision/objectives	• Establishing a shared plan in which all partners collaborate to achieve common goals
	• Research aligns with the long-term care facilities	• By establishing shared goals and evaluations through coordinated governance and procedures
	• Meetings to promote collaboration	• By applying a structured agenda, establishing meeting standards and ensuring consistent follow-up on actions
	• Structural collaboration with different groups	• Defining shared goals, clarifying roles, establishing governance, standardising communication, using a structured system, and continuously improving the process across all involved groups.
	• Meeting each other	• Creating connections and building relationships for effective collaboration through shared understanding

*Recurring sub-themes

Chapter 7



Summary and general discussion

Summary of Main Findings

The general aim of this dissertation was to examine interprofessional collaboration (IPC) from a multilevel perspective, encompassing the micro and meso levels within nursing homes and the extension to the macro level within academic networks for LTC. ⁽¹⁻⁵⁾ In addressing this aim, the dissertation extends the conceptual frameworks proposed by D'Amour (2005) and the World Health Organisation (2010) to the context of LTC, GR, and academic networks for LTC. ^(6,7) To address the overarching questions, 'How is IPC operationalised within nursing homes and academic networks for LTC?' and 'How do various stakeholders experience and perceive this collaboration, and what factors facilitate or hinder its functioning?', this dissertation explored factors influencing interprofessional collaboration, as well as the perceptions of various stakeholders, including patients and care partners, across these different levels. Several studies were conducted to answer the following questions:

Chapter 2:

Primary question: What are facilitators of and barriers to interprofessional collaboration (IPC) in institutional long-term care (LTC) and geriatric rehabilitation (GR)?

Secondary question: What instruments are being used to assess interprofessional Collaboration in LTC and GR?

Chapter 3:

Primary question: What facilitators of and barriers to IPC are experienced by patients, informal caregivers, and healthcare professionals involved in LTC and GR, both in general and during multidisciplinary team meetings (MDTMs)? This includes differences between LTC and GR.

Secondary question: Are patient-outcome measures being used during multidisciplinary team meetings, and if so, which?

Chapter 4:

Primary question: What does IPC look like during MDTMs in GR, and how is it experienced by participants?

- a. What aspects of IPC are observed during MDTMs in GR?
- b. How satisfied are participants with IPC in these MDTMs?
- c. How are standardised patient-outcome measures being used during MDTMs?

Chapter 5:

Primary question: What perceptions of and perspectives on IPC do directors of LTC facilities, chairs of academic networks, researchers, members of scientific research committees, and linking pins within academic networks for LTC have?

Secondary question: What are the differences regarding perceptions and perspectives among directors of LTC facilities, chairs, researchers, members of scientific research committees, and linking pins?

Chapter 6:

Primary question: What are the personal experiences of linking pins with IPC in the academic networks for LTC?

Secondary question: What factors influence IPC, according to linking pins?

Addressing these questions will enhance our understanding of IPC and provide the opportunity to improve IPC within nursing homes and academic networks for LTC. The main findings of Chapters 2 - 6 will be discussed at three interconnected levels: micro, meso, and macro. This will be done using a conceptual framework presented in Figure 1.⁽⁸⁾

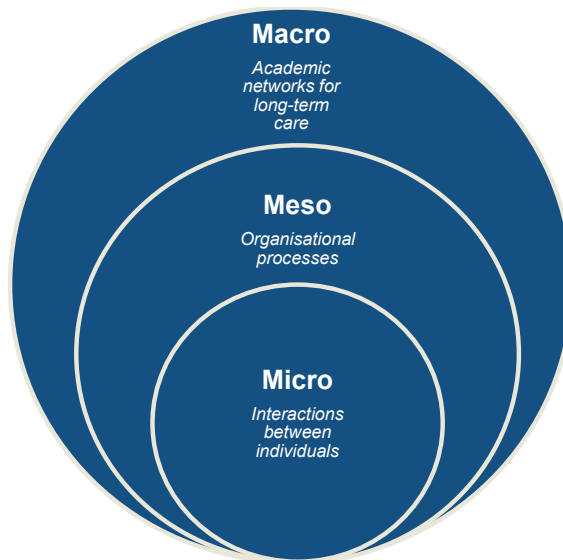


FIGURE 1. Conceptual framework on micro-, meso-, and macro-level interprofessional collaboration.

Main findings micro level

At the micro level, IPC in the nursing home setting consists of the regular interactions between patients, care partners, and professionals. The findings throughout the chapters emphasise that effective IPC at the micro level 1) essentially involves personal and behavioural factors, 2) is based on communication, 3) is supported by clear role expectations, and 4) involves all relevant individuals, including patients and care partners.

Personal and behavioural factors

Personal and behavioural factors emerged as essential conditions for IPC. Trusting one another, maintaining mutual respect, and perceiving professional equality were consistently associated with more efficient and better-coordinated processes. (*Chapter 2*). These personal factors include positive attitudes and encourage professionals to recognise and value each other's expertise, thereby advancing IPC (*Chapters 2 and 3*). Moreover, IPC benefits from active professional participation, where team members demonstrate commitment, involve themselves proactively, and feel responsible for shared decision-making (*Chapter 4*). The same is true of the involvement of patients and care partners: when they are recognised as equal to healthcare professionals, they feel more involved in the care process (*Chapters 3 and 4*).

Communication

Communication is an essential factor of micro-level IPC. The clear, timely and structured exchange of information supports shared understanding and enables teams to align their activities (*Chapters 2 and 4*). This also includes active listening to one another, asking clarifying questions when necessary. The use of common languages, which facilitates a personal setting in which misunderstandings are reduced and shared understanding is supported (*Chapter 4*). The findings further suggest that reciprocal, sufficient and efficient communication among all those involved in IPC may support a more structured and person-centred care process. This includes the exchange of information not only between professionals but also with patients and care partners (*Chapter 3*).

Role clarity

Role clarity is essential to prevent ambiguity and promote coordinated action. When roles and responsibilities are clearly defined, professionals are better able to understand where their involvement within the overall care process is suitable (*Chapter 2*). Conversely, a lack of role clarity was found to hinder IPC. It can result in fragmented systems or uncertainty about their level of involvement (*Chapter 4*). Therefore, role clarity highlights both responsibility and confidence within teams.

Involvement of all relevant stakeholders

Patient involvement is an important but also context-dependent element of micro-level IPC. In LTC, patients and care partners tend to participate more frequently, reflecting a culture in which their involvement is more established (*Chapter 3*). The involvement of patients and care partners was observed less frequently in GR; however, the findings suggest that when involvement does occur, it contributes positively to IPC and enhances the alignment of person-centred goals (*Chapter 4*). This indicates that more organised involvement of patients and care partners in GR may create opportunities for improving coordinated care and outcomes.

To summarise, micro-level IPC is a social, interactive process in which trust, communication, clear roles, and active involvement of patients and care partners strengthen one another, and thus enable effective IPC.

Main findings meso level

IPC at the meso level comprises organisational structures, team processes and leadership roles, and the availability of resources that enable professionals to collaborate effectively. Meso-level factors specifically influence 1) the organisation of multidisciplinary team meetings (MDTMs), 2) team processes and leadership, and 3) institutional commitment to IPC.

Multidisciplinary Team meetings

Structured, goal-orientated meetings enhance communication and decision-making by providing clarity, consistency, and a shared focus on objectives (*Chapters 3 and 4*). Effective leadership roles, particularly through skilled chairing, was critical in providing direction to meetings and guiding discussions. It also safeguarded good time management and ensured that essential opinions of professionals, patients, and care partners were fully considered (*Chapter 4*). Meetings were planned with clear agendas, an appropriate number of patients to be reviewed, adequate facilities, and functional technology such as shared screens. These elements supported transparency and real-time alignment of perspectives, creating an environment that enables efficient IPC (*Chapter 4*).

Team processes and leadership

Leadership that openly valued team collaboration and showed it through clear communication, shared responsibility, and support for team goals helped build a culture conducive to IPC. This culture ensured that IPC was consistently regulated and well supported (*Chapter 2*). Adequate time, staffing, and other resources were essential preconditions for IPC; shortages or high workloads frequently weakened IPC and were perceived as structural barriers beyond the control of individual professionals (*Chapter 2 and Chapter 4*). Furthermore, clear organisational procedures and shared systems enabled teams to coordinate their activities more effectively (*Chapter 3*). At the meso level in network contexts, systematic planning and evaluation processes helped maintain structure and shared responsibility between collaborating partners (*Chapter 6*). However, unclear roles in some academic networks demonstrate that without clarity, networks have limited impact (*Chapter 5*). On the other hand, the presence of linking pins proved valuable in facilitating communication and structuring IPC across boundaries (*Chapter 6*).

Institutional commitment to IPC

Institutions that embedded supportive values, such as openness, teamwork, and shared responsibility, created settings in which IPC could be effective (*Chapter 2*). Shared standardised patient outcome measures were found to be beneficial for the exchange of information and knowledge. It allowed for comparable evaluations of patients' functional status by using common language (*Chapter 3 and Chapter 4*). However, the use of these measures was inconsistent and not institutionally supported. Meso-level barriers consistently hindering IPC mostly reflected gaps in organisational structures, such as unclear protocols; limited resources, such as staff shortages; and

inadequate coordination, such as weak leadership (*Chapter 2 and Chapter 4*). Organisational clarity and coordination of IPC in academic networks for LTC foster IPC (*Chapter 5*).

Overall meso-level IPC requires more than only motivated professionals; it depends on organisational commitment to creating and maintaining the conditions under which IPC can occur.

Main findings on macro level

At the macro level, IPC extends beyond individual teams or organisations and is embedded within overarching systems, such as academic networks for LTC. The findings emphasise how IPC within academic networks, which include nursing homes, universities, university medical centres, and other educational institutions, contributes to nursing home care. These networks provide essential systems for knowledge exchange.

Academic networks for LTC

Academic networks for LTC have an important role in IPC by bridging organisational boundaries. These networks facilitate continuous communication and the sharing of information and knowledge (*Chapters 5 and 6*). They also provide infrastructure for advancing research and innovation in care and education. Within these networks, linking pins function as boundary spanners. Their relational roles promote communication and information exchange amongst institutions, creating continuity in IPC. Furthermore, linking pins may contribute to enhancing IPC in settings with competing organisational priorities and limited resources.

However, IPC can also be hindered in academic networks for LTC. Stakeholders often have different aims, expectations, and interpretations (*Chapter 5*) of what IPC should achieve. Without a shared vision and clear role definitions, teams or organisations may operate in parallel rather than combining their strengths, thereby hindering IPC. This shows the importance of alignment not only within organisations but across the entire system. Establishing a shared mission, common goals, and mutually recognised responsibilities is therefore essential for effective IPC.

Beyond alignment, structural support across the total network system is essential. Organisational policies, dedicated time and resources, and governance structures (*Chapter 6*) form the foundation of IPC in academic networks. However, despite the alignment, structural support, and involvement during projects, continuity after project completion, such as dissemination of research results, is often weak. This discontinuity reflects a broader challenge in academic networks for LTC: IPC is rarely structurally embedded and often depends on temporary funding, personal motivation, or isolated initiatives rather than on established organisational commitments (*Chapters 5 and 6*).

Additional macro-level challenges result from the complexity of IPC across multiple institutions with different cultures, evaluation systems, and operational standards. These differences can create

barriers to achieving shared understanding and measurable outcomes (*Chapter 5*). Moreover, the field lacks standardised and validated tools to measure IPC in LTC and GR (*Chapter 2*), which limits the ability to evaluate outcomes, guide improvement, or develop evidence to inform decision-making across the system. Combining this issue with inadequate dissemination of research outcomes into clinical practice, results in hindered organisational learning and continuous improvement (*Chapter 6*). This demonstrates the importance of macro-level conditions to support effective IPC across organisational boundaries. Such conditions include cross-institutional structures, aligned missions, supportive policies, shared visions, sustained knowledge exchange, and long-term funding. Together, these elements help foster the quality and continuity of care for older people in nursing homes.

All these findings demonstrate that IPC does not occur spontaneously but requires deliberate organisation and facilitation at the micro and meso levels within nursing homes and at the macro level within academic networks for LTC.

Reflection on Findings

The chapters in this dissertation provide comprehensive insight into the complexity of IPC in LTC, GR and academic networks for LTC. It enhances our understanding of IPC by confirming earlier findings while also providing new perspectives. Combining literature-based evidence and stakeholder perspectives, particularly regarding the importance of shared goals, role clarity, and the involvement of patients and care partners, supports the consistency of the findings and is in line with established models of IPC. ^(6, 9-12)

Nevertheless, the strength and consistency of the evidence supporting IPC in LTC, GR and academic networks remain limited. Chapter 2 revealed the heterogeneity in the existing research and a lack of validated IPC measurement instruments, which reflects the results of earlier reviews that also noted inconsistency in conceptual definitions and tool quality. ^(6, 10, 13-15)

However, Chapter 2 also revealed new insights into IPC. Three interdependent themes emerged as essential in both facilitating and hindering IPC: team performance, information sharing and organisational conditions. New knowledge and understanding is thus provided for clinical practice as well as clinical and policy education, i.e., that all three themes are to be taken into account and incorporated when applying or teaching IPC.

Chapters 4 and 6 further exposed inconsistencies between theoretically recognised IPC and its application, supporting findings that IPC principles are often insufficiently embedded in routine care settings. ⁽¹⁶⁻¹⁸⁾ Organisational support, structured procedures, and clearly defined responsibilities emerged as essential facilitators of effective IPC, consistent with evidence describing the importance of leadership, working systematically, and designated roles for team performance. ^(10, 15, 18-20) Moreover, Chapter 6 revealed new perspectives on the dependencies

and alignment required among organisational structures, on communication processes, and on systematic approaches to effectively enable IPC. This enables clinical practice and academic networks for LTC with the ability to evaluate, adjust, and refine their IPC. Furthermore, this new knowledge provides educators with the ability to integrate these insights into clinical as well as policy education, ensuring that future healthcare professionals and policymakers learn to utilise IPC effectively and are prepared to anticipate and enhance IPC within their future workplaces.

Collectively, the chapters show that IPC in LTC, GR, and academic networks for LTC requires personal interactions, communication processes, and organisational structures. In relation to the overarching questions, 'How is IPC operationalised within nursing homes and academic networks for LTC?' and 'How do various stakeholders experience and perceive this collaboration, and what factors facilitate or hinder its functioning?', the findings indicate an integrated, multilevel form of IPC is most appropriate, in which relational, procedural, and organisational factors are developed, aligned, and embedded in a coherent and comprehensible manner. These findings are consistent with earlier work. ^(6, 20, 21)

Reflection on Methodology

For this dissertation we used a mixed-methods approach, combining qualitative and quantitative methods. This approach provides a comprehensive and reliable understanding of the complexity of IPC. Methodologically, this dissertation benefits from the use of diverse and complementary designs, ranging from an integrative systematic review, qualitative interviews, naturalistic observations, survey research, and hermeneutic phenomenology. ⁽²²⁻²⁸⁾ This methodological variety enabled triangulation and enriched interpretation. Triangulation strengthened the overall validity of this dissertation by integrating diverse designs, thereby enhancing the depth, credibility, and robustness of the findings. ^(26, 29) This was supported by rigorous procedures such as PRISMA-guided reviewing, dual screening, reflexive analytic strategies, independent validation, and combined interpretation. ⁽³⁰⁻³²⁾

Several limitations must be acknowledged. Chapter 2 was affected by the variability in the quality of the literature reviewed. Chapter 3 faced limitations due to constraints on member checking. In Chapter 4, the small number of patients and care partners involved in observations reduced the richness of the data. The use of voluntary self-report surveys in Chapter 5 also limited the generalisability of the findings. ^(22, 26, 33, 34) Additionally, although valuable for depth of insight, the embedded position of researchers in the qualitative studies, such as described in Chapter 6, may have introduced interpretive bias. It may have influenced participants' behaviour and compromised the clarity of professional boundaries, thereby influencing the processes of data collection and analysis in subtle but significant ways. ⁽³⁵⁾ Moreover, the chapters of this dissertation were also influenced by contextual factors such as modest response rates, conformity bias, and varying levels of professional engagement, limitations commonly reported in research, particularly in long-term care settings. ^(36, 37)

Recommendations for Nursing Homes and Academic Networks

Micro level

Healthcare professionals should be involved in IPC as an ongoing, reflective process rather than as a fixed set of tasks or roles. ^(15, 18) On the micro level, this means actively investing in personal relational aspects of IPC, such as mutual trust, role clarity, and shared goals, alongside effective communication strategies, for instance, active listening, applying common language and asking clarifying questions. ^(10, 15, 21) Leadership behaviour development, particularly for persons with a linking pin role who connect professional groups, departments, or organisations, should be prioritised. Linking pins operate at the micro level by supporting teams and individuals, but also at the meso and macro levels by connecting professionals and organisations in academic networks for LTC.

Attention to organisational change, such as staff turnover, is essential for maintaining continuity and sustainability in IPC as it impacts more than one level. ⁽³⁸⁾ For example at the micro level, staff turnover disturbs team functioning and individual compliance with IPC. At the meso level, turnover affects organisational capacity to sustain IPC and maintain consistent processes.

Meso level

At the meso level, multidisciplinary team meetings (MDTMs) should be organised to facilitate meaningful dialogue, shared decision-making, and, where applicable, the inclusion of patient and care partner perspectives. Professionals in coordinating or leadership roles, such as MDTM chairs, should be enabled to manage group interactions, integrate diverse perspectives, and foster open communication. ⁽¹⁸⁾ They can be supported through clear, organised meeting structures, adequate administrative and organisational support, and training interventions aimed at leadership competencies. Continuous feedback and anticipating when changes occur in care processes or set objectives can further support teams in adapting their collaborative processes over time. ⁽³⁹⁾ At the organisational level, IPC should be embedded within governance structures, work processes, and policies rather than being treated as an individual responsibility. ⁽¹⁵⁾

Organisations should create conditions that enable IPC, including solid team structures, dedicated time for IPC, and alignment between organisational objectives and IPC. ⁽¹⁰⁾ Furthermore, organisations must further the monitoring and evaluation of IPC using validated instruments, which allows for collaborative processes and outcomes to be systematically assessed and improved.

^(10, 15)

Macro level

At the macro level, the involvement of patients, care partners, and researchers in LTC, GR and academic networks for LTC needs to be structurally embedded. This ensures that their knowledge and goals are fully integrated into clinical practice, research and academic networks. ^(15, 18) Such

structural embedding should be supported by policies, institutional standards, and network governance that prioritise IPC.

Recommendations for Education

Micro level

Educational programmes should prepare students and professionals for IPC being a complex, dynamic, and context-dependent process.⁽⁴⁰⁾ Interprofessional education should therefore extend beyond knowledge of professional roles and communication skills and include the interpersonal abilities and relational competencies required for IPC. It should also incorporate a systematic approach along with reflection on expertise, leadership competencies, and the organisational setting.⁽⁴¹⁾ Education activities should be realistic and ongoing to enable students to experience and reflect on collaboration across different settings and over time.⁽⁴²⁾ These activities might include longitudinal, case-based sessions in which students from different disciplines work with patients and care partners to analyse real clinical scenarios, understand each profession's perspective, and reflect on how IPC develops across care settings. Furthermore, educational programmes should explicitly address the involvement of patients and care partners in collaborative care and encourage students to develop complementary professional expertise with person-centred approaches.

Meso level

Educational programmes should prioritise representative organisational contexts in which IPC takes place in their learning activities. This includes internships that provide realistic, longitudinal educational experiences to allow students to engage with diverse teams, settings, and organisational structures. Additionally, programmes should foster the development of relational and systematic competencies that allow students and professionals to comprehend the complexity of IPC over time.⁽⁴⁰⁻⁴²⁾

Macro level

At the macro level, ongoing professional development programmes should emphasise the development of collaborative competencies throughout professionals' careers.⁽⁴³⁾ Programmes should emphasise the importance of patient and care partner involvement, person-centred care, complementary expertise, and working in partnerships, such as academic networks for LTC, as essential factors of IPC.⁽⁴¹⁻⁴³⁾

Implications for future research

This dissertation presents IPC as a complex and dynamic process consisting of three interrelated systems: relational, communicative, and organisational systems. An important implication is

that IPC cannot be adequately understood or improved by addressing one single system or one moment in time. Future research should incorporate these interrelated systems in contexts such as nursing homes and academic networks for LTC. In addition, it should develop a measurement instrument for IPC that enables the evaluation of all three interrelated systems and measures over a period of time.

Longitudinal study designs, for instance, a prospective cohort study, in which participants are followed over time, are needed to examine how IPC develops over time and how it impacts the quality of care over time. Also needed are process-orientated study designs, such as a process evaluation, which focuses on how and why effects occur. Process evaluations are necessary to examine how organisational change, leadership, and staff turnover influence IPC. Incorporating established theoretical frameworks, for instance, the Normalisation Process Theory, in process evaluations can further clarify the mechanisms underlying IPC, offering structured insight into how contextual, interpersonal, and organisational factors interact to shape IPC over time.⁽⁴⁴⁾ Further research should also focus on clarifying the processes through which IPC affects outcomes, and distinguish between short-term and long-term outcomes. Short-term outcomes, such as shared goals and decision-making quality, are observed directly after an interaction. Long-term outcomes, such as patient outcomes and continued teamwork or partnerships over time, occur further away from the initial interaction or processes.

Finally, the involvement of patients and care partners in IPC, as well as leadership roles like MDTM chairs and linking pin roles, require further research. This includes examining which types of involvement, leadership or linking pin approaches are most effective, and under which conditions. In particular, future studies should draw on participatory research and co-design methodologies to ensure that IPC practices are shaped collaboratively by patients, care partners, and professionals, thereby enhancing their relevance, feasibility, and impact.

Overall conclusions

In response to the overarching questions, ‘How is IPC operationalised within nursing homes and academic networks for LTC?’ and ‘How do various stakeholders experience and perceive this collaboration, and what factors facilitate or hinder its functioning?’ this dissertation demonstrates that IPC in nursing homes and academic networks for LTC is a complex, dynamic multilevel process which enables the improvement of the quality of life, care, and employment conditions. It is grounded in personal relationships, communication processes, and organisational structures. At the micro level, effective IPC relies on personal trust, clear communication, and well-defined roles. At the meso level IPC requires coordinated team processes, strong leadership, and organisational conditions that support IPC. At the macro level, it depends on shared visions, aligned governance, ongoing knowledge exchange, and long-term funding through sustainable infrastructures. Together, these factors determine whether collaboration will be fragmented or

effective. Strengthening IPC across all levels is essential to enhance the quality of life, care and employment conditions within nursing home settings. Future efforts must therefore integrate relational, communicational, and organisational strategies and ensure that IPC is not incidental but embedded, measurable, and sustainable.

Closing the loop

The research conducted and presented in this dissertation closes the loop on the fundamental question: ‘What is the most appropriate type of collaboration in a nursing home setting (institutional long-term care, geriatric rehabilitation) and academic networks for LTC?’ Existing research on IPC has shown substantial benefits, including improved quality of life, care outcomes, and employment conditions in nursing homes. ^(12, 45-47) To provide person-centred care and treatment for older people, all stakeholders require increased awareness and must join forces to implement IPC. To improve the knowledge on IPC and ultimately close the loop, the case of Mr B, which was introduced in the general introduction, will be reviewed and presented as a learning case. Supplement 1 provides clearly defined learning objectives and corresponding competencies for the learning case based on the Canadian Medical Education Directives for Specialists (CanMEDS). ⁽⁴⁸⁾

Case: Interprofessional collaboration during the admission of Mr B.

Mr B. arrives at the nursing home at 10:30 a.m. after an early and exhausting morning related to his recent stroke. The receptionist welcomes him and his partner warmly and promptly notifies the team. To prevent unnecessary strain and to support a smooth transition, the team has prepared a coordinated admission plan that also ensures his partner feels informed and included.

While the secretary completes the required administrative procedures, the nurse and the physician collaborate on a brief but essential intake. They invite Mr B.’s partner to contribute relevant information about his recent condition, daily routines, and any concerns. The team shares observations immediately and adjusts the time and depth of the assessment not only to respect Mr B.’s limited energy but also to respond to the partner’s insights regarding his fatigue and comfort.

At lunchtime, the team organises the schedule so that Mr B. can eat without being disturbed by assessments or consultations. His partner joins him during the meal, creating a sense of comfort in the new environment. Prior to the afternoon sessions, the physiotherapist and occupational therapist meet with the nursing staff to discuss Mr B.’s current condition. They also take into account the partner’s earlier remarks about his physical limitations and cognitive fatigue. Building on this shared information, they plan ongoing evaluations, ensuring that each intervention supports Mr B.’s recovery without overwhelming him or his partner.

Later that afternoon, additional disciplines express interest in meeting Mr B. Before visiting, they check in with the nurse and learn that he is asleep. Recognising the importance of rest as part of his person-centred care plan, and after consulting briefly with his partner, the team jointly decides to reschedule non-urgent visits. This coordinated decision reflects their shared understanding of his needs and their commitment to interprofessional collaboration.

Through clear communication, complementary expertise, and shared decision-making, with Mr B. and his partner as central contributors, the team ensures a respectful, well-organised professional and person-centred admission process.

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Supplemental material

SUPPLEMENT 1

The following learning objectives and corresponding CanMEDS competencies⁽⁴⁸⁾ are presented to support engagement with this case and to further develop awareness and enhance the competencies necessary for the effective application of IPC.

Learning Objectives

1. Interprofessional Collaboration

- You are able to describe how different disciplines coordinate activities during an admission to ensure continuity and quality of care.
- You are capable of demonstrating how shared decision-making with both the patient and their partner is applied.
- You can explain the importance of timely communication between healthcare professionals.

2. Person-Centred Care

- You can identify how teams adapt assessments to the patient's physical and cognitive limits.
- You are able to integrate patient and family preferences into planning and scheduling activities.
- You are capable of explaining how rest, comfort, and patient autonomy guide decisions during admission.

3. Communication and Information Sharing

- You are capable of formulating how clear communication strengthens coordinated care during transitions.
- You can apply strategies for structured transfers and interprofessional updates.
- You are able to involve care partners respectfully and effectively in the process.

4. Expertise and Coordination

- You are able to recognise the contribution of professional responsibility to an admission.
- You are capable of showing awareness of role boundaries and complementary expertise across disciplines.
- You can coordinate activities to prevent unnecessary burden on the patient.

Corresponding CanMEDS Competencies

1. Medical and Nursing Expert (*physician, nurse*)

- Assessing a post-stroke patient's physical and cognitive state.
- Recognising patient fatigue and adjusting clinical activities accordingly.

2. Communicator (*nurse and physician*)

- Using clear, empathetic communication tailored to a tired, vulnerable patient.
- Engaging the partner as a communication partner and ensuring understanding during intake.

3. Collaborator (*complete team*)

- Coordinating with multiple disciplines (nursing, physician, physiotherapy, and occupational therapy).
- Planning assessments to avoid duplication, inefficiency, or patient strain.

4. Leader (the nurse being the process leader, the physician being the team coordinator)

- Organising the admission process to ensure patient-centred timing and prioritisation.
- Promoting coordinated scheduling among the interprofessional team.

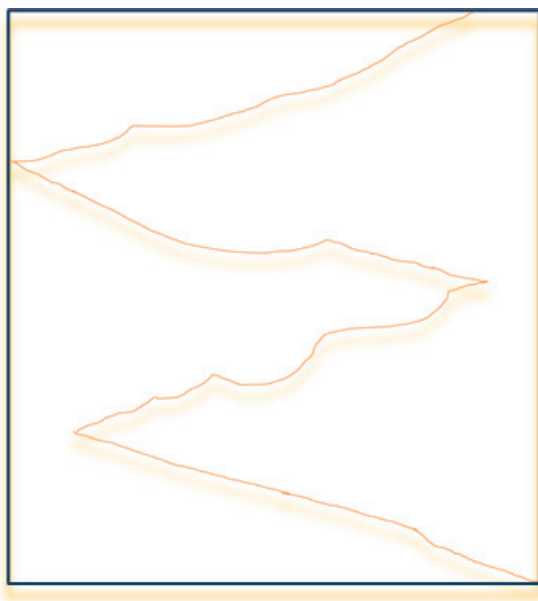
5. Health Advocate (nurse, physiotherapist, occupational therapist)

- Recognising and responding to the patient's need for rest, nutrition, and reduced stimulation.
- Ensuring that the partner is supported and invited into the process.

6. Professional (all professionals involved)

- Demonstrating respect, empathy, and commitment to patient well-being.

Chapter 8



Nederlandse samenvatting

Dankwoord

Curriculum vitae

Authors contributions

Bibliography

- Maintaining ethical standards when a patient is too fatigued to participate meaningfully.

7. Scholar (nurse, physician, physiotherapist, occupational therapist)

- Reflecting on practice and identifying areas for improvement in admission processes.
- Applying evidence-based approaches to care and interprofessional collaboration.

Nederlandse samenvatting

Het overkoepelende doel van dit proefschrift was om interprofessionele samenwerking (IPC) op meerdere niveaus te onderzoeken, waarbij zowel het micro- en mesoniveau binnen verpleeghuizen als het macroniveau binnen academische netwerken voor langdurige zorg (LZ) werden meegenomen. Bij het nastreven van dit doel bouwt het proefschrift voort op de conceptuele kaders van D'Amour (2005) en de Wereldgezondheidsorganisatie (WHO, 2010) en past deze toe op de context van langdurige zorg, geriatrische revalidatie (GR) en academische netwerken voor langdurige zorg.

Om de centrale onderzoeksvragen te beantwoorden, 'Hoe krijgt IPC vorm in de praktijk binnen verpleeghuizen en academische netwerken voor langdurige zorg? En 'hoe beleven en waarderen verschillende belanghebbende deze samenwerking, en welke factoren dragen bij aan of vormen een belemmering voor een effectieve werking ervan?', onderzoekt dit proefschrift factoren die IPC beïnvloeden, evenals het perspectief van verschillende belanghebbenden, waaronder cliënten en hun naasten, op verschillende niveaus.

Er werden verschillende studies uitgevoerd om antwoord te geven op de volgende onderzoeksvragen:

Hoofdstuk 2

Primaire vraag: Wat zijn bevorderende en belemmerende factoren voor interprofessionele samenwerking (IPC) in intramurale langdurige zorg (LZ) en geriatrische revalidatie (GR)?

Secundaire vraag: Welke instrumenten worden gebruikt om interprofessionele samenwerking te meten in LZ en GR?

Hoofdstuk 3

Primaire vraag: Welke bevorderende en belemmerende factoren voor IPC worden ervaren door patiënten, mantelzorgers en zorgprofessionals die betrokken zijn bij LZ en GR, zowel in het algemeen als tijdens multidisciplinaire teamoverleggen (MDO's)? Dit omvat ook verschillen tussen LZ en GR.

Secundaire vraag: Worden patiëntuitkomstmaten gebruikt tijdens MDO's, en zo ja, welke?

Hoofdstuk 4

Primaire vraag: Hoe ziet IPC eruit tijdens MDO's in de geriatrische revalidatie en hoe wordt dit

ervaren door deelnemers?

- Welke aspecten van IPC worden geobserveerd tijdens MDO's in GR?
- Hoe tevreden zijn deelnemers over IPC in deze MDO's?
- Hoe worden gestandaardiseerde patiëntuitkomstmaten gebruikt tijdens MDO's?

Hoofdstuk 5

Primaire vraag: Welke percepties en perspectieven op IPC hebben directeurs van LZ-instellingen, voorzitters van academische netwerken, onderzoekers, leden van wetenschappelijke commissies en linking pins binnen academische netwerken voor LZ?

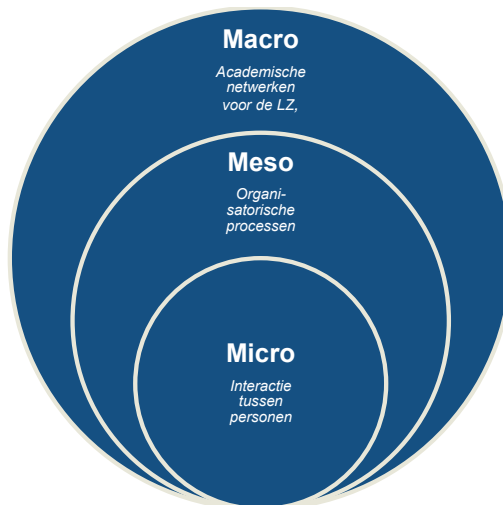
Secundaire vraag: Wat zijn de verschillen in percepties en perspectieven tussen deze groepen?

Hoofdstuk 6

Primaire vraag: Wat zijn de persoonlijke ervaringen van linking pins met IPC binnen academische netwerken voor LZ?

Secundaire vraag: Welke factoren beïnvloeden IPC volgens linking pins?

Het beantwoorden van deze vragen vergroot ons inzicht in IPC en biedt mogelijkheden om IPC binnen verpleeghuizen en academische netwerken voor LZ te verbeteren. De belangrijkste bevindingen van hoofdstukken 2–6 worden besproken op drie onderling verbonden niveaus: micro-, meso- en macroniveau, aan de hand van het conceptuele kader in Figuur 1.



FIGUUR 1. Conceptueel kader van interprofessionele samenwerking op micro-, meso- en macroniveau.

Belangrijkste bevindingen op microniveau

Op microniveau bestaat IPC in de verpleeghuissetting uit de dagelijkse interacties tussen patiënten, naasten en professionals. De bevindingen benadrukken dat effectieve IPC op microniveau:

1. afhankelijk is van persoonlijke en gedragsfactoren,
2. gebaseerd is op communicatie,
3. ondersteund wordt door duidelijke rolverwachtingen, en
4. alle relevante betrokkenen omvat, waaronder patiënten en naasten.

Persoonlijke en gedragsfactoren

Persoonlijke en gedragsfactoren blijken essentiële voorwaarden voor IPC. Wederzijds vertrouwen, respect en het ervaren van professionele gelijkwaardigheid hangen samen met efficiëntere en beter gecoördineerde processen (**Hoofdstuk 2**). Positieve houdingen stimuleren professionals om elkaars expertise te erkennen en te waarderen (**Hoofdstukken 2 en 3**). Daarnaast profiteert IPC van actieve deelname van professionals, waarbij teamleden betrokken zijn, initiatief tonen en zich verantwoordelijk voelen voor gezamenlijke besluitvorming (**Hoofdstuk 4**). Ditzelfde geldt voor patiënten en naasten: wanneer zij als gelijkwaardig worden behandeld, voelen zij zich meer betrokken bij het zorgproces (**Hoofdstukken 3 en 4**).

Communicatie

Communicatie is een essentiële factor van IPC op microniveau. Duidelijke, tijdige en gestructureerde informatie-uitwisseling ondersteunt een gedeeld begrip en helpt teams hun activiteiten af te stemmen (**Hoofdstukken 2 en 4**). Dit omvat ook actief luisteren en het stellen van verduidelijkende vragen. Het gebruik van een gemeenschappelijke taal bevordert een persoonlijke setting waarin misverstanden worden verminderd (**Hoofdstuk 4**). Wederkerige, voldoende en efficiënte communicatie tussen alle betrokkenen ondersteunt een meer gestructureerd en persoonsgericht zorgproces (**Hoofdstuk 3**).

Rolverheldering

Duidelijkheid over rollen bevordert gecoördineerd handelen. Als rollen en verantwoordelijkheden helder zijn, begrijpen professionals beter hoe zij bijdragen aan het zorgproces (**Hoofdstuk 2**). Gebrek aan rolhelderheid belemmert IPC en kan leiden tot fragmentatie en onzekerheid over betrokkenheid (**Hoofdstuk 4**).

Betrokkenheid van alle relevante stakeholders

De betrokkenheid van patiënten is belangrijk, maar contextafhankelijk. In de langdurige zorg participeren patiënten en naasten vaker, wat wijst op een cultuur waarin hun betrokkenheid meer ingebed is (**Hoofdstuk 3**). In de geriatrische revalidatie komt dit minder vaak voor, maar wanneer het gebeurt, draagt het positief bij aan IPC en afstemming van persoonsgerichte doelen (**Hoofdstuk 4**).

Samenvattend is IPC op microniveau een sociaal en interactief proces waarin vertrouwen, communicatie, duidelijke rollen en actieve betrokkenheid elkaar versterken.

Belangrijkste bevindingen op mesoniveau

Op mesoniveau omvat IPC organisatorische structuren, teamprocessen, leiderschap en beschikbare middelen die samenwerking ondersteunen. Factoren op dit niveau beïnvloeden:

1. de organisatie van MDO's,
2. teamprocessen en leiderschap,
3. institutionele borging van IPC.

Multidisciplinaire teamoverleggen (MDO's)

Goed gestructureerde en doelgerichte overleggen verbeteren communicatie en besluitvorming (**Hoofdstukken 3 en 4**). Effectief voorzitterschap is cruciaal voor richting, tijdsbewaking en het meenemen van alle perspectieven (**Hoofdstuk 4**). Heldere agenda's, geschikte faciliteiten en functionele technologie (zoals gedeelde schermen) ondersteunen transparantie en afstemming.

Teamprocessen en leiderschap

Leiderschap dat samenwerking actief ondersteunt, versterkt een cultuur waarin IPC centraal staat (**Hoofdstuk 2**). Voldoende tijd, personeel en middelen zijn essentiële randvoorwaarden; tekorten vormen belangrijke belemmeringen (**Hoofdstukken 2 en 4**). Duidelijke procedures en systemen ondersteunen coördinatie (**Hoofdstuk 3**). In netwerken dragen gestructureerde planning en evaluatie bij aan samenwerking (**Hoofdstuk 6**). Linking pins spelen daarbij een belangrijke verbindende rol (**Hoofdstuk 6**).

Institutionele borging van IPC

Organisaties die waarden zoals teamwork en openheid stimuleren, creëren gunstige voorwaarden voor IPC (**Hoofdstuk 2**). Gestandaardiseerde patiëntuitkomstmaten bevorderen informatie-uitwisseling, maar worden nog niet consistent gebruikt (**Hoofdstukken 3 en 4**). Belangrijke belemmeringen zijn onduidelijke procedures, beperkte middelen en gebrekkige coördinatie.

Samenvattend vereist IPC op mesoniveau meer dan gemotiveerde professionals: het vraagt om organisatorische randvoorwaarden en structurele ondersteuning.

Belangrijkste bevindingen op macroniveau

Op macroniveau speelt IPC zich af binnen bredere systemen, zoals academische netwerken voor langdurige zorg.

Academische netwerken voor langdurige zorg

Deze netwerken verbinden organisaties en faciliteren kennisuitwisseling (**Hoofdstukken 5 en 6**).

Ze ondersteunen onderzoek, innovatie en onderwijs. Linking pins fungeren als bruggenbouwers tussen instellingen en versterken communicatie en continuïteit.

Uitdagingen

IPC kan worden bemoeilijkt door verschillende doelen en verwachtingen van stakeholders (**Hoofdstuk 5**). Zonder gedeelde visie werken organisaties langs elkaar heen. Daarnaast ontbreken vaak structurele randvoorwaarden zoals langdurige financiering, beleid en governance (**Hoofdstuk 6**).

Ook is er een gebrek aan gestandaardiseerde meetinstrumenten voor IPC (**Hoofdstuk 2**), wat evaluatie en verbetering bemoeilijkt. Verspreiding van onderzoeksresultaten naar de praktijk is bovendien vaak beperkt (**Hoofdstuk 6**).

Belang van systeemniveau

Effectieve IPC op macroniveau vereist:

- gedeelde visie en doelen
- duidelijke rolverdeling
- structurele ondersteuning en beleid
- toekomstbestendige financiering
- actieve kennisuitwisseling

Samenvattend wordt IPC op macroniveau ondersteund door academische netwerken en systeemvoorwaarden zoals een gedeelde visie, duidelijke governance, duurzame financiering

en actieve kennisuitwisseling, die gezamenlijk de ontwikkeling en borging van samenwerking bevorderen.

Algemeen samenvattend ontstaat IPC niet vanzelf; het vereist bewuste organisatie en ondersteuning op alle niveaus.

Dankwoord

Het woord ‘*collaboration*’ komt oorspronkelijk uit het Latijn: *collaborare*. In het Nederlands betekend dit letterlijk ‘samen werken’. Dit is de rode draad niet alleen in dit proefschrift maar ook in mijn werk als manager van het UNC-ZH.

Samenwerken is iets menselijks en speelt een centrale rol in ieders leven. We werken voortdurend samen maar paradoxaal genoeg blijkt het ontzettend moeilijk.

Ook tijdens dit promotietraject stond samenwerken, letterlijk en figuurlijk in het middelpunt. Onderzoek doen naar een fenomeen waar we continu, vaak onbewust, mee bezig zijn. Zonder samenwerking was dit proefschrift nooit tot stand gekomen. Hierin had ieder zijn of haar bijdrage die tot dit mooie resultaat heeft geleid, waarin we een stap hebben gezet tot meer bewustwording over samenwerking.

Mijn promotieteam. Wat begon als een klein groepje enthousiastelingen, heeft zich in de loop der tijd ontwikkeld tot een TEAM. Het enthousiasme en vertrouwen maakten dat mijn academische carrière zich kon ontwikkelen. Ik kreeg alle ruimte om mijzelf verder te ontwikkelen.

Lieve Hanneke, gedurende mijn promotietraject was jij de ideale begeleider: altijd een luisterend oor en met subtiele sturing precies aanwezig wanneer dat nodig was. Je gaf mij de ruimte om te leren en te ontdekken, en dat heeft voor mij het verschil gemaakt.

Beste Wilco, wat begon als een avontuur voor ons beiden, heeft uiteindelijk geresulteerd in mijn verbreding als persoon. Ik ben enorm dankbaar voor het vertrouwen de kansen en de mogelijkheden die jij mij hebt gegeven.

Graag bedank ik ook Jolanda, Dennis en Monique mijn guidance committee van de afgelopen jaren. Met jullie kon ik sparren over alle zaken die wij als mensen, naast het promotietraject, ook meemaken. Naast mijn promotieteam waren jullie echt een steun en luisterend oor, zeker in de periode waarin mijn vader plotseling ziek werd en binnen tweeënhalve maand kwam te overlijden.

Tevens wil ik alle collega's vanuit het LUMC en vanuit het UNC-ZH en SANO bedanken. Mijn team: ik ben super trots op jullie, zeker op de momenten dat ik weer even in mijn onderzoeksbubbel zat, wisten jullie mooie progressie te maken. Een prachtig voorbeeld hoe een groep mensen door goede samenwerking doorgroeit naar een interprofessioneel TEAM.

Wilco en Monique met wie ik samen het dagelijksbestuur van het UNC-ZH mag vormen: het runnen van een academisch netwerk gaat niet vanzelf, maar door goede samenwerking staat er nu iets waar we trots op mogen zijn. Dank voor al jullie steun en vertrouwen.

Alle linking-pins van het UNC-ZH, jullie zijn een mooie en bijzondere groep. Dank voor jullie inzet en bijdrage aan dit proefschrift en, bovenal, onze samenwerking. Jullie hebben met elkaar de afgelopen jaren laten zien wat samenwerken is: blijf hier mee doorgaan.

Tevens wil ik alle wetenschappelijke onderzoekscommissies en betrokken medewerkers, binnen en buiten het UNC-ZH, die onze onderzoeken binnen hun organisaties mogelijk gemaakt hebben, bedanken.

Verder wil ik alle SANO-collega's bedanken voor hun inzet en voor het meedenken en meewerken aan de onderzoeken. Het is super fijn en ik ben trots om onderdeel te zijn van zo'n mooi landelijk netwerk.

Judith en Irma van AWO-Limburg, dank voor de altijd prettige samenwerking.

Lieve Ellen en Myrthe, mijn paranimfen.

Ellen, sinds 2025 zijn wij weer collega's, nadat je eerder binnen het UNC-ZH al als linking pin in mijn team werkte. Het is super fijn om een enthousiasteling zoals jij als paranimf en collega te hebben. Mensen zoals jij weten wat samenwerken inhoudt.

Myrthe, sinds 2024 in mijn team als kennismakelaar, nadat je je sporen als junior onderzoeker binnen het UNC-ZH ruimschoots had verdient. Ik ben heel blij dat je hebt gekozen voor het werken binnen mijn team, waarin jij overduidelijk laat zien dat jij begrijpt wat interprofessionele samenwerking inhoudt.

Ellen en Myrthe, jullie persoonlijkheden vullen elkaar mooi aan. Daarom ben ik dankbaar dat jullie mijn paranimfen zijn.

Promoveren is werken en, in dit geval, extra werk naast een bestaande baan. Dit vraagt niet alleen iets van mij of mijn collega's, maar heeft direct invloed op mijn privéleven met alle bijkomende *life-changing events*.

Daarom wil ik hier vooral ook mijn lieve gezin noemen, mijn vrouw Erica, mijn maatje, of het nu tijdens een zware expeditie is of een uitdagend promotietraject, je bent er onvoorwaardelijk. Onze fantastische kinderen Merel een grafische vormgever in een notendop en Mus de wereldreiziger van de toekomst. Dank voor jullie tijd, geduld en afleiding, waardoor mijn horizon al die jaren breder is gebleven dan alleen onderzoek doen. Ook dit is een vorm van interprofessioneel samenwerken, waarbij, jullie je sterke kanten hebben laten zien.

Tot slot spreek ik mijn dankbaarheid uit naar mijn beide ouders, die de uiteindelijke voltooiing van dit promotietraject nooit hebben meegemaakt. Zij zijn de aanstichters geweest van mijn *lifelong learning*. Altijd vertrouwend en ondersteunend, waardoor ik leerde om mijzelf blijvend te ontwikkelen en de wereld te ontdekken!

Trots en dankbaar!

Curriculum Vitae

Arno J. Doornebosch werd geboren op 24 januari 1967 in Den Helder. Hij groeide op in Pijnacker, een dorp midden in de Randstad. Na zijn middelbare school studeerde hij fysiotherapie aan de Haagse Hogeschool. Na het afronden van zijn opleiding en het behalen van zijn bevoegdheid ging hij aan de slag als eerstelijnsfysiotherapeut. Hij werkte in verschillende praktijken in de Randstad. Al snel ontdekte hij, na een vakantiebaarneming in een verpleeghuis, dat de werkelijke uitdaging voor hem lag in het werken met ouderen met complexe zorgvragen die in een verpleeghuis verblijven.

In 2005 is hij als fysiotherapeut in contact gekomen met wetenschappelijk onderzoek. In dat jaar ging hij intensief samenwerken met de Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek (TNO). In de periode van 2005 tot 2011 werkte hij als junioronderzoeker mee aan verschillende studies waarbij een computergestuurde robotarm (de ACRE) voor de geriatrische neurorevalidatie werd ontwikkeld en ingezet.

Het werk als fysiotherapeut, waarin hij zich specialiseerde in de neurorevalidatie, heeft hij tussen 1996 en 2008 intensief met reizen gecombineerd, waaronder verschillende expedities die hem op vele continenten brachten. Daarna sloeg hij samen met zijn vrouw Erica een nieuw pad in, gericht op het ouderschap. Deze nieuwe fase liep parallel aan zijn verdere professionele ontwikkeling. Van 2011 tot 2013 volgde hij de master Neurorevalidatie & Innovatie aan de Hogeschool Arnhem Nijmegen (HAN), waar het belang van interprofessionele samenwerking verder werd bevestigd.

Na het behalen van zijn master verschoof de uitdaging steeds meer naar de organisatie en complexiteit van de ouderenzorg. Bij zijn toenmalige werkgever, zorgorganisatie Pieter van Foreest, breidde hij zijn rol als fysiotherapeut uit door het initiëren van een nieuwe functie van projectcoördinator bij de geriatrische revalidatie. Hij combineerde deze functie met die van ketencoördinator van de Stroke service DWO (Delft, Westland en Oostland). Vanuit deze rol had hij ook zitting in de landelijke werkgroep CVA- ketencoördinatoren van het Kennisnetwerk CVA Nederland.

Sinds eind 2017 werkt Arno bij het Universitair Netwerk voor de Care-sector Zuid-Holland (UNC-ZH). Hier begon hij als coördinator geriatrische revalidatie, waarbij hij intensief samenwerkte met alle lidorganisaties. Vanaf maart 2021 combineerde hij zijn werkzaamheden als

coördinator met een promotietraject. Sinds juli 2024 combineert hij zijn promotieonderzoek met de functie van manager van het UNC-ZH. Vanuit deze rol richt hij zich op een bredere verbinding, zowel binnen het Leids Universitair Medisch Centrum (LUMC) en de afdeling Public Health en Eerstelijngeneeskunde (PHEG) als binnen en buiten het UNC-ZH.

Arno woont in Pijnacker en is getrouwd met Erica. Samen hebben zij twee kinderen: dochter Merel (2009) en zoon Mus (2010). Daarnaast hebben zij een trouwe viervoeter, Everest.

Authors contributions

Chapter 1

General introduction

Concept and design	Arno J. Doornebosch, Wilco P. Achterberg, Hanneke J.A. Smaling
Data collection	Not applicable
Analysis	Not applicable
Interpretation of data	Not applicable
Drafting the manuscript	Arno J. Doornebosch
Critical revision of the manuscript	Wilco P. Achterberg, Hanneke J.A. Smaling

Chapter 2

Interprofessional collaboration in long-term care and rehabilitation: a systematic review

Concept and design	Arno J. Doornebosch, Hanneke J.A. Smaling
Data collection	Arno J. Doornebosch, Hanneke J.A. Smaling
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Critical revision of the manuscript	Wilco P. Achterberg, Hanneke J.A. Smaling

Chapter 3

Factors influencing interprofessional collaboration in general and during multidisciplinary team meetings in long-term care and geriatric rehabilitation: a qualitative study

Concept and design	Arno J. Doornebosch, Hanneke J.A. Smaling, Wilco P. Achterberg
Data collection	Arno J. Doornebosch, Hanneke J.A. Smaling, Tim van de Velde, Lars Stoffer, Merlijn van Dirven
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Drafting the manuscript	Arno J. Doornebosch

Critical revision of the manuscript

Wilco P. Achterberg, Hanneke J.A. Smaling

Chapter 4

Interprofessional collaboration in multidisciplinary team meetings in geriatric rehabilitation: an observational study

Concept and design	Arno J. Doornebosch, Hanneke J.A. Smaling, Wilco P. Achterberg
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Chapter 5

Academic networks for long-term care: a survey study on interprofessional

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Chapter 6

Interprofessional collaboration in academic networks for long-term care: a qualitative study of linking pins' experiences

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Critical revision of the manuscript	Wilco P. Achterberg, Hanneke J.A. Smaling, Irma Everink, Judith Urlings

Chapter 7

Summary and General discussion

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diT table for the thesis of A.J.Doornebosch

Type*	Short Title	Conceptualization	Data Curation	Formal Analysis	Funding Acquisition	Investigation	Methodology	Project Administration	Resources	Software	Supervision	Validation	Visualization	Writing – Original Draft	Writing – Review & Editing	Preregistered	Preprinted
Introduction	IPC in LTC and GR															✓	✓
PhD project chapter	IPC in LTC and GR															✓	✓
PhD project chapter	Factor influencing IPC															✓	✓
PhD project chapter	IPC in MDTMs															✓	✓
PhD project chapter	IPC in academic networks															✓	✓
PhD project chapter	Linking pin experiences with IPC															✓	✓
Discussion	IPC in LTC, GR, and networks															✓	✓

project chapters are the direct result of the PhD project of the PhD candidate.
theses also include Collaboration Chapters, to which the PhD candidate has contributed but fall outside the PhD project.

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M.C. Pol, E.F. van Dam van Isselt, **A.J. Doornebosch**, C.J. Gamble, M. Vaz, W.G. Groen, M.W.M. de Waal, S.M. Debeij, F. Innocenti, M. Hiligsmann and J.C.M. van Haastregt. Evaluation of outcomes, costs, and feasibility of home-based geriatric rehabilitation after inpatient rehabilitation: study protocol of the “Better@Home” multicentre prospective cohort study with historical control group. *BMC Geriatrics*. 2025 November; 25:980. Doi.org/10.1186/s12877-025-06573-6

M. Bosma, A. van Meurs, J. van den Berg, L. van Dijken, **A. Doornebosch**, E. Dam van Isselt, M. de Waal. Usability of activity trackers in geriatric rehabilitation. *Tijdschrift voor Gerontologie en Geriatrie*. 2025 December; 56 (4). DOI: 10.54195/tgg19417

Presentations at (inter)national conferences

INTERPROFESSIONAL COLLABORATION IN LONG-TERM CARE AND GERIATRIC REHABILITATION: A SYSTEMATIC REVIEW. (2021, October). *Poster presentation on preliminary findings presented at the EuGMS Congress, Athens, Greece.*

INTERPROFESSIONAL COLLABORATION IN LONG-TERM CARE. (2022, September). *Poster presentation on preliminary results concerning experienced facilitators and barriers in daily practice: A qualitative study presented at the EuGMS Congress, London, United Kingdom.*

BEVORDERENDE EN BELEMMERENDE FACTOREN VOOR INTERPROFESSIELEEL SAMENWERKEN. (2023). *Poster presentation presented at the SANO Science Day, Amsterdam, the Netherlands.*

INTERPROFESSIELEEL WERKEN, BETER PASSENDE ZORG DOOR HET SAMEN TE DOEN. (2024). *Workshop presented at the Symposium University Network for the Care Sector South Holland, Leiden, the Netherlands.*

INTERACTION VISITS THE KAROLINSKA INSTITUTE. (2024). *Oral presentation presented at the Karolinska Institute, Stockholm, Sweden.*

INTERPROFESSIONAL COLLABORATION IN LONG-TERM CARE AND GERIATRIC REHABILITATION. (2024). *Pitch and poster presentation on a qualitative study on influencing factors in general and during team meetings presented at the Nordic Congress of Gerontology, Stockholm, Sweden.*

INTERPROFESSIELEEL SAMENWERKEN IN EEN UITDAGEND

REVALIDATIEKLIMAAT. (2024). *Workshop presented at the Symposium Geriatric Rehabilitation, Eindhoven, the Netherlands.*

INTERPROFESSIONAL COLLABORATION DURING MULTIDISCIPLINARY TEAM MEETINGS IN GERIATRIC REHABILITATION. (2025). *Poster presentation on an observational study presented at the International Psychogeriatric Association Congress, Kanazawa, Japan.*

INTERPROFESSIONAL COLLABORATION IN ACADEMIC NETWORKS FOR LONG-TERM CARE. (2026). *Oral presentation presented at the International Psychogeriatric Association Congress, Leiden, the Netherlands.*

BRIDGING RESEARCH AND DEMENTIA CARE PRACTICE: THE VALUE OF LINKING PINS IN DUTCH ACADEMIC COLLABORATIVE CENTERS IN LONG-TERM CARE. (2026). *Symposium oral presentation presented at the International Psychogeriatric Association Congress, Leiden, the Netherlands.*

Professional Development and Training

- Introductory Meeting PhDs (Onboarding Programme). (2021).
- Qualitative Interviewing. (2021).
- Focus Groups. (2021).
- eBROK. (2022).
- Communication in Science. (2022).
- Academic Writing. (2022).
- Basic Methods and Reasoning in Biostatistics. (2023).
- Responsible Research. (2023).
- Scientific Conduct. (2023).
- ICH-GCP R3 Course. (2025).
- eBROK Verdieping nWMO. (2025).
- eBROK Herregistratie. (2025).

