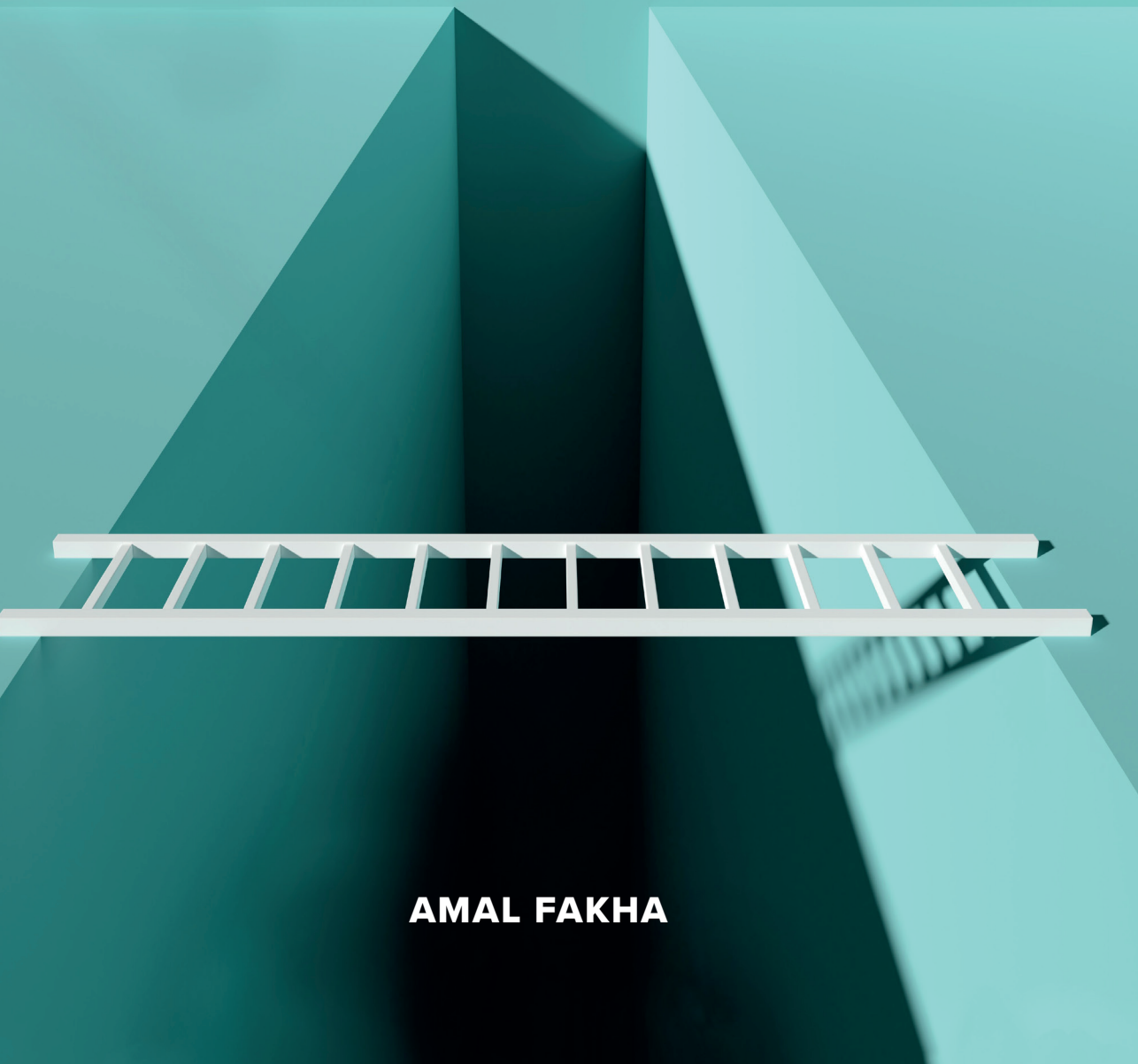
Improving the implementation of transitional care innovations

IMPROVING THE IMPLEMENTATION OF TRANSITIONAL CARE INNOVATIONS



AMAL FAKHA

IMPROVING THE IMPLEMENTATION OF TRANSITIONAL CARE INNOVATIONS

Amal Fakha

The research presented in this dissertation was conducted at the Care and Public Health Research Institute (CAPHRI), department of Health Services Research, Maastricht University. CAPHRI is part of The Netherlands School of Public Health and Care Research (CaRe).

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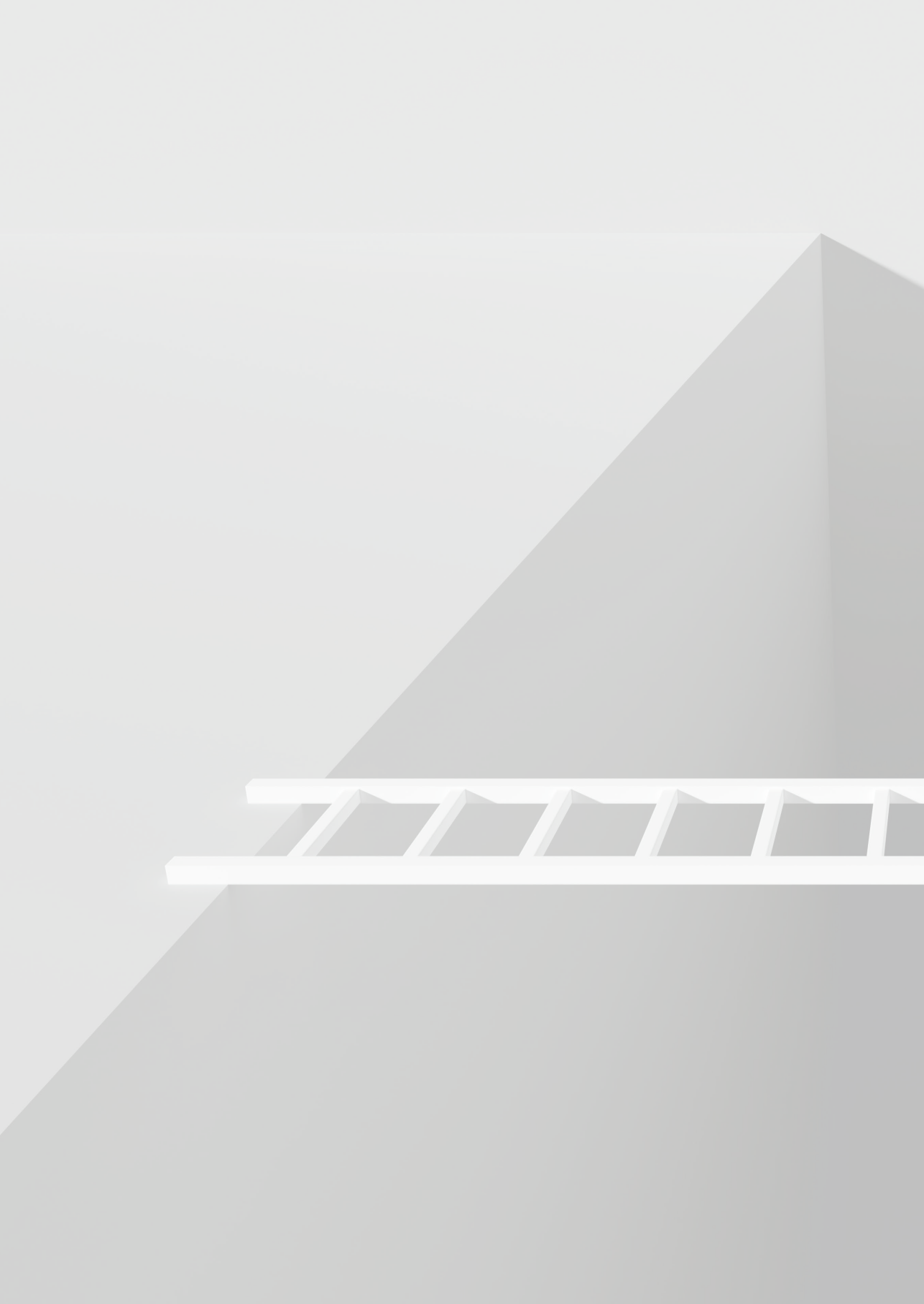
Dedicated to my Mother

“If you would indeed behold the spirit of death, open your heart wide unto the body of life. For life and death are one, even as the river and the sea are one” - Khalil Gibran, Lebanese poet

CONTENTS



CHAPTER 1

General Introduction

BACKGROUND

"Long old age" is a present reality for the world population, with an emergent fast rate of global demographic ageing. In an unprecedented time in history, people around the world can now expect to live far beyond 60 years of age (1). In Europe alone, it is projected that by year 2050 the number of people aged 65 or over will increase by 41% (2), and by 2060, this fraction of the population will range between 22-36%, with 12% aged 80 or more (3). However, living longer is at times not accompanied with good health and is often correlated with an increased risk of multimorbidity (4). Therefore, a proportion of the older population lives with chronic diseases and typically receives long-term care from multiple care providers (4, 5). Hence, older persons with chronic diseases move frequently across different healthcare settings and providers in order to address their complex and varied medical needs (6). These movements are highly prevalent, whereby on average an older person with one or more chronic conditions can see eight different physicians over the course of one year (7). Research showed that 23% of hospitalized patients aged 65 and above are usually discharged to another institution (e.g., nursing home, skilled nursing facility), and around 19% of residents in skilled nursing facilities transfer back to a hospital within 30 days (7). Moreover, older persons have at least one movement between care settings towards their end of life, while around 70% of older persons with dementia move from a hospital to a nursing home, and 23% are re-hospitalized annually (8, 9). Consequently, healthcare systems face a great challenge to deliver long-term care services that ensure care continuity for older persons when moving between care providers.

The research studies presented in this dissertation are part of the European TRANS-SENIOR research consortium, which aims to tackle challenges facing long-term care systems in Europe and generate evidence on improving care by avoiding unnecessary transitions and optimizing needed care transitions for older persons.

TRANSITIONAL CARE

Care transitions refer to "the movements that patients make between health care providers and settings as their medical condition and care needs change during the course of a chronic or acute illness" (7). Specifically, among older persons (65 years and above), these transitions are common and frequent due to the prevalence of complex and chronic health conditions and multimorbidity (4, 6, 10). For example, in the course of an acute illness, an older person might receive care in a home care or outpatient setting, then transition to a hospital for inpatient care, then move to a rehabilitation facility to receive the restorative care needed, before finally returning home. Every single move between care providers and settings is defined as a care transition.

While these transitions are sometimes predictable, they are recognized as risky and frequently hampered by diverse issues. Notably, breakdowns in patient handovers like disorganized handoff of information between care providers, delayed, missing, or inaccurate discharge summaries, and poor communication among caregivers often occur during transitions and cause errors in treatment plans, ultimately leading to fragmented care and suboptimal care transitions (11, 12). Hence, older persons are particularly vulnerable to poor health outcomes during care transitions, which are usually stressful periods for them and their families and/or informal caregivers (8). Being confused about medications, not obtaining a clear explanation of discharge information, and not receiving care according to needs are among the experiences of an unsafe transition commonly reported by older persons (13). Therefore poor care transitions can have a large impact on older persons and may lead to various adverse medical repercussions such as medication errors, hospital readmissions, and mortality (11, 14).

Transitional care is defined as "a broad range of time-limited services designed to ensure health care continuity, avoid preventable poor outcomes among at-risk populations, and promote the safe and timely transfer of patients from one level of care to another or from one type of setting to another", and hence aims to improve the overall patient experience during transitions by closing gaps in care (7, 15). Whereas the delivery of transitional care seems straightforward, it is rather filled with challenges. Innovative solutions are needed to ensure proper transitional care and promote better and safer care transitions.

INNOVATIONS IN TRANSITIONAL CARE

Innovation can be defined as "the intentional introduction and application within a role, group, or organization, of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, or wider society" (16). Hence, innovation aims to solve a problem or create value and has become a popular concept adopted in various healthcare settings. Likewise, multiple new practices and models of care are continuously developed and considered as key to the future of long-term care. These different innovations may provide promising solutions to reduce costs and demand for care, ensure the quality of care, improve outcomes for care recipients, and increase productivity (17, 18). Consequently, the current negative impact of poor care transitions on older persons drove the development of Transitional Care Innovation(s) (TCIs) designed to enhance care continuity and coordination for older persons when transferring between multiple care settings and providers.

In general, each TCI is characterized by a bundle of care services, focuses on specific care transition pathways (e.g., home or hospital to nursing home, hospital to home, or hospital to

rehabilitation center then to home), and intends to either improve a necessary care transition or to prevent an avoidable one. Examples of TCIs' core components include patient/caregiver engagement and education, complexity management, and care coordination (19). The presence of a healthcare professional assigned with a transition role (e.g., care transition nurse, transitional care manager, or care coordinator) is another key feature of some TCIs (20). For instance, a care transition nurse can help older persons during their transition between hospital and home by providing follow-up visits, developing individualized care plans, and coordinating care (21, 22). Other TCIs focus on transfer units within a residential care facility or a community setting. These units host older persons discharged from the hospital for a short period and provide them with restorative/rehabilitation therapies so they can regain their functional capacity and independence before transferring back home or to a nursing facility (23, 24). Multiple studies showed promising evidence on the effectiveness of TCIs to enhance transitional care for older persons (25). Reduced hospital readmission rates, decreased emergency room visits, and healthcare cost savings, as well as enhancements in the older person's satisfaction level and functional capacity, are examples of suggested positive effects of TCIs (26-30).

However, the recent rapid pace of developing new TCIs and testing for their effectiveness diverged the attention from how to implement them in a successful way and guarantee their uptake into routine practice. Although the evidence on the effectiveness of TCIs is encouraging, knowledge on how to implement them in practice to enhance their effectiveness is still scarce.

IMPLEMENTATION OF TRANSITIONAL CARE INNOVATIONS

TCIs are valuable innovations, however, their implementation in long-term care practice remains complex and prone to failure. Establishing the effectiveness of a TCI, like any innovation in a certain healthcare setting, can create evidence to encourage its uptake by individuals yet does not necessarily ensure its continuous and widespread usage (31). Moreover, the successful implementation of a TCI in one setting might not bring about the same result in a different setting. Therefore, the effectiveness of a TCI and its success in avoiding or improving care transitions for older persons is determined by the particular context where it is being implemented. Understanding why TCIs' implementation is often challenging and how to make it successful is still lacking. This merits exploring the context in which the TCIs' implementation is taking place and determining the relevant influencing factors (32).

Context refers to the setting, environment, organization, system, place, or circumstances in which the implementation of an innovation happens. Moreover, some denote context

as a *"bundle of stimuli"* and can signify how easy it is to implement an innovation (33, 34). Therefore, the context is a dynamic medium whereby multiple factors exist and play out as barriers or facilitators to the implementation of an innovation. In addition, the context has several dimensions or domains at which these factors occur such as, but not limited to, the inner setting (organizational structures, culture, processes) or the wider environment (policies, regulations, mandates) (34).

Specifically, the context of transitional care is unique in several ways. First, most TCIs are designed in a way to involve multiple care transition points and organizations, which makes them multifaceted complex innovations (35). Second, TCIs involve at least two care settings (i.e. organizational contexts) which can be at different levels of readiness for implementing innovations. Third, older persons, who are at the core of each TCI, have heterogeneous care needs. For instance, care transitions of older persons with dementia differ from those who suffer from the consequences of heart failure, which in turn, adds to the intricacy of implementing TCIs (36, 37). Some studies explored the factors that influence the implementation of individual TCIs (38, 39). However, insight is lacking on the most common and prominent barriers and facilitators that influence the implementation of various types of TCIs across settings, as well as whether these factors are mostly linked to the TCI's features, characteristics of individuals implementing the TCI, organizational setting, or another contextual dimension, and if any interrelationships between the factors exist. Moreover, there is no consensus on the level of importance of each factor in influencing the implementation of TCIs nor which are the most important ones. Besides, literature generally reports on factors post-implementing TCIs with limited effort to assess the context beforehand and to understand the critical barriers and facilitators within it prior to implementation.

Given the significance of accounting for the context and the innovation's characteristics, several implementation frameworks, models, and theories were developed as useful tools to explain how and why the implementation of innovations into practice succeeds or not (40-42). Accordingly, throughout this dissertation, we opted to use the Consolidated Framework for Implementation Research (CFIR) as a frame of reference to examine the implementation of TCIs and to identify the barriers and facilitators (43), in addition to including other relevant implementation science methods.

In light of the complexity of implementing healthcare innovations such as TCIs, various taxonomies and overviews of implementation strategies described as "methods used to improve adoption, implementation, and sustainment of interventions in healthcare practice" were developed (44). Examples of such strategies include assessing for implementation readiness and identifying contextual factors, involving executive boards, obtaining formal commitments, revising professional roles, conducting training sessions, or using an

implementation specialist (45, 46). Hence, utilizing implementation strategies can potentially address the influencing factors and improve the implementation of TCIs. However, few studies in the literature reported on the selection and use of strategies to implement TCIs.

Though many strategies were proposed and described for implementing healthcare innovations, selecting specific strategies relevant and applicable to TCIs can be more useful. A selection of implementation strategies to address particularly the important factors that influence the implementation of TCIs is still lacking. Moreover, guidance on indications for evidence on the effectiveness of these strategies to enhance implementation is necessary. This contributes to closing the gap existing between developing TCIs and moving them into practice successfully, by increasing the awareness of implementers on prospective challenges in implementing TCIs in advance and offering ways to tackle them.

OBJECTIVES AND OUTLINE OF THE THESIS

This dissertation aims to provide an overarching and thorough insight into the implementation of TCIs. More specifically, to identify the most important factors (barriers, facilitators) that influence the implementation of TCIs and to determine the implementation strategies necessary to address these influencing factors in order to improve the implementation of TCIs in long-term care practice.

Chapter 2 presents a scoping review of the factors that influence the implementation of TCIs for older persons in long-term care settings. **Chapter 3** provides the results of a modified Delphi study conducted with international scientific and practice-based experts to obtain consensus on the relative importance level of factors that influence the implementation of TCIs and the feasibility of addressing them with implementation strategies. **Chapter 4** provides the results of a retrospective qualitative collective case study, which explored the implementation of four transitional care innovations for older persons in Belgium, by assessing three implementation aspects: implementation factors, strategies, and outcomes. **Chapter 5** provides the results of a qualitative interview study that examined the stakeholders' experiences with and perceptions on four transitional care innovations (the same innovations as studied in chapter 4) implemented within an integrated care project in Belgium. **Chapter 6** describes in detail the systematic development of a set of theory and evidence-based implementation strategies selected for TCIs by using Implementation Mapping methodology. A selection of 40 implementation strategies was formulated, and each strategy was presented with a summary of effectiveness supported by theory and/or evidence, practical applications, and the target person/entity. **Chapter 7** summarizes the main findings, discusses the methodological strengths and limitations of this research, presents some theoretical considerations, and concludes with implications for both research and practice.

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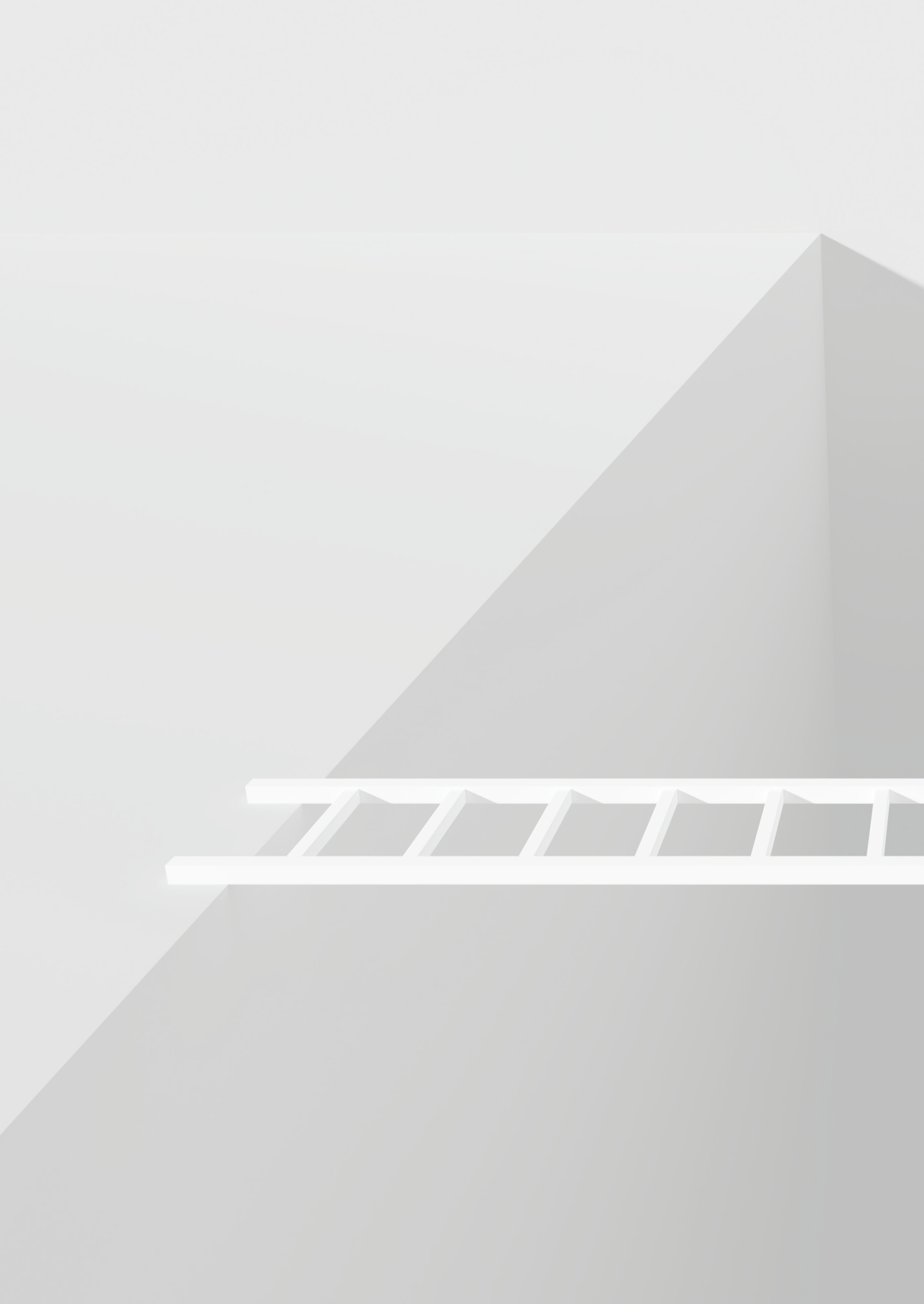

CHAPTER 2

A Myriad of Factors Influencing the Implementation of Transitional Care Innovations: A Scoping Review

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ABSTRACT

BACKGROUND

Care transitions of older persons between multiple care settings are frequently hampered by various issues such as discontinuous care delivery or poor information transfer among healthcare providers. Therefore, several innovations have been developed to optimize transitional care (TC). This review aims to identify which factors influence the implementation of TC innovations.

METHODS

As part of TRANS-SENIOR, an international innovative training and research network focusing on enhancing or avoiding care transitions, a scoping review was conducted. The five stages of the Arksey and O'Malley framework were followed. PubMed/MEDLINE, EMBASE, and CINAHL were searched, and eligible studies published between years 2000 and 2020 were retrieved. Data were extracted from the included studies and mapped to the domains and constructs of the Consolidated Framework for Implementation Research (CFIR) and Care Transitions Framework (CTF).

RESULTS

Of 1,537 studies identified, 21 were included. Twenty different TC innovations were covered, and aimed at improving or preventing transitions between multiple care settings, the majority focused on transitions from hospital to home. Key components of the innovations encompassed transition nurses, teach-back methods, follow-up home visits, partnerships with community services, and transfer units. Twenty-five prominent implementation factors (seven barriers, seven facilitators, and eleven factors with equivalent hindering/facilitating influence) were shown to affect the implementation of TC innovations. Low organizational readiness for implementation, and the overall implementation climate were topmost hindering factors. Similarly, failing to target the right population group was commonly reported as a major barrier. Moreover, the presence of skilled users but with restricted knowledge and mixed attitudes about the innovation impeded its implementation. Among the eminent enabling factors, a high-perceived advantage of the innovation by staff, along with encouraging transition roles, and a continuous monitoring process facilitated the implementation of several innovations. Other important factors were a high degree of organizational networks, engaging activities, and culture; these factors had an almost equivalent hindering/facilitating influence.

CONCLUSIONS

Addressing the right target population and instituting transition roles in care settings appear to be specific factors to consider during the implementation of TC innovations. Long-term care settings should simultaneously emphasize their organizational readiness

for implementation and change, in order to improve transitional care through innovations.

KEYWORDS
Implementation, innovation, care transitions, transitional care, long-term care, factors, older persons.

Contributions to the literature

- Our study identifies a set of significant factors that influence the implementation of innovations specific to transitional care, which diminishes the existing gap in implementation literature and offers guidance to long-term care organizations in future endeavors for enhancing this type of care for older persons.
- The current findings provide a dynamic and different perspective by addressing the interorganizational aspect of implementing transitional care innovations across multiple long-term care settings.
- The methodology used illustrates the possibility of combining multiple implementation research frameworks to enable a rich and comprehensive study of the influencing factors on implementing transitional care innovations.

BACKGROUND

Innovations in transitional care (TC) are often implemented to ensure an optimal continuity of healthcare delivery for older persons who transfer between multiple care settings. Older persons aged 65 years and above are at high risk of adverse events during care transitions due to the prevalence of chronic diseases and multimorbidity (1-7). Care transitions of older persons are frequently hampered by a diversity of issues, such as, but not limited to, fragmented care, medication errors, or poor communication among healthcare providers (7,8). Consequently, the delivery of proper TC for the older population is not always achieved.

There appears to be an urgent need to innovate in order to alleviate the augmented demand for long-term care (LTC) services and promote better and safer care transitions. Based on the World Health Organization's concept of LTC, we adapted its definition to fit the use throughout this article as "LTC refers to the provision of continuous care activities performed by formal and/or informal/family caregivers to ensure that older persons with or at risk of a significant ongoing loss of intrinsic capacity can maintain a level of functional ability consistent with their basic rights, fundamental freedoms, and human dignity; also it can be achieved through: (a) optimizing the older person's trajectory of intrinsic capacity, (b) compensating for a loss of capacity by providing the environmental support and care necessary to maintain functional ability at a level that ensures well-being; and can be provided in settings, such as but not limited to: nursing and residential care facilities, assisted living facilities, or private/own home" (9). To that end, multiple evidence-based TC interventions, models, or programs also referred to as "innovations" have been developed with the goal to improve or prevent transitions between different settings (2). According to existing literature, we defined the following terms to be used throughout this article: *'improve care transitions'* - to provide and enhance the transitional care and services delivered during physical relocations of older persons from one care setting to another, with a view to creating optimal benefit as a result of the care transition; *'prevent care transitions'* - to provide the care and services needed in order to avert an unnecessary or avoidable physical movement of older persons between two care settings or more (2, 5, 7). The Transitional Care Model and Coleman's Care Transitions Intervention, are examples of interventions designed to improve care transitions from hospital to home (2). Key components of these interventions include appointing a transition coach or nurse, encouraging patient self-management, and planning hospital discharge (10-12). While other interventions (13) aim to prevent care transitions from nursing home to hospital through the use of specific advanced care planning tools, alternative interventions focus on providing acute care at home to prevent transitions from home to hospital (13, 14). The successful implementation of these interventions has been shown to enhance the quality of care, control costs, reduce hospital readmission rates, and ultimately meet patient needs (2, 15). However, while innovation in TC is encouraged as a solution, its implementation is often difficult and unsuccessful.

The success or failure of the implementation of any innovation within a healthcare setting is usually influenced by multiple factors recognized as either barriers or facilitators (16). These factors can be linked to either the innovation characteristics, individual professionals, patients and caregivers, organizational structure, or the environmental context (16, 17). Nevertheless, other factors related to the actual process and activities undertaken to implement an innovation such as the planning, execution, and evaluation methods are as crucial (17). Similarly, attempts to implement innovations in TC are frequently affected by multiple factors. Amongst the barriers are limited organizational resources, absence of an implementation climate, complexity of the innovations, and low leadership engagement (18, 19). Conversely, facilitators include the adaptability of innovations, a high relative advantage of the innovation as perceived by users, and the existence of robust external organizational partnerships (14, 19).

However, to the best of our knowledge, no overview exists on barriers and facilitators that influence the implementation of innovations for preventing or improving care transitions for older persons. Thus, there is a need to explore and map the available evidence on these implementation factors. The main research question of the current study is: What are the barriers and facilitators that influence the implementation of TC innovations for older persons in long-term care settings? A secondary question is whether the literature captured the perspectives of older persons and informal or family caregivers on the innovation's implementation and overall experience; and if so, what was reported as feedback.

METHODS

This scoping review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist (20). The review was conducted according to the five stages described by the Arksey and O'Malley framework (21) and the enhancements proposed by Levac *et al.* (22).

STAGE 1: IDENTIFYING THE RESEARCH QUESTION

This scoping review is guided by the question: "What are the barriers and facilitators that influence the implementation of TC innovations for older persons in long-term care settings?

STAGE 2: IDENTIFYING RELEVANT STUDIES

Initially on July 25, 2019, a systematic search of three databases was conducted: PubMed/MEDLINE, EMBASE, and CINAHL; an update was run on March 10, 2020. Four main concept terms were used in the search: implementation; care transition; innovation; and older persons. To formulate the search strings, relevant keywords and synonyms were identified for each concept term in addition to the controlled vocabulary terms (such as MeSH headings in MEDLINE/PubMed). The search strategy was discussed by the authors as well as reviewed

by an information specialist. Reference lists of articles that fulfilled the inclusion criteria were searched to identify additional papers. The final search strategy is available (see Appendix 2A).

STAGE 3: STUDY SELECTION

Literature published in any language between January 1, 2000 and March 10, 2020 was retrieved. Original research studies were included. Articles were eligible for inclusion if : a) target population (participants or receiver of care) were all, or if the majority were older persons aged 65 years and above (also referred to as patients, older adults, frail older adults, elderly) with long-term care needs and at risk of care transitions; b) focused on the transfer and physical movement of older persons between two or more care settings with at least one setting providing long-term care; c) implemented an innovation within a care setting to prevent or improve care transitions; d) reported on the barriers and facilitators that influenced the implementation process of the innovation; e) stated the perspectives of the older persons, family, informal caregivers, and/or healthcare providers on the innovation.
After the removal of duplicates, the first author (AF) screened the titles and abstracts for eligibility. In order to increase reliability, the second author (LG) screened a random selection of 10% of the total records for titles and abstracts (23). Both reviewers then compared their assessment decisions and resolved any differences through discussion and when necessary through consultation with the author (BdB). In the next phase, the two authors (AF; LG) independently screened and discussed 100% of the full texts of those articles deemed eligible (23, 24). The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flowchart (25) was used to report the study selection process.

STAGE 4: CHARTING THE DATA

a. Development of the data charting forms:

A data charting form consisting of two parts was developed. *Data charting form – part 1* comprised the following: title; authors; year; country; study aim; design and methodology; population; setting; innovation description; duration and phase of implementation; presence of barriers and/or facilitators to innovation implementation; reported themes of barriers and/or facilitators to the implementation of the innovation; perspectives of older persons, family, or informal caregivers and/or providers on the innovation; and reported implications of the innovation. *Data charting form – part 2* was devised to map barriers and facilitators as identified in the studies to the Consolidated Framework for Implementation Research (CFIR) (26) and the Care Transitions Framework (CTF) (27).

The CFIR is composed of five domains: *i) intervention characteristics; ii) outer setting; iii) inner setting; iv) characteristics of individuals; v) process;* and 39 standardized constructs and subconstructs (26). This framework helps researchers identify the factors (i.e., barriers and facilitators) that influence the implementation of innovations (28). Moreover, specific constructs from the CTF (27) were selected and used in supplement to the CFIR (see

Appendix 2B). The CTF is an adaptation of the CFIR, whereby it incorporates all the CFIR constructs in addition to new ones, which are mostly relevant to transitional care.

b. Testing of data charting forms and the charting process:

Both forms were tested initially on two articles, and then results were discussed critically within the research team. It was agreed to include additional elements to describe further the innovations' features in data charting form 1. In the data charting, the implementation factors and themes were extracted from the included articles and then mapped to the CFIR's relevant domains, constructs, and the selected CTF constructs using the CFIR codebook (29). Subsequently, the CFIR rating rules were used to determine each factor's influence as negative: a barrier, or positive: a facilitator (30). Two authors (AF; TvA) charted data independently from five randomly selected articles. Disagreements on mapping factors to CFIR/CTF constructs were resolved between the two authors leading to a consensus. Afterwards, author AF completed the full data charting for all the included articles.

STAGE 5: COLLATING, SUMMARIZING, AND REPORTING THE RESULTS

The data charted were synthesized as follows:

a. Description of included studies: classification of the studies into four groups according to the care transition pathways of each TC innovation; included the author(s), year of publication, country, objective, population, design, and methods.
b. Description of the TC innovations: classification of the innovations into four groups according to the specific care transition pathways; included the target population, key components, and the CFIR domains influencing their implementation.
c. Barriers and facilitators to implementation of TC innovations: the frequency of the reported factors identified as barriers and/or facilitators to the implementation was calculated based on their presence in the number of studies.
d. Perspectives of older persons, family, or informal caregivers: a narrative description of the feedback on the overall experience, satisfaction with, or views on the implementation of the TC innovation.

RESULTS

STUDY SELECTION

Initially, 1,537 studies were identified, and 21 were included in the final stage. The flowchart for the selection process is depicted in Figure 1.

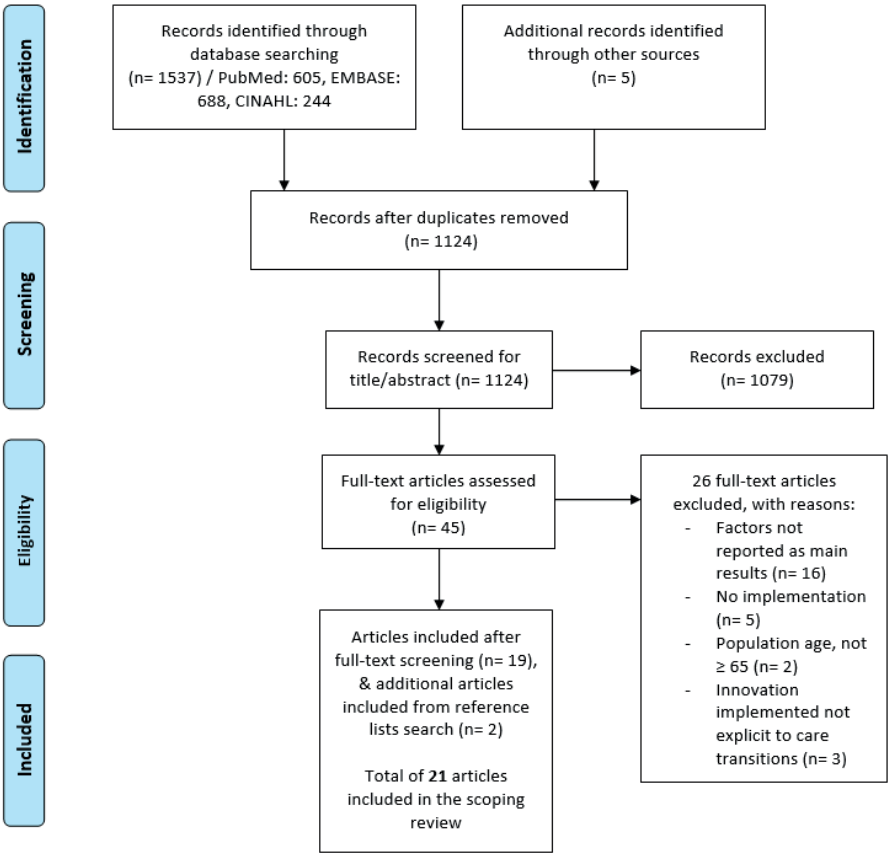


Figure 1. PRISMA flowchart of study selection process

STUDY CHARACTERISTICS

The 21 studies included described the implementation of 20 different TC innovations (see Table 1). Almost half of the studies (N=11, 52%) originated from the USA, and five were from Europe. The majority of the studies were process evaluations and were performed during or post the implementation of a TC innovation to examine the influencing factors. Most studies used qualitative research methods, and 11 utilized a preselected evaluation, implementation, or quality-related framework, tool, model, or instrument to guide data collection such as interviews and/or data analysis.

Study populations across all studies were comprised of multiple healthcare professionals and providers. Only six studies included older persons or family/informal caregivers and explored their perspectives on the TC innovations (36, 37, 41, 44, 46, 47).

KEY FEATURES OF THE TC INNOVATIONS

Sixteen innovations focused on improving care transitions for older persons, while four focused on preventing transitions. TC innovations were classified into groups according to the care transition pathways (see Table 2).

DESCRIPTION OF THE FOUR GROUPS OF TC INNOVATIONS

Care transitions from hospital to home settings were the focus of ten TC innovations. Improving care transitions was the main aim of these innovations with common goals to reduce hospital readmissions, lower healthcare costs (31, 34-36, 39, 40), enhance older persons' quality of life (18, 32, 33) and satisfaction (34, 39), and scale down the need for institutional care (38). Mostly, these innovations targeted older persons with chronic and complex conditions discharged from hospital, requiring long-term care at home, and who were at higher risk of readmission. The common component across the innovations was the existence of a healthcare professional with a "transition role," such as a transition nurse, health coach, care coordinator, social worker, or community nurse. The role served to ameliorate the transition journey from hospital to home by primarily providing follow-up, developing individualized care plans, and coordinating care.

Care transitions from hospital to intermediary care places to a final destination were the focus of four TC innovations. These innovations aimed to improve care transitions with common objectives, such as reducing the length of hospital stays, relieving hospital bed-blocking, and preventing inappropriate admission to residential aged care (42, 43). All four innovations were designed for older persons who concluded an episode of acute care at hospital but were unfit to transfer to home or another final long-term care destination. The creation of "transition intermediary care places,'' such as transfer beds hosted within a residential care facility or community setting was the notable component across these innovations (41-44). Hence, the four TC innovations allowed extra time to organize a more personalized arrangement for the long-term care final destination for older persons.

Care transitions from hospital or home to nursing/residential care facility were the focus of two TC innovations. The goal of these innovations was to improve care transitions with the objective to enhance information transfer between hospitals and nursing facilities and promote continuity of care. The essential aspect of both innovations was the provision of "transition advice & support" to nursing facility staff. This was enabled through the arrangement of community geriatric services and a psychiatric community nurse (45, 46).

Table 1. Characteristics of the 21 included studies

Author(s), year of publication, country	Objective & timing of data collection	TC innovation name	Study population, total sample(n)	Design & methods
Group I – Studies focused on TC innovations to improve care transitions from hospital to home				
Bradway et al. 2012, USA (31)	To describe the barriers and facilitators to implementing a transitional care intervention for cognitively impaired older adults & their caregivers led by advanced practice nurses ➢ post-implementation	**APN-directed TCM** Advanced Practice Nurse-Directed Transitional Care Model	Healthcare professionals (n=3): • Advanced Practice Nurses	Exploratory qualitative: • Case summaries for patient–caregiver dyads completed by APNs at end of intervention – 15 randomly selected • Field notes taken by study investigators during biweekly APNs' case conferences
Couture et al. 2016, Canada (18)	To evaluate and explain the barriers and facilitators to the implementation of a pilot intervention – introducing the role of Transitional Care Managers within a public healthcare system ➢ during implementation	**TCM Role** Transitional Care Manager Role	Healthcare professionals (n=29): • Transitional care managers • Hospital workers • Social workers • Staff of health and social service centers	Process evaluation: • Assessed the fidelity, acceptability, & appropriateness (contextual factors) • Focus groups • Direct observations • TCMs' activity grids & logbooks • Meeting minutes & documents of coordinating and implementation committee
Hung et al. 2015, USA (32)	To examine and describe the successes and challenges of the implementation of a pilot community-based transitional care program ➢ post-implementation	**Community- based TCP** Community-based Transitional Care Program	Healthcare professionals & program's management team (n=7): • Interprofessional team of program staff (nurses, social workers) • Members of program's steering committee	Qualitative: • Semi-structured interviews guided by the *Organizational Readiness to Change Assessment instrument* • Analysis using *PARIHS framework (contextual factors, evidence, facilitation techniques)*
Hung et al. 2018, USA (33)	To examine the key contextual features enabling the implementation and hospital-wide scaling of a community-based transitional care program ➢ post-implementation	**Community-based TCP** Community-based Transitional Care Program	Healthcare professionals & program's management team (n=17): • Program director and manager • Program staff (nurses, social workers, wellness coaches) • Members of program's steering committee	Qualitative: • Semi-structured interviews guided by the *Organizational Readiness to Change Assessment instrument* • Analysis using *Care Transitions Framework (domains – intervention, organizational, & patient characteristics, implementation process, measures, & outcomes)*

Table 1. Continued

Author(s), year of publication, country	Objective & timing of data collection	TC innovation name	Study population, total sample(n)	Design & methods
McNeil et al. 2016, Canada (34)	To evaluate the effectiveness and identify barriers to and facilitators of the implementation of an intervention involving patient handoff between a hospital-based care transitions nurse and a community-based response nurse ➢ post-implementation	**CTI-Handoff** Care Transition Intervention Handoff	• Care transitions & rapid response nurses (n= not specified) • Managers & executives (n= 4)	Qualitative: • Focus group discussions • Individual interviews
Naylor et al. 2009, USA (35)	To identify the major facilitators and barriers to implementing the Transitional Care Model in an insurance organization over the phases of start-up & roll-out ➢ pre- & during implementation	**TCM** Transitional Care Model	Healthcare professionals and project team (n=19): • Implementation staff • Case managers • Transitional care nurses • Senior leaders & managers	Qualitative: • Semi-structured interviews guided *by Everett Roger's framework for diffusion of innovations (focus on: staff involvement, culture, communication channels, model integration within organization, ease/ difficulty of start-up phase)*
Nurjono et al. 2019, Singapore (36)	To evaluate the implementation fidelity of a transitional care program ➢ post-implementation	**NUHS-RHS TCP** National University Health System-Regional Health Systems Transitional Care Program	Healthcare professionals (n=25): • Care coordinators, program managers, physicians o Family caregivers (n=45)	Realist evaluation: • Using the *Conceptual Framework of Implementation Fidelity (moderating factors: context, participant responsiveness, program complexity, facilitating strategies, recruitment)* • Interviews • Observations • Reviews of medical records & program databases
Parrish et al. 2009, USA (37)	To identify factors that promote the sustainability of the implementation of a care transition intervention pilot ➢ post-implementation	**CTI** Care Transitions Intervention	• Pilot project team members for 10 sites (n= 30–40)*, including Transition coaches (n= at least 10)* o Patients (n=791, out of which 69.4% are aged 66+) *estimations	Mixed methods: • Surveys • Interviews • Final project narrative reports, data reports • Comparison of pre- & post-project sustainability plans • *5 variables used to assess sustainability factors (leadership, transition coaches staff, project management, team commitment, sustainability plan)* • *Care transition measure (CTM)* to assess quality of care transition • *Patient activation assessment (PAA)* to assess level of patient activation in the 4 pillars of the CTI

Table 1. Continued

Author(s), year of publication, country	Objective & timing of data collection	TC innovation name	Study population, total sample(n)	Design & methods
Rosstad et al. 2015, Norway (38)	To investigate the implementation process of a care pathway for elderly patients into the daily practice of healthcare professionals ➢ during & post-implementation	**PaTH** Patient Trajectory for Home-dwelling elders	Healthcare professionals (n=60): • Home care managers • Home care head nurses • Nurses • Nursing assistants	Comparative qualitative process evaluation: • Semi-structured interviews guided *by questions focused on staff involvement & expectations, care pathway introduction & efforts to use it, challenges, promoting factors, benefits, sustainability* • Focus group discussions • Field notes (by study investigator on overall implementation process) • Meeting minutes (conference calls with head nurses & home care managers performed by study investigator) • Analysis *guided by the Normalization Process Theory core constructs (coherence, cognitive participation, collective action, reflexive monitoring)*
Williams et al. 2014, USA (39)	To examine the successes and failures experienced by implementing Project BOOST aiming to enhance transition from hospital to home ➢ during implementation in cohorts & post-implementation in pilot sites	**BOOST** Better Outcomes by Optimizing Safe Transitions	• Local team leaders of (n= 6 pilot hospital sites) • Hospital team leaders of (n= 27 cohort sites)	Evaluation: • Telephone interviews guided by basic implementation questions & opinions on intervention elements in pilot sites • Survey with hospital cohorts on: implementation occurrence, when, and how
Xiang et al. 2018, USA (40)	To examine the experiences of community-based organizations implementing the Bridge Model of Transitional care, and identify facilitators and barriers associated with the implementation and sustainability of the model ➢ during & post-implementation	**The Bridge Model**	Healthcare professionals (n=13): • Clinical supervisors • Program coordinators	Qualitative case study: • Semi-structured interviews by telephone, guided *by 3 domains of successful implementation of the PARIHS framework (evidence, context, leadership, evaluation, facilitation)*

Table 1. Continued

Author(s), year of publication, country	Objective & timing of data collection	TC innovation name	Study population, total sample(n)	Design & methods
Group II – Studies focused on TC innovations to improve care transitions from hospital to intermediary care places (residential care or rehabilitation facility) to a final destination				
Everink et al. 2017, the Netherlands (41)	To evaluate the feasibility of implementing an Integrated Care Pathway in Geriatric Rehabilitation ➢ post-implementation	**ICP Geri-Rehab** Integrated Care Pathway in Geriatric Rehabilitation for People with Complex Health Problems	Healthcare professionals (n=19): • Elderly care physicians • Nurses (specialized, discharge) • Physiotherapists • Professionals from home care organizations o Informal caregivers (n=37) o Patients (n=113)	Process evaluation: • using *Saunders & colleagues framework (fidelity, dose delivered, satisfaction, contextual & external factors)* • Semi-structured group interviews • Face-to-face interviews • Self-administered questionnaires • Patient files • Meeting minutes
Masters et al. 2008, Australia (42)	To examine reports from providers to reveal enablers and barriers to compliance with the key requirements of a transition care program ➢ post-implementation	**TC Places** Transition Care Places	• Organizations providing transition care services (n=23 organizations)	Qualitative: • Content analysis of quality self-reports
Plochg et al. 2005, the Netherlands (43)	To assess the functioning and implementation of an intermediate care model between a hospital and a residential home ➢ post-implementation	**ICM** Intermediate Care Model	Healthcare professionals and management staff from the residential home & medical center (n=21): • Leadership (general manager, director, head of care department, chair board of directors, chair of medical specialists) • Physicians • Nurses (liaison, geriatric nurse specialist, liaison nurse-head of discharge unit, registered nurse-head of transfer unit, nursing assistant of transfer unit) • Occupational / physical therapists	Process evaluation: • Semi-structured interviews • Analysis *using a typology of quality systems based on 5 elements (structural assets, allocation of responsibilities, protocols, information transfer, and monitoring/feedback cycles)*, and *Grol's model on effective implementation*

Table 1. Continued

Author(s), year of publication, country	Objective & timing of data collection	TC innovation name	Study population, total sample(n)	Design & methods
Renehan et al. 2013, Australia (44)	To evaluate the implementation and effectiveness of a Transition Care Cognitive Assessment and Management Pilot ➢ post-implementation	**TC CAMP** Transition Care Cognitive Assessment and Management Pilot	Healthcare professionals (n=17): • TC CAMP facility and health services staff (nursing, management, allied health, team leaders, therapists, clinical nurse consultant) • Unit managers of final destination facility o Family caregivers (n=7)	Process and outcome evaluation: • Structured interviews • Focus group discussions • Medical records file audits
Group III – Studies focused on TC innovations to <u>improve</u> care transitions from <u>hospital or home to nursing/residential care facility</u>				
Sutton et al. 2016, UK (45)	To characterize the challenges experienced in a quality improvement project aiming to improve transitions for older people ➢ post-implementation	**QIP-TC** Quality Improvement Project to Improve Transitions of Care for Older People	Healthcare professionals & project team (n=12): • Care home staff (managers, owners, assistants, frontline) • Hospital-based staff • Project staff	Ethnographic process evaluation: • Observations • Semi-structured interviews • Project documents (progress reports, meeting minutes)
Van Mierlo et al. 2015, the Netherlands (46)	To evaluate a mental healthcare transfer intervention after the movement of a person with dementia into a nursing home, and to investigate factors that influence its successful implementation ➢ post-implementation	**CPN** Follow-up visit by Community Psychiatric Nurse	Healthcare professionals (n=28): • Professional nursing home carers • Community psychiatric nurses • Nursing home managers • Outpatient clinic managers • General practitioners • Team manager – center for people with dementia • Healthcare insurer o Family caregivers (n=5)	Evaluation: • Semi-structured interviews based on the *Theoretical Model of Adaptive Implementation (external factors, different phases & levels of implementation process)*
Group IV – Studies focused on TC innovations to <u>prevent</u> care transitions from <u>nursing facility or home to hospital</u>				
Brody et al. 2019, USA (14)	To examine the barriers to and facilitators of the implementation of Hospital at Home Plus 30 days of transitional care program during its first year of operation ➢ during implementation	**HaH Plus program** Hospital at Home Plus Program	Healthcare professionals (n=27): • Team physicians • Nurse practitioners/leaders • Social workers • Leadership staff • Executives • Home health agency staff	Qualitative: • Primers to help recall of key events/factors & develop interview guide • Semi-structured interviews • Focus group discussions

Table 1. Continued

Author(s), year of publication, country	Objective & timing of data collection	TC innovation name	Study population, total sample(n)	Design & methods
Ersek et al. 2018, USA (47)	To explore the stakeholders' perspectives on the implementation of OPTIMISTIC program, which aims to reduce hospitalizations from nursing facility; specifically the program's effective components, facilitating adoption features, and barriers to implementation ➢ during implementation	**OPTIMISTIC** Optimizing Patient Transfers, Impacting Medical Quality, and Improving Symptoms: Transforming Institutional Care project	Healthcare professionals (n=53): • Primary care providers • Nursing home staff & leadership • OPTIMISTIC clinical staff o Family members of nursing home residents (n=10)	Evaluation: • Using *Stetler framework* of formative evaluation • Semi-structured group and individual interviews
Hirschman et al. 2017, USA (48)	To describe the experiences of healthcare providers involved in adapting and testing the feasibility of implementing a care innovation by combining two models: the patient-centered medical home and the transitional care model ➢ post-implementation	**PCMH+TCM** Patient-Centered Medical Home + Transitional Care Model	• Transitional care nurses (n=2) • Clinicians (n= 2-4/site*, 5 sites) *estimations	Qualitative: • Surveys (open-ended questions)
Rask et al. 2017, USA (49)	To identify contextual and implementation factors impacting the effectiveness of an organizational-level intervention to reduce preventable hospital readmissions from affiliated skilled nursing facilities (SNFs) ➢ post-implementation	**INTERACT II** Interventions to Reduce Acute Care Transfers	• Quality Improvement Organization staff (n= 4)* • Leaders & nurses of SNF corporations (n=6)* • SNF staff (n= 2-3/facility)* *estimations	Evaluation: • Interviews with open-ended questions based on contextual factors' domains of the *Model for Understanding Success in Quality tool (external environment, organization, QI support and capacity, microsystem, miscellaneous)*

Table 2. Description and key features of the 20 TC innovations

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
Group I: 10 TC innovations to improve care transitions from hospital to home			
APN-directed TCM Advanced Practice Nurse-directed Transitional Care Model Bradway et al. 2012, USA (31)	• ≥ 65yr older adults, hospitalized, cognitively impaired • Presence of a family caregiver (CG)	➢ *Aims: to improve patient outcomes and ensure a safe & timely transition* • Advanced Practice Nurse, role: o daily hospital visits to patient–CG dyad o home (or SNF) visits* within 24 hrs post-discharge, a minimum of 4 o telephone follow-up & support o development of individualized care plans, patient–CG goals o implementation of risk reduction strategies to minimize effects of cognitive impairment o coordination with a multidisciplinary local team of healthcare experts o building CG ability to identify early symptoms & apply strategies to prevent poor outcomes *sometimes patients are admitted to (SNF) skilled nursing facility prior to going home, they receive visits in both settings	✓ Intervention characteristics ✓ Outer setting ✓ Characteristics of individuals ✓ Process
TCM Role Transitional Care Manager Role Couture et al. 2016, Canada (18)	• ≥ 70yr older adults, and/or chronically ill • Being discharged from hospital, or end of acute care is predictable	➢ *Aims: to improve existing discharge planning practices* • Transitional Care Manager (social worker, or any other healthcare professional, except nurses), a liaison agent role: o improvement of discharge planning by management of environmental & community barriers o exchange of patient information between providers o coordination of care & problem-solving of transitional care	✓ Intervention characteristics ✓ Inner setting

Table 2. Continued

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
Community-based TCP Community-based Transitional Care Program Hung et al. 2015/2018, USA (32, 33)	• ≥ 65yr older adults • About to be discharged from hospital • At high risk of readmission	➢ *Aims: to reduce preventable hospital readmissions and improve patient's quality of life at home & in the community* • Health coach (nurse or social worker), role: o home visits (within 24–48hrs) post-discharge, follow-up phone calls & appointments with primary care providers • Discharge planning using 'teach-back' methods • Connecting older adults to community services & resources • Support system network • Advanced care planning • Wellness coach up to 6 months	✓ Intervention characteristics ✓ Outer setting ✓ Inner setting ✓ Characteristics of individuals ✓ Process
CTI-Handoff Care Transition Intervention Handoff McNeil et al. 2016, Canada (34)	• Frail older adults with complex conditions • Discharged from hospital & require home care	➢ *Aims: to reduce readmissions, improve information transfer, & enhance patient satisfaction* • Patient care handoff between Hospital Care Transition Nurse & Community Rapid Response Nurse • Home care & follow-up period up to 30 days • Referral to hospital-based chronic disease management clinics	✓ Intervention characteristics ✓ Inner setting ✓ Characteristics of individuals ✓ Process
TCM Transitional Care Model Naylor et al. 2009, USA (35)	• Chronically ill, high-risk older adults • Hospitalized with multiple chronic conditions	➢ *Aims: to improve patient outcomes, reduce readmissions, & reduce healthcare costs* • Transitional Care Nurse, role: o primary care coordinator among providers & ensuring a multidisciplinary approach with open communication o in-hospital patient case assessment & development of care plan o regular home visits & ongoing telephone support (7 days/week over 2 months post-discharge) o continuity of medical care with hospital/primary care & accompanying patients on follow-up visits • Early identification & response to health risks • Active engagement of patients & their family/informal caregivers by focusing on education and support	✓ Intervention characteristics ✓ Outer setting ✓ Inner setting ✓ Characteristics of individuals ✓ Process

Table 2. Continued

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
NUHS-RHS TCP National University Health System-Regional Health Systems Transitional Care Program Nurjono et al. 2019, Singapore (36)	• Older adults, and/or with complex healthcare needs • Frequent admitters to hospital • Have limited ambulation & caregivers at home	➢ *Aims: to improve quality of care, reduce hospital utilizations, & reduce healthcare related costs* • Care Coordinator, an integrator role: o home visits, telephone monitoring o needs & home environment assessment o development of personalized care o promotion of self-care • Care coordination with a network of medical & social care providers in/out of hospital	✓ Intervention characteristics ✓ Outer setting ✓ Inner setting ✓ Characteristics of individuals ✓ Process
CTI Care Transitions Intervention Parrish et al. 2009, USA (37)	• Oder adults, in hospital for chronic disease, & requiring long-term care	➢ *Aims: to enhance patient safety during transitions* • 4-week intervention • Transition Coach (nurse or social worker), role: o hospital visit o 1 home visit (24–72hrs post-discharge) o 3 follow-up phone calls • Improvement of patient's capacity: o medication self-management o using a patient-centered health record o knowledge of "red flags" o making primary care provider/specialist appointments	✓ Inner setting ✓ Process

Table 2. Continued

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
PaTH Patient Trajectory for Home-dwelling elders Rosstad et al. 2015, Norway (38)	• Elderly patients requiring home care services after discharge from the hospital	➢ *Aims: to improve continuity of care & reduce the need of institutional care* • Continuity of care from hospital & follow-up of home care recipients • Exchange of patient discharge information between the hospital, local healthcare allocations (municipality-level), & home care services: o local health care allocations office evaluate & decide on care assistance o home care service prepares for transition o home care nurse performs comprehensive patient assessment within 3 days upon discharge o general practitioner consults patient 14 days post-discharge o district nurse/nursing assistant performs extended assessment during the first 4 weeks • Communication among services through a patient daily care plan & patient checklist document	✓ Intervention characteristics ✓ Inner setting ✓ Characteristics of individuals ✓ Process
BOOST Better Outcomes by Optimizing Safe Transitions Williams et al. 2014, USA (39)	• Older adults • At high-risk of adverse events post-hospital discharge	➢ *Aims: to improve patient's discharge & reduce errors, reduce 30 day readmission rates, & improve patient satisfaction* • Comprehensive intervention toolkit for clinical teams: o risk assessment o patient/caregiver education tools o teach back o discharge summary o follow-up phone call within 72 hrs • Implementation guide for multidisciplinary teams • Individual physician mentoring • BOOST collaborative across hospitals	✓ Intervention characteristics ✓ Inner setting ✓ Process

Table 2. Continued

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
The Bridge Model Xiang et al. 2018, USA (40)	• Older adults with complex care needs • Discharged from an inpatient hospital stay • At risk of readmission due to psychosocial determinants	➢ *Aims: to improve care transition and prevent readmission by addressing the psychosocial determinants* • Bridge Care Coordinator (social worker), role: o hospital visits o biopsychosocial needs assessment & development of a care plan o care coordination & follow-up in person or by telephone throughout 30 days post-discharge • Collaboration of hospital & community-based organizations for aging services	✓ Intervention characteristics ✓ Outer setting ✓ Inner setting ✓ Process
Group II: 4 TC innovations to <u>improve</u> care transitions from <u>hospital to intermediary care places (residential care or rehabilitation facility) to a final destination</u>			
ICP Geri-Rehab Integrated Care Pathway in Geriatric Rehabilitation for People with Complex Health Problems Everink et al. 2017, the Netherlands (41)	• ≥ 65yr frail older adults with complex health problems • Previously admitted to hospital & geriatric rehabilitation care	➢ *Aims: to improve communication between healthcare providers & enhance the triage process during transitions* • Triage instrument for intermediary Geriatric Rehabilitation Facility: o assessment of patient need for admission before movement to home setting • Care pathway coordinator, role: o communication between professionals & across settings o coordination & continuity of care • Active involvement of patients & informal caregivers • Patient discharge summaries • Evaluation meetings & open communication across providers	✓ Intervention characteristics ✓ Outer setting ✓ Inner setting ✓ Process

Table 2. Continued

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
TC Places Transition Care Places Masters et al. 2008, Australia (42)	• Older adults • Concluded an acute hospital episode • Requiring more time & support in a non-acute setting to complete their restorative process and optimize their functional capacity	➢ *Aims: to minimize inappropriate extended hospital length of stay, prevent inappropriate admission to residential aged care, & optimize patient's independence /functional capacity* • TC intermediary places located in a residential care facility or a community setting • Delivery of transition care in TC places: o goal-orientated, individualized o time-limited care o low-intensity therapies & services o case management • Finalization of long-term care arrangements	✓ Outer setting ✓ Inner setting ✓ Process
ICM Intermediate Care Model Plochg et al. 2005, the Netherlands (43)	• Frail older adults, chronically ill • Completed medical treatment at hospital but unfit to go home • Require long-term care	➢ *Aims: to reduce length of hospital stays, prevent hospital readmissions, retain patient's independence* • Transfer Unit (beds) located in a residential home: o low-intensity early discharge care model o provision of services bridging the acute, primary, & social care • Coordination of transitions by Hospital Liaison Nurse	✓ Intervention characteristics ✓ Inner setting ✓ Characteristics of individuals ✓ Process
TC CAMP Transition Care Cognitive Assessment and Management Pilot Renehan et al. 2013, Australia (44)	• ≥ 65yr older adults • With cognitive impairment (dementia) • At conclusion of an episode of hospital care	➢ *Aims: to reduce readmissions* • TC CAMP intermediary restorative care places located in a residential care facility • Clinical Nurse Consultant (CNC), role: o case management o individualized care plan o behavioural management • 'Key to Me', patient information tool	✓ Intervention characteristics ✓ Inner setting ✓ Characteristics of individuals ✓ Process

Table 2. Continued

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
Group III: 2 TC innovations to improve care transitions from hospital or home to nursing/residential care facility			
QIP-TC Quality Improvement Project to Improve Transitions of Care for Older People Sutton et al. 2016, UK (45)	• Older people • In transition between hospital and residential care settings during period of acute illness	➢ *Aims: to improve communication & information transfer and reduce readmissions* • Community geriatric service: o geriatrician & community nurse o 24-hr telephone support & advisory service to facility staff • Patient information summary form	✓ Intervention characteristics ✓ Outer setting ✓ Characteristics of individuals ✓ Process
CPN Follow-up visit by Community Psychiatric Nurse Van Mierlo et al. 2015, the Netherlands (46)	• Older people with dementia behavioral disturbances • Expected to be admitted or are advised to move from home into a nursing facility	➢ *Aims: to promote continuity of care & improve quality of care* • Community Psychiatric Nurse (CPN), role: o follow-up visit 6 weeks after placement in a nursing home o clinical & behavioral assessment o support & advice to facility nurse o support to family caregiver	✓ Intervention characteristics ✓ Outer setting ✓ Inner setting ✓ Characteristics of individuals ✓ Process
Group IV: 4 TC innovations to prevent care transitions from nursing facility or home to hospital			
HaH Plus program Hospital at Home Plus Program Brody et al. 2019, USA (14)	• ≥ 65yr older adults, requiring inpatient admission	➢ *Aims: to reduce mortality, readmission rates, costs , and achieve better patient/caregiver satisfaction* • Acute-level care services provision at home as a substitute for hospital admission, *plus* • A 30-day post-acute period of transitional care bundle (self-management, care coordination)	✓ Intervention characteristics ✓ Outer setting ✓ Inner setting ✓ Characteristics of individuals ✓ Process
OPTIMISTIC Optimizing Patient Transfers, Impacting Medical Quality, and Improving Symptoms: Transforming Institutional Care project Ersek et al. 2018, USA (47)	• Frail older residents of nursing facility	➢ *Aims: to reduce hospitalizations* • OPTIMISTIC RNs* & NPs* role: o identification, assessment, & management of acute conditions in nursing home o promotion of INTERACT (Interventions to Reduce acute Care Transfers) tools usage • Care activities organized within 3 care cores: medical, transitions, palliative	✓ Intervention characteristics ✓ Inner setting ✓ Characteristics of individuals ✓ Process

Table 2. Continued

TC innovation name	Target population	TC innovation – Aims & Key components	CFIR domains associated with the TC innovation's implementation
PCMH+TCM Patient-Centered Medical Home + Transitional Care Model Hirschman et al. 2017, USA (48)	• ≥ 65yr older adults with multiple chronic conditions • In community settings	➢ *Aims: to prevent avoidable emergency room visits & hospitalizations, and provide a continuous care management* • Patient-centered holistic approach • Combination of disease management in primary care settings & home care: o coordination of care during an episode of acute illness across settings, facilitated by: • Transitional Care Nurse (TCN), role: o home visits, telephone support o active engagement of patient, family caregivers, & collaboration with primary care providers o coordination of education & community services to develop self-management skills	✓ Outer setting ✓ Inner setting ✓ Characteristics of individuals ✓ Process
INTERACT II Interventions to Reduce Acute Care Transfers Rask et al. 2017, USA (49)	• Residents of long-term care settings	➢ *Aims: to reduce the frequency of transfers to hospital, and improve quality of care for residents* • Identification, evaluation, & communication of resident status changes • Use of 4 practice tools: o quality improvement o communication o decision support o advance care planning	✓ Outer setting ✓ Inner setting ✓ Characteristics of individuals ✓ Process

Notes: 'improve care transitions' - to provide and enhance the transitional care and services delivered during physical relocations of older persons from one care setting to another, with a view to creating optimal benefit as a result of the care transition; 'prevent care transitions' - to provide the care and services needed in order to avert an unnecessary or avoidable physical movement of older persons between two care settings or more; * RN: registered nurse, NP: nurse practitioner.

Care transitions from nursing facility or home to hospital were the focus of four TC innovations. These innovations aimed to prevent care transitions. Hence, the main objectives were the provision of a value-based and patient-centered high-quality care (14), as well as the reduction and prevention of avoidable hospitalizations (47, 48), and reducing the frequency of transfers to acute hospital care (49). The unique component of all four innovations was "transition care management in place."

BARRIERS AND FACILITATORS TO THE IMPLEMENTATION OF TC INNOVATIONS

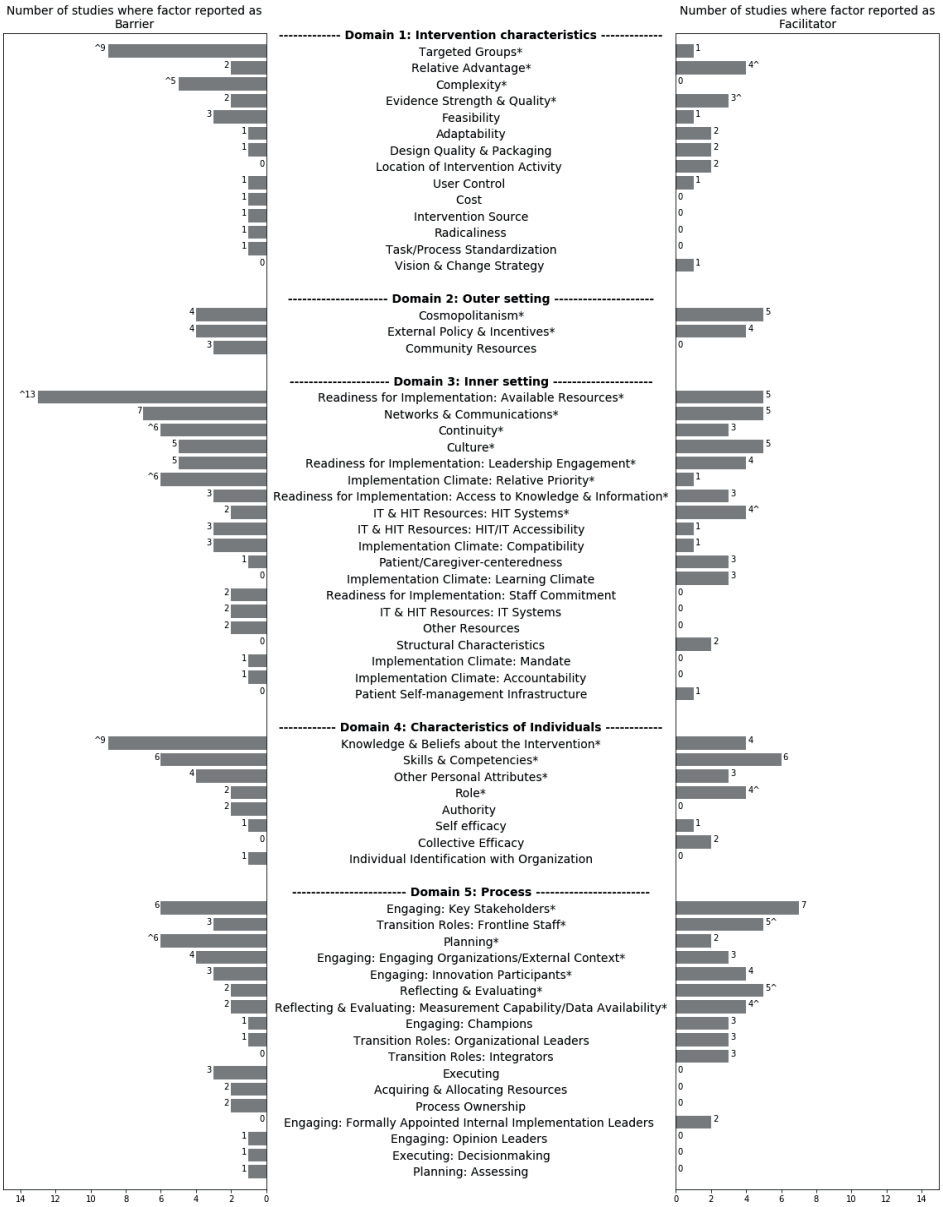
Factors reported in the 21 studies could be mapped to 61 CFIR&CTF constructs, out of which 19 were reported as barriers only, 8 as facilitators only, and 34 as both barriers and facilitators. Among these 34 factors, 15 were reported as having both influences concurrently in the same study. The reporting frequency, presented as number of studies, for the barriers and facilitators influencing the implementation of the transitional care innovations as mapped to the CFIR&CTF constructs is shown in Figure 2.

The most commonly reported domains impacting implementation were process (20 studies) and inner setting (19 studies), while factors in the outer setting were least reported (12 studies). Twenty-five factors were reported by at least five studies (25%), and therefore were considered the most prominent ones. Among these factors, we distinguished seven factors as predominant barriers and seven as predominant facilitators. The remaining 11 factors showed a nearly equivalent direction of influence as impeding and facilitating (i.e., indistinguishable). Here we use "predominant" when a factor was clearly and more frequently reported as either a barrier or facilitator, judged by whether at least two thirds of the total number of studies reporting this factor reported it as a barrier or facilitator. Nevertheless, this does not directly imply that these factors are the most important, but it conveys that they are very likely to affect the implementation of TC innovations in either direction of influence. The main findings describing the most prominent factors are presented below, and Figure 3 provides an overall summary.

Factors – *Predominantly Barriers*

Targeted groups – A mismatch between the TC innovation components and the intended profile of the recipients, older persons, was evident to affect its implementation as indicated in nine studies (14, 18, 31, 32, 34-36, 43, 47). Five studies reported that unclear eligibility criteria of the TC innovation often impeded the identification of older persons that could benefit from it (14, 18, 32, 35, 47). Another four studies stated that TC innovations were unable to meet the specific care needs of the targeted older persons due to the high frailty and complex conditions of the recipients, confirming an incompatible fit (31, 34, 36, 43).

Figure 2. Frequency of reported barriers and facilitators to TC innovations implementation, mapped to CFIR&CTF (61 constructs)



*represents factors cited by at least 5 studies (25%) as a barrier and/or facilitator; ^ denotes factor as a predominant barrier or facilitator; total number of studies is 21.

Complexity – The intricacy of the TC innovation design and the difficulty of putting it into action were reported mutually in five studies (14, 31, 36, 38, 39). Two studies cited that the necessity to involve multiple homecare service providers (14) and informal caregivers (31), and the absence of bundled care payment methods (14) led to difficulty in implementing TC innovations in home settings. Healthcare providers perceived that TC innovations with complex and extensive processes (39), unstandardized or detailed protocols (36), and hard to understand and use tools and checklists (38) affected the implementation negatively.

Readiness for implementation: available resources – Low staffing levels (43, 44, 46) and a lack of dedicated staff (14) were common impeding factors to the implementation of TC innovations. Similarly, staff turnover (38, 47, 49), plus losing key team members (39) and major program staff and contact persons (40) affected the implementation negatively. This led to increased costs and weakened relationships between organizations involved in implementing a TC innovation (40). Heavy workloads (38, 47, 49), time constraints (39, 46), and work schedule pressure (46) also hindered implementation, and sometimes led to less staff engagement (38). Limited availability of needed resources such as equipment and care service provisions (18), as well as financial constraints (47) or a lack of funding (37, 40) were notable barriers to implementation. Moreover, three studies indicated that an inadequate training and education offered to providers and staff hindered their ability to implement new TC innovations (36, 42, 47).

Continuity – A disrupted information flow, communication, or relationship between multiple healthcare providers and across organizations was described as cumbersome and impeding to the implementation of TC innovations (14, 18, 32, 34, 42, 46). Four studies reported that an insufficient, inconsistent, or discontinuous patient information exchange between different organizations often led to delays in coordination of services and care planning, which was the essence of some TC innovations (14, 18, 34, 42). Furthermore, the inefficient communication and difficulties in maintaining steady working relationships among the TC innovation program staff and, for example, the hospital or nursing home staff were barriers to the implementation (32, 46).

Implementation climate: relative priority – The existence of multiple quality improvement initiatives and projects within the organization often hindered the efforts to implement new TC innovations concurrently (33). Moreover, alternate quality improvement projects posed competition to the introduction of new TC innovations (39), and sometimes a mix of confusion and doubts among the staff on their need (47). Overall, staff described change fatigue as a main barrier to endorsing new transitional care activities, as well as leadership sometimes failing to actively endorse new transitional care programs (32, 33). Two studies indicated that major organizational changes also created different priorities among staff, and a reduced capacity and motivation to implement new TC innovations (38, 49).

Knowledge & beliefs about the intervention – The older persons' misconceptions about the TC innovation together with a limited awareness of its specific services and goals, as well as a low perceived value affected the enrolment process and implementation (31, 33, 36). Moreover, some older persons expressed privacy concerns over aspects of the innovations, such as home visits by care providers, and hence viewed it as a disruption with a little value (33, 35, 36). Similarly, mixed knowledge and beliefs surrounding the innovation (38), confusion on the innovation's direction (36), and not knowing what is expected (44, 47) by healthcare providers were reported as hindrances to the implementation. One study cited that care home staff believed that the new intervention would make them highly liable and accountable (45); whereas in another study, staff saw that a mind-shift is required or implementation is impeded (46).

Planning – Two studies indicated that following a less organized implementation plan with a low-quality and feasibility vision impeded the execution of a TC innovation (33, 39). While another four studies cited that the lack of clear initiation workflows and specific protocols (14, 47), as well as an absence of early induction and explanation of the innovation (35, 44), led to early missteps and confusion in rolling out the TC innovations (35, 47).

Factors – ***Predominantly Facilitators***

Relative advantage – Four studies reported that the benefits and usefulness offered by a TC innovation facilitated its implementation (35, 38, 44, 46). Healthcare providers stated that TC innovations with certain supportive tools, such as compiling an older person's information during transitions between settings, helped staff work more efficiently, and thereafter enhanced the implementation (44). In addition, an improved quality of information transfer and communication between community and nursing home settings offered by one TC innovation's features was perceived as advantageous by staff (46). Moreover, the implementation of a TC innovation was facilitated when managers observed incremental benefits such as improved healthcare staff practice and skills (38).

Evidence strength & quality – Proven effectiveness and solid evidence on the TC innovation's ability to ensure positive outcomes enabled its implementation (35, 39, 40). Outcomes such as low readmission rates (40) and better patient satisfaction (39) resulting from a TC innovation led to a high buy-in from the healthcare providers (40) and a convinced leadership (35), which consequently supported the implementation.

Information Technology (IT) and Health Information Technology (HIT) resources: HIT systems – The presence of supportive electronic health information systems enhanced the implementation of TC innovations by enabling better communication, shared information documentation, and patient care management across settings (18, 36, 38, 48). Notably, the incorporation in patients' electronic files of either a TC innovation-specific checklist (38)

or signaling the involvement of a TC manager in the care management (18) facilitated the adoption.

Role – Defining clear roles and responsibilities for the key TC innovation implementing team members facilitated the implementation (35). Three studies reported that key staff played a critical role in implementation, through adhering to the application of the innovation's specific activities (31, 32), providing regular support, and serving as a liaison and communication channel between different care settings and caregivers (47).

Transition roles: frontline staff – Five studies reported that the presence of frontline staff with a designated transition role facilitated the execution of a TC innovation (31, 35, 42, 44, 47). A role directly attached to the innovation, such as transition care staff (42), advanced practice nurses (31), or a clinical nurse consultant (44) was vital to implement the core components of the innovation by being in direct contact with older persons, and able to identify and manage their transition care needs.

Reflecting & evaluating – Measurement capability and data availability

Regular communication and feedback between staff on the progress of implementing TC innovations, such as sharing successful outcome measures, fostered more leadership support for continuing the implementation (38-40). Furthermore, ensuring a continuous monitoring of the innovation's effectiveness, overall performance, as well as quality and safety for patients allowed for timely adaptations in the implementation process, together with maintaining its continuity (14, 35, 38).

Factors – ***Indistinguishable Barriers/Facilitators***

Eleven factors across four domains were highly reported, however with an overall nearly equivalent influence as both impeding and facilitating the implementation of a TC innovation.

Cosmopolitanism – Although five studies reported that pre-existing partnerships, the establishment of new external networks, or sharing of practices between various healthcare organizations enabled a faster and better implementation of TC innovations (14, 40-42, 46), four studies indicated poor interorganizational relationships and unwillingness to collaborate as evident barriers (33, 40, 45, 48).

External policy & incentives – The presence of external unsupportive laws and regulations, as well as the discontinuity of national funding schemes, showed a negative influence on the implementation of TC innovations in four studies (14, 35, 40, 46). Conversely, another four studies cited that favorable extrinsic legislative changes (41, 49) or the availability of governmental sponsorship for new TC innovations were facilitators (36, 42).

Networks & communications – A challenging team formation with an absence of regular, effective, and clear communication among the members impeded the implementation, as cited in seven studies (14, 32, 34, 43, 46-48). In contrast, suggested facilitators included established interdisciplinary teams (39), strong coordination (33), or cooperative working relationships across team members (35, 36, 48).

Culture – Progressive (33), innovative (32), flexible (40), or problem-solving (35, 49) organizational norms and values with emphasis on patient-centered care (32), fostered implementing new TC innovations. In contrast, a mismatch in cultures between healthcare organizations or the presence of traditional and resistant to change values was shown to hinder the implementation (35, 43, 46, 47, 49).

Readiness for implementation (leadership engagement; access to knowledge & information) – Insufficient involvement and a limited support from existing leadership along with a lack of interest in implementing a new TC innovation affected the process negatively (32, 37, 39, 43, 47). Likewise, failing to provide the required information and initial training to staff on a new TC innovation hindered its implementation (14, 37, 44). In contrast, a high organizational commitment and sustained leadership (35, 38, 41, 49), and ensuring the access to knowledge and mentoring on the TC innovation, facilitated the implementation (35, 38, 42).

Skills, competencies, and other personal attributes – Six studies indicated that a lack of staff expertise, knowledge capacity, and skills, along with insufficient educational levels often delayed or ultimately hindered the implementation of TC innovations (14, 36, 38, 43, 45, 46). Conversely, another six studies suggested that staff with a wide experience in long-term care and possessing clinical and technical skills (31, 32, 35, 44, 47, 48), as well as high critical attributes (47) were a great source of implementation facilitation. Similarly, low motivation levels and frustration among the staff (36, 38) or patient's poor health literacy (34) and no acknowledgement of care needs (31) impeded implementation; yet a high motivation for change had a positive influence (31, 46, 49).

Engaging: key stakeholders, innovation participants, organizations and external context – The challenge to involve actively and early on the key healthcare professionals, patients, family, and external providers in addition to low levels of training and induction activities impeded the implementation of various TC innovations (14, 31, 33, 39-45). However, a continuous engagement of healthcare providers (36) and the patient (39, 44), alongside stimulating external collaborations (46), or ensuring family inclusion in care goals setting (42) fostered the implementation. Similarly, exercising team-building efforts (14, 39), gaining an early buy-in and support from key staff (32, 38, 48), and advertising the TC innovation well (35) were essential facilitators.

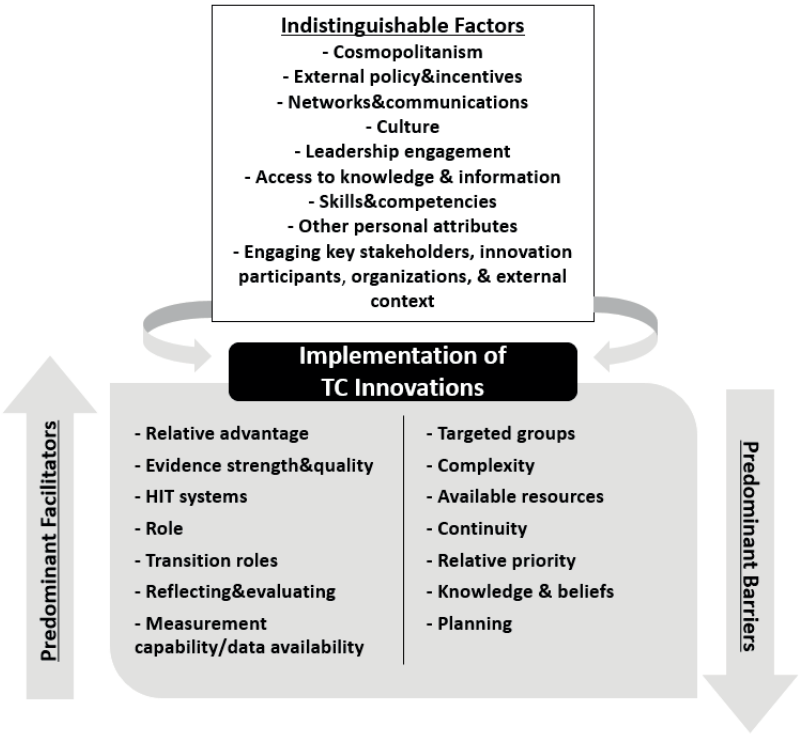


Figure 3. Overview of the factors influencing the implementation of TC innovations

PERSPECTIVES OF OLDER PERSONS, FAMILY, OR INFORMAL CAREGIVERS ON TC INNOVATIONS

Six studies reported on the overall perception of the older persons and/or their caregivers regarding the transitional care innovation being implemented. Often the feedback was not specific to the implementation aspect, but rather on the innovation's components, benefits, and satisfaction. Some components of the TC innovations, such as medication management, were perceived as a challenge for patients (37); whereas a transition role, such as a care coordinator (36), clinical nurse consultant (44), or community psychiatric nurse (46) was perceived as highly valuable and beneficial. In addition, the provision of clear information and expectations from the TC innovation was seen as highly satisfactory (44, 47). Three studies reported that older persons and their caregivers had a mixed experience with the innovation as either satisfying or devaluing, thus sometimes feeling that the components do not fit or meet their care transition needs or wishes (36, 41, 44).

DISCUSSION

Our study identified an interplay of 25 main factors that acted as barriers and facilitators during the implementation of diverse transitional care innovations. Fourteen factors presented with a predominant direction of influence. The important barriers were linked to the organization's implementation readiness and climate, targeted older populations, process planning, and users' knowledge. The significant enabling factors were the innovation's high relative advantage, transition roles of professionals, and evaluation of the implementation process. Furthermore, we could not distinguish a clear-cut direction for the influence of other key factors. By large, the current findings are in line with previous research and theories suggesting that a range of interrelated factors existing at multiple levels determine the success of the implementation of innovations (50, 51).

Our results indicate that certain factors related to the implementation process and intervention characteristics appear to be specific to transitional care innovations. Whilst the roles of middle managers (52, 53) and champions (54, 55) were indicated as facilitators to implementing general healthcare or long-term care (LTC) innovations, transition roles of frontline staff in LTC were key in facilitating the adoption and execution of TC innovations. Moreover, awareness of existing barriers in designing and tailoring TC innovations to the target population was seen as lacking across many of the studies we reviewed. This could be explained by the specific profile and care transition needs of older persons that seem to be overlooked when developing innovations. Even though the components of some TC innovations entailed the involvement of both older persons and caregivers in the development of care plans, a mismatch of needs occurred. As presented elsewhere, it is highly important to ensure patient engagement in co-designing processes or evaluations of care improvement initiatives such as TC innovations (56, 57). Moreover and in our attempt to answer the second research question, this review found only few studies that took the perspectives of transitional care recipients into account, while examining the implementation of TC innovations. The role of the older persons and thereby the consideration of their wishes and needs in the implementation process appear to be limited. Hence, the older persons and/or their informal or family caregivers' reflection on the actual implementation challenges are understudied, since the providers' perspectives are often those sought after.

Furthermore, the specific context and characteristics of LTC organizations play an integral role in implementing innovations (58-62). Correspondingly, our results indicated that the LTC organizational culture, implementation climate, readiness for implementation, implementation process, the individuals' skills and attributes, and internal communication dynamics have a major impact on the uptake of several TC innovations. This provides further evidence regarding the theory on organizational readiness for change (ORC) by Weiner (63), which explains that fostering the organization's capacity, commitment, and efficacy to

change are notable drivers in creating readiness and ultimately enhance implementation. Similarly, our results affirm the work of Attieh *et al.* (64), in which five core theoretical components of ORC were identified including the organizational dynamics, change process, innovation readiness, institutional readiness, and personal readiness. Our results indicate that lacking resources often hindered the implementation of various TC innovations, and that the organizational culture had a prominent yet mixed influence on bringing about a change. According to Weiner (63), organizational resources and culture are among the contextual factors that can affect the organizational capacity and readiness for change. This review also identified that the individuals' skills, knowledge, perceived attitudes, and designated roles were prominent factors in implementing an innovation. This is evident as per Holt's *et al.* (65) and Weiner's (63) concepts of change efficacy, which explain that individuals in an organization with a high shared collective capability and confidence to implement new tasks successfully can enhance the organizational readiness for change. In addition, our findings on the importance of implementation climate explained by the individuals' relative priority to implement a TC innovation within an organization as well as their motivation levels relate to the organizational change commitment (63, 65, 66). Lastly, the literature indicated that organizational leadership and internal communication dynamics are instrumental in generating readiness for change, as was mirrored in our results (63, 66).

FUTURE RECOMMENDATIONS

Research

Prospective studies on the degree of influence of each identified barrier and facilitator on the implementation of a TC innovation are needed. This will enable the development of tailored implementation strategies by addressing the prioritized factors. Furthermore, focusing on the older person's perspective when studying the implementation process of TC innovations is required. This will alleviate the discontinuous and problematic care transitions for the older population.

Policy and practice in transitional care

Future implementation of TC innovations can benefit from a preassessment of the key components that underpin an LTC organization's readiness for change by using established ORC measurement instruments (67). Overall, these measures can offer an initial support for LTC organizations to better prepare for implementing innovations by reducing blinded change efforts. Simultaneously, LTC organizations can leverage their readiness for implementing change by, for example, adopting the concept of innovation management as reflected in A.T. Kearney's House of Innovation (68). This framework invites organizations to start with an innovation strategy and build an innovative and open culture. In addition, organizations must manage the innovation's process in an integrated and continuous manner from idea conception to implementation, as a way to avoid inefficiencies and ensure timely positive outcomes. Bates *et al.* (58) emphasized the power to create successful innovative healthcare

environments by making innovation a strategic priority. Henceforth, we recommend LTC organizations bolster their innovation readiness and management, whereby they encourage among professionals an incessant mind-set of "change is the norm." Nevertheless, this readiness should be fostered across the continuum of care spanning multiple LTC settings, given the nature of TC. In addition, transition roles or implementation support practitioners (69) should be instituted to better operationalize innovations in TC.

STRENGTHS AND LIMITATIONS

We consider the combined use of CFIR and CTF a methodological asset for conducting this review, especially in the process of data extraction and mapping of factors. The CFIR provided an intricate yet systematic way to understand the interconnectedness of the numerous factors. The inclusion of constructs from the CTF was found vital in detecting factors specific to care transitions. On the other hand, we acknowledge that different or additional factors could have been found had we chosen to use another framework.

This review has some limitations. First, it is subject to publication bias, since we only included articles published in peer-reviewed journals and excluded grey literature, pre-registries, and policy documents. Second, even though we used an extensive search strategy to identify relevant studies on implementing TC innovations, we might have missed some potentially relevant papers, as the aim of innovations in LTC is not always clearly described. Third, not all records were screened by two persons; only a random selection of 10% of the initial total records was screened by a second reviewer for titles and abstracts. Though agreement seemed satisfactory, we cannot fully rule out that some relevant sources could have been missed. Fourth, we did not perform critical appraisal for the included studies, even though it is not mandatory in scoping reviews' methodology, it could have added to the interpretability of the findings.

CONCLUSIONS

A diversity of factors impact the implementation of TC innovations; these include the innovation's complexity, relative advantage and evidence strength, organizational readiness for implementation, individuals' knowledge and beliefs, and the implementation process planning and evaluation. To ensure implementation potential, TC innovations need to address the right older target population; and transition roles for staff should be developed as key steps. LTC organizations can benefit from collaborating and leveraging concurrently their readiness for change along with adopting innovation management in order to succeed in implementing TC innovations. Furthermore, minimizing the confusion around how implementing innovation works, holds the potential to improve care transitions for older persons.

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APPENDICES

Appendix 2A. Search strategy for electronic databases

Appendix 2B. Consolidated Framework for Implementation Research & Care Transitions Framework constructs description. This file provides the description and definitions of the CFIR constructs and the constructs selected and used from the CTF.

Appendix 2A. Search strategy for electronic databases

PubMed/MEDLINE

Concept 1: Implementation

MeSH terms	Keywords
Implementation Science[MeSH]	implement*[tiab] OR adopt*[tiab] OR integrat*[tiab] OR disseminat*[tiab] OR promot*[tiab]

Concept 2: Innovation

MeSH terms	Keywords
Diffusion of Innovation[MeSH] OR Organizational Innovation[MeSH] OR Inventions[MeSH] OR Change Management[MeSH]	program*[tiab] OR model*[tiab] OR intervention*[tiab] OR system*[tiab] OR practice*[tiab] OR tool*[tiab] OR approach*[tiab] OR pathway*[tiab] OR change*[tiab] OR innovat*[tiab] OR invention*[tiab]

Concept 3: Care Transition

MeSH terms	Keywords
Patient Transfer[MeSH] OR Transitional Care[MeSH] OR Patient Handoff[MeSH]	care transition*[tiab] OR "transition of care"[tiab] OR "transitions of care"[tiab] OR care transfer*[tiab] OR "transfer of care"[tiab] OR patient transition*[tiab] OR patient transfer*[tiab] OR "transfer of patient"[tiab] OR patient relocat*[tiab] OR patient handover[tiab] OR patient hand-over[tiab] OR patient handoff*[tiab]

Concept 4: Older Persons

MeSH terms	Keywords
Aged[MeSH] OR Geriatrics[MeSH] OR Frail Elderly[MeSH]	older*[tiab] OR elder*[tiab] OR frail*[tiab] OR geriatri*[tiab] OR old age*[tiab] OR oldest old*[tiab] OR senior*[tiab] OR very old*[tiab] OR older people[tiab] OR older patient*[tiab] OR older age*[tiab] OR older adult*[tiab] OR older population*[tiab] OR older person*[tiab] OR geriatric*[tiab]

EMBASE

Concept 1: Implementation

Subject Headings	Keywords
----	(implement* OR promot* OR adopt* OR integrat* OR disseminat*).ti,ab,kw.

Concept 2: Innovation

Subject Headings	Keywords
exp Organization/ OR	(program* OR model* OR intervention* OR system* OR practice* OR tool* OR approach* OR pathway* OR change* OR innovat* OR invention*). ti,ab,kw.

Concept 3: Care transition

Subject Headings	Keywords
----	(care transition* OR "transition of care" OR "transitions of care" OR care transfer* OR "transfer of care" OR patient transition* OR patient transfer* OR "transfer of patient" OR patient relocat* OR patient handover OR patient hand-over OR patient handoff*).ti,ab,kw.

Concept 4: Older persons

Subject Headings	Keywords
exp Aged/ OR	(older* OR elder* OR frail* OR geriatri* OR old age* OR oldest old* OR senior* OR very old* OR older people OR older patient* OR older age* OR older adult* OR older population* OR older person* OR geriatric*).ti,ab,kw.

CINAHL

Concept 1: Implementation

Subject Headings	Keywords
(MH "Implementation Science")	TI implement* OR TI promot* OR TI adopt* OR TI integrat* OR TI disseminat* OR AB implement* OR AB promot* OR AB adopt* OR AB integrat* AB disseminat*

Concept 2: Innovation

Subject Headings	Keywords
(MH "Diffusion of Innovation+")	TI innovat* OR TI change* OR TI invention* OR TI model* OR TI program* OR TI intervention* OR TI system* OR TI practice* OR TI tool* OR TI approach* OR TI pathway* OR AB innovat* OR AB change* OR AB invention* OR AB model* OR AB program* OR AB intervention* OR AB system* OR AB practice* OR AB tool* OR AB approach* OR AB pathway*

Concept 3: Care Transition

Subject Headings	Keywords
(MH "Transitional Care")	TI "care transition*" OR TI "transition of care" OR TI "transitions of care" OR TI "care transfer*" OR TI "transfer of care" OR TI "patient transition*" OR TI "patient transfer*" OR TI "transfer of patient" OR TI "patient relocat*" OR TI "patient handover" OR TI "patient hand-over" OR TI "patient handoff*" OR AB "care transition*" OR AB "transition of care" OR AB "transitions of care" OR AB "care transfer*" OR AB "transfer of care" OR AB "patient transition*" OR AB "patient transfer*" OR AB "transfer of patient" OR AB "patient relocat*" OR AB "patient handover" OR AB "patient hand-over" OR AB "patient handoff*"

Concept 4: Older persons

Subject Headings	Keywords
(MH "Aged+")	TI elder* OR TI older* OR TI frail* OR TI geriatri* OR TI old age* OR TI oldest old* OR TI senior* OR TI very old* OR TI older people OR TI older patient* OR TI older age* OR TI older adult* OR TI older population* OR TI older person* OR TI geriatric* OR AB elder* OR AB older* OR AB frail* OR AB geriatri* OR AB old age* OR AB oldest old* OR AB senior* OR AB very old* OR AB older people OR AB older patient* OR AB older age* OR AB older adult* OR AB older population* OR AB older person* OR AB geriatric*

Appendix 2B. Consolidated Framework for Implementation Research & Care Transitions Framework constructs description. This file provides the description and definitions of the CFIR constructs and the constructs selected and used from the CTF.

CFIR constructs / CTF selected constructs		Short Description
I. Domain: INTERVENTION CHARACTERISTICS		
A	**Intervention Source**	Perception of key stakeholders about whether the intervention is externally or internally developed.
B	**Evidence Strength & Quality**	Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes.
C	**Relative Advantage**	Stakeholders' perception of the advantage of implementing the intervention versus an alternative solution.
D	**Adaptability**	The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs.
E	**Trialability**	The ability to test the intervention on a small scale in the organization, and to be able to reverse course (undo implementation) if warranted.
F	**Complexity**	Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement.
G	**Design Quality & Packaging**	Perceived excellence in how the intervention is bundled, presented, and assembled.
H	**Cost**	Costs of the intervention and costs associated with implementing the intervention including investment, supply, and opportunity costs.
CTF	**Vision & Change Strategy**	The proposed changes envisioned by the intervention and the theory of change: how the intervention is supposed to work, what it is meant to achieve or do. May be explicated in logic models, goals, outcomes, performance measures.
CTF	**Targeted Groups**	Staff and others (vendors, patients) who are the intended recipients or beneficiaries of the intervention.
CTF	**Feasibility**	Target group and other stakeholders' perceptions of the extent to which the intervention can be successfully used or carried out within the organization(s).
CTF	**Compatibility**	Target group and stakeholder perception of the alignment of the meaning, values, and norms attached to care transitions with those held by members of the organization(s).
CTF	**Radicaliness**	Target group and other stakeholder perceptions of the degree of difference between the change envisioned and the current state of care transitions
CTF	**User Control**	The degree to which the intervention relies on the end-users' authority/skill to implement the intervention on their own vs. reliance on experts.
CTF	**Location of intervention activity**	Components of the intervention conducted outside the hospital/clinic/office setting using external service providers and organizations.
CTF	**Workflows**	Tasks and workflows, including interdependencies between them that are the focus of the intervention or will be affected by it.
CTF	**Task/Process standardization**	Degree to which the intervention seeks to standardize tasks and processes that require iterative consultation.
CTF	**History**	Experiences with similar interventions within the organizations or within the target groups.
II. Domain: OUTER SETTING		
A	**Patient Needs & Resources**	The extent to which patient needs, as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization.
B	**Cosmopolitanism**	The degree to which an organization is networked with other external organizations.
C	**Peer Pressure**	Mimetic or competitive pressure to implement an intervention; typically because most or other key peer or competing organizations have already implemented or are in a bid for a competitive edge.
D	**External Policy & Incentives**	A broad construct that includes external strategies to spread interventions, including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.

Appendix 2B. Continued

CFIR constructs / CTF selected constructs		Short Description
CTF	**Technological Environment**	The technological trends and movements and the availability of technological innovations that may affect the intervention and its context.
CTF	**Population Needs and Resources**	Prevalence of conditions and disease in the population served and the characteristics of the community that are determinants of health status.
CTF	**Community Resources**	Availability and access of service providers, aging resources, and multiple levels of community services and supports not directly involved in the intervention.
III. Domain: INNER SETTING		
A	**Structural Characteristics**	The social architecture, age, maturity, and size of an organization.
B	**Networks & Communications**	The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization.
C	**Culture**	Norms, values, and basic assumptions of a given organization.
D	**Implementation Climate:**	The absorptive capacity for change, shared receptivity of involved individuals to an intervention, and the extent to which use of that intervention will be rewarded, supported, and expected within their organization.
D.1	***Tension for Change***	The degree to which stakeholders perceive the current situation as intolerable or needing change.
D.2	***Compatibility***	The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems.
D.3	***Relative Priority***	Individuals' shared perception of the importance of the implementation within the organization.
D.4	***Organizational Incentives & Rewards***	Extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary, and less tangible incentives such as increased stature or respect.
D.5	***Goals and Feedback***	The degree to which goals are clearly communicated, acted upon, and fed back to staff, and alignment of that feedback with goals.
D.6	***Learning Climate***	A climate in which: a) leaders express their own fallibility and need for team members' assistance and input; b) team members feel that they are essential, valued, and knowledgeable partners in the change process; c) individuals feel psychologically safe to try new methods; and d) there is sufficient time and space for reflective thinking and evaluation.
CTF	***Mandate***	Whether compliance with the intervention is expected within the organization.
CTF	***Accountability***	Whether entities are subject to tangible consequences for noncompliance.
E	**Readiness for Implementation:**	Tangible and immediate indicators of organizational commitment to its decision to implement an intervention.
E.1	***Leadership Engagement***	Commitment, involvement, and accountability of leaders and managers with the implementation.
E.2	***Available Resources***	The level of resources dedicated for implementation and on-going operations, including money, training, education, physical space, and time.
E.3	***Access to Knowledge & Information***	Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks.
CTF	***Staff Commitment***	The degree of clinician, transitional, and community care staff, patient, and caregiver involvement in transition planning
CTF	**IT and HIT Resources:**	Technological infrastructure in place to support electronic information management, including IT that crosses organizations.
CTF	***HIT Systems***	Electronic information management infrastructure and technologies available to clinicians to manage patient care, data, and communications.
CTF	***IT Systems***	Technological systems and capabilities to support care transitions.
CTF	***HIT/IT Accessibility***	Includes features of the physical, technical, and social environment in the organization that determine the use, accessibility, and acceptability of technology in patient care.

Appendix 2B. Continued

CFIR constructs / CTF selected constructs		Short Description
CTF	**Other Resources**	Resources for implementation and ongoing operations to support change and innovation, including grant or other funding specific to care transitions.
CTF	**Patient Self-management Infrastructure**	Training, counseling, and education available to patients prior to the intervention within the hospital and ambulatory setting.
CTF	**Continuity**	Information continuity (exchange of information) and relationship continuity, both with providers and patients/caregivers and across organizations.
CTF	**Patient/caregiver-centeredness**	Extent to which the organization(s) knows and prioritizes patient and caregiver goals, needs, and preferences, and has the resources and services to meet them
IV. Domain: CHARACTERISTICS OF INDIVIDUALS		
A	**Knowledge & Beliefs about the Intervention**	Individuals' attitudes toward and value placed on the intervention as well as familiarity with facts, truths, and principles related to the intervention.
B	**Self-efficacy**	Individual belief in their own capabilities to execute courses of action to achieve implementation goals.
C	**Individual Stage of Change**	Characterization of the phase an individual is in, as he or she progresses toward skilled, enthusiastic, and sustained use of the intervention.
D	**Individual Identification with Organization**	A broad construct related to how individuals perceive the organization, and their relationship and degree of commitment with that organization.
E	**Other Personal Attributes**	A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.
CTF	**Collective Efficacy**	Conviction of individuals and teams involved that the intervention can be carried out in cooperation with each other.
CTF	**Skills and Competencies**	Degree of relevant subject matter expertise, skills, and competencies within the implementing team, unit, and organization.
CTF	**Role**	Individual's role and responsibility for the intervention. The degree of multiple or shared roles.
CTF	**Authority**	Individual provider's perceived and actual degree of authority to make decisions and act autonomously.
CTF	**Socioeconomic Demographics**	Characteristics related to the individual's socioeconomic status.
CTF	**Patient Needs and Resources**	Patient priorities for health and health care priorities and the social and economic capital to address those priorities.
CTF	**Caregiver Needs and Resources**	Caregiver priorities for health and health care, and the social and economic capital to address those priorities.
V. Domain: PROCESS		
A	**Planning:**	The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance, and the quality of those schemes or methods.
CTF	***Assessing***	Formal assessment of care transitions issues; the needs of the users; barriers to change; the timing of these activities relative to implementation.
CTF	***Contingency Planning***	Plans for adaptation in response to various scenarios and outcomes.
CTF	**Acquiring and Allocating Resources**	Resources dedicated to implementing the intervention; the adequacy of those allocations.
CTF	**Process Ownership**	The diversity of transition roles involved in processes of implementation; authority and accountability for these activities.
CTF	**Transition Roles:**	Roles of individuals involved in the decision to adopt, execute, and facilitate the intervention.
CTF	***Organizational Leaders***	Managers and others with the authority to dedicate resources and make decisions to adopt, maintain, or abandon the implementation.
CTF	***Frontline Staff***	Administrative staff, providers (within and outside the organization) who will carry out the intervention or be affected by it.

Appendix 2B. Continued

CFIR constructs / CTF selected constructs		Short Description
CTF	***Integrators***	Individuals who build relationships between organizations and create linkages to facilitate the intervention.
CTF	***Patients, Caregivers, and Other Stakeholders***	Patient and his/her family members, and members of the family's support network.
B	**Engaging:**	Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities.
B.1	***Opinion Leaders***	Individuals in an organization who have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the intervention.
B.2	***Formally Appointed Internal Implementation Leaders***	Individuals from within the organization who have been formally appointed with responsibility for implementing an intervention as coordinator, project manager, team leader, or other similar role.
B.3	***Champions***	"Individuals who dedicate themselves to supporting, marketing, and 'driving through' an [implementation]", overcoming indifference or resistance that the intervention may provoke in an organization.
B.4	***External Change Agents***	Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desirable direction.
B.5	***Key Stakeholders****	Individuals from within the organization that are directly impacted by the innovation, e.g., staff responsible for making referrals to a new program or using a new work process.
B.6	***Innovation Participants****	Individuals served by the organization that participate in the innovation, e.g., patients in a prevention program in a hospital.
CTF	***Engaging Organizations, External Context***	Developing and capitalizing on relationships with providers, leaders, and frontline staff in the implementing organizations, and to external providers, resources, funders.
C	**Executing:**	Carrying out or accomplishing the implementation according to plan.
CTF	***Decision-making***	Frequency, duration, and timing of the activities involved in making decisions. The directionality of these activities.
CTF	***Staging and Iteration***	Degree to which the care transition is carried out in iterative, incremental steps or implemented in its entirety within a specified period.
D	**Reflecting & Evaluating:**	Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.
CTF	***Measurement Capability and Data Availability***	Availability of timely data. Capacity for monitoring, evaluation, and process improvement. Includes measurement differences; accountability for collection, documentation, and analysis.

*Two additional constructs (engaging: key stakeholders, innovation participants) under engaging in the process domain were added as per CFIR research group (https://cfirguide.org/).

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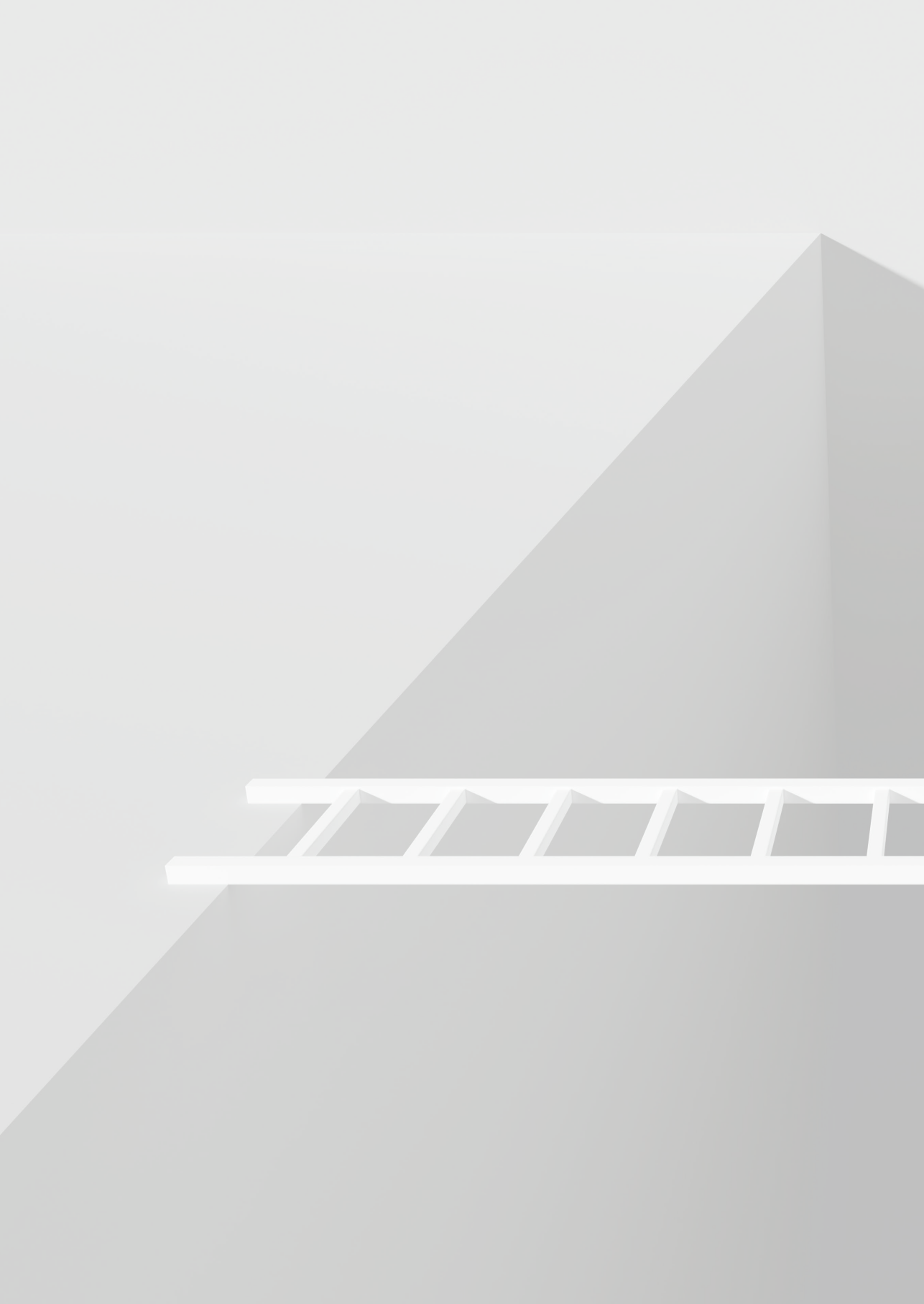

CHAPTER 3

Fostering the Implementation of Transitional Care Innovations for Older Persons: Prioritizing the Influencing Key Factors Using a Modified Delphi Technique

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ABSTRACT

BACKGROUND

Transitions in care for older persons requiring long-term care are common and often problematic. Therefore, the implementation of transitional care innovations (TCIs) aims to improve necessary or avert avoidable care transitions. Various factors were recognized as influencers to the implementation of TCIs. This study aims to gain consensus on the relative importance level and the feasibility of addressing these factors with implementation strategies from the perspectives of experts. This work is within TRANS-SENIOR, an innovative research network focusing on care transitions.

METHODS

A modified Delphi study was conducted with international scientific and practice-based experts, recruited using purposive and snowballing methods, from multiple disciplinary backgrounds, including implementation science, transitional care, long-term care, and healthcare innovations. This study was built on the findings of a previously conducted scoping review, whereby 25 factors (barriers, facilitators) influencing the implementation of TCIs were selected for the first Delphi round. Two sequential rounds of anonymous online surveys using an *a priori* consensus level of >70% and a final expert consultation session were performed to determine the implementation factors': i) direction of influence, ii) importance, and iii) feasibility to address with implementation strategies. The survey design was guided by the Consolidated Framework for Implementation Research (CFIR). Data were collected using Qualtrics software and analyzed with descriptive statistics and thematic analysis.

RESULTS

Twenty-nine experts from 10 countries participated in the study. Eleven factors were ranked as of the highest importance among those that reached consensus. Notably, organizational and process-related factors, including engagement of leadership and key stakeholders, availability of resources, sense of urgency, and relative priority, showed to be imperative for the implementation of TCIs. Nineteen factors reached consensus for feasibility of addressing them with implementation strategies; however, the majority were rated as difficult to address. Experts indicated that it was hard to rate the direction of influence for all factors.

CONCLUSIONS

Priority factors influencing the implementation of TCIs were mostly at the organizational and process levels. The feasibility to address these factors remains difficult. Alternative strategies considering the interaction between the organizational context and the outer setting holds a potential for enhancing the implementation of TCIs.

KEYWORDS
Implementation, innovation, transitional care, Delphi technique, leadership, engagement, older persons, factors, strategies.

BACKGROUND

Transitions in care are common among older persons and entail the movement between different settings and healthcare providers (1, 2). Research shows that older persons have at least one transition towards their end of life, and one in five experience an adverse event in common transition from hospital to home (1, 3). Transitional care innovations (TCIs) are emerging evidence-based interventions (EBIs) designed to enhance the continuity and coordination of care for older persons when transferring between multiple care settings (4-6). Numerous TCIs demonstrated promising evidence for their effectiveness, such as in relation to reducing hospital readmissions, shortening hospital stay, preventing unnecessary admission to a nursing facility, averting hospitalization during an emergency department visit, or improving quality of life (2, 6-10).

While the positive outcomes of TCIs are encouraging, the successful translation of these innovations from trials into "real-world settings" is a main challenge (4, 11). The implementation of TCIs in practice remains slow and ambiguous with a lack of rigorous evidence on how to best achieve translation (11). The key components of most TCIs cross the care continuum and involve multiple care settings, which render them intricate and multifaceted (6, 12). Therefore, integrating TCIs into an existing healthcare system with specific regulations, reimbursement, and funding mechanisms is a starting point of an onerous roadmap to their implementation (11, 13). Moreover, TCIs normally involve two or more care settings or organizations that can be at different levels of readiness for implementing new interventions. Hence, misalignment of the different organizations' readiness for change, which encompasses factors such as staff commitment, receptive context for innovation, priority setting, change agents, or dedicated resources, is a basic difficulty in implementation of TCIs (4, 13). Correspondingly, while the older persons remain the core and common element across various TCIs, the heterogeneity of their care needs prevails. For instance, transitions in care for older persons with dementia (14) differ from those who suffer from the consequences of a stroke (15), which in turn, adds to the complexity of implementing TCIs.

Understanding these challenges and the various interacting constituents of TCIs illuminates the realm of implementing such complex healthcare interventions (16). Consequently, several research efforts identified factors (barriers, facilitators) influencing the implementation of TCIs in order to better inform implementers and enhance the process (6, 13, 17). Failure to target the right older population, discontinuous information exchange among care providers, and a lack of organizational resources with low priority given to innovation were among the prominent factors reported to hinder the implementation of TCIs (6). In contrast, predominant facilitators included a demonstrated advantage of the TCIs for the stakeholders, the presence of frontline staff with a care transition role, as well as a continuous evaluation and monitoring process (6). However, other factors such as leadership engagement and

external policies and incentives were highly reported in the literature, but with a mixed (occasionally enabling/occasionally hindering) influence (6).

Although an awareness of these common factors helps to overcome the challenges of implementing TCIs, this compilation results in multiple and diverse factors, which are highly variable across multiple contexts. Moreover, there is a lack of prioritization based on the importance of the influencing factors, and there is a dearth in evidence on the feasibility of addressing the barriers and leveraging the facilitators with implementation strategies.

This study builds from a scoping review by the research team that identified 25 prominent factors influencing the implementation of TCIs (6). The study aims to achieve expert consensus on the i) direction of influence (hindering, facilitating) of the known factors relevant to the implementation of TCIs that were predetermined from the literature, ii) the relative degree of importance for each factor in the implementation of TCIs, and iii) the feasibility of addressing each factor with implementation strategies for TCIs.

The overall objective is to derive a prioritized list by degree of importance and feasibility of the factors influencing the implementation of TCIs.

METHODS

All methods used to carry out this study are in accordance with relevant published guidelines and regulations for the Delphi technique, and this report of the study followed the guidelines for reporting Delphi studies (18-21).

ETHICAL APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval was granted by the Maastricht University Faculty of Health, Medicine, & Life Sciences Ethics Committee (approval no. FHML-REC/2020/088). Informed consent was obtained from all participants prior to the study and by including a consent statement in each survey round as the initial question, whereby participants needed to agree in order to progress.

MODIFIED DELPHI STUDY APPROACH

A three-step modified Delphi study was conducted with a panel of international experts in the fields of implementation of innovations, transitional care, and long-term care (LTC) between July 2020 and March 2021. The method consisted of two sequential rounds of an online survey and a final group discussion session performed through an online video-conferencing platform.

In this study, the Delphi technique was used as a practical and iterative method to obtain broad perspectives of an experienced mix of experts (in this case, from different countries and, therefore, long-term healthcare system backgrounds) and to achieve consensus in an area where there is not enough evidence (19, 22, 23). Specifically, a modified Delphi method was chosen. This approach differs from the classical one, because first the content for round one was based on pre-determined items derived from data collected from other resources prior to the Delphi study (in this case, a scoping review) and hence utilized close-ended questions (22-25). Second, the final round was held as a face-to-face group discussion session with the experts (22, 26-29). A rating approach was used, whereby a panel of experts anonymously took part in surveys in different rounds. The findings and feedback of round one led the development of round two, and the final expert consultation session was based on input from the previous two rounds (22).

PARTICIPANTS

The expert profile was defined as individuals with extensive research and/or real-life experience in development, implementation, and evaluation of transitional care innovations (programs, models, and interventions) in LTC settings; healthcare innovations; LTC; or implementation science. Purposive and snowball sampling methods were used to recruit experts internationally.

An initial list of potential experts was developed based on professional contacts of the research team, authors of 21 published studies on the implementation of TCIs (from a previously published scoping review; Fakha et al. 2021) (6), and established contacts from the 3rd UK Implementation Science Conference – July 2020. We aimed for a minimum of 20 participants, as generally recommended (30). Initially, 62 experts were purposively contacted, and an additional three potential experts were contacted as a result of the snowball technique. All experts were invited to participate in the study by sending them individual recruitment emails along with an invitation letter describing the overall study background, aims, and methodology.

DATA COLLECTION

Survey design and development

Qualtrics software, an online survey tool, was used to develop and conduct the survey. This entailed sending the different questionnaires of each round to the participants. A total of 25 factors identified from the results of a previously published scoping review study conducted by the research team (6) were used to develop the survey content. Three of these factors were split into two subparts for description clarity, and a final list of 28 factors was thus used in round one (see Table 1). The factors were grouped into the five domains of the Consolidated Framework for Implementation Research (CFIR): *intervention characteristics, outer setting, inner setting, characteristics of individuals, and process* (31). The survey consisted of three sections and explored the following for each of the 28 factors: *i) direction*

of influence as hindering or facilitating to the implementation of TCIs; ii) importance of influence to the implementation of TCIs; and iii) feasibility (easiness/difficulty) of addressing the factor with implementation strategies for TCIs (see Appendix 3A for survey round 1). The survey was piloted among the research team and amended accordingly.

Table 1. Predetermined factors (n=28) for Delphi round one grouped into CFIR domains

CFIR Domain	Factors
Intervention (TCIs) Characteristics	• **Targeted groups*** (older persons as recipients of the TCIs) • **Complexity** (perceived difficulty of TCIs' implementation) • **Relative advantage** (perceived advantage and usefulness of the TCIs by stakeholders) • **Evidence strength and quality** (evidence for TCIs' effects on older persons' outcomes)
Outer Setting	• **Cosmopolitanism** (degree to which an organization is networked with other external organizations) • **External policy** (e.g., mandates and regulations supporting the implementation of TCIs) • **External incentives** (e.g., national funding schemes or sponsorship supporting the implementation of TCIs)
Inner Setting†	• **Networks and communications** (communications within an organization, e.g., interdisciplinary teams) • **Culture** (organizational norms, values) • **Relative priority** (healthcare professionals'/staff's perception of the importance of the implementation of TCIs) • **Leadership engagement** (commitment and involvement of leaders with the implementation of TCIs) • **Available resources** (resources dedicated to the implementation of TCIs) • **Access to knowledge and information** on the TCIs • **Information continuity*** (exchange of medical data on the older person among caregivers and across organizations) • **Health information technology (HIT) systems*** (e.g., electronic medical records to manage care)
Characteristics of Individuals	• **Knowledge and beliefs of healthcare professionals** about the TCIs • **Knowledge and beliefs of older persons** about the TCIs • **Role*** of healthcare professionals/staff in implementing the TCIs • **Skills and competencies*** of healthcare professionals/staff involved in implementation of TCIs • **Other personal attributes of healthcare professionals** (values, motivation) • **Other personal attributes of older persons** (values, health literacy)
Process	• **Planning** for the implementation of TCIs in advance • **Transition roles of frontline staff*** (e.g., transition nurses who will implement the TCIs) • **Reflecting and evaluating** the feedback and progress in the implementation of TCIs • **Measurement capability/data availability*** (capacity for the implementation process monitoring, evaluation, and improvement) • **Engaging key stakeholders** (individuals within the organization directly impacted by the TCIs) • **Engaging organizations, external context*** (collaborations among various organizations and care providers involved in the implementation of TCIs) • **Engaging innovation participants** (older persons, family, and informal caregivers who participate in the implementation of TCIs)

*These factors are constructs from the Care Transitions Framework (CTF), which were added within the CFIR relative domains for the purpose of this study, check scoping review by Fakha et al. 2021 (6) for further details; †Inner setting is also referred to as the organizational context.

Round one – Personal links to the survey were sent in individual emails to the participants. A consent statement was the initial question, and participants needed to agree in order to progress. Participants were asked to rate each factor on a five-point Likert scale, either

in ascending order or from negative to positive (18). Ratings used per section were as follows: For direction of influence: *1) strongly hindering, 2) hindering, 3) neither hindering nor facilitating, 4) facilitating, 5) strongly facilitating*. For importance of influence: *1) not important, 2) slightly important, 3) moderately important, 4) very important, 5) extremely important*. For feasibility: *1) very difficult, 2) difficult, 3) neither difficult nor easy, 4) easy, 5) very easy*. Moreover, participants were requested to provide additional comments in free-text boxes provided per each section, as well as overall suggestions for additional factors relevant to the implementation of TCIs. The survey required approximately 20 minutes to complete. Instructions were sent to participants on how to complete the survey, and they were given two weeks to respond. A reminder was sent to participants who did not complete the survey within the two-week period.

Round two - Survey round two was conducted online and in a manner similar to that for round one. Only participants who completed round one of the survey were invited to round two. This survey included factors that did not reach consensus from round one and additional factors that were suggested by participants, an established approach using the Delphi technique (22, 23). The definitions of a few factors were revised based on comments of participants in round one (see Appendix 3B for survey round 2). Participants were asked to again rate the factors using the same method as round one, but with knowledge of their individual ratings and the group ratings for each factor from the first round. In addition, a summary report on the results of round one was provided to all participants prior to the second round.

Final round: expert consultation session

The final round was comprised of two online video call meetings lasting two hours each, and performed in the same manner and using the same content, through a data-protected, web-based conferencing platform. All participants of round two were invited to join and were assigned to either of the two meetings according to their availability. In order to limit bias, AF and BdB facilitated both sessions, and TvA was an observant who also intervened when necessary to ensure participation from all experts. The sessions' discussions were recorded and later transcribed. The goal of these sessions was to allow interaction between the experts and provide further clarifications on the overall results from previous rounds. The specific aim, determined by the earlier results, was to *i) narrow down the important factors to the "must have" factors, ii) obtain further insights on the feasibility of addressing the important factors, and iii) receive suggestions for potentially relevant implementation strategies*. Initially, the results of rounds one and two were presented, and then participants were asked for their overall reflections. Afterwards, two open and predetermined questions were used to guide the discussion in order to allow for further deliberations, as follows:

a) *What are your views on the top factors? And if you were to choose 5 "must-have" factors, what would they be?*
b) *Please can you explain why the majority of factors that reached consensus on*

feasibility (including top important ones) were rated as difficult to address when developing implementation strategies? Any advice on how to approach this? Which strategies would you suggest to tackle each factor?

DATA ANALYSIS

Responses were analyzed after the completion of each survey round, and rating scores were calculated as percentages using SPSS Statistics 25 software. Consensus was determined as reached if over 70% of the respondents rated the *i) direction of influence of each factor as either 'strongly hindering'/'hindering' (combined score), 'strongly facilitating'/'facilitating' (combined score), or neither*. Similarly, consensus on the *ii) importance of factors was reached if either combined scores for 'extremely important'/'very important' or combined scores for 'moderately important'/'slightly important' or 'not important' were over 70%*, and for *iii) feasibility 'very easy'/'easy', 'very difficult'/'difficult', or 'neither'*. This level of agreement was used and considered appropriate in previous Delphi studies (23, 24, 32-34). Free-text comments from rounds one and two were analyzed thematically and discussed among the research team to identify any additional factors or to rephrase and clarify the definitions.

Thematic analysis: final expert consultation session

The transcripts of the two final meetings were compiled together and analyzed thematically by three researchers (AF, BdB, TvA) following the six-step method described by Braun and Clarke (2006) (35, 36). An inductive form of thematic analysis was performed, and the codes created were data-driven. Following data coding, themes were developed and then reviewed iteratively. A thematic map was developed, and a clear delineation of the final themes was discussed and agreed upon by the research team.

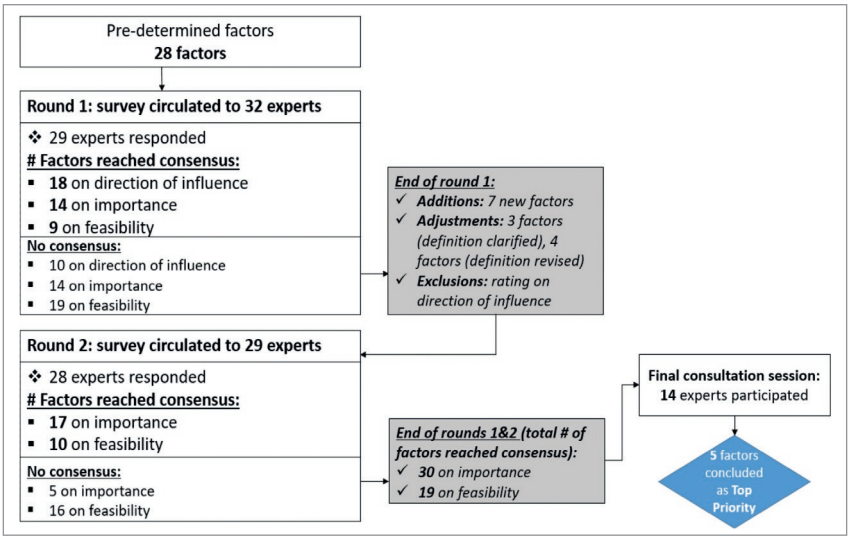
RESULTS

The overall study design, number of participants, and results per round are summarized in Figure 1.

ROUND ONE

Initially, 32 experts agreed to participate in the study (round one), out of which 29 responded to the first survey (45% response rate, based on initial number of invited participants). Table 2 presents the participant demographics and professional backgrounds. More than half of the participants had at least 10 years of experience. The majority had a current role in research, mainly in implementation science and transitional care.

Figure 1. Flow of rounds, participants, and factors through the modified Delphi study*



*Final number of factors that reached consensus is a cumulative build up between the consecutive rounds.

Table 2. Participant demographics (n=29)

	Frequency
Country	
Australia	1
Belgium	1
Canada	2
Germany	1
Netherlands	11
Singapore	1
Sweden	1
Switzerland	1
UK	5
USA	5
Education level	
Master's	4
PhD	25
Current role	
Academia/research	26
Practice	5
Both	2
Area of expertise*	
Transitional care	12
Long-term care	11
Healthcare innovations	10
Implementation science	14
Years of experience	
3 to 5 years	2
5 to 10 years	10
10 years and above	17

*Some participants are experts in more than one area.

Eighteen factors out of 28 reached consensus on the direction of influence; however, only one factor (complexity) was generally seen as a barrier, while 17 were seen as facilitators (see Appendix 3C). Fourteen factors reached consensus on importance (see Table 3), with all but one factor, rated as very/extremely important in influencing the implementation of TCIs. Engaging key stakeholders ranked as the most important influencing factor. Nine factors reached consensus on feasibility, with only one factor (planning) rated as easy/very easy to address with implementation strategies (see Table 4). The organization's culture surpassed the other factors as most difficult.

Thematic analysis of the free-text comments in the first round indicated that the direction of influence for the factors was very difficult to assess. The participants mentioned that factors can behave differently according to the specific context where TCIs are implemented. Therefore, it was hard to judge the ultimate influence of each factor. *"Factors that hinder can paradoxically also be factors that facilitate and vice versa" (Expert 8, round 1). "Whether these factors are hindering or facilitating depends highly on the specific nature of this factor in the organization, so culture can be facilitating if there is an innovative culture, but hindering if there is a conservative culture without openness to innovation" (Expert 7, round 1).*

Moreover, the experts identified an additional seven factors to explore for consensus in the consecutive round. These factors were recognized across the five CFIR domains and included power of decision-makers, sense of urgency, adoption of change in work processes, financing of TCIs' implementation, inter-organizational collaborations, previous experiences with implementation of innovations, and co-design of the TCIs (see Appendix 3B for survey round 2). According to the experts' comments, the definitions of some factors were revised.

ROUND TWO

Twenty-eight of the 29 participants, who completed round one, completed this round (97% response rate). In this round, rating the factors' direction of influence was omitted. The consensus results from round one were skewed mostly to one direction (facilitating) and hence were ruled as of low relevance and non-conclusive by the research team.

A further nine factors reached consensus as very/extremely important and one as slightly/moderately. Additionally, six out of the seven newly added factors reached consensus as very/extremely important to the implementation of TCIs, with financing of TCIs' implementation ranked as highest (see Table 3). Ten additional factors achieved consensus on feasibility in this round, with leadership engagement as the most difficult and transition roles as a neutral factor (see Table 4). A further two of the seven new factors (financing of TCIs' implementation, adoption of change in work processes) reached consensus as difficult/very difficult.

Table 3. Factors that reached consensus on importance of influence on the implementation of TCIs, in order of ranking

Factor	Rating: Very/Extremely Important (Consensus level in %)	CFIR Domain
Round one		
Engaging key stakeholders	97	Process
Leadership engagement	93	Inner setting
Available resources	93	Inner setting
Relative priority	86	Inner setting
Relative advantage	79	Intervention characteristics
External incentives	79	Outer setting
Transition roles – frontline staff	76	Process
Skills and competencies	72	Characteristics of individuals
Role	72	Characteristics of individuals
Planning	72	Process
Knowledge and beliefs of healthcare professionals about the TCIs	72	Characteristics of individuals
Culture	72	Inner setting
Complexity	72	Intervention characteristics
	Rating: Slightly/Moderately Important (Consensus level in %)	
Other personal attributes of older persons	72	Characteristics of individuals
Round two		
	Rating: Very/Extremely Important (Consensus level in %)	
Leadership engagement*	100	Inner setting
Information continuity	96	Inner setting
Financing of TCIs' implementation	96	Inner/outer setting
HIT systems	93	Inner setting
Access to knowledge and information	89	Inner setting
Engaging organizations, external context	89	Process
Sense of urgency	89	Inner setting
Reflecting and evaluating	86	Process
Other personal attributes of healthcare professionals	82	Characteristics of individuals
Adoption of change in work processes	82	Inner setting
Networks and communications	79	Inner setting
Inter-organizational collaborations	79	Inner/outer setting
Codesign of TCIs	79	Intervention characteristics
Power of decision-makers	75	Inner/outer setting
Measurement capability/data availability	75	Process
External policy	71	Outer setting
	Rating: Slightly/Moderately Important (Consensus level in %)	
Evidence strength and quality	71	Intervention characteristics

*Definition revised for round two, and therefore rating for this factor was repeated.

Table 4. Factors that reached consensus on feasibility (easy/difficult to address with implementation strategies), in order of ranking

Factor	Rating: Difficult/Very Difficult (Consensus level in %)	CFIR Domain
Round one		
Culture	100	Inner setting
HIT systems	93	Inner setting
Complexity	86	Intervention characteristics
External incentives	83	Outer setting
Networks and communications	76	Inner setting
External policy	76	Outer setting
Available resources	76	Inner setting
Other personal attributes of healthcare professionals	72	Characteristics of individuals
	Rating: Easy/Very Easy (Consensus level in %)	
Planning	76	Process
Round two		
	Rating: Difficult/Very Difficult (Consensus level in %)	
Leadership engagement	93	Inner setting
Engaging organizations, external context	93	Process
Relative priority	86	Inner setting
Information continuity	86	Inner setting
Other personal attributes of older persons	89	Characteristics of individuals
Financing of TCIs' implementation	89	Inner/outer setting
Cosmopolitanism	82	Outer setting
Adoption of change in work processes	82	Inner setting
	Rating: Easy/Very Easy (Consensus level in %)	
Access to knowledge and information	89	Inner setting
	Neither Easy nor Difficult (Consensus level in %)	
Transition roles – frontline staff	75	Process

FACTORS OF HIGHEST IMPORTANCE

Of the total 30 factors that reached consensus on the importance of influence following rounds one and two, the majority were linked to the inner setting. Within this domain, leadership engagement, availability of resources including HIT systems, and information continuity between care providers had the highest consensus levels on importance as compared to other factors such as the organizational culture. Whereas the engagement of stakeholders and organizations/external context was of highest importance within the implementation process and exceeded other factors, such as planning, reflecting and evaluating, and transition roles. In comparison, factors (skills and competencies, role, knowledge and beliefs) related to the characteristics of individuals had a lower level of consensus on their importance. Moreover, the personal attributes of older persons such as their motivation, values, or intellectual ability were rated as slightly/moderately important,

while factors relating to healthcare professionals were seen as very/extremely important. As for the intervention characteristics, the relative advantage and benefits of the innovation as perceived by stakeholders (older persons and healthcare providers) as well as the degree of involvement of these stakeholders in its design prior to implementation were the most important factors. Alternatively, the demonstrated evidence strength and quality of the TCIs appear to be of least importance to influence the implementation. In contrast, external incentives and policy supporting the TCIs' implementation and national financing structures, such as a healthcare services reimbursement system, were the important factors within the outer setting.

A final list of the 11 factors that ranked as most important with consensus of 85% and above is presented in Table 5. Once more, these key factors were predominantly related to the inner setting, and only three were linked to the implementation process. The engagement of leaders and key stakeholders was confirmed by the experts as essential in influencing the implementation of TCIs. *"If key stakeholders are in favor of an innovation, good communication can really help, but when they are not in favor, it can really hinder an implementation process" (Expert 7, round 1)*. Nevertheless, the continuity of information and communication across multiple organizations came in third place, which could be explained by the nature of transitional care involving several care settings. *"It is difficult to coordinate care that goes beyond the boundaries of a specific organization" (Expert 7, round 1)*. Moreover, the availability of organizational resources as well as the existing financing structures to support the implementation of TCIs were important influencers. *"In transitional care also the reimbursement system in healthcare can play an important role. If an intervention does not fit the current system, this can be a real challenge for the implementation process" (Expert 7, round 1). "Lack of money and lack of management support can stop efforts very quickly" (Expert 5, round 1).*

FEASIBILITY

Around only half (54%) of the total number of factors reached consensus on feasibility, with the majority rated as difficult to address with implementation strategies and repeatedly linked to the organizational context. An attempt to address the organizational culture was regarded by experts as topmost difficult and as the least feasible approach to take. *"And since we're talking about implementing a new model or some sort of a change, it's always a culture change conversation, and there are a lot of things involved in changing culture..." (Expert 12, consultation session)*. Moreover, experts indicated that it was challenging to assess the feasibility for each factor, since it depends on the context where the TCIs' implementation is happening. *"The difficulty to address these items in practice can vary a lot from project to project" (Expert 5, round 1). "Ideally, each site should identify the areas that are strengths and challenges in relation to the intervention, and from there identify which strengths they can leverage" (Expert 18, round 1).* In addition, consensus on the feasibility

of specific factors revealed that, while these factors are very important in influencing the implementation of TCIs, it is most likely difficult to consider, control, or change them with strategies (see Table 5).

Table 5. Final list of most important factors and indication of feasibility†

Priority Factors*		Feasibility	CFIR Domain
1.	**Leadership engagement**	Difficult/very difficult	Inner setting
2.	**Engaging key stakeholders**	*No consensus*	Process
3.	**Information continuity**	Difficult/very difficult	Inner setting
4.	**Financing of TCIs' implementation**	Difficult/very difficult	Inner/outer setting
5.	**Available resources**	Difficult/very difficult	Inner setting
6.	**HIT systems**	Difficult/very difficult	Inner setting
7.	**Access to knowledge and information**	Easy/very easy	Inner setting
8.	**Engaging organizations, external context**	Difficult/very difficult	Process
9.	**Sense of urgency**	*No consensus*	Inner setting
10.	**Relative priority**	Difficult/very difficult	Inner setting
11.	**Reflecting and evaluating**	*No consensus*	Process

†Factors are listed in descending ranking order; *factors with a consensus level ≥ 85% were considered as most important, i.e., priority.

FINAL ROUND: EXPERT CONSULTATION SESSION

Fourteen experts participated in this session and two overarching themes emerged, which are described as follows:

Theme one: 'The Catalysts'

This theme describes a combination of temporal and interconnected factors that were seen as essential prerequisites for starting the implementation of TCIs. From the 11 key important factors from the previous rounds, the experts identified five factors that are the catalysts to launch any effort to implement TCIs. These factors were the sense of urgency, relative priority, financing and resources, leadership engagement, and engagement of key stakeholders across the continuum of transitional care. Sense of urgency was identified as a primary factor to induce any change within organizations and even to create priorities and allocate resources needed for the implementation of TCIs. Whereas relative priority was regarded as a *"stop/go"* flag for the implementation of TCIs, it also depends on from whom or where this priority is coming.

> *"First to get that sense of urgency and then it realigns priorities." (Expert 12, consultation session)*

> *"And since we're talking about implementing a new model or some sort of a change. It is always a culture change conversation, and there are a lot of*

> *things involved in changing culture. Having people feel like this is important; maybe you realize the priorities in their head, but I think the urgency comes first, in my mind." (Expert 12, consultation session)*

> *"So this is the sort of stop/go regardless of leadership engagement, regardless of HIT systems, regardless of result. You are not going to have resources, you are not going to have engagement unless something is the priority, so for me this is almost like a step before." (Expert 4, consultation session)*

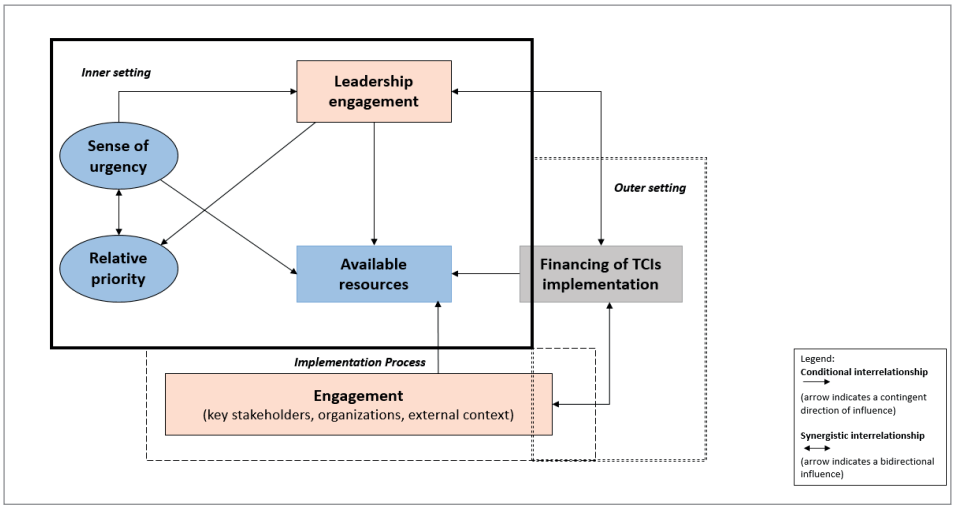
The experts reconfirmed that the engagement of leaders, key stakeholders such as representatives of multiple organizations, older persons, and family caregivers is the backbone for implementing TCIs. However, it is crucial to first identify the role and responsibility of each stakeholder in the implementation process and then to create the right engaging activity and sustain it.

> *"Engaging key stakeholders is a means to an end is kind of an initial, you know piece of it is a catalyst for all of the other things that happen up and down those levels." (Expert 9, consultation session)*

> *"...that you have a successful implementation, and that is stakeholder engagement and the leadership engagement." (Expert 6, consultation session)*

Furthermore, it was indicated that resources including HIT systems and funds would only be made available if leadership and key stakeholders are involved early on. As for the factor of financing the implementation of TCIs, it was discussed that reimbursement or financing structures could be varied in transitional care, especially when several organizations are involved. Therefore, the key element is to demonstrate the TCIs' value for care and the return on investment in order to feedback into the loop of leadership engagement and prioritizing its implementation. The proposed interrelationships among these catalyst factors are depicted in Figure 2.

Figure 2. Depiction of the interrelationships among the catalyst factors influencing the implementation of TCIs



Theme two: Alignment – 'The Driver'

This theme highlights the importance of aligning the motivation for change across various organizations and levels in the healthcare system. Experts implied that regardless of *'catalysts'* being present, the alignment of forces to drive the implementation of TCIs across the continuum of transitional care is a key issue, yet often the *"blind spot"*. Aligning the different priorities, interests, motivations, innovation readiness, financial incentives, and agendas of the organizations involved can help drive the implementation of TCIs. Moreover, experts agreed on the significance of considering at which level the implementation should occur and to check if the stakeholders are aligned in their need and motivation for implementing TCIs. Lastly, the experts believed that it is a crucial driver to ensure that the TCIs are in alignment with the older person's care needs.

Feasibility – The experts concurred that developing implementation strategies to address the important factors is largely dependent on the context, individuals involved, and the care continuum. Specifically, trying to overcome hindering factors linked to the organizational context was seen as a known challenge and hard to successfully address with implementation strategies. *"Organizational inertia, culture, its also infrastructure, its processes are inert, is because what they've done has worked so far. If they're surviving it's because they've done something that, for whatever reason, has worked" (Expert 9, consultation session).* However, experts highlighted that the focus could be shifted to creating strategies to induce change at the individual level, which may ultimately improve the organization's willingness to innovate.

DISCUSSION

Experts in this study prioritized 11 factors as the most important in the implementation of TCIs. Amongst these factors, the majority were organizational factors, primarily the leadership engagement, availability of resources, information continuity, sense of urgency, and relative priority. Moreover, engagement of stakeholders linked to the implementation process was seen as another priority factor. However, the study results demonstrated a prevalent agreement among experts on the difficulty to address these priority factors with implementation strategies. Nevertheless, ensuring the alignment of the organizations' interests, agendas, incentives, and priorities was established as a crucial *"stepping stone"* in implementing TCIs across the transitional care continuum. The current findings are congruent with earlier research indicating that organizational factors, chiefly leadership, resources, and communication, significantly influence the implementation of EBIs in healthcare settings (37-40).

In this study, experts concurred strongly that a high commitment of organizational leadership is the dominant factor in initiating the implementation of TCIs and supporting the overall change process. Furthermore, leadership has the ability to respond to a sense of urgency to innovate within an organization and keep it as a priority. Therefore, this suggested a versatile nature of leadership influence on the implementation of TCIs by being not only a precursor but also a probable moderator or mediator. This resonates with recent studies that recognized a contingent relationship between leadership influence and other implementation factors (37, 38, 41). The other two priority factors — resource allocation and engagement of key stakeholders (i.e., healthcare professionals and staff required for implementation of TCIs) — were acceded by our Delphi panel as dependent on the existence of a supportive leadership influence. Correspondingly, Gifford et al. describe the potential effective contribution of leadership to promote a successful implementation of evidence in healthcare practice (42).

Our panel agreed that engagement of key stakeholders was significant in the implementation of TCIs at all levels of the transitional care continuum. Similarly, engaging multidisciplinary healthcare teams and key staff in various care settings has been widely reported as an integral element and a necessary process activity for implementing innovations in transitional care and LTC in general (6, 38, 39, 43-46). Nevertheless, despite the well-known importance of stakeholders' engagement in implementation, there is still vagueness and limited evidence on its definition, who qualifies as a stakeholder, and which best practices to employ (47, 48).

In relation to this, and to our surprise, the importance of engaging the older persons and their family or informal caregivers in the implementation of TCIs was not something our

experts reached consensus on. We would have expected that factors related to the older persons including their knowledge, perceptions, attitudes toward and value placed on the TCIs' services, personal care needs, and an overall consideration of *"what matters to them?"* would be prioritized as very important by the experts. Acknowledging the characteristics and interests of the older persons was revealed as instrumental in other studies describing the process of uptake and implementation of interventions in transitional care (38, 49). Although person-centered transitional care, whereby TCIs are tailored to older persons' needs and preferences, is generally seen as important (50); our results indicate that involving the target group in the implementation of TCIs is less evident. Likewise, Olsen et al. highlight that engaging the older persons and listening to their needs and wishes are fundamental factors in delivering transitional care interventions, yet there appears to be other significant and overlooked constraints at the organizational and system levels (51).

The feasibility of addressing the agreed upon priority factors with implementation strategies was concurred by the experts as mostly challenging, particularly for the organizational factors. Contrary to our expectations, these results do not inform the development of strategies for implementation of TCIs. Notably, a number of taxonomies and compilations of strategies were developed to aide in implementing EBIs in healthcare (52-55). Moreover, some of these strategies were matched to the relative influencing factors in general healthcare settings (54, 56). In addition, although organizational leadership was rated as difficult to address in this Delphi study, there is evidence on an emerging strategy: the leadership and organizational change for implementation (LOCI) (57). Among its aspects, LOCI focuses on leveraging the leaders' readiness for implementing EBIs, training them on how to overcome implementation barriers, and promoting them to be proactive and create a shared vision within the organization (57). On the other hand, the body of research on implementation strategies is not specific to transitional care, although it is starting to be utilized in implementing certain TCIs (43). Therefore, our findings add to the evolving literature by indicating that practitioners and researchers in the field of implementing TCIs perceive that strategies should be tailored to the specific settings involved.

IMPLICATIONS FOR IMPLEMENTING INNOVATIONS IN TRANSITIONAL CARE

Practice – In light of our findings, we ask healthcare practitioners (leaders, managers, frontline staff, and other professionals) wanting to implement a TCI, to start by conducting a local needs assessment. It is crucial to know the inner settings of LTC organizations, as well as the inter-organizational differences and dynamics, as this is also a key message from previous studies (39, 58). To better assess the organizational readiness for putting a TCI into practice, we recommend utilizing our list of 'priority factors' as a starting point. Exploring these factors locally will provide an early essential awareness and knowledge of what will most likely help or hinder the implementation of a TCI. Based on the existing literature, we hereby provide hands-on suggestions for addressing the priority factors

when implementing a TCI (53, 54, 56). For example, having both intra/inter-organizational discussions among care providers and key stakeholders can help identify existing problems in care transitions of older persons between different settings, and hence create a sense of urgency or prioritize the need for a TCI as a solution (53, 56). This, in turn can be used to build a case and to present it to the leaders of LTC organizations, as to obtain support for implementation. Furthermore, engaged leaders can help secure required resources through practical ways by looking for funding options for initial implementation, such as responding for governmental calls to fund implementation of innovations in practice or restructuring organizational incentives. In addition, the creation of inter-organizational working groups of key stakeholders can assist in following through the implementation process of a TCI and making necessary decisions and adjustments (53).

Correspondingly and given the big role of organizational factors, we also highlight the potential value of using insights from four prominent organizational theories *(transaction cost economics, institutional theory, contingency theory, and resource dependency theory)* in implementing TCIs (59). For example, with keeping in mind the disparities across different healthcare systems, a healthcare manager can assess the transaction cost of implementing an intervention and consider the possibility of outsourcing a TCI's components or services to another institution. Otherwise as denoted by resource dependency theory, healthcare managers and leaders can establish inter-organizational partnerships and alliances to acquire resources needed. Moreover, as per both institutional and contingency theories, healthcare managers and leaders can promote the adoption and implementation of a TCI within their organization by copying successful innovative behaviours of other organizations in the environment, and boost the organization's agility to respond to external factors.

Future research – Further investigation of the prioritized factors in the actual implementation of TCIs in practice can provide a better understanding of how they exist and interact. In addition, the development and testing of a set of tailored, effective, and feasible strategies to target these priority factors influencing the implementation of TCIs is required.

STRENGTHS AND LIMITATIONS

This study gathered consensus by drawing on an international panel of experts from the fields of innovation, implementation, and transitional care, which allowed to obtain focused perspectives. Moreover, the use of an online survey permitted a high response, and the final session with the experts was instrumental to understanding the consensus results and enriched the study.

Alternatively, there were some limitations. First, selection bias could play a role. A majority of the panel were scientists rather than professionals from practice, which may have led to an under-representation of insights from real-life context. This could also explain the panel

members' difficulties in assessing implementation factors' direction of influence and their focus on organizational factors, as their direct care experience might have been limited and/or mainly in the past. Furthermore, the majority of experts came from European healthcare systems. Insights from other alternative models of healthcare systems (e.g. the USA) were under-represented in our panel of experts, thus limiting the applicability of the findings. Second, repeating the survey with other panel experts might have led to other results. However, to improve the reliability, we aimed for a large sample of experts from various backgrounds and countries. Also, we performed the two survey rounds in a consistent manner. Third, we provided the group ratings from round one in the consecutive round, which could be viewed as a pressure to obtain consensus. However, one can also argue that panel members are entitled to receiving core results, besides we followed the Delphi methodology carefully, used findings of a previous literature study to inform the survey, and based our work on an established implementation framework. Lastly, the final round being a qualitative group discussion, holds the limitation pertaining to typical group dynamics and power/confidence of expression. However, the session also enriched our study and facilitators for the session made sure that all participants were heard, and encouraged an open discussion.

CONCLUSIONS

Though many factors are relevant in the implementation of TCIs, experts conceded that the priority factors in the implementation of TCIs are leadership engagement, sense of urgency to innovate, relative priority given to a TCI, availability of organizational resources, and engagement of key stakeholders. Results from our study enable the selection of relevant strategies for implementation of TCIs, yet special attention should be given to inter-organizational factors, which are seen as difficult to address, as well as the interrelationships revealed between these factors. This study provides novel guidance for healthcare researchers and practitioners, opting to improve transitional care for older persons, to better navigate the implementation process of innovations, and deter efforts based on intuition rather than evidence.

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APPENDICES

Appendix 3A. Modified Delphi survey - Round 1
Appendix 3B. Modified Delphi survey - Round 2
Appendix 3C. List of factors that reached consensus on direction of influence on the implementation of TCIs, from round one

Appendix 3A. Modified Delphi survey - Round 1

- Dear Expert,

  Thank you for agreeing to participate in the current Modified Delphi study survey (round one) in order to help achieve consensus on the top priority barriers and facilitators that influence the implementation of innovations in transitional care.

- We would like to remind you quickly of key points before starting the survey: >"Transitional care is defined as a set of actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations or different levels of care within the same location".

  >We refer throughout this survey to Transitional Care (TC) Innovation, as any *intervention, model, or program* which has been developed with a goal to improve or prevent care transitions for the older population/persons (≥ 65 years old) between different long-term care settings.

- The survey is developed based on the *five domains: (Interventions characteristics, Outer setting, Inner (organizational) setting, Characteristics of Individuals, Process)* of the CFIR (Consolidated Framework for Implementation Research) and selected constructs (factors) from this framework and the CTF (Care Transitions Framework).

- The survey consists of three sections and will explore the following concepts for each of the 25 selected factors (3 factors are split into parts a/b), and definitions of factors adapted to transitional care are provided in the survey:

  >Section A: to rate the direction of influence for each of the 25 factors as more a barrier or facilitator to the implementation of transitional care innovations
  >Section B: to rate the importance of influence of each of the 25 factors on the implementation of transitional care innovations
  >Section C - to indicate the feasibility (easiness / difficulty) to address each of the 25 factors in the development of implementation strategies for transitional care innovations

- *General Instructions: The survey will take approximately 15-20 minutes to complete. Your participation is voluntary, and you can withdraw from the study during the survey round without comment or penalty by closing the survey link. By clicking (yes, I consent) below, you will indicate that you have fully read and understood the complete information document provided to you earlier regarding this study*

with the participant invitation/recruitment email. Your responses to the survey are automatically saved as you go through the questions, and at any moment you can close the survey link and continue it later by using your same personal link. Please complete the demographics section at the end of the survey. All data collected and processed will be kept anonymous, confidential, and stored on a password-protected database at Maastricht University. If you have any questions or technical issues please contact: Amal Fakha (main researcher, Department of Health Services Research, Faculty of Health Medicine and Life Sciences, Maastricht University, the Netherlands) by sending an email to a.fakha@maastrichtuniversity.nl. On the behalf of the research team we thank you greatly for your participation.

❖ I hereby agree to participate and undertake this survey.

o Yes, I consent.

Section A - Direction of Influence: factors can either hinder or facilitate the implementation of an innovation; for example: i) a match between the Targeted Groups (factor) and the Transitional Care innovation features can be facilitating to the implementation, while a mismatch can have a hindering effect. ii) Accessibility to Information and Knowledge (factor) about a Transitional Care innovation can have a facilitating effect on its implementation, while inaccessibility can be hindering.

1) Rate for each of the 25 factors listed below if it acts more often as **hindering or facilitating** to the implementation of Transitional Care Innovations:

	Strongly hindering	Hindering	Neither hindering nor facilitating	Facilitating	Strongly facilitating
Domain I - Intervention (Transitional Care Innovation) Characteristics **Factor 1 - Targeted Groups:** patients/ older population who are the intended recipients or beneficiaries of the transitional care innovation.	○	○	○	○	○
Factor 2 - Complexity: perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement.	○	○	○	○	○
Factor 3 - Relative Advantage: stakeholders' perception of the advantage (benefits and usefulness) of implementing the transitional care innovation versus an alternative solution.	○	○	○	○	○
Factor 4 - Evidence Strength & Quality: stakeholders' perceptions of the quality and validity of evidence (proven effectiveness) supporting the belief that the transitional care intervention will have desired outcomes (e.g. low readmission rates).	○	○	○	○	○
Domain II - Outer Setting **Factor 5 - Cosmopolitanism:** the degree to which an organization is networked with other external organizations.	○	○	○	○	○
Factor 6a - External Policy: a broad construct that includes external strategies (by government or other central entity) to spread transitional care innovations; including policy, regulations, laws, external mandates, legislative changes, recommendations, and guidelines.	○	○	○	○	○
Factor 6b - External Incentives: a broad construct that includes external strategies (by the government or other central entity) to spread transitional care innovations; including national funding schemes or governmental sponsorship.	○	○	○	○	○

Continued.

	Strongly hindering	Hindering	Neither hindering nor facilitating	Facilitating	Strongly facilitating
Domain III - Inner (Organizational) Setting **Factor 7 - Networks & Communications:** the nature and quality of webs of social networks and of formal/informal communications within an organization (e.g. interdisciplinary teams, coordination & communication among team members).	○	○	○	○	○
Factor 8 - Culture: norms, values, and basic assumptions of a given organization.	○	○	○	○	○
Factor 9 - Relative Priority: individuals' (healthcare professionals, staff within implementing team) shared perception of the importance of the implementation of a transitional care innovation within the organization.	○	○	○	○	○
Factor 10 - Leadership Engagement: commitment, involvement, and accountability of leaders and managers with the implementation of a transitional care innovation.	○	○	○	○	○
Factor 11 - Available Resources: the level of resources dedicated for the implementation and on-going operations of a transitional care innovation; including staffing levels, money, funding, training, education, physical space, equipment, and time.	○	○	○	○	○
Factor 12 - Access to Knowledge & Information: ease of access to digestible information and knowledge (e.g. mentoring, initial training) about the transitional care innovation and how to incorporate it into work tasks.	○	○	○	○	○
Factor 13 - Continuity: information continuity (e.g. patient information exchange, services & care planning) and relationship continuity, both with providers and patients/caregivers and across organizations.	○	○	○	○	○
Factor 14 - IT&HIT resources (HIT systems): electronic information management infrastructure and technologies (e.g. electronic health records) available to clinicians to manage patient care, data, and communications.	○	○	○	○	○
Domain IV - Characteristics of Individuals **Factor 15a - Knowledge & Beliefs about the Intervention: healthcare professionals/staff** within implementing team's beliefs, expectations, and familiarity with facts, truths, & principles related to the transitional care innovation.	○	○	○	○	○

Continued.

	Strongly hindering	Hindering	Neither hindering nor facilitating	Facilitating	Strongly facilitating
Factor 15b - Knowledge & Beliefs about the Intervention: patients/older persons' attitudes toward and value placed on the transitional care innovation as well as awareness on its care services & goals.	○	○	○	○	○
Factor 16 - Role: individual's role (healthcare professionals, staff within implementing team) and responsibility for the transitional care innovation; including the degree of multiple or shared roles.	○	○	○	○	○
Factor 17 - Skills & Competencies: degree of relevant subject matter expertise, skills, and competencies within the implementing team, unit, and organization.	○	○	○	○	○
Factor 18a - Other Personal Attributes: healthcare professionals' other personal traits such as motivation levels, values, tolerance of ambiguity, critical attributes, intellectual ability, capacity, and learning style.	○	○	○	○	○
Factor 18b - Other Personal Attributes: patients/older persons' other personal traits such as health literacy, values, and acknowledgement of own care needs.	○	○	○	○	○
Domain V - (Implementation) Process Factor 19 - Planning: the degree to which a scheme or method of behavior and tasks for implementing an innovation are developed in advance, and the quality of those schemes or methods.	○	○	○	○	○
Factor 20 - Transition Roles (Frontline Staff): administrative staff, providers (within and outside the organization), e.g. frontline staff such as transition nurses or advanced practice nurses with designated transition roles who will carry out the innovation or be affected by it.	○	○	○	○	○
Factor 21 - Reflecting & Evaluating: quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.	○	○	○	○	○
Factor 22 - **Measurement Capability/ Data Availability:** availability of timely data. Capacity for monitoring, evaluation, and process improvement. Includes measurement differences; accountability for collection, documentation, and analysis.	○	○	○	○	○

Continued.

	Strongly hindering	Hindering	Neither hindering nor facilitating	Facilitating	Strongly facilitating
Factor 23 - **Engaging Key Stakeholders:** individuals from within the organization that are directly impacted by the transitional care innovation, e.g. staff responsible for making referrals to a new program or using a new work process.	○	○	○	○	○
Factor 24 - **Engaging Organizations, External Context:** developing and capitalizing on relationships with healthcare professionals and frontline staff in the implementing organizations, and promoting external collaborations with outside care providers, and resources linked to the implementation of a transitional care innovation.	○	○	○	○	○
Factor 25 - **Engaging Innovation Participants:** individuals (patients/older persons, family, informal caregivers) served by the organization that participate in the transitional care innovation.	○	○	○	○	○

Q1) Please provide any further comments you might have on the direction of influence of the 25 factors in relation to implementing Transitional Care Innovations:

.....

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Section B - Importance of Influence:

2) Rate the **importance of influence** of each of the 25 factors listed below on the implementation of Transitional Care Innovations:

	Not important	Slightly important	Moderately important	Very important	Extremely important
Domain I - Intervention (Transitional Care Innovation) Characteristics **Factor 1 - Targeted Groups:** patients/older population who are the intended recipients or beneficiaries of the transitional care innovation.	○	○	○	○	○
Factor 2 - Complexity: perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement.	○	○	○	○	○
Factor 3 - Relative Advantage: stakeholders' perception of the advantage (benefits and usefulness) of implementing the transitional care innovation versus an alternative solution.	○	○	○	○	○
Factor 4 - Evidence Strength & Quality: stakeholders' perceptions of the quality and validity of evidence (proven effectiveness) supporting the belief that the transitional care intervention will have desired outcomes (e.g. low readmission rates).	○	○	○	○	○
Domain II - Outer Setting Factor 5 - Cosmopolitanism: the degree to which an organization is networked with other external organizations.	○	○	○	○	○
Factor 6a - External Policy: a broad construct that includes external strategies (by government or other central entity) to spread transitional care innovations; including policy, regulations, laws, external mandates, legislative changes, recommendations, and guidelines.	○	○	○	○	○
Factor 6b - External Incentives: a broad construct that includes external strategies (by the government or other central entity) to spread transitional care innovations; including national funding schemes or governmental sponsorship.	○	○	○	○	○
Domain III - Inner (Organizational) Setting Factor 7 - Networks & Communications: the nature and quality of webs of social networks and of formal/ informal communications within an organization (e.g. interdisciplinary teams, coordination & communication among team members).	○	○	○	○	○
Factor 8 - Culture: norms, values, and basic assumptions of a given organization.	○	○	○	○	○

Continued.

	Not important	Slightly important	Moderately important	Very important	Extremely important
Factor 9 - Relative Priority: individuals' (healthcare professionals, staff within implementing team) shared perception of the importance of the implementation of a transitional care innovation within the organization.	○	○	○	○	○
Factor 10 - Leadership Engagement: commitment, involvement, and accountability of leaders and managers with the implementation of a transitional care innovation.	○	○	○	○	○
Factor 11 - Available Resources: the level of resources dedicated for the implementation and on-going operations of a transitional care innovation; including staffing levels, money, funding, training, education, physical space, equipment, and time.	○	○	○	○	○
Factor 12 - Access to Knowledge & Information: ease of access to digestible information and knowledge (e.g. mentoring, initial training) about the transitional care innovation and how to incorporate it into work tasks.	○	○	○	○	○
Factor 13 - Continuity: information continuity (e.g. patient information exchange, services & care planning) and relationship continuity, both with providers and patients/caregivers and across organizations.	○	○	○	○	○
Factor 14 - IT&HIT resources (HIT systems): electronic information management infrastructure and technologies (e.g. electronic health records) available to clinicians to manage patient care, data, and communications.	○	○	○	○	○
Domain IV - Characteristics of Individuals Factor 15a - Knowledge & Beliefs about the Intervention: healthcare professionals/staff within implementing team's beliefs, expectations, and familiarity with facts, truths, & principles related to the transitional care innovation.	○	○	○	○	○
Factor 15b - Knowledge & Beliefs about the Intervention: patients/older persons' attitudes toward and value placed on the transitional care innovation as well as awareness on its care services & goals.	○	○	○	○	○
Factor 16 - Role: individual's role (healthcare professionals, staff within implementing team) and responsibility for the transitional care innovation; including the degree of multiple or shared roles.	○	○	○	○	○

Continued.

	Not important	Slightly important	Moderately important	Very important	Extremely important
Factor 17 - Skills & Competencies: degree of relevant subject matter expertise, skills, and competencies within the implementing team, unit, and organization.	○	○	○	○	○
Factor 18a - Other Personal Attributes: healthcare professionals' other personal traits such as motivation levels, values, tolerance of ambiguity, critical attributes, intellectual ability, capacity, and learning style.	○	○	○	○	○
Factor 18b - Other Personal Attributes: patients/older persons' other personal traits such as health literacy, values, and acknowledgement of own care needs.	○	○	○	○	○
Domain V - (Implementation) Process Factor 19 - Planning: the degree to which a scheme or method of behavior and tasks for implementing an innovation are developed in advance, and the quality of those schemes or methods.	○	○	○	○	○
Factor 20 - Transition Roles (Frontline Staff): administrative staff, providers (within and outside the organization), e.g. frontline staff such as transition nurses or advanced practice nurses with designated transition roles who will carry out the innovation or be affected by it.	○	○	○	○	○
Factor 21 - Reflecting & Evaluating: quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.	○	○	○	○	○
Factor 22 - **Measurement Capability/ Data Availability:** availability of timely data. Capacity for monitoring, evaluation, and process improvement. Includes measurement differences; accountability for collection, documentation, and analysis.	○	○	○	○	○
Factor 23 - **Engaging Key Stakeholders:** individuals from within the organization that are directly impacted by the transitional care innovation, e.g. staff responsible for making referrals to a new program or using a new work process.	○	○	○	○	○
Factor 24 - **Engaging Organizations, External Context:** developing and capitalizing on relationships with healthcare professionals and frontline staff in the implementing organizations, and promoting external collaborations with outside care providers, and resources linked to the implementation of a transitional care innovation.	○	○	○	○	○

Continued.

	Not important	Slightly important	Moderately important	Very important	Extremely important
Factor 25 - **Engaging Innovation Participants:** individuals (patients/older persons, family, informal caregivers) served by the organization that participate in the transitional care innovation.	O	O	O	O	O

Q2) Please provide any further comments you might have on the importance of influence of the 25 factors in relation to implementing Transitional Care Innovations:

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Section C - Feasibility (easiness/difficulty):

3) How **easy/difficult** is it to address each of the 25 factors listed below in the development of implementation strategies for Transitional Care Innovations?

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very easy
Domain I - Intervention (Transitional Care Innovation) Characteristics **Factor 1 - Targeted Groups:** patients/older population who are the intended recipients or beneficiaries of the transitional care innovation.	○	○	○	○	○
Factor 2 - Complexity: perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement.	○	○	○	○	○
Factor 3 - Relative Advantage: stakeholders' perception of the advantage (benefits and usefulness) of implementing the transitional care innovation versus an alternative solution.	○	○	○	○	○
Factor 4 - Evidence Strength & Quality: stakeholders' perceptions of the quality and validity of evidence (proven effectiveness) supporting the belief that the transitional care intervention will have desired outcomes (e.g. low readmission rates).	○	○	○	○	○
Domain II - Outer Setting Factor 5 - Cosmopolitanism: the degree to which an organization is networked with other external organizations.	○	○	○	○	○
Factor 6a - External Policy: a broad construct that includes external strategies (by government or other central entity) to spread transitional care innovations; including policy, regulations, laws, external mandates, legislative changes, recommendations, and guidelines.	○	○	○	○	○
Factor 6b - External Incentives: a broad construct that includes external strategies (by the government or other central entity) to spread transitional care innovations; including national funding schemes or governmental sponsorship.	○	○	○	○	○
Domain III - Inner (Organizational) Setting Factor 7 - Networks & Communications: the nature and quality of webs of social networks and of formal/ informal communications within an organization (e.g. interdisciplinary teams, coordination & communication among team members).	○	○	○	○	○
Factor 8 - Culture: norms, values, and basic assumptions of a given organization.	○	○	○	○	○
Factor 9 - Relative Priority: individuals' (healthcare professionals, staff within implementing team) shared perception of the importance of the implementation of a transitional care innovation within the organization.	○	○	○	○	○
Factor 10 - Leadership Engagement: commitment, involvement, and accountability of leaders and managers with the implementation of a transitional care innovation.	○	○	○	○	○

Continued.

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very easy
Factor 11 - Available Resources: the level of resources dedicated for the implementation and on-going operations of a transitional care innovation; including staffing levels, money, funding, training, education, physical space, equipment, and time.	○	○	○	○	○
Factor 12 - Access to Knowledge & Information: ease of access to digestible information and knowledge (e.g. mentoring, initial training) about the transitional care innovation and how to incorporate it into work tasks.	○	○	○	○	○
Factor 13 - Continuity: information continuity (e.g. patient information exchange, services & care planning) and relationship continuity, both with providers and patients/caregivers and across organizations.	○	○	○	○	○
Factor 14 - IT&HIT resources (HIT systems): electronic information management infrastructure and technologies (e.g. electronic health records) available to clinicians to manage patient care, data, and communications.	○	○	○	○	○
Domain IV - Characteristics of Individuals Factor 15a - Knowledge & Beliefs about the Intervention: healthcare professionals/staff within implementing team's beliefs, expectations, and familiarity with facts, truths, & principles related to the transitional care innovation.	○	○	○	○	○
Factor 15b - Knowledge & Beliefs about the Intervention: patients/older persons' attitudes toward and value placed on the transitional care innovation as well as awareness on its care services & goals.	○	○	○	○	○
Factor 16 - Role: individual's role (healthcare professionals, staff within implementing team) and responsibility for the transitional care innovation; including the degree of multiple or shared roles.	○	○	○	○	○
Factor 17 - Skills & Competencies: degree of relevant subject matter expertise, skills, and competencies within the implementing team, unit, and organization.	○	○	○	○	○
Factor 18a - Other Personal Attributes: healthcare professionals' other personal traits such as motivation levels, values, tolerance of ambiguity, critical attributes, intellectual ability, capacity, and learning style.	○	○	○	○	○
Factor 18b - Other Personal Attributes: patients/ older persons' other personal traits such as health literacy, values, and acknowledgement of own care needs.	○	○	○	○	○
Domain V - (Implementation) Process Factor 19 - Planning: the degree to which a scheme or method of behavior and tasks for implementing an innovation are developed in advance, and the quality of those schemes or methods.	○	○	○	○	○

Continued.

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very easy
Factor 20 - Transition Roles (Frontline Staff): administrative staff, providers (within and outside the organization), e.g. frontline staff such as transition nurses or advanced practice nurses with designated transition roles who will carry out the innovation or be affected by it.	○	○	○	○	○
Factor 21 - Reflecting & Evaluating: quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.	○	○	○	○	○
Factor 22 - **Measurement Capability/Data Availability:** availability of timely data. Capacity for monitoring, evaluation, and process improvement. Includes measurement differences; accountability for collection, documentation, and analysis.	○	○	○	○	○
Factor 23 - **Engaging Key Stakeholders:** individuals from within the organization that are directly impacted by the transitional care innovation, e.g. staff responsible for making referrals to a new program or using a new work process.	○	○	○	○	○
Factor 24 - **Engaging Organizations, External Context:** developing and capitalizing on relationships with healthcare professionals and frontline staff in the implementing organizations, and promoting external collaborations with outside care providers, and resources linked to the implementation of a transitional care innovation.	○	○	○	○	○
Factor 25 - **Engaging Innovation Participants:** individuals (patients/older persons, family, informal caregivers) served by the organization that participate in the transitional care innovation.	○	○	○	○	○

Q3) Please provide any further comments you might have on the feasibility (easiness/difficulty) to address each of the 25 factors in relation to implementing Transitional Care Innovations:

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Q4) Please provide any additional factors (barriers or facilitators) that you would consider important/relevant to the implementation of Transitional Care Innovations.

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Demographics:

1) Country (current place of residence/work):
   - o Netherlands
   - o Switzerland
   - o United Kingdom
   - o Sweden
   - o United States of America
   - o Canada
   - o Australia
   - o Singapore
   - o Other .....

2) Education level:
   - o Masters level
   - o PhD level

3) Current role:
   - ☐ Researcher
   - ☐ Professor
   - ☐ Associate Professor
   - ☐ Assistant Professor
   - ☐ Lecturer
   - ☐ Practitioner, please specify .....
   - ☐ Manager, please specify .....
   - ☐ Director, please specify .....
   - ☐ Other .....

4) Please indicate in which field you are an expert (choose all that applies):
   - ☐ Transitional care
   - ☐ Long-term care
   - ☐ Healthcare innovations
   - ☐ Implementation science

5) Please indicate the total years of experience in your field of expertise:
   - o 3 to 5 years
   - o 5 to 10 years
   - o 10 years and above

Appendix 3B. Modified Delphi Study - Survey Round 2

- Dear Expert,

  Thank you for participating in the current Modified Delphi study survey and completing round 1. Hereby, we start round 2 of the study in order to reach unattained consensus from round 1 on the barriers & facilitators that influence the implementation of innovations in transitional care.

- Please refer to the results report - round 1 that was sent to you by email in order to obtain further information on the results from the first survey.

- We would like to remind you again of key points before starting the survey:
  >"Transitional care is defined as a set of actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations or different levels of care within the same location".

  >We refer throughout this survey to Transitional Care (TC) Innovation, as *any intervention, model, or program*, which has been developed with a goal to improve or prevent care transitions for the older population/persons (≥ 65 years old) between different long-term care settings.

- The survey is developed based on the *five domains: (Interventions characteristics, Outer setting, Inner (organizational) setting, Characteristics of Individuals, Process)* of the CFIR (Consolidated Framework for Implementation Research) and selected constructs (factors) from this framework and the CTF (Care Transitions Framework).

- This survey consists of two sections and will explore the following concepts for each of the factors that didn't reach consensus in round 1, in addition to 7 new factors suggested by the respondents from round 1:

  >Section I - to rate the importance of influence of each factor on the implementation of transitional care innovations
  >Section II - to indicate the feasibility (easiness/difficulty) to address each factor in the development of implementation strategies for transitional care innovations

- *General Instructions: The survey will take approximately 15-20 minutes to complete. Your participation is voluntary, and you can withdraw from the study during the survey round without comment or penalty by closing the survey link. By clicking (yes, I consent) below, you will indicate that you have*

*fully read and understood the complete information document provided to you earlier regarding this study with the participant invitation/recruitment email. Your responses to the survey are automatically saved as you go through the questions, and at any moment you can close the survey link and continue it later by using your same personal link. All data collected and processed will be kept anonymous, confidential, and stored on a password-protected database at Maastricht University. If you have any questions or technical issues please contact: Amal Fakha (main researcher, Department of Health Services Research, Faculty of Health Medicine and Life Sciences, Maastricht University, the Netherlands) by sending an email to*a.fakha@maastrichtuniversity.nl. On the behalf of the research team, we thank you greatly for your participation.

❖ I hereby agree to participate and undertake this survey.

o Yes, I consent.

Section I - Importance of Influence: determining the level of importance of the influence of each factor on the implementation of a transitional care innovation can be complicated due to the overall context and the interaction among various factors in the process; yet it remains crucial. Therefore, utilize your experience in the current healthcare field in order to respond to this section.

The factors listed below are those that did not reach consensus in round 1 (except for leadership engagement which is redefined in this round), in addition to 7 new factors suggested by the respondents from round 1.

> Please, for each factor review the group choices & your individual choice from round 1 and re-rate the **importance of influence** of each on the implementation of Transitional Care Innovations. Also, you may decide to keep your original choice that you had from round.

> Experts' comments for some factors from round 1 are provided where available & applicable, in order to clarify further their definition and interpretation. For the new factors, please rate accordingly.

> Group choices are provided as % out of 100% = 29 (total number of respondents in round).

> Note: for some factors their definitions were revised for this round (based on expert comments the definition is rephrased and enhanced to maximize clarity), in this case a label (revised) is added only next to those factors whose definitions were enhanced.

**Please, note that the group choices, individual choices percentages, and experts' comments were omitted from this appendix, for data protection purposes.*

	Not important	Slightly important	Moderately important	Very important	Extremely important
Domain I - Intervention (Transitional Care Innovation) Characteristics Factor 1 - Targeted Groups (revised): patients/older population who are the intended recipients or beneficiaries of the transitional care innovation (e.g. matching the care needs of older persons with high frailty or dementia).	○	○	○	○	○
Factor 4 - Evidence Strength & Quality: stakeholders' perceptions of the quality and validity of evidence (proven effectiveness) supporting the belief that the transitional care intervention will have desired outcomes (e.g. low readmission rates).	○	○	○	○	○
Domain II - Outer Setting Factor 5 - Cosmopolitanism (revised): the degree to which an organization is networked with other external organizations (e.g. pre-existing partnerships; sharing of healthcare practices with external organizations).	○	○	○	○	○
Factor 6a - External Policy: a broad construct that includes external strategies (by government or other central entity) to spread transitional care innovations; including policy, regulations, laws, external mandates, legislative changes, recommendations, and guidelines.	○	○	○	○	○
Domain III - Inner (Organizational) Setting Factor 7 - Networks & Communications: the nature and quality of webs of social networks and of formal/informal communications within an organization (e.g. interdisciplinary teams, coordination & communication among team members).	○	○	○	○	○
Factor 10 - Leadership Engagement (revised): commitment, involvement, and accountability of leaders & managers with the implementation of a transitional care innovation. In addition, the presence of a skilled, motivated, and continuous leadership throughout the implementation (e.g. minimal turnover of dedicated project managers with high interest in the implementation).	○	○	○	○	○
Factor 12 - Access to Knowledge & Information: ease of access to digestible information and knowledge (e.g. mentoring, initial training) about the transitional care innovation and how to incorporate it into work tasks.	○	○	○	○	○
Factor 13 - Continuity (revised): care transitions' information continuity (e.g. exchange of patient medical information and the services & care plans between healthcare providers). In addition, the continuity of steady work relationships between the healthcare providers and patients/caregivers and across all the organizations involved in the transitional care innovation implementation.	○	○	○	○	○

Continued.

	Not important	Slightly important	Moderately important	Very important	Extremely important
Factor 14 - IT&HIT resources (HIT systems): electronic information management infrastructure and technologies (e.g. electronic health records) available to clinicians to manage patient care, data, and communications.	○	○	○	○	○
Domain IV - Characteristics of Individuals Factor 15b - Knowledge & Beliefs about the Intervention: patients/older persons' attitudes toward and value placed on the transitional care innovation as well as awareness on its care services & goals.	○	○	○	○	○
Factor 18a - Other Personal Attributes: healthcare professionals' other personal traits such as motivation levels, values, tolerance of ambiguity, critical attributes, intellectual ability, capacity, and learning style.	○	○	○	○	○
Domain V - (Implementation) Process Factor 21 - Reflecting & Evaluating: quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.	○	○	○	○	○
Factor 22 - **Measurement Capability/ Data Availability:** availability of timely data. Capacity for monitoring, evaluation, and process improvement. Includes measurement differences; accountability for collection, documentation, and analysis.	○	○	○	○	○
Factor 24 - **Engaging Organizations, External Context (revised):** developing and capitalizing on relationships with healthcare professionals and frontline staff in the various organizations involved in the implementation of a transition care innovation, and promoting external collaborations with other outside care providers (e.g. home care agency), and resources (e.g. community resources or social services for older persons) linked to the implementation.	○	○	○	○	○
Factor 25 - **Engaging Innovation Participants (revised):** individuals (patients/older persons, family, informal caregivers) served by the organization that participate in the transitional care innovation (e.g. ensuring family inclusion in care goals setting).	○	○	○	○	○

Continued.

	Not important	Slightly important	Moderately important	Very important	Extremely important
***Additional New Factors (suggested by respondents from round 1):** **New Factor 1 - Power of Decision-makers:** defined as the main trigger to allow the successful implementation of a transitional care innovation.	O	O	O	O	O
New Factor 2 - Sense of Urgency: the urgent need and attention given to implementing a specific transitional care innovation with respect to other innovation projects being addressed within an organization.	O	O	O	O	O
New Factor 3 - Adoption of Change in Work Processes: adapting and changing "how things work" across several levels (organizational, group, individual, policy); and in view of the capacity for implementing this change within an organization.	O	O	O	O	O
New Factor 4 - Financing of Transitional Care Innovation Implementations: the existing financing structures that affect the implementation such as fragmented financing & a lack of clear financing structures, or varied reimbursement systems of healthcare services.	O	O	O	O	O
New Factor 5 - Inter-organizational Collaborations: the presence of long-lasting trust relationships between multiple organizations involved in transitional care; in addition to the level of good collaboration and care coordination among different organizations within different and various sectors of the healthcare system, as well as varied care disciplines/services.	O	O	O	O	O
New Factor 6 - Previous Experiences with Implementation of Innovations: a prior history and experience of organizations & healthcare professionals in implementing change and new interventions, programs, and innovations.	O	O	O	O	O
New Factor 7 - Co-design of the Transitional Care Innovation: the degree of involvement of the stakeholders (older people and healthcare providers) in the design of the innovation prior to the implementation stages.	O	O	O	O	O

Q1) Please provide any further comments you might have on the importance of influence of the listed factors in relation to implementing Transitional Care Innovations:

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Section II - Feasibility (easiness/difficulty): the ability to address factors in the development of implementation strategies can be intricate and complex due to the overall context, which can be varied for each innovation implementation. Therefore, utilize your experience in the current healthcare field in order to respond to this section.

The factors listed below are those that did not reach consensus in round 1, in addition to 7 new factors suggested by the respondents from round 1.
>Please, for each factor review the group choices & your individual choice from round 1 and re-rate the **easiness/difficulty** to address each in the development of implementation strategies for Transitional Care Innovations. Also, you may decide to keep the original choice that you had from round 1.
>Experts' comments for some factors from round 1 are provided where available & applicable, in order to clarify further their definition and interpretation. For the new factors, please rate accordingly.
>Group choices are provided as % out of 100% = 29 (total number of respondents in round 1).
>Note: for some factors their definitions were revised for this round(based on experts comments, the definition is rephrased and enhanced to maximize clarity), in this case a label (revised) is added only next to those factors whose definitions were enhanced.

**Please, note that the group choices, individual choices percentages, and experts' comments were omitted from this appendix, for data protection purposes.*

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very easy
Domain I - Intervention (Transitional Care Innovation) Characteristics **Factor 1 - Targeted Groups (revised):** patients/ older population who are the intended recipients or beneficiaries of the transitional care innovation (e.g. matching the care needs of older persons with high frailty or dementia).	○	○	○	○	○
Factor 3 - Relative Advantage: stakeholders' perception of the advantage (benefits and usefulness) of implementing the transitional care innovation versus an alternative solution.	○	○	○	○	○
Factor 4 - Evidence Strength & Quality: stakeholders' perceptions of the quality and validity of evidence (proven effectiveness) supporting the belief that the transitional care intervention will have desired outcomes (e.g. low readmission rates).	○	○	○	○	○
Domain II - Outer Setting **Factor 5 - Cosmopolitanism (revised):** the degree to which an organization is networked with other external organizations (e.g. pre-existing partnerships; sharing of healthcare practices with external organizations).	○	○	○	○	○
Domain III - Inner (Organizational) Setting **Factor 9 - Relative Priority (revised):** individuals' (healthcare professionals, staff within implementing team) shared perception of the importance of the implementation of a transitional care innovation within the organization (e.g. existence of multiple quality improvement projects within the organization at the same time).	○	○	○	○	○
Factor 10 - Leadership Engagement (revised): commitment, involvement, and accountability of leaders & managers with the implementation of a transitional care innovation. In addition, the presence of a skilled, motivated, and continuous leadership throughout the implementation (e.g. minimal turnover of dedicated project managers with high interest in the implementation).	○	○	○	○	○
Factor 12 - Access to Knowledge & Information: ease of access to digestible information and knowledge (e.g. mentoring, initial training) about the transitional care innovation and how to incorporate it into work tasks.	○	○	○	○	○
Factor 13 - Continuity (revised): care transitions' information continuity (e.g. exchange of patient medical information and the services & care plans between healthcare providers). In addition, the continuity of steady work relationships between the healthcare providers and patients/caregivers and across all the organizations involved in the transitional care innovation implementation.	○	○	○	○	○
Domain IV - Characteristics of Individuals **Factor 15a - Knowledge & Beliefs about the Intervention: healthcare professionals/staff** within implementing team's beliefs, expectations, and familiarity with facts, truths, & principles related to the transitional care innovation.	○	○	○	○	○

Continued.

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very easy
Factor 15b - Knowledge & Beliefs about the Intervention: patients/older persons' attitudes toward and value placed on the transitional care innovation as well as awareness on its care services & goals.	○	○	○	○	○
Factor 16 - Role: individual's role (healthcare professionals, staff within implementing team) and responsibility for the transitional care innovation; including the degree of multiple or shared roles.	○	○	○	○	○
Factor 17 - Skills & Competencies: degree of relevant subject matter expertise, skills, and competencies within the implementing team, unit, and organization.	○	○	○	○	○
Factor 18b - Other Personal Attributes: patients/ older persons' other personal traits such as health literacy, values, and acknowledgement of own care needs.	○	○	○	○	○
Domain V - (Implementation) Process Factor 20 - Transition Roles (Frontline Staff): administrative staff, providers (within and outside the organization), e.g. frontline staff such as transition nurses or advanced practice nurses with designated transition roles who will carry out the innovation or be affected by it.	○	○	○	○	○
Factor 21 - Reflecting & Evaluating: quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.	○	○	○	○	○
Factor 22 - **Measurement Capability/Data Availability:** availability of timely data. Capacity for monitoring, evaluation, and process improvement. Includes measurement differences; accountability for collection, documentation, and analysis.	○	○	○	○	○
Factor 23 - **Engaging Key Stakeholders:** individuals from within the organization that are directly impacted by the transitional care innovation, e.g. staff responsible for making referrals to a new program or using a new work process.	○	○	○	○	○
Factor 24 - **Engaging Organizations, External Context (revised):** developing and capitalizing on relationships with healthcare professionals and frontline staff in the various organizations involved in the implementation of a transition care innovation, and promoting external collaborations with other outside care providers (e.g. home care agency), and resources (e.g. community resources or social services for older persons) linked to the implementation.	○	○	○	○	○
Factor 25 - **Engaging Innovation Participants (revised):** individuals (patients/older persons, family, informal caregivers) served by the organization that participate in the transitional care innovation (e.g. ensuring family inclusion in care goals setting).	○	○	○	○	○

Continued.

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very easy
***Additional New Factors (suggested by respondents from round 1):** **New Factor 1 - Power of Decision-makers:** defined as the main trigger to allow the successful implementation of a transitional care innovation.	○	○	○	○	○
New Factor 2 - Sense of Urgency: the urgent need and attention given to implementing a specific transitional care innovation with respect to other innovation projects being addressed within an organization.	○	○	○	○	○
New Factor 3 - Adoption of Change in Work Processes: adapting and changing "how things work" across several levels (organizational, group, individual, policy); and in view of the capacity for implementing this change within an organization.	○	○	○	○	○
New Factor 4 - Financing of Transitional Care Innovation Implementations: the existing financing structures that affect the implementation such as fragmented financing & a lack of clear financing structures, or varied reimbursement systems of healthcare services.	○	○	○	○	○
New Factor 5 - Inter-organizational Collaborations: the presence of long-lasting trust relationships between multiple organizations involved in transitional care; in addition to the level of good collaboration and care coordination among different organizations within different and various sectors of the healthcare system, as well as varied care disciplines/services.	○	○	○	○	○
New Factor 6 - Previous Experiences with Implementation of Innovations: a prior history and experience of organizations & healthcare professionals in implementing change and new interventions, programs, and innovations.	○	○	○	○	○
New Factor 7 - Co-design of the Transitional Care Innovation: the degree of involvement of the stakeholders (older people and healthcare providers) in the design of the innovation prior to the implementation stages.	○	○	○	○	○

Q2) Please provide any further comments you might have on the feasibility (easiness/difficulty) to address each of the listed factors in relation to implementing Transitional Care Innovations:

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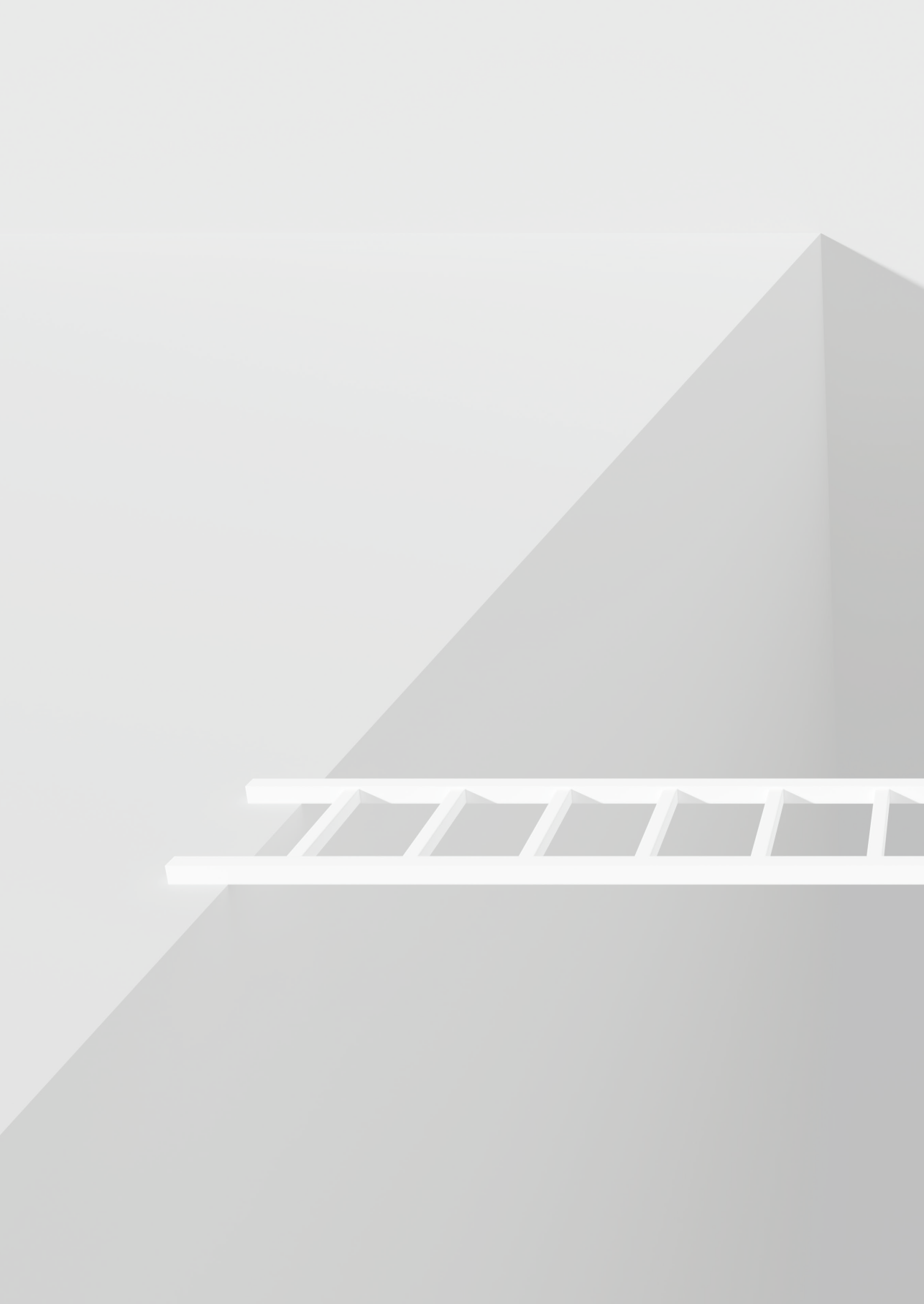
Appendix 3C. List of factors that reached consensus on direction of influence on the implementation of TCIs, from round one

Factor	Rating: Hindering/Strongly Hindering (Consensus level in %)	CFIR Domain
Round one		
Complexity	96	Intervention characteristics
	Rating: Facilitating/Strongly Facilitating (Consensus level in %)	
Leadership engagement	100	Inner setting
Engaging key stakeholders	97	Process
Relative advantage	93	Intervention characteristics
External incentives	93	Outer setting
Evidence strength and quality	90	Intervention characteristics
Relative priority	90	Inner setting
Available resources	86	Inner setting
Access to knowledge and information	86	Inner setting
Transition roles - frontline staff	86	Process
Skills and competencies	83	Characteristics of individuals
External policy	83	Outer setting
Networks and communications	83	Inner setting
Planning	79	Process
Reflecting and evaluating	79	Process
Knowledge and beliefs of healthcare professionals about the TCIs	76	Characteristics of individuals
Measurement capability/data availability	72	Process
Engaging organizations, external context	72	Process



CHAPTER 4

Implementing Four Transitional Care Interventions for Older Adults: A Retrospective Collective Case Study

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ABSTRACT

BACKGROUND AND OBJECTIVES

Four interventions to improve care transitions between hospital and home or community settings for older adults were implemented in Leuven, Belgium over the past four years. These complex interventions consist of multiple components that challenge their implementation in practice. This study examines the influencing factors, strategies used to address challenges in implementing these interventions, and implementation outcomes from perspectives of healthcare professionals involved.

RESEARCH DESIGN AND METHODS

This was a qualitative, collective case study which was part of the TRANS-SENIOR research network. Authors conducted semi-structured interviews with healthcare professionals about their perceptions regarding the implementation. Thematic analysis was used, and the Consolidated Framework for Implementation Research guided the final data interpretation.

RESULTS

Thirteen participants were interviewed. Participants reported major implementation bottlenecks at the organizational level (resources, structure, information continuity), while facilitators were at the individual level (personal attributes, champions). They identified engagement as the primary strategy used, and suggested other important strategies for future sustainability of the interventions (building strategic partnerships, lobbying for policies to support transitional care). They perceived the overall implementation favorably, with high uptake as a key outcome.

DISCUSSION AND IMPLICATIONS

This study highlights the strong role of healthcare providers, being motivated and self-driven, to foster the implementation of interventions in transitional care in a bottom-up way. It is important to use implementation strategies targeting both the individual-level factors as well as the organizational barriers for transitional care interventions in the future.

KEYWORDS

Integrated care, innovations, barriers, facilitators, strategies.

BACKGROUND AND OBJECTIVES

Across Europe, the population of older adults (65 years and above) with chronic disease and multi-morbidity has risen dramatically in recent years (1). Moreover, older adults have increased health care utilization (2) and are at higher risk of care transitions between multiple care settings (3). Unfortunately, care transitions are vulnerable phases to older adults, who are often confronted with care fragmentation and a lack of coordination among healthcare providers (4). This leads to compromised patient outcomes, such as medication errors or more hospital readmissions (5). To address this challenge, the concept of integrated care was encouraged to enhance transition and coordination across or within the different levels and sites of care sectors (6).

Integrated care approaches (i.e., across different care settings, such as hospitals and primary or community care) are promising solutions to improve the quality and efficiency of care transitions for older adults (7, 8). In this study, we focus on interventions with an integrated care approach that aim to improve the care transitions for older adults with chronic diseases between hospital and home or community settings, which we refer to as transitional care interventions (TCIs). Recent global forces in healthcare delivery to enhance transitional care for older adults have driven the development and implementation of a plethora of innovative TCIs embedding integrated care (9-11). However, although the effectiveness of these interventions is promising (11), there is still an inadequate awareness and understanding of how to successfully implement them in practice (12). Furthermore, studies that comprehensively investigate the implementation (context, strategies, and outcomes) of these interventions are limited (13, 14). To date, literature has highlighted that exploring implementation factors in the context is pivotal for implementing complex interventions in healthcare (15). Research has identified multiple factors (barriers, facilitators) influencing the implementation of integrated care and TCIs for older adults that often behave as two sides of the same coin (e.g., insufficient resources as a barrier/sufficient resources as a facilitator) depending on the context (16, 17). For example, low organizational readiness for change, regulatory challenges, failure to target the right population, and restricted knowledge on the intervention by implementers were key barriers to implement such interventions (16, 18), while appointing champions to promote the interventions or assigning transition roles for staff were strong facilitators (16, 19).

Because of the complexity of implementing interventions such as TCIs, various implementation strategies described as methods used to improve adoption, implementation, and sustainment of interventions in healthcare practice were developed (20). A few examples of such strategies include assessing for implementation readiness and identifying barriers/facilitators, involving executive boards, obtaining formal commitments, involving patients, expanding roles/shifting tasks, or using an implementation advisor (21, 22). These

strategies, especially when tailored to the context, can have potentially positive effects on the implementation. Yet, their use is either rare or not correct when observed in practice, where "we learn as we do" is more likely the trend (23). Hence, there is an ambiguity on how to best embed these interventions in the actual world of transitional care practice, whereby even implementation strategies that can work in one setting might not in another.

Moreover, there is limited knowledge on the particular implementation of TCIs focusing on older adults with chronic diseases moving between hospital and home or community settings. A thorough study of all of the key aspects of implementation is still lagging behind in this field of care. Hence, there is merit to closely investigate this implementation in the real-life context and to obtain an in-depth understanding on what are the practical issues or guarantors of success.

THE CASE: FOUR TRANSITIONAL CARE INTERVENTIONS

In 2018, a government-led pilot project was launched in Leuven, within the Flemish region of Belgium, which aimed to improve integrated care for people with chronic diseases (24). The main objectives were to improve the outcomes of population health, improve patient and provider experiences, and achieve better cost efficiency (25). Within this project, four interventions focused on transitional care. This collective retrospective case study investigates the implementation of these four TCIs: *1. intermediate care center, 2. envelope action/medication reconciliation, 3. caring neighborhood teams, and 4. chronic heart failure care program* for enhancing care transitions of older adults with chronic disease between hospital and home or community settings (26). The four TCIs were created in reference to guidance provided by the government on integrated care; however the specific components of each of the interventions were developed from an assessment of the local care needs of the population in Leuven. The needs assessment was a result of discussions and consensus among a multidisciplinary team in the region including general practitioners (GPs), homecare organizations, hospitals, social/community services, and a community pharmacists' network who agreed on the local care needs and designed the interventions accordingly (27).

This study aimed to qualitatively examine the four cases from an implementation science perspective, informed by the viewpoints of project coordinators and healthcare professionals involved in the implementation of the TCIs. The main study objective was to examine three key implementation aspects: a) to explore which factors influenced the implementation of the TCIs, b) to identify if any implementation strategies were used to implement the TCIs, and c) to report on the implementation outcomes of the TCIs and the overall success.

RESEARCH DESIGN AND METHODS

STUDY DESIGN AND CASE SELECTION

This study used a qualitative collective case study research design (28, 29). We selected a case study design with an interpretative and constructivist approach in order to obtain a naturalistic and an in-depth understanding of a complex and context-dependent issue (implementation of transitional care interventions) as perceived by healthcare professionals (29, 30). Cases were defined as the four TCIs. For each case, data were collected using interviews to explore various implementation aspects from the perspectives of project coordinators and healthcare professionals.

INTERVENTION SELECTION AND DESCRIPTION

An initial meeting with the project coordinators of the overarching integrated care pilot project led to the identification and selection of the interventions, which were focused on transitional care for older adults between hospital and home or community settings, implemented in Leuven. Table 1 describes each intervention based on information retrieved from the official project website and documents provided by the project coordinators (26).

PARTICIPANTS

First, we identified the key contacts within the overarching integrated care project, who helped us determine the TCIs cases and directed us to the core project coordinators of these specific interventions. The project coordinators were particularly knowledgeable and played a critical role in developing and implementing the four TCIs (31, 32). These project coordinators were interviewed then asked to suggest additional potential candidates using the snowball sampling. We ensured the inclusion of participants with either an in-depth knowledge of the TCIs' implementation and/or those who were involved in delivering the interventions directly (31). We invited 24 candidates for interviews by email and sent a study information document and consent forms. Saturation was determined as reached when new interviews became redundant and provided little new information (33).

Table 1. Description of the Four Transitional Care Interventions (TCIs)

Description	Case A: Intermediate Care Center	Case B: Envelope Action / Medication Reconciliation	Case C: Caring Neighborhood Teams	Case D: Chronic Heart Failure Care Program
Overview	An interim center referred to as "bed house" is developed inside a hospital - initiated during the outbreak of the COVID-19 pandemic. It is a care transition unit between hospital and home settings and vice versa. Implementation started in April 2020 and lasted for approximately 3 months (first wave of COVID-19).	An envelope that contains the patient's medication scheme and prescriptions is provided to patients upon discharge from hospital and addressed to the community pharmacist. Implementation started in 2018*.	A network of multidisciplinary primary care providers and social workers within one neighborhood, that work jointly on improving care at the population level. The teams focused on mapping the chronically ill and vulnerable individuals with multimorbidity within the neighborhood and providing care coordination tailored to their needs. Implementation started in 2018*.	A care program developed specifically for heart failure disease management and care coordination. Implementation started in 2018*.
Function	To prevent hospital bed-blocking by accommodating patients that are either medically stable to be discharged from hospital but not yet able to return to their home due to social and medical reasons, or have care needs which were too complex to be able to stay at home but did not require hospitalization.	To facilitate medical information transfer between hospital care and the community pharmacist in order to perform medication reconciliation (checking for medication discrepancies and medication-related issues) and patient counseling.	To ensure integrated and population-oriented care at the neighborhood level.	To ensure a close follow-up for the chronic heart failure patients discharged from the hospital.
Transitional care aim	Improve care transitions from hospital to home and vice versa.	Improve care transitions from hospital to home or community settings and prevent re-hospitalization.	Prevent care transitions from home or community settings to hospital and reduce readmissions.	Improve care transitions from hospital to home and avoid rehospitalization.
Settings and care organizations involved	Hospital, intermediate care unit in the hospital, private home, homecare, and primary care.	Hospital, community pharmacists' providers' network, homecare, and primary care.	Community service centers, social care, homecare, and primary care.	Hospital, community, private home, homecare, and primary care.

Table 1. Continued

Description	Case A: Intermediate Care Center	Case B: Envelope Action / Medication Reconciliation	Case C: Caring Neighborhood Teams	Case D: Chronic Heart Failure Care Program
Other features	Use of the "Siilo application", a digital communication tool developed and used among care providers within the center and outside, which enabled continuous communication flow to arrange care.			Home care nurse – role as heart failure patient educator Structured transitional protocol to guide post-discharge care Development of a discharge checklist in the hospital's EHR specific for heart failure post-discharge follow-up care E-learning course for GPs on heart failure management Automated diagnostic and qualitative audits in GPs' EHR to improve chronic heart failure case finding

Note: COVID-19 = coronavirus disease 2019; EHR = electronic health record; GP = general practitioner.
*The development and implementation of the TCIs were initiated in 2018 and continued until at least 2021 when this study was conducted. All four interventions were coordinated by a core team of project coordinators from within the different organizations involved across the interventions in the region and not one primary organization per intervention.

DATA COLLECTION

Interviews

We conducted individual semi-structured interviews using an interview guide (in Dutch language) with questions and prompts specific to either project coordinators or healthcare professionals (31). We developed the questions with the aid of published frameworks and concepts on implementation factors, strategies, and outcomes. Hence, we used the Consolidated Framework for Implementation Research (CFIR) interview tool in order to obtain perspectives on the implementation of the TCIs; for the complete interview guide, see Appendix 4A (21, 34-36). The guide was tested prior to use among the research team, and two masters-level student researchers performed the interviews between February and April 2021, with either of the authors (AF or ML) also present as observers. The interviews (lasting an average of 55 min) were conducted online using a data-protected video conferencing tool then recorded and transcribed verbatim. Transcripts were translated into English by the students who are native Dutch language speakers and checked by author ML as the Dutch-speaking researcher. Then, all transcripts were entered into NVivo (QSR International software, 2020) for coding and analysis.

DATA ANALYSIS

We conducted a combined thematic analysis, starting with an inductive and then a deductive approach, and following a six-step methodology (37). This data-driven analysis with an interpretative and constructivist approach served the objective of building knowledge about and understanding the implementation of the TCIs from the perspectives of individuals involved in the process. Authors (AF, ML) analyzed the data supported by NVivo; see Table 2 for steps of the inductive analysis and Appendix 4B for illustrations of the coding. All transcripts were combined together, and the pooled data was used as one main unit of analysis to allow a collective data analysis and not a comparative one among the cases (28). The second stage of the analysis followed a deductive approach and involved mapping data within the themes only pertaining to the influencing factors to the CFIR's domains/constructs, using the CFIR's codebook; see Appendix 4C for description of the CFIR constructs (38). This provided a further classification and interpretation of the findings on the implementation factors.

ETHICAL CONSIDERATIONS

The study was approved by the Ethics Committee Research UZ/KU Leuven (approval number MP017284), and an informed consent form was obtained from each participant.

Table 2. Six steps of inductive thematic analysis

Steps	Description
1. Familiarizing with the data	Authors (AF and ML) read through the full transcripts in order to familiarize themselves with the data and obtain an overall preliminary understanding of the content, alongside taking important notes.
2. Generating initial codes	The lead researcher (AF) started the inductive coding of all transcripts by first generating initial codes from the data, then collating the relevant extract data under each code. Simultaneously, ML independently co-coded all same transcripts. After rounds of coding, AF and ML reviewed and compared the codes along with the coded data extracts, and minor disagreements were discussed and resolved.
3. Searching for themes	Following four rounds of coding and adjustments, AF developed an initial set of potential summary themes.
4. Reviewing themes	AF and ML jointly reviewed the themes in relation to both the codes and the entire data set in an iterative way until both agreed on the final themes and their meaningfulness. Then, they developed a thematic map to provide an overview of the analysis.
5. Defining and naming themes	The research team developed, discussed, and agreed on a clear description, detailed summary analysis, and naming of each theme.
6. Producing the report	The research team produced a final report summarizing the key analysis results with selected quotes from the data, which they aligned it with the existing literature on implementation science concepts.

RESULTS

PARTICIPANTS' CHARACTERISTICS

Thirteen participants (five project coordinators and eight healthcare professionals) were interviewed as the following: four (Case A), two (Case B), five (Case C), and three (Case D). One participant was involved as a project coordinator in both Cases A and B, and hence was interviewed twice. The participants were almost equally distributed between men and women; and their professions included pharmacists, GPs, nurses, physiotherapists, and cardiologists. All participants were located and working across the various care organizations relevant to each TCI implementation (Case). Table 3 provides a breakdown of the participants' professional backgrounds and demographics.

OVERVIEW

Our thematic analysis yielded eight themes reflecting the three implementation aspects studied (implementation factors, strategies, and outcomes) for the four interventions combined. The relevant themes for each aspect are described below, see Figure 1 for listing of themes. In addition, a total of 28 codes were identified for the entire sample and across all themes; see Appendix 4B (illustrations of the coding) for the individual codes and count per each theme.

Table 3. Description of the participants

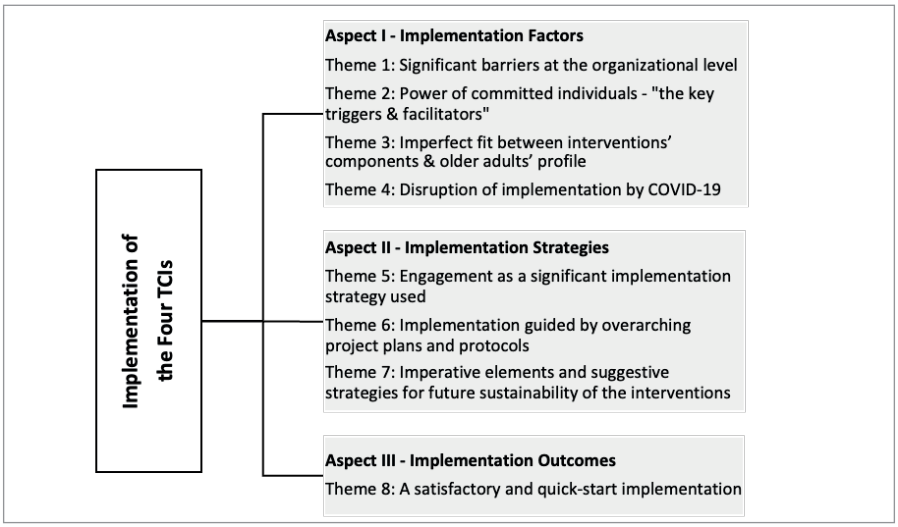
Cases	Participants [a] *Profession (N, gender)*	Organization type	Time of involvement in the TCI
Case A Intermediate Care Center	Project coordinators: *Pharmacists (3W)*	Community pharmacists' providers' network	Approximately 3 months
	HCP: *Homecare nurse (1M)*	Homecare organization	
Case B Envelope Action / Medication Reconciliation	Project coordinators: *Pharmacist (1W)* HCP: *Pharmacist (1W)*	Community pharmacists' providers' network	Average of 3 years [b]
Case C Caring Neighborhood Teams	Project coordinators: *Physiotherapist (1W)*	Hospital	Average of 3 years [b]
	HCP: *Physiotherapist (1M), GP (2M), Policy advisor welfare & care (1W)*	Primary care group practice, GP group practice, Government administration for Leuven city	
Case D Chronic Heart Failure Care Program	Project coordinators: *GP (1M)*	GP group practice	Average of 3 years [b]
	HCP: *Cardiologist (1M), Nurse (1M)*	Hospital	

Note: W = woman; M = man; HCP = healthcare professional; GP = general practitioner; TCI= transitional care intervention

[a] All participants are White, of European origin (race).

[b] Time of involvement in each intervention could be variable but is presumable to be an average of 3 years, between year 2018 when the development and implementation of the interventions started and until at least 2021 when this study was conducted.

Figure 1. Themes reflecting the three implementation aspects.



ASPECT I – IMPLEMENTATION FACTORS

Four themes describing the factors influencing the implementation of the TCIs emerged. By mapping the data within these themes to the CFIR domains/constructs, we obtained a clearer vision on the influencing factors, which were found across all the CFIR's domains. Key barriers were linked to the inner setting (organizational level) while main facilitators belonged to the characteristics of the individuals and the process of engaging. Table 4 presents the corresponding influencing factors as per the CFIR for each theme, along with the supporting quotes.

Theme One: Significant Barriers at the Organizational Level

According to participants, the implementation of the interventions was mainly hindered by a lack of organizational resources. They reported that the shortage of staff (e.g., nurses), heavy workloads, and insufficient time for care providers to perform their usual work duties plus new tasks exerted an extra pressure to implement the interventions (Table 4, quotes 3, 4). Moreover, participants indicated that low available funds for the implementation led them to operate with existing organizational budgets and resources (Table 4, quotes 5, 6). They reported that the budget provided by the government to care organizations and project coordinators was below the requirements to support the implementation of the interventions. This led to a lack of funds to hire more staff or pay overtime hours for existing staff in order to support the implementation. Correspondingly, one participant implied that not every organization could fulfill the structural demands associated with implementing a specific intervention. This was seen in Case D, in which large organizations had better capacity to implement versus smaller ones (Table 4, quote 1). Furthermore, the absence of

an integrated health information technology (HIT) platform within and between different care organizations compromised the communication among teams and the exchange of patients' medical information during care transitions (Table 4, quotes 2, 7, 8). Participants also identified another barrier to implementation in the outer setting of the implementing organizations. The presence of multiple and misaligned governmental healthcare policies (federal or regional) and a fragmented financing structure for integrated care services impeded a smooth implementation of the interventions (Table 4, quotes 9, 10).

Theme Two: Power of Committed Individuals – "The Key Triggers & Facilitators"

Across the cases, the presence of a triad of highly motivated, committed, and self-driven care providers who initiated the implementation with a bottom-up approach was perceived as a big facilitator (Table 4, quote 11). Participants emphasized that the implementers' strong willpower combined with their great enthusiasm to improve care for older adults with complex care needs was necessary to the implementation of the interventions (Table 4, quotes 14, 15). In addition, the existing work relationships among GPs, nurses, social workers, and other providers, along with supportive community resources, enabled a smooth implementation (Table 4, quotes 12, 13). Correspondingly, participants reported that engaging the right individuals (key stakeholders, champions, and innovation participants) was critical to the implementation (Table 4, quotes 16-19). In addition, participants highlighted that the champions of the TCIs played a key role in achieving buy-in for implementation through being present at implementation sites and leveraging their internal connections. These champions created awareness about the interventions, motivated care providers, and convinced them to adopt it. Similarly, involving the key stakeholders and players, such as pharmacists' representatives in Case B or large GP practices in Case C, facilitated the implementation, according to participants' viewpoints (Table 4, quote 20).

Theme Three: Imperfect Fit between Interventions' Components & Older Adults' Profile

The interventions' design and elements at times mismatched the care needs and characteristics of the target population of older adults, which in turn impeded the implementation (Table 4, quote 21). From the participants' point of view, the patient identification criteria of some interventions (Cases C and D) or the ability to accommodate their complex medical and psychosocial needs was difficult (Table 4, quote 22, 23). Nevertheless, it was indicated that sometimes the older adults' insufficient knowledge on how an intervention works (Case B), their low information technology (IT) competences, or insufficient awareness of the interventions' components posed challenges to the implementation (Table 4, quote 24, 25).

Theme Four: Disruption of Implementation by COVID-19

Participants reported how the COVID-19 pandemic disrupted the implementation of the interventions in various ways. Mainly, there were difficulties in communication among care

providers which was problematic to managing and implementing the interventions (Table 4, quote 26, 27). Furthermore, during COVID-19 the numbers of older persons enrolled in the interventions were much lower such as in Case D, so that home education of the chronic heart failure program patients was discontinued (Table 4, quote 28). As seen in Case C, by contrast, the implementation of this intervention was accelerated during the pandemic in light of an urgent need for creating a sense of community, delivering medications to homes, providing support, and making formal agreements with hospitals on discharge policies (Table 4, quote 29).

Table 4. Quotes illustrating factors influencing the implementation of the four transitional care interventions (TCIs).

Theme	CFIR (domain/factor)	Quotes*
Significant barriers at the organizational level	Inner setting:	
	Structural characteristics	*1) "So, in practice, you only see it being rolled out in the centers that are indeed capable of it and those are really the larger centers... who are big enough, the cardiologists who are willing to do that, and who can convince the hospital that it is important."* (HCP, Case D)
	Networks and communications	*2) "Yes, in terms of stumbling blocks. I think it is really just communication with GPs that is the biggest issue, but ... they are looking for a digital solution."* (HCP, Case D)
	Readiness for implementation - available resources	*3) "The obstacle in the implementation is that I personally have to be able to do it within my time."* (HCP, Case D) *4) "Things that discourage are the administrative burden, things that have to be done extra, lack of time, all the care providers simply have an impossible amount of work and they are always short of time."* (Project Coordinator, Case C) *5) "That is the biggest challenge and in terms of barrier, that means lack of funding for staff, for interventions, well for everything."* (Project Coordinator, Case D) *6) "...when you say about the difficulties of financing, yes ... the funny thing was that there was actually rarely a budget for the nurse coordinator in the intermediate care center."* (HCP, Case A)
	HIT systems resources	*7) "So, communication by electronic means is the most difficult...but the big problem remains finding a platform where first, second, and third can communicate."* (HCP, Case C)
	Information continuity	*8) "What we have noticed and continue to notice that data sharing just doesn't work, because you have different platforms." (HCP, Case A)*
	Outer setting:	
	External policy and incentives	*9) "I think what is blocking us most of all is the fact that the supra-local policy is not so well coordinated; the federal health policy and the Flemish welfare policy."* (HCP, Case C) *10) "The way primary care is currently financed is not always very conducive to integrated care, because it actually keeps the partitions in place, and partitioning is difficult if the financing model doesn't change".* (Project Coordinator, Case A)

Table 4. Continued

Theme	CFIR (domain/factor)	Quotes*
Power of committed individuals – "the key triggers and facilitators"	Intervention characteristics:	
	Intervention source	*11) "A very important one has been the neighborhood teams; these are teams of care providers in the first line. GPs, pharmacists, nurses, physiotherapists, psychologists, etc. who work together at neighborhood level on chronic patients and they implement the care programs… that is actually how it came about from the bottom up, because the initiators of those neighborhood teams were the GPs."* (Project Coordinator, Case A)
	Outer setting:	
	Cosmopolitanism	*12)"We are very lucky to have a chronic care project in this region, because, yeah, healthcare providers they kind of know each other… and that is like very beneficial or very facilitating for this cooperation."* (Project Coordinator, Case A)
	Community resources	*13) "I think the fact that we have community centers and local service centers in Leuven is a good thing, yes, anchor points for a caring neighborhood."* (HCP, Case C)
	Characteristics of individuals (healthcare providers, implementers):	
	Knowledge and beliefs about the intervention	*14) "In addition, what certainly plays a role is that, as I said at the beginning, there is a motivator for more quality care, so a facilitator or motivator, achieving support and shared responsibility are all things that motivate".* (Project Coordinator, Case C)
	Other personal attributes	*15) "There is a lot of commitment, there is a lot of enthusiasm, there is a lot of goodwill and openness to try things not only to that heart failure project, but also to the broader project. So that is positive, but actually implementing it then yes, that also depends on how much personal affinity people or carers have with it. That varies greatly, but the basis is that there is a lot of goodwill … it was our own motivation and commitment."* (Project Coordinator, Case D)
	Process – Engaging:	
	Champions	*16) "What was good about facilitating us was the people [TCIs team] themselves. They really took the initiative to set up meetings with the community team because otherwise, I think, it would never have happened so quickly."* (HCP, Case C) *17) "And [person name from TCIs team] was kind of more a backup … that was very good because she is like the face of [TCIs], so this really helps for this kind of work; and I think this really works for the motivation of the pharmacists, the healthcare providers, in general. "* (Project Coordinator, Case A)
	Key stakeholders	*18) "…but [person name from TCIs team] yes, she also works at hospital for her other job. So that was also a gateway to making it easier to contact other people within the hospital."; "Yes, the pharmacists within [TCIs team] and [person name] are the representatives of the pharmacists. So, in the meantime you have good contact with most pharmacists, so that also helps to motivate them"; "So I think in this way they were the most important triggers for this action."* (Project Coordinator, Case B)
	Innovation participants	*19) "The fact that citizens are also involved means that they also see that yes, we can play a role in this".* (HCP, Case C)
	Engaging organizations, external context	*20) "That there are a number of strong players involved, two large GPs practices that are both committed… a number of institutions are also involved."*(HCP, Case C)

Table 4. Continued

Theme	CFIR (domain/factor)	Quotes*
Imperfect fit between interventions' components and older adults' profile	Intervention characteristics:	
	Design quality and packaging	*21) "So those bottlenecks were initially the design of the envelope which was not clear enough for the older population, and something that clearly needed to be addressed was raising awareness among patients and nurses in any case, and also among pharmacists."* (Project Coordinator, Case B)
	Targeted groups	*22) "...the problems are mainly related to identifying the right patient, and a second problem is once the patients are identified to get them to the right person, and that is something that is not quite running smoothly yet."* (HCP, Case C) *23) "Being confronted once again with the complexity of the patient group that is indeed at risk, and the complexity is in the medical ... but also in the social, psychological, element that is really crucial, and that complicates a number of things, such as early care planning."* (HCP, Case D)
	Characteristics of individuals (older adults):	
	Knowledge and beliefs about the intervention	*24) "We have also had a patient before who said I have had a lot of explanations, but I didn't understand a thing, so could you please do it again?" (HCP, Case B)*
	Other personal attributes	*25) "Asking an 85-year-old to log into an app on his own. That is still difficult ...there will always be a generation gap with every modernization."* (HCP, Case D)
Disruption of implementation by COVID-19	Outer setting - miscellaneous:	*26) "But we have never actually been able to sit together in real life with all the people from the neighborhood team, which made communication a bit more difficult in the beginning."* (HCP, Case C) *27) "So yes, that was difficult because of COVID, that not everyone's role was equally clear ...who can I talk to and who is here."* (Project Coordinator, Case A) *28) "That was a real disaster, wasn't it? You saw that within the care program not only on cardiac consultation simply. I think we had a time when 30% of the patients did not show up without calling. If necessary, I would say give the people a tablet so that I can give them their education via the computer, but the people all refused. That really was a period of time; I think it was more than two months that I couldn't include anyone".* (HCP, Case D) *29) "I think very strongly. On the one hand, there are many bottom-up initiatives. I think much more than in other times. Neighbors helping each other out ... A lot has been set up. There are also, I think, a lot of agreements with hospitals ... their discharge policy. I know that the pharmacists have also taken very nice actions with home delivery of medication; so many things have been accelerated. So that has been very nice."* (HCP, Case C)

Notes: CFIR = Consolidated Framework for Implementation Research; HCP = healthcare professional; GP = general practitioner; TCI = transitional care intervention; COVID-19 = coronavirus disease 2019.
*The presented quotes are representative of and can be generalizable across the cases.

ASPECT II – IMPLEMENTATION STRATEGIES

Theme Five: Engagement as a Significant Implementation Strategy Used

Bringing all key actors together, creating knowledge exchange collaborations, capitalizing on existing healthcare providers' unions, and identifying early adopters were seen as the main engaging activities that supported the implementation of the four TCIs. In Case A, project coordinators indicated that healthcare providers in the hospital and intermediate care center, home care nurses, and pharmacists were actively engaged and brought together to establish working agreements for the intervention.

> "*A moment with healthcare providers from the hospital and the center and another one from home setting and nurses from the center. It was really a moment that they were engaged of making these agreements, which is very important." (Project Coordinator, Case A)*

Furthermore, project coordinators explained how they ensured the buy-in and active participation of healthcare providers by communicating the processes required for the interventions and demonstrating the benefit.

> *"I started to explain this action and always with the nurse or the head nurse of the department and then try to convince them or make them see the benefit of it." (Project Coordinator, Case B)*

> *"We actually just set up these processes and then communicated them to the doctors. They were very happy that there was a process and noticed immediately that it went well. So it didn't really take much effort to get people on board. The team spirit was there from the start...especially with the doctors that went very smoothly." (Project Coordinator, Case A)*

Utilizing the existing healthcare providers' unions was another way to bring together all interested parties and key stakeholders (e.g., pharmacists' associations, home care organizations) leading to higher engagement in developing protocols for implementing interventions such as in Case D. Moreover, the implementation of interventions, for example in Cases A and B, was supported by collaborating and engaging with the university hospital in Leuven, which helped project coordinators exchange expertise and knowledge. Similarly for Case C, it was reported how the implementation of caring neighborhood teams was driven by ensuring a bottom-up cooperation and involvement. Therefore, primary healthcare providers with an already innovative idea were identified and invited to take lead in implementing the intervention.

> *"The early adopters, who are the people already working on things and*

> *who are the quickest to get involved or who want to take the lead. And so, we brought them together to say, this is what we want to do, we are going to start up neighborhood teams ... do you want to cooperate and are you prepared to set up a neighborhood team in your area together with us? So, that is how we approached it." (Project Coordinator, Case C)*

Also, the appointment of a reference person with a facilitator role for the intervention was perceived a manner to drive the implementation and help resolve arising issues.

> *"...that is really very important in implementation that there is a person ... the person of that intervention..." (Project Coordinator, Case B)*

Theme Six: Implementation Guided by Overarching Project Plans and Protocols

Participants explained how a formal implementation blue print for the interventions was lacking and instead a general project plan existed. This plan was developed for all interventions combined and in collaboration with healthcare providers and organizations involved; however, it was modified since its initiation and was not followed exactly as it should be.

> "*Now, of course, that plan is evolving and in the meantime it is already four years old. So, we no longer implement exactly what was in the original plan at the time, but we do implement the broad outlines." (Project Coordinator, Case A)*

Protocols, guidance documents, and training plans were developed to support the implementation. However, participants noted that healthcare providers implementing the interventions did not always adhere to the exact project plans or their predefined responsibilities but rather implemented them in a more intuitive manner.

> "*So there was like a protocol to make sure the operation or implementation would be good." (Project Coordinator, Case A)*

> *"...and then a protocol was drawn up. This is how the care should be for heart failure patients, and these are everyone's responsibilities." (Project Coordinator, Case D)*

Theme Seven: Imperative Elements and Suggestive Strategies for Future Sustainability of the Interventions

Participants recommended a number of strategies for the future sustainment of the implementation of the four TCIs. First, securing sufficient and continuous funding for the

interventions was expressed as crucial to maintain the resources (e.g., staff, HIT) needed for implementation.

> *"There is always a financing side to sustainability." (HCP, Case C)*

> *"...so more funding, more resources, more staff for the primary care areas ... and better means of communication ... better e-health possibilities integrated in the medical files..." (Project Coordinator, Case D)*

Second, involving the government and vouching for supportive policies for providers of transitional care (e.g., reimbursement structures) was seen as another key strategy.

> "*I think the general lesson is that around transition of care, the government should be a real partner of care providers to make this possible. I think that is a precondition. I feel that is still not enough. I also think that the region should be given the freedom to experiment and that sufficient financial resources should be made available to make this possible." (Project Coordinator, Case A)*

Third, building strategic partnerships, making formal agreements, and instituting the interventions within large healthcare organizations was indicated as highly needed.

> *"I think a broader partnership is needed. I say if you want a home care worker at the table locally, then that also has to be coordinated supra-locally and that is why in the future we are going to have a real partner consultation with the strategic partners, where we can make agreements with the management level of home care services ... of umbrella organizations of residential care centers about how their staff can be involved." (HCP, Case C)*

Fourth, ensuring the presence of motivated implementers (e.g., champions of the interventions) that lobby continuously for the interventions to keep it going on, as well as building a team capacity with the right skills, was indicated as instrumental for sustainability.

> "*I think first of all you have to have a permanent team that coordinates everything and that can fill in and handle everything perfectly. And to ensure continuity, who know what they are doing." (HCP, Case D)*

The last strategy suggested was to consistently monitor the implementation of the interventions and to obtain convincing data on patient outcomes in order to demonstrate the interventions' benefits and help sustain it.

ASPECT III – IMPLEMENTATION OUTCOMES

Theme Eight: A Satisfactory and Quick-start Implementation

Participants regarded the implementation as favorable, and indicated that the implementation started rather quickly and smoothly with noticeable enthusiasm and collaborative work, see Table 5.

Adoption of the interventions by the healthcare providers was high initially, and many were easily convinced, attracted, and open to adopting the new practices, although it slowed as time passed. The adoption was high among the pharmacists and also providers with a younger age who were more willing to adopt new innovations. Participants indicated that developing an intervention from within; and by the healthcare providers of each community, created a sense of group feeling and promoted its adoption.

Appropriateness of the intervention's components to the care needs of the target population of older adults was sometimes not achieved, according to the participants. For example, in Case C, the neighborhood caring team's intervention provided overarching services to various target groups in the community, which might not fit the specific needs of each group. Participants noted that healthcare providers tend to presume the needs of the older adults and decide on their behalf. However, in some instances healthcare providers were keener to involve and ask the older adults for their needs and then helped them to acquire it.

The interventions were perceived as of high "*acceptability*" and added value to the older adults. Participants indicated that older adults were satisfied and felt supported and acknowledged with the care services provided by the interventions.

"*Fidelity*" to the interventions' core components has changed across the implementation, whereby some were performed in the same manner and as originally planned, but some interventions' components were no longer delivered or were adapted according to the local context (i.e., community needs such as in Case C).

Table 5. Quotes illustrating the implementation outcomes of the four transitional care interventions (TCIs).

Implementation Outcomes	Quotes
Adoption	"*Yes, the pharmacists are very motivated; the adoption rate is also very high. I think that is because they are actually appreciated for something that they have always done and now they get the right information.*" (Project Coordinator, Case B) *"What shocked me in a positive way is how little energy I had to put into convincing others to participate. I didn't have to convince anyone. It was like, of course we're going to participate ... certainly in the beginning I didn't have to make any effort to draw people into this story."* (HCP, Case C)
Appropriateness	*"Because sometimes they themselves are not well ... they need care ... Yes, I sometimes have the feeling that perhaps without realizing it, you are deciding too hard for them, which is best for them."* (HCP, Case C) *"The important thing is that you also ask your patients what do you want and what are your goals? And we actively questioned that, because we had an objective scale, but we also wanted to look at 'Do you want to go back home, yes, okay, what can we help you with? How is your home situation? But also, how can we help you physically?' So, you need that active participation from your patient anyway."* (HCP, Case A)
Acceptability	*"Very satisfying in that way that they have to worry a lot less...I think that is positive for them, that they feel more acknowledged and that in itself provides a more positive experience."* (HCP, Case B)
Fidelity	*"We have planted the seed and put forward the idea, but we have said this is the way that you could do it, but as a neighborhood team you may want to decide to do it differently, as long as you make sure that you do population management..."* (Project Coordinator, Case C)

Note: HCP = healthcare professional.

DISCUSSION

Findings revealed that the prominent implementation barriers of the four TCIs were linked to the organizational setting and included insufficient resources and funding, small structure with low capacity, suboptimal internal work networks and communication, and discontinuous information exchange between care providers. On the other hand, the project coordinators and healthcare providers' great motivation and commitment, as well as strong beliefs and favorable attributes to initiate and drive the implementation, were facilitators. Also, the presence of champions for the TCIs fostered the process further. In this study, strategies used to implement the interventions were limited yet largely focused on engaging the right people, such as early adopters, key actors, and existing partners. Participants suggested other key strategies are needed (e.g., monitoring, lobbying for transitional care policies) to continue the implementation of the four TCIs in the future. Overall, participants perceived the implementation outcomes as favorable, as indicated by quick and high adoption, as well as general acceptability, yet participants also reported variable appropriateness of the interventions' components to the needs of the older adults.

The current results are in line with our previous work on factors influencing the implementation of TCIs in general, as reported in a scoping review (16). However, unlike the scoping review, in this case study we found a clear distinction implying that key barriers

belonged to the organizational setting while facilitators were linked to the characteristics of individuals and the implementation process (engaging). Similarly, Lutz and colleagues (39) showed that healthcare providers' willingness, commitment, and ownership were enablers for the implementation of TCIs. Our results were further mirrored in a systematic review on implementing integrated care interventions, which identified factors at organizational and healthcare system levels (e.g. limited staffing capacity, poor communication, restrictions in funding reimbursement systems) as implementation barriers (40). In contrast with this, however, it was seen in other studies on the implementation of TCIs that individual-level factors behaved more as barriers or had a mixed influence (16, 41). Another important barrier in this study was the lack of coordinated and well-structured national health policies to support the implementation of the four TCIs. Likewise, this resonates with recent evidence from Belgium indicating that its current federal government structure, healthcare financing system, and lack of digital system/data sharing among providers hinders the implementation of care integration in general (42). One factor we missed in this study was leadership which was not pointed out explicitly as a crucial factor to the implementation, as frequently recognized in the literature (43). Perhaps this could be because the project coordinators and healthcare professionals saw themselves as the leaders and facilitators of the four TCIs, hence driving through the implementation accordingly.

Our analysis deduced that engagement was the major implementation strategy used, although it was performed intuitively, and without any previous decision. It is most likely that the strategies used came habitually to project coordinators and healthcare providers and were outside their awareness of growing evidence indicating the essential role of using implementation strategies to put new interventions in practice. Nonetheless, these strategies coincide with known ones (e.g., facilitation, conducting education/training meetings, obtaining work commitments) being used in the implementation of other TCIs (44). At the same time, in this study there was no local needs assessment, identification of barriers and facilitators beforehand, or development of monitoring systems, which are commonly recommended implementation strategies (21).

According to our study, the individuals' realm of personality, attributes, beliefs, and cognition was a distinguishable facilitator to the implementation. The underlying key lever here was their continuing motivation coupled with a strong intention to bring about the change (behave differently to implement the four TCIs) in order to achieve expected outcomes. Our results confirm and expand the existing evidence regarding the role of human agency in changing behavior, as explained by various social cognitive/behavioral theories (45, 46). Notably, it was established that motivation is essential to both instigate and direct behavior, especially new behavior (47). As per Michie et al.'s behavior system, motivation sits at the core and in between the individual's capability (physical, psychological) and opportunity (all factors outside the individual, i.e. context) and can directly induce behavior (45). Therefore, it is of

no surprise that implementing new interventions, such as TCIs, should involve considering this behavior system and choosing strategies to leverage the individual's motivation and capability (48). Hence, focusing on the internal factors of individuals has a high potential to achieve a target behavior and thus implement new interventions.

Even though individual factors appear promising for enabling a successful implementation, individuals are often part of a whole organization. Organizational factors (mainly unavailability of resources) are frequently reported, or better "blamed" as we saw in our study, for hindering the implementation of new interventions in transitional care. This rhetoric of organizational barriers necessitates further exploration. The concept of "organizational adaptation" is relevant, whereby organizations can rearrange their existing capabilities (e.g., operational capacity, infrastructure, financial resources) to implement a new intervention (49). As an example, a hospital wanting to incorporate a transition care nurse (considered a TCI) can do minimal adaptation by changing the job duties/description of a present frontline nurse without a new hire. This relates to looking inside organizations for slack resources – a cushion of extra staff, time, and space – that goes usually under-assessed but can actually be used for implementing a new intervention (50). Organizations can be more dynamic in utilizing their capabilities to implement change by continuously reflecting/tweaking their inefficient work routines or taking low-cost initiatives (e.g., form new alliances between hospitals and homecare services in one region to enhance care transitions) (51). Nonetheless, these strategies are ultimately linked to the presence of individuals within the organization who also possess dynamic and influential capacities sufficient to foster change.

STRENGTHS AND LIMITATIONS

The present study has some limitations. Selection bias can play a role, however the sampling methods used allowed us to obtain insights from the core individuals involved who were the closest to the implementation process. The number of participants and their occupations as interviewed per case was not evenly distributed, yet we chose to combine the data in one unit of analysis. Also, if more information on the participants' age and length of time in each profession were available, it could have added to the interpretation of the findings. We note that the representation of diversity in a study sample is important. Therefore, if participants of other ethnicities were included, there might have been more diverse viewpoints presented, other elucidations to data patterns, and possibly better generalization of the results. The retrospective data collected were based on self-reporting and reflection which could be subject to personal recall biases. Nevertheless, our study's strength lies in providing a broad and in-depth understanding of how the implementation of TCIs occurs in real-life, using implementation science approach.

IMPLICATIONS FOR PRACTICE AND RESEARCH

Given both the lack of insight about the influencing factors and the absence of a deliberate selection of implementation strategies prior to implementing the four TCIs, we hereby propose recommendations to implement TCIs using implementation science concepts.

1. *Understand the context early on* – Prior to any implementation effort, a thorough assessment of the contextual factors is vital and gives a heads-up to implementers. Checking what can hinder/enable the implementation in a specific context can help capture the complexity of the settings involved, especially in transitional care. This allows implementers to understand the capabilities and opportunities existing in their current context, and whether a new TCI has a chance to be implemented.
2. *Use implementation strategies* – Choosing strategies from the various available taxonomies can guide the implementers on how to best implement a TCI (21). Specific strategies must be carefully selected according to their effectiveness as well as the ability to address the relevant influencing factors.
3. *Empower the people and forge partnerships* – Implementing TCIs is a team activity and requires leveraging the personal factors of the individuals involved. Knowing what motivates, activates, and inspires the individuals and offering it to them can support the implementation of a new TCI. Also, creating partnerships is nevertheless critical in transitional care; involving the key actors necessary for implementing a TCI can only propel the process.
4. *Research* – First, future studies should examine more bottom-up initiatives of implementing TCIs performed with an intuitive implementation approach. This would allow comparison of such studies with planned pilots and trials. Second, developing implementation strategies tailored to TCIs and testing its effectiveness in practice is needed.

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APPENDICES

Appendix 4A. Interview guide used in the semi-structured interviews
Appendix 4B. Illustrations of Coding
Appendix 4C. Consolidated Framework for Implementation Research (CFIR) Constructs Description

Appendix 4A. Interview guide used in the semi-structured interviews

(Note – please refer to the underlined questions which are the ones pertaining to implementation and which were used to collect data for this study. The other questions were used for a second study).

Questions – Project coordinator

1. Can you shortly describe the action and your role in those actions?
2. Which stakeholders and healthcare professionals were involved in those actions?
3. <u>What did you do to encourage, motivate and engage healthcare professionals to commit to using these actions? Did you assign any champions, leaders, persons with a facilitator role, or any other assigned roles to help spread those actions to the healthcare providers?</u>
4. Now we will focus on the aspect transition of care for elderly. What does transitional care mean for you?
5. Can you shortly describe the impact of the action on the transition of care for elderly people?

a. Communication
b. Shared-decision making/ patient involvement/ informal caregiver involvement
c. Person-centered care
d. Medication reconciliation
e. Continuity of care at home (organization of follow-up care)

6. Can you shortly describe the impact of the action on the healthcare professionals?
7. Can you shortly describe the impact of the action on the healthcare system?
8. To what extent are those actions fully integrated? What stage are they at?
    a. <u>Status of implementation</u>
    b. Does the current state of implementation of those actions meet your expectations?
    c. <u>Is the action still carried out as planned?</u>
        i. <u>How has the action been affected in the context of COVID-19</u>
        ii. <u>Sustainability of the project</u>
9. <u>Did you develop a project plan to implement and roll out those actions to the various healthcare providers? If yes, can you briefly describe the plan?</u>
    a. <u>Did you perform any activities or use specific strategies to implement those actions? (e.g.: education and training, champions, mandate change)</u>
10. <u>Did you already receive some feedback from primary and secondary healthcare providers? If yes, what did you learn about it?</u>
11. <u>Adoption (= intention to try to use the intervention)</u>
    a. <u>How would you assess (or what would you say) on the adoption level of these actions by healthcare professionals? This means the intention to use the intervention by the healthcare professionals.</u>
    b. <u>What are the barriers/obstacles/challenges in the implementation of those actions?</u>

And were there any facilitators to enable a better and successful implementation of those actions?

12. What is needed to continue these actions?
13. How can this action be expanded?
14. Which lessons could be learned from this action regarding the future?

Completing the interview

Would you like to add something to this interview?

Thank you for your participation.

Questions – Healthcare professional

1. Can you shortly describe the action and your role in those action?
    a. How do you experience this role?
2. Which other persons are involved?
    a. How did you experience the collaboration and the communication? Is everyone aware of his/her responsibilities?
3. Now we will focus on the aspect transition of care for elderly. What does transitional care mean for you?
4. Can you shortly describe the impact of the action on the transition of care for elderly people?
    a. Communication
    b. Shared-decision making/ patient involvement/ informal caregiver involvement
    c. Person-centered care
    d. Medication reconciliation
    e. Continuity of care at home (organization of follow-up care)
5. Can you shortly describe the impact of the action on the healthcare professionals?
6. Can you shortly describe the impact of the action on the healthcare system?
7. Acceptability (perceived views that an intervention is agreeable, satisfactory, credible, and comfortable): to what extent do you think those actions are satisfactory and advantageous to the older persons with chronic disease and requiring care transitions between hospital & home?
8. Appropriateness (perceived compatibility of the intervention with needs & practices of a setting or population): to what extent do you think these actions address/meet the care needs of older persons with chronic disease and requiring care transitions?
9. Is the action still performed as planned?
    a. Status of implementation
    b. How has the action been affected in the context of COVID-19?
10. Sustainability (extent to which an intervention is routinized or maintained within an organization): How would you ensure that these actions become a routine part (used regularly) of the daily work of the healthcare professionals within your team/in your

organization?

11. Experiences and expectations:
    a. How did you experience those actions?
    b. Is the action meeting your expectation? Can you explain the reasons as to why it is or isn't meeting your expectations?
    c. According to you, do you think the implementation of the action is successful? Can you explain the reasons as to why the implementation is or isn't successful?
12. What are the barriers/obstacles/challenges in the implementation of those actions? And were there any facilitators to enable a better and successful implementation of those actions?
13. Which lessons could be learned from this action regarding the future?

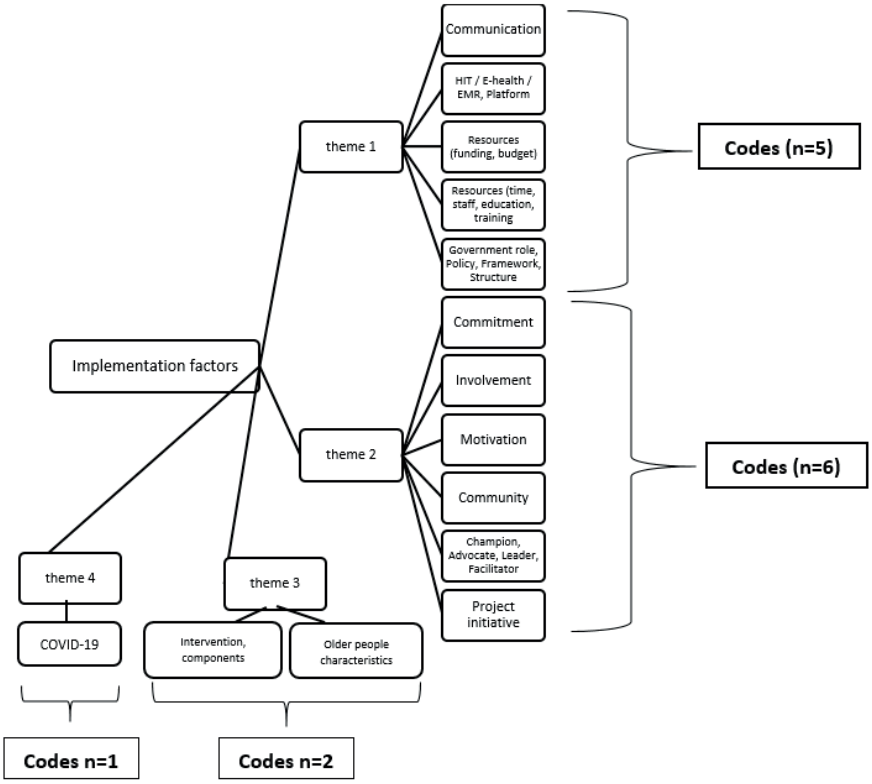
Completing the interview

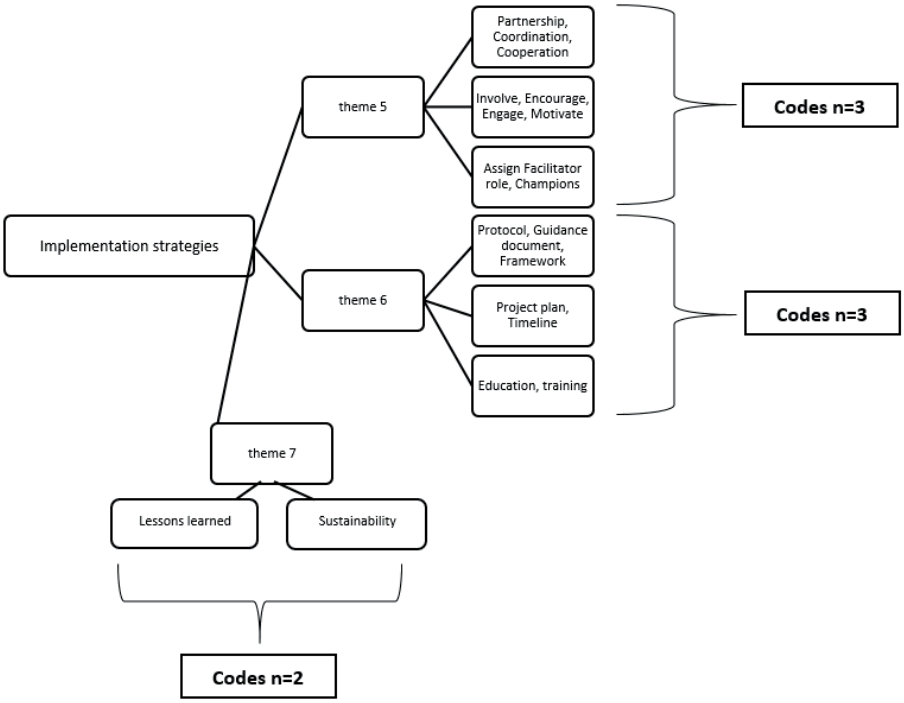
Would you like to add something to this interview?

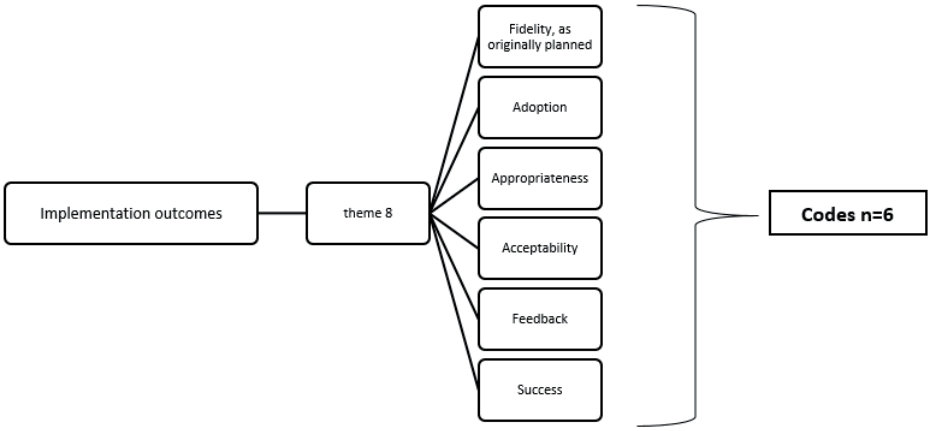
Thank you for your participation.

Appendix 4B. Illustrations of Coding

**n: number of codes per theme*




Implementation strategies
theme 5
theme 6
theme 7
Partnership, Coordination, Cooperation
Involve, Encourage, Engage, Motivate
Assign Facilitator role, Champions
Protocol, Guidance document, Framework
Project plan, Timeline
Education, training
Codes n=3
Codes n=3
Lessons learned
Sustainability
Codes n=2


Implementation outcomes
theme 8
Fidelity, as originally planned
Adoption
Appropriateness
Acceptability
Feedback
Success
Codes n=6

Appendix 4C. Consolidated Framework for Implementation Research (CFIR) Constructs Description

CFIR constructs / CTF* selected constructs		Short Description
I. Domain: INTERVENTION CHARACTERISTICS		
A	**Intervention Source**	Perception of key stakeholders about whether the intervention is externally or internally developed.
B	**Evidence Strength & Quality**	Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes.
C	**Relative Advantage**	Stakeholders' perception of the advantage of implementing the intervention versus an alternative solution.
D	**Adaptability**	The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs.
E	**Trialability**	The ability to test the intervention on a small scale in the organization, and to be able to reverse course (undo implementation) if warranted.
F	**Complexity**	Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement.
G	**Design Quality & Packaging**	Perceived excellence in how the intervention is bundled, presented, and assembled.
H	**Cost**	Costs of the intervention and costs associated with implementing the intervention including investment, supply, and opportunity costs.
CTF	**Targeted Groups**	Staff and others (vendors, patients) who are the intended recipients or beneficiaries of the intervention.
II. Domain: OUTER SETTING		
A	**Patient Needs & Resources**	The extent to which patient needs, as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization.
B	**Cosmopolitanism**	The degree to which an organization is networked with other external organizations.
C	**Peer Pressure**	Mimetic or competitive pressure to implement an intervention; typically because most or other key peer or competing organizations have already implemented or are in a bid for a competitive edge.
D	**External Policy & Incentives**	A broad construct that includes external strategies to spread interventions, including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting.
CTF	**Community Resources**	Availability and access of service providers, aging resources, and multiple levels of community services and supports not directly involved in the intervention.
III. Domain: INNER SETTING		
A	**Structural Characteristics**	The social architecture, age, maturity, and size of an organization.
B	**Networks & Communications**	The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization.
C	**Culture**	Norms, values, and basic assumptions of a given organization.
D	**Implementation Climate:**	The absorptive capacity for change, shared receptivity of involved individuals to an intervention, and the extent to which use of that intervention will be rewarded, supported, and expected within their organization.
D.1	***Tension for Change***	The degree to which stakeholders perceive the current situation as intolerable or needing change.

Appendix 4C. Continued

CFIR constructs / CTF* selected constructs		Short Description
D.2	***Compatibility***	The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems.
D.3	***Relative Priority***	Individuals' shared perception of the importance of the implementation within the organization.
D.4	***Organizational Incentives & Rewards***	Extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary, and less tangible incentives such as increased stature or respect.
D.5	***Goals and Feedback***	The degree to which goals are clearly communicated, acted upon, and fed back to staff, and alignment of that feedback with goals.
D.6	***Learning Climate***	A climate in which: a) leaders express their own fallibility and need for team members' assistance and input; b) team members feel that they are essential, valued, and knowledgeable partners in the change process; c) individuals feel psychologically safe to try new methods; and d) there is sufficient time and space for reflective thinking and evaluation.
E	**Readiness for Implementation:**	Tangible and immediate indicators of organizational commitment to its decision to implement an intervention.
E.1	***Leadership Engagement***	Commitment, involvement, and accountability of leaders and managers with the implementation.
E.2	***Available Resources***	The level of resources dedicated for implementation and on-going operations, including money, training, education, physical space, and time.
E.3	***Access to Knowledge & Information***	Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks.
CTF	**IT and HIT Resources:**	Technological infrastructure in place to support electronic information management, including IT that crosses organizations.
CTF	***HIT Systems***	Electronic information management infrastructure and technologies available to clinicians to manage patient care, data, and communications.
CTF	**Continuity**	Information continuity (exchange of information) and relationship continuity, both with providers and patients/caregivers and across organizations.
IV. Domain: CHARACTERISTICS OF INDIVIDUALS		
A	**Knowledge & Beliefs about the Intervention**	Individuals' attitudes toward and value placed on the intervention as well as familiarity with facts, truths, and principles related to the intervention.
B	**Self-efficacy**	Individual belief in their own capabilities to execute courses of action to achieve implementation goals.
C	**Individual Stage of Change**	Characterization of the phase an individual is in, as he or she progresses toward skilled, enthusiastic, and sustained use of the intervention.
D	**Individual Identification with Organization**	A broad construct related to how individuals perceive the organization, and their relationship and degree of commitment with that organization.
E	**Other Personal Attributes**	A broad construct to include other personal traits such as tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, and learning style.
V. Domain: PROCESS		
A	**Planning:**	The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance, and the quality of those schemes or methods.
B	**Engaging:**	Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities.

Appendix 4C. Continued

CFIR constructs / CTF* selected constructs		Short Description
B.1	***Opinion Leaders***	Individuals in an organization who have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the intervention.
B.2	***Formally Appointed Internal Implementation Leaders***	Individuals from within the organization who have been formally appointed with responsibility for implementing an intervention as coordinator, project manager, team leader, or other similar role.
B.3	***Champions***	"Individuals who dedicate themselves to supporting, marketing, and 'driving through' an [implementation]", overcoming indifference or resistance that the intervention may provoke in an organization.
B.4	***External Change Agents***	Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desirable direction.
B.5	***Key Stakeholders****	Individuals from within the organization that are directly impacted by the innovation, e.g., staff responsible for making referrals to a new program or using a new work process.
B.6	***Innovation Participants****	Individuals served by the organization that participate in the innovation, e.g., patients in a prevention program in a hospital.
CTF	***Engaging Organizations, External Context***	Developing and capitalizing on relationships with providers, leaders, and frontline staff in the implementing organizations, and to external providers, resources, funders.
C	**Executing:**	Carrying out or accomplishing the implementation according to plan.
D	**Reflecting & Evaluating:**	Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience.

*Few constructs from the Care Transitions Framework (CTF) were added and used here within CFIR. CTF is based on the CFIR with additional constructs for care transitions (check below reference 2). **Two additional constructs (engaging: key stakeholders, innovation participants) under engaging in the process domain were added as per CFIR research group (https://cfirguide.org/).

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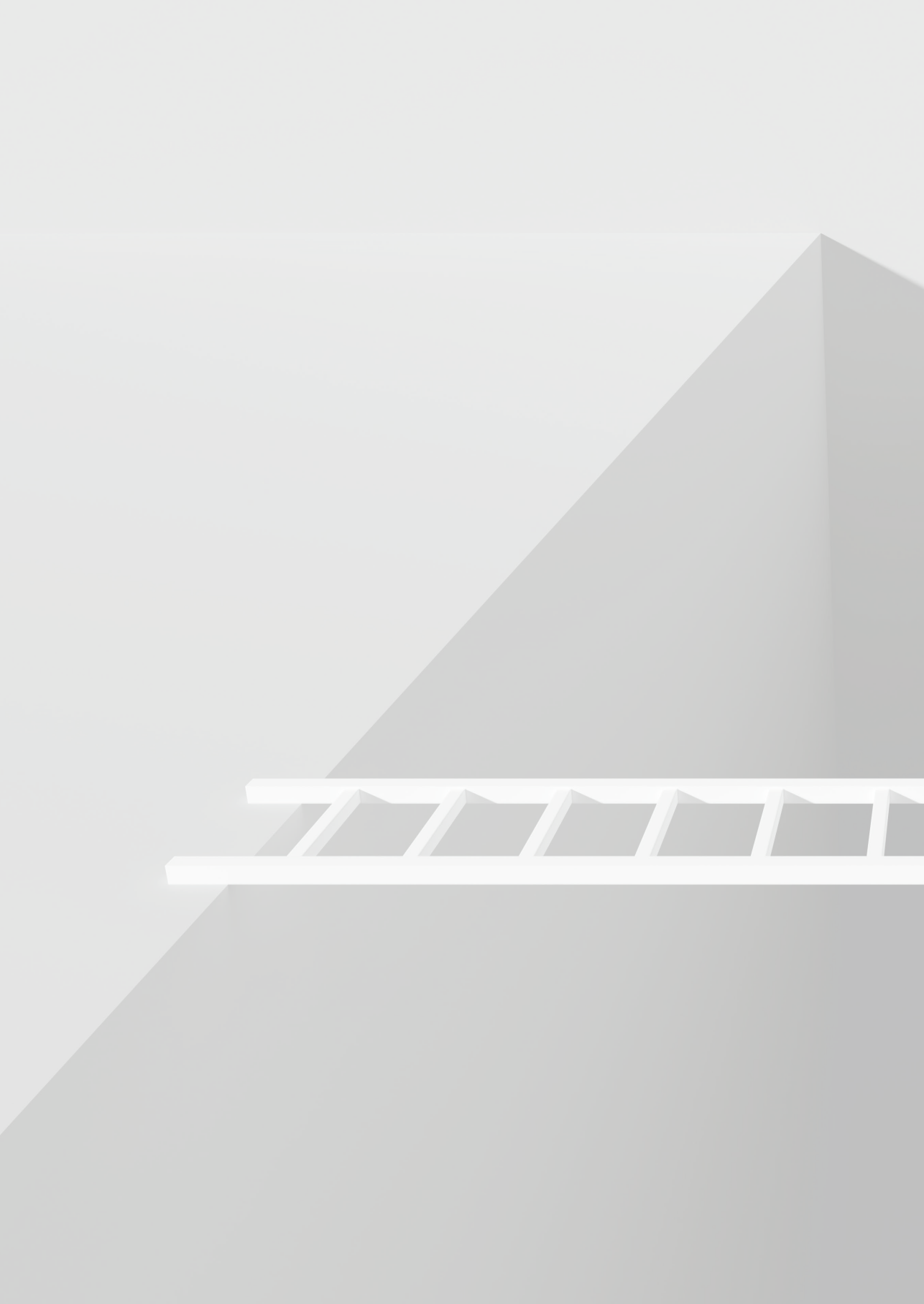

CHAPTER 5

Stakeholders' Experiences and Perception on Transitional Care Initiatives within an Integrated Care Project in Belgium: A Qualitative Interview Study

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ABSTRACT

BACKGROUND

In 2015, a plan for integrated care was launched by the Belgium government that resulted in the implementation of 12 integrated care pilot project across Belgium. The pilot project Zorgzaam Leuven consists of a multidisciplinary local consortium aiming to bring lasting change towards integrated care for the region of Leuven. This study aims to explore experiences and perceptions of stakeholders involved in four transitional care actions that are part of Zorgzaam Leuven.

METHODS

This qualitative case study is part of the European TRANS-SENIOR project. Four actions with a focus on improving transitional care were selected and stakeholders involved in those actions were identified using the snow-ball method. Fourteen semi-structured interviews were conducted and inductive thematic analysis was performed.

RESULTS

Professionals appreciated to be involved in the decision making early onwards either by proposing own initiatives or by providing their input in shaping actions. Improved team spirit and community feeling with other health care professionals (HCPs) was reported to reduce communication barriers and was perceived to benefit both patients and professionals. The actions provided supportive tools and various learning opportunities that participants acknowledged. Technical shortcomings (e.g. lack of integrated patient records) and financial and political support were identified as key challenges impeding the sustainable implementation of the transitional care actions.

CONCLUSION

The pilot project Zorgzaam Leuven created conditions that triggered work motivation for HCPs. It supported the development of multidisciplinary care partnerships at the local level that allowed early involvement and increased collaboration, which is crucial to successfully improve transitional care for vulnerable patients.

KEYWORDS

Integrated care, interdisciplinary communication, continuity of patient care, health care policy, qualitative research.

BACKGROUND

The ageing of the population puts a burden on current health care systems. Older patients with multiple chronic conditions often have complex health care needs over a long period of time. The need for complex health care services frequently leads to health care transitions between different locations or at different levels of care within the same location (1). Poorly performed healthcare transitions can cause harm, such as poor clinical outcomes, missed diagnosis, incorrect treatment, dissatisfaction among patients, inappropriate use of healthcare services, rehospitalization and mortality (2).

Integrated care initiatives are recommended to ensure continuity of health care and thus particularly benefit older chronically ill patients who often experience transitions. Integrated care is defined as "the management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system" (3). Research shows that the integration of health care can result into improved access to services, reduced hospitalizations and readmissions, enhanced adherence to treatment, increased patient satisfaction, improved health literacy and self-care, greater job satisfaction of health care workers, and overall improved health outcomes (4).

Integrated care initiatives that support continuity in care across boundaries require interdisciplinary collaboration, however, establishing consistent multidisciplinary work structures is a complex task (5, 6). It is known that implementing integrated care programs is difficult as it is often co-determined by unique dynamics and characteristics that can hinder or facilitate implementation within and across health care settings (5, 7). Studies suggest that attitudes of health-care professionals towards change is crucial. Involving professionals during the development of integrated care programs encourages closer team work early onwards and allows professionals to understand their role as part of the whole (8).

The project 'Integrated Care for Better Health' (Integreo) that was launched by the Belgian government in 2016, follows this perspective of including stakeholders in the design of integrated care initiatives (9). In Integreo, 12 pilot projects for integrated care were designed in co-creation with interested professionals from different local regions (10). As a result, multidisciplinary local consortia were created to develop a plan with common visions and objectives within a certain geographical area in Belgium. This approach allowed professionals to share their hands on experience while creating a common plan for integrated care. While it is desirable to involve professionals in the development process, it is an extensive process that often leads to challenges, such as additional workload, conflicting opinions and regular changes in scope. These challenges often create an uncomfortable climate of uncertainty, which might create additional burden for health care professionals (10).

This paper focuses on Zorgzaam Leuven (ZZL), one of the 12 Integreo projects (11), by presenting four actions of ZZL that aim to achieve integrated care across settings, thereby improving transitional care and the quality of care interactions. The aim of the paper is twofold. First, we describe the four selected actions that focus on improving transitional care for older chronically ill patients. Second, we aim to get a deeper understanding on the experiences and perceptions of involved stakeholders (health care professionals (HCP) and project coordinators) on transitional care at local level and in the everyday practice.

METHODS

DESIGN

The study used a qualitative naturalistic case study design, which allows to gain understanding of a complex issue in its real life context (12). The pilot project ZZL was defined as the case, while the four transitional care actions were selected to study the case. To understand individual perceptions, semi-structured interviews were used as data collection method.

STUDY SETTING

In 2015 the joint plan for chronic care 'Integreo' was agreed on by all health ministers in Belgium. This resulted in the start of implementing integrated care pilot projects with the aim to develop and test integrated care initiatives in 12 different regions in Belgium (13). Each pilot project covers a different geographical region between 75,000 and 360,000 inhabitants. The Belgium government defined 14 components of integrated care to be implemented by the projects. The local project team were allowed to define care goals and the target population in order to implement integrated care where most needed and suited for their region (14). Thus, new care initiatives can be developed and tested within the 12 projects. The ultimate goal of Integreo is to improve the quadruple aim objectives for healthcare: improving population health and patient experience, reducing costs, and enhancing well-being of health care providers (14, 15).

ZZL is conceptualized as a project to bring lasting change towards integrated care for the region of Leuven, Belgium. The pilot phase of the project took place from 2017 to 2022. ZZL consists of a multidisciplinary local consortium with a core team of ten part-time project coordinators and more than 60 local organizations from the region, including home care organizations, pharmacies, GP practices, regional hospitals, non-profit organizations and research organizations (16). It covers the region of Leuven and consists of the following sub municipalities: Leuven center, Heverlee, Kessel-Lo, Wijgmaal and Wilsele, including 100,516 inhabitants in October 2021 (17). Leuven is known as a university city and is therefore characterized by a relatively young population (18). The percentage of people aged 65+ in

Leuven is 16.7% in 2021 (17) while the regional average in Flanders was 20.2% in 2019 (19). Two hospitals are located in the project region: the regional hospital Heilig Hart Leuven (287 beds) and the University Hospitals Leuven (1995 beds). Within this region ZZL acts as a vehicle to bring different actors together and to promote and initiate change in co-creation.

The multidisciplinary local consortium of ZZL started by conceptualizing a large project plan for the region that was based on three pillars: 1. population-oriented thinking, 2. caring neighborhood concept, and 3. smart-actions in co-creation (11). The project plan provides a framework for the consortia by outlining the target population and the main six themes for action. The target population is divided into 1. the vulnerable multimorbid ill population, 2. people with one chronic disease and 3. people at risk for chronic disease and the healthy population. The six central themes for developing actions are 1. care programs, 2. care coordination, 3. medication, 4. caring neighborhoods, 5. assisted living and 6. health promotion (20). The project plan therefore guides the local consortia in developing actions for integrated care however providing enough flexibility allowing stakeholders to experiment in finding the right local solutions.

SELECTION OF TRANSITIONAL CARE ACTIONS AND INTERVIEWEES

We selected actions with presumed impact on transitional care. Therefore, the researchers reviewed available information online (e.g. project plan) and developed a list of actions from ZZL that focused on improving transitional care pathways. This list was discussed with a project coordinator from ZZL and was subsequently narrowed down to four actions, which formed our final selection: 1. Care program heart failure to improve care for chronic heart failure patients by implementing four-guideline recommended interventions; 2. Intermediate care center to reduce the burden on hospital during the first wave of COVID-19; 3. Neighborhood teams to create close networks of local health care providers; and 4. Medication reconciliation envelope to provide a link between the hospital and the community pharmacy (see Table 1).

For each action we first conducted an interview with the designated project coordinator from ZZL. Project coordinators were the first point of contact as they were involved in the development and implementation of each action and thus particularly knowledgeable. We also asked project coordinators to suggest relevant stakeholders from the field. We ensured to include stakeholders that were directly involved in the action. We continued to use the snowball method for additional selection of potential participants. Stakeholders were invited by e-mail including information about the study and an informed consent form. In total 24 invitations were send out of which 13 participants accepted the invitation.

DATA COLLECTION

Semi-structured interviews were carried out by two student researchers. The interviews were

conducted in the timeframe from February until April 2021 via video conferencing software in order to oblige with the COVID-19 regulations. Two interview guides were developed: one for interviewing the project coordinators and one for interviewing other stakeholders. Questions were developed by reviewing relevant literature and in discussion with the research team. After each interview, the interview guide was revised and adjustments to the questions were made if deemed necessary. The main topics of the interview guide were: description of the action, role of the involved stakeholders, stakeholders perception on transitional care, sustainability of four actions, and lessons learned for the future of transitional care within ZZL. The complete interview guide can be found in Appendix 5A. Also, we conducted a document analysis to collect additional data on the action description and searched for relevant documents using websites, actions plans, published papers and government reports. Included documents had to discuss at least one of the four selected actions.

Thirteen interviews were conducted in Dutch and one in English. The interviews lasted 55 minutes on average. The interviews were recorded and transcribed ad verbatim. English translations of transcripts were conducted by two student researchers and checked by a third researcher (ML). All transcripts were then imported to NVivo for data analysis.

DATA ANALYSIS

First, thematic analysis with an inductive approach following the six steps as described by Braun & Clarke 2006 was used to organize, describe and analyze the qualitative data in detail (21). Second, collected data from the document analysis was added to the interview data in order to conduct the action description. This allowed for comparison of various sources in order to reach corroboration. Interview data of each action was analyzed separate for the action description. In order to analyze the experiences and perceptions of participants on transitional care, we analyzed interview data of all four actions combined. NVivo software was used to support the analysis process.

For the thematic analysis, first the familiarization of data was conducted by two researchers (ML, AF) reading and re-reading through the full transcripts to get a first understanding about the data as well as ideas for coding. Second, initial codes were generated from the data by one researcher (ML) and relevant data were collected for each code by coding all transcript interviews. A second researcher (AF) co-coded simultaneously all interviews independently. The researchers were meeting each other at three different time moments to discuss meaning of codes and resolve disagreements before, during and after coding. As a third step, themes were searched by listing all codes and starting the process to sort and combine codes leading to first ideas of themes and sub-themes. For the fourth step, themes were jointly reviewed by two researchers (ML, AF) to further refine themes and their meaning. A second revision with a third researcher (GG) was conducted and resulted in a

thematic 'map'. Defining, naming and describing themes separately and collectively was conducted in step five in discussion with three researchers (ML, AF, GG) and was discussed with the whole research team. Lastly, the final report was produced with supporting quotes from the data.

The Ethics Committee UZ Leuven/KU Leuven approved the study (registration number: MP017284) and the interviewees provided written informed consent.

RESULTS

INTERVIEW PARTICIPANT CHARACTERISTICS

Fourteen interviews were conducted with thirteen stakeholders as one stakeholder was interviewed twice on two actions. Among the five project coordinators that were interviewed, there were three pharmacists, one physiotherapist and one general practitioner. The eight other stakeholders involved in the transitional care actions were two general practitioners; one home care nurse, one cardiac nurse, one cardiologist, one physiotherapist and one policy advisor for welfare & care (see Appendix 5B for an overview of interview candidates across the four actions).

TRANSITIONAL CARE ACTIONS

The thematic analysis and document analysis to describe four transitional care actions resulted in an item list that is presented for each of the four actions in Table 1. It includes the objective, transitional care focus, patient target group, main HCPs included, key components of the action, synergies, implementation status, context information. Appendix 5C lists all items and their meaning.

Table 1. Description of actions

Item List	Action 1: Intermediate Care Center	Action 2: Neighborhood teams	Action 3: Medication envelope action	Action 4: Care program chronic heart failure
Objective	To reduce the burden on hospitals during the first wave of COVID-19 and therefore to provide an immediate solution during the crisis.	To create close networks of local health care professionals at neighborhood level in order to provide integrated care for patients and to detect vulnerable groups early on. The action aims to strengthen and structure primary care and improve cooperation between primary care, secondary care and tertiary care.	To support the discharge process from the hospital by providing information on medication to the community pharmacist therefore allowing pharmacists to provide medication reconciliation to discharged patients.	To improve care for heart failure patients by implementing four guideline-recommended disease management interventions.
Transitional care focus	To provide support during two care transitions: 1) transition from hospital to intermediate care center and, 2) transition from intermediate care center to the community.	To prevent unnecessary care transitions from the community setting to the hospital by connecting the neighborhood and providing early integrated care for vulnerable patients including coordination of care.	To facilitate the information transfer on medications during the care transition from hospital to the community pharmacist.	To avoid unnecessary care transitions to the hospital and improve necessary transitions from the hospital to the community.
Patient target group	Vulnerable patients who were medically able to leave the hospital and who (often for social reasons) couldn't go home yet - both patients with a COVID-19 infection or without an infection.	Each neighborhood team decided on their own target population, however the focus was especially on the vulnerable or multimorbid population.	All patients discharged from participating hospital departments	Heart failure patients or patients with a risk for heart failure living in the community or being admitted at the cardiology ward.
Main HCPs involved	Coordinating pharmacist, community pharmacist, home care nurse, head nurse, social worker, GP, specialist, psychologist.	Local health care professionals from the same neighborhood including: GP, pharmacist, physiotherapist, home care nurse, psychologist, tabaccologist, dietician, social worker	Nurse at discharge and community pharmacist.	Heart failure educator, GP, heart failure nurse at the hospital ward, cardiologist, home pharmacist.

Table 1. Continued.

Item List	Action 1: Intermediate Care Center	Action 2: Neighborhood teams	Action 3: Medication envelope action	Action 4: Care program chronic heart failure
Key components	• Coordination of medical, pharmaceutical and social care to arrange a seamless transition between the hospital and the intermediate care center and the intermediate care center and the home setting • The patients GP, pharmacist and home nurse were contacted and informed and if necessary a follow-up appointment was scheduled for the patient.	Each neighborhood team developed specific aims and approaches for their patients that resulted in diverse projects such as: • group sessions to provide information on different topics (e.g. loneliness, healthy habits, positive health) • coaching sessions within the neighborhood such as walking moments or smoking cessation campaign for COPD patients • implementation of disease programs.	• The patient receives an envelope from the nurse at discharge containing necessary documents to perform a medication reconciliation: medication scheme from the hospital, medication prescriptions at discharge and a registration form. The envelope is addressed to the community pharmacist. • To keep track of conducted medication reconciliations, community pharmacists are requested to scan the code of the envelope and to fill in a registration form	The following four interventions were implemented: 1. To improve the first-line diagnostics by reimbursing the natriuretic peptides test (NT-proBNP) for GP's in Leuven which allows diagnosing heart failure 2. To implement automated diagnostic and qualitative audits for heart failure in primary care settings that help to safeguard high quality care for patients 3. To provide a heart failure education session that focus on self-care management for high-risk patients. GP's or HCPs at the hospital can contact trained nurses to provide an education session to their patients 4. To improve the discharge moment for heart failure patients at the hospital by implementing a structured discharge protocol including: a checklist for high risk patients, telephone contact with the patient GP to plan follow-up appointment and heart failure education session 14 days after discharge

Table 1. Continued.

Item List	Action 1: Intermediate Care Center	Action 2: Neighborhood teams	Action 3: Medication envelope action	Action 4: Care program chronic heart failure
Synergies	• Siilo application: a secure medical messenger for HCPs • Medication envelope (Action 3).	• Siilo application. • NexusHealthPro software: expending software access to several health care professional groups including physiotherapists, nurses, pharmacists, dentists and midwives. The software allows to consult hospital files of patients.		• Medication envelope (Action 3).
Implementation status	The action was implemented during the first wave of COVID to provide an immediate solution during the crisis and was stopped afterwards.	8 neighborhood teams are running in the region of ZZL and each team roughly covers a population of 5000-8000 inhabitants.	The action is implemented within various departments of three hospitals in the region/close to the region of ZZL.	The action is implemented at various hospitals (cardiology department) and at the community (homecare and primary care).
Context information	Coordinating pharmacist organized the medication follow-up from admission until discharge. The role of the coordinating pharmacist was tested first in Belgium within the intermediate care center.	The neighborhood teams were structured based on 'natural' networks in the community. A division of 24 small neighborhoods of 4000 inhabitants exist in Leuven and has been used to start the networking of neighborhoods within ZZL (22).	The action fills a current gap to digitally share information on medications at discharge.	The four interventions have been tested previously in the Belgium setting (23).

EXPERIENCES AND PERCEPTIONS

Thematic analysis to explore the stakeholders experiences on transitional care resulted into the five themes: 1. Involvement of HCPs in decision making, 2, Improved community feeling – reduced barriers of communication, 3. Supporting tools and learning opportunities for HCPs, 4. Transitional care for patients in practice, 5. Key challenges: coordination, resources, financial & political support. Each theme is described separately in the next sections.

THEME 1: INVOLVEMENT OF HCP IN DECISION-MAKING

HCPs appreciated being involved early on in shaping actions and welcomed the bottom-up approach from ZZL allowing them to propose own ideas for initiatives. Stakeholders felt motivated to be involved in all four actions that can benefit the care for their patients and bring themselves closer to local health care professionals from primary care and secondary care.

> *"The approach that we are not going to come to you with a finished programme, but you are going to have a say in that programme. They really like that, they feel acknowledged..." (Project Coordinator)*

> *"And a lot of specific questions, a lot of input from primary care providers. That was greatly appreciated, because it was actually the first time that the primary care providers had the feeling that they could directly take part in this process." (Project Coordinator)*

Actions were considered as a potential leverage for change and positive experiences were shared with colleagues, who then convinced other HCPs to join. Moreover, HCPs appreciated that their input was taken into account while shaping actions and that for example a new role for coordinating pharmacists could be tested at the intermediate care center (Action 1). These positive changes triggered discussions on how health care professionals see their role and increased their confidence to be more assertive about being involved and voicing their opinion.

> *"The neighborhood teams also have a very strong pull effect and that is because they are set up by the care providers themselves." (Project Coordinator)*
> *"They're stronger, more assertive, and they now also asked to join the vaccination centers. That also makes communication more easy. They have an opinion [...] "(Project Coordinator)*

THEME 2: IMPROVED COMMUNITY FEELING - REDUCED BARRIERS FOR COMMUNICATION

Across all actions, stakeholders reported that the threshold for communication had reduced

and they noticed a significant improvement in the overall team spirit. HCPs experienced more direct and straightforward communication with each other.

> *By doing so yes we have got to know each other, haven't we? So now we know each other and yes we have a much lower threshold to send a Siilo message" (HCP 1)*

Also, HCPs perceived an increased openness for providing interdisciplinary care. Stakeholders reported that the actions change their way of thinking about interdisciplinary care and that patients with chronic care needs should not be treated alone.

> *"There is much more openness to seeking and giving interdisciplinary advice "(HCP 1)*

> *"And I think that this project has made me think more about the fact that chronic care, the people who need chronic care, should not be tackled alone. Um, that I should take steps towards other people and say, we're going to tackle this more together." (HCP 2)*

In addition, the actions allowed HCP to get to know each other and to build up trust over time within and between primary care and secondary care. This was often highlighted in Action 1 where care decisions were shared with all involved HCPs using the Siilo application. A feeling of professional joy and being proud of what was achieved together was reported by one stakeholder**.**

> *"That professional joy that yes, everyone was really like that. I made my contribution here to a greater whole, even more than usual, you could really see that. Every little step that was taken by a particular care provider was shared in the group and everyone was like oh wow yes ok, we have to build on this. That was fantastic actually." (HCP 3)*

THEME 3: SUPPORTING TOOLS AND LEARNING OPPORTUNITIES FOR HCPS

HCPs felt the necessity to have modern secure tools. The communication application Siilo was appreciated for small care teams allowing to solve misunderstandings, to make adjustments to the care plan or to receive information on medication in a quick and uncomplicated way.

> *"I am convinced that Siilo can work on a small scale in defined patient groups" (HCP* 3)

Also, the paper envelope for conducting medication reconciliation was acknowledged by HCP as a tool for information transfer between hospital and the community pharmacy. Although many participants experienced these tools as useful, it was often stated that the current tools are seen as a temporary solution and a digital integrated patient record with messaging function is needed in the long-term.

> *"The problem lies in the fact that we still have to work on paper. Both for the home care nurses and for the pharmacists as well. So in Belgium there is no safe, for the time being, no platform where we can work together in the same module to follow up on the treatment [...]"(Project Coordinator)*

HCP's valued the learning opportunities that were provided within the actions. Stakeholders reported that the actions increased their awareness for the importance to conduct high-quality follow-up care (e.g. medication reconciliation guideline in action 3).

> *"I actually think that this is an added value because the envelope campaign made us aware that we can get some extra information from the patient that we sometimes don't think of ourselves" (HCP 4)*

THEME 4: TRANSITIONAL CARE FOR PATIENTS IN PRACTICE

Across all actions, stakeholders perceived that the actions offered support to guide their patients through complex treatments. Stakeholders experienced that the transitional care actions led to increased consultations with patients allowing HCPs for a better understanding of patient needs which ultimately resulted in delivering a more focused care approach.

> *"But I think there is a lot more consultation and we can approach the care in a much more focused way and guide the people better" (HCP* 5)

> *"Because you have a lot more, details about the person themselves. So I can really look more at what applies to this person. Not the generalized rattling off of questions to tell them. But with more information, you can indeed focus much more on the patient in front of you, in his individual context." (HCP 4)*

In addition, stakeholders shared feedback from primary care professionals highlighting improved knowledge and awareness of patients in better understanding early signs and symptoms of their disease. This was observed for patients who received a heart failure session during follow-up (Action 4), leading to improved awareness and increased independence.

> *"We have already heard from the home care nurses that the patients really do realize what they have to look out for. They are also becoming partly more independent, because they know that they have to start moving." (HCP 5)*

Moreover, stakeholders highlighted that the actions within the neighborhood allowed patients to connect with their community by joining activities organized at the local level (e.g. Action 2 – walking/exercising moments, group sessions).

> *"I think that at the moment, the impact of [name of neighborhood team] is certainly not that big on the things that you mention now. Erm, but it will rather have an impact on, erm, community work that brings people together more, such as the walks that are organized, the evenings that are organized around a particular theme" (HCP 6)*

Although the actions offered additional support for their patients, stakeholders overall felt that actions provided limited follow-up after transition and provided limited possibilities for patient involvement. Action 3 and 4 provided a one-time moment for follow-up which was perceived as too short by participants to ensure continuity of care.

> *"But after that, it is up to the GP and the informal carer to follow up properly and there is no actual follow-up. There is no long-term follow-up within our project [...]" (Project Coordinator)*

Also, many stakeholders perceived patient involvement as difficult in practice, partly due to technological challenges and partly due to their own reluctance in being involved in their own care. Difficulties were mentioned in particular for older vulnerable patients as they were asked to login to a patient platform which was perhaps not the right solution for this population group and did not provide flexible solutions. Additionally, stakeholders observed that patients did not agree to be included in the actions likely due to limited reach and awareness of ZZL or the COVID-19 situation that led to many cancellations.

> *"Um, but if we look at the chronic care population that I see, it's mainly the 70-80 plus, yes. The whole internet thing, online login, all that stuff, is perhaps not so applicable to them. In 20 years' time, it might be completely different, but at the moment it's perhaps not perfectly adapted to the needs of the patient." (HCP 2)*

> *"It's not always possible to really involve the patient according to the books, simply because sometimes there is a reluctance on the part of*

the patients and [...]. I don't mean to say that you can't or you can't do something about that, because that takes a lot of time, a lot of guidance" (HCP 7)

THEME 5: KEY CHALLENGES – COMMUNICATION, RESOURCES, FINANCIAL & POLITICAL SUPPORT

A lack of concrete communication and coordination was reported, especially in the beginning of the pilot project as involved HCPs needed to take over new roles and responsibilities that often required to learn new skills. Therefore, bringing disciplines together and deciding on a common method for coordination was perceived as difficult.

"because I had the impression that everyone was a bit on their own, all the disciplines were a bit on their own, but not enough working together" (Project Coordinator)

Additionally, stakeholders reported that a clear protocol for each action was missing, as a general project plan already existed that was used for all actions combined. This general project plan was set up in the development phase of the pilot project, however it was reported that the plan was modified in the meantime and not followed exactly as outlined. Stakeholders reported that the missing guidance created difficulties for implementation and decisions on ownership.

"But because it didn't have a very clear protocol of 'yes, we're going to do it like this and like that'. In practice, it was a bit difficult to decide who should take the initiative for which patients" (HCP 2)

Moreover, the COVID-19 measurements impeded smooth communication and increased the effort needed to have regular meetings. For example, COVID-19 made it hard to onboard newly introduced roles such as coordinating pharmacists as all meetings were virtual and hence other HCPs were unaware of the existence of such roles.

"So yes, that was what was difficult because of COVID, that not everyone's role was equally clear [...]" (Project Coordinator)

In addition to communication challenges, several structural challenges like increased workload of administrational tasks and shortness of staff was often mentioned. Also, due to the bottom-up approach from ZZL, HCPs active participation required extra energy and time, particularly in the early phase of the actions.

"But then you also have the problem of resources. Neighborhood teams,

> *that's not really backed up by structural resources. The future of Zorgzaam Leuven itself is not yet very clear." (Policy Maker)*

> *"I think for some colleagues it's an extra burden at the moment because it's still under construction, so it takes energy to think about how we're going to change that and what does that mean for my own practice" (HCP 1)*

Stakeholders also mentioned the lack of financial and political support. Financial resources were limited and there was limited regulatory leeway for projects to experiment with new care approaches. Moreover, stakeholders expressed that the lack of long-term perspective felt demotivating as no clear future and roadmap of ZZL was communicated making future planning of the various actions difficult.

> *"Especially I think from the government and from, yes from government agencies more support I think or more also more shorter possibilities to tune things and roll them out. In such a way that, yes, we can also give a perspective to the people we are working with. I have the feeling that we are not able to offer enough perspective [...]" (Project Coordinator)*

DISCUSSION

In this qualitative case study we described four transitional care actions that are part of the pilot project ZZL and explored experiences and perceptions of involved stakeholders on transitional care in practice. Across the four actions, stakeholders valued active involvement and increased collaboration. Stakeholders brought forward that the co-designing approach of ZZL increased active participation as received input was taken into consideration when shaping actions. Additionally, actions encouraged interdisciplinary collaboration, which in turn reduced barriers for communication and created a community feeling that benefitted professionals and patients. However, stakeholders emphasized key challenges, such as technological infrastructure, clear coordination, financial support and political support that impeded sustainable implementation of actions. The analysis also showed that actions were often designed and implemented to provide (temporary) solutions to address these key challenges.

Our results highlight that HCPs intrinsic motivation and feeling connected with other HCPs facilitated the implementation of integrated care. In the literature this has been emphasized by the self-determination theory. The self-determination theory states that the satisfaction of the three basic psychological needs (autonomy, competence and relatedness) facilitates and sustains high quality motivation (24). The need for autonomy refers to experience

choice in the own role. Competence concerns the need to feel successful within the own role and to have the ability to develop necessary skills. The need of relatedness refers to the feeling of belonging and acceptance within a group (25). Evidence has shown that applying the self-determination theory in the work context is linked to a wide range of positive outcomes for employees, such as developing autonomous work motivation (25). Moreover, autonomous motivation is the most sustainable type of motivation, predicting high-quality performance and positive outcomes related to well-being (24, 26). Our findings suggest that the pilot project ZZL created conditions that supported the three needs for self-determination. This was perceived as positive by HCPs and triggered their autonomous work motivation. In practice these needs were supported for involved HCPs namely by encouraging involvement in decision making, providing tools for communication or stimulating regular communication to build up trust.

The early involvement of stakeholders in the co-creation process encouraged stakeholders to share experience and increased collaboration which allowed to build up trust. Stakeholders had to get to know each other and learn new roles, such as designing and implementing actions. Therefore, the pilot phase of the project was used as a testing phase to experiment and to learn from mistakes. Actions that are undertaken in the pilot phase are first planned at small scale which is supposed to make the development and implementation of new actions less frightening and allows for correction of mistakes along the way (10). The study of Fakha et al. (2022), a second study that analyzed the interview data on ZZL and focused on implementation research, supports the importance of involvement (27). The study highlights engagement as the main implementation strategy used to back the implementation of the four transitional care actions. Also, motivated key individuals were identified as a crucial facilitating implementation factor. Using engaging activities allowed individuals to connect and build partnerships that strengthened motivation and commitment of HCPs, which was positively perceived by stakeholders as highlighted in our study. This is in line with further research stating that the approach to stimulate local dynamics of flexibility and experimentation is crucial, however that the successfulness depends on committed leaders and stakeholders (7).

While ZZL created several previously discussed motivating conditions for HCPs to bring change towards integrated care, various key challenges were identified that impeded further development, therefore leading to demotivation of HCPs. A key challenge that was identified in this study is the lack of integrated patient files in Belgium (26, 28). Various digital systems were used by stakeholders and a lack of interoperability of these systems was stated, leading actions to develop temporary solutions to facilitate communication between HCPs. This finding is in line with other analyses on the Belgium health care context identifying the lack of shared electronic files as a major weakness hindering the development of integrated care in Belgium (13, 29). Moreover, this resonates with findings of

a recent systematic review indicating that none of the 15 reviewed transitional care models (TCMs) used electronic health records that allowed sharing of information between health care settings, stressing the need to create stronger digital links between settings (30). Also the importance of using technologies within TCMs is underpinned by the SELFIE framework (Sustainable integrated chronic care models for multi-morbidity: delivery, financing, and performance), including shared information systems as a main component to facilitate care coordination of TCMs (31).

Furthermore, research shows that the lack of electronic health records tracking the patients decision-making process creates a barrier for patient engagement (29). This is in line with our study findings as across all four actions patient engagement was described as limited. Stakeholders reported being reluctant towards patient engagement due to fear of increased workload and also described signs of reluctance of their patients. The findings are in line with a recent review highlighting the three main barriers for patient engagement as patient unwillingness, HCPs unwillingness and inadequate infrastructure (32). The review concludes that attention should be paid to these barriers by creating a promoting environment ensuring sufficient resources and infrastructure and additionally establishing educational programs for patients and professionals (32).

STUDY LIMITATIONS

This has been the first study providing an initial understanding of what concrete actions have been locally implemented within one of the 12 Integreo projects in Belgium. These government initiated pilot projects are a huge undertaking, but have not been described in detail. To describe the four selected transitional care actions we used the two methods of document analysis and thematic analysis to reach corroboration and therefore increase trustworthiness.

The study findings also need to be interpreted in the light of some methodological considerations. In terms of the selection of stakeholders to be interviewed, only 13 of the potential 24 stakeholders agreed to participate in the study. They might have been more positive about the actions then those who were not interviewed. Also, the number of stakeholders interviewed per action varied with one action where we could only interview two stakeholders. We assume that this impact was limited as we did not analyze perceptions for each individual action separately, but made an overall analyses at the level of the four actions. Further, the total number of 14 interviews across 4 actions might lack representation, yet we collected meaningful data by interviewing project coordinators who are particular knowledgeable and who helped us to select key stakeholders that provided valuable insights. Lastly, we did not explore the views or experiences of patients involved in the transitional care actions and could therefore not critically discuss differences in experiences and perceptions between patients and HCPs. We strongly recommend to

focus on the patient perspective in future research activities related to the evaluation of the Integreo projects. Moreover, we recommend a thorough evaluation of the effectiveness of ZZL and the other Integreo projects taking into account the quadruple aim objectives, which was defined as the ultimate goal of Integreo. Additionally, we suggest to continue to conduct process evaluations to better understand how the outcomes were achieved in order to build on lessons learned and adapt actions. We suggest to regularly evaluate the development of pilot projects as they are dynamic, change over time and are context-specific.

CONCLUSION

To conclude, our findings indicate that the integrated care project ZZL created conditions to promote autonomous work motivation for HCPs. The project encouraged the development of multidisciplinary care networks at the local level, which allowed professionals to connect and create partnerships. Also, the project offered (temporary) solutions to address pressing problems for continuity of care. Yet, key challenges were identified that impeded long-term planning for integrated care within the project region. Additionally, our analysis highlights how integrated care and transitional care are interconnected, by describing how the four actions linked to the integrated care project addressed various transitional care components to achieve continuity of care for patients.

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APPENDICES

Appendix 5A. Semi-structured interview guide
Appendix 5B. Characteristics of interviewees
Appendix 5C. Action description item list

Appendix 5A. Semi-structured interview guide

(Note – the underlined questions are the ones to consider for this study as they refer to descriptions and exploring experiences perceptions on transitional care. The other questions were used for a second study investigating the implementation of the four actions [27])

Questions – Project coordinator

1. Can you shortly describe the action and your role in those actions?
2. Which stakeholders and healthcare professionals were involved in those actions?
3. What did you do to encourage, motivate and engage healthcare professionals to commit to using these actions? Did you assign any champions, leaders, persons with a facilitator role, or any other assigned roles to help spread those actions to the healthcare providers?
4. Now we will focus on the aspect transition of care for elderly. What does transitional care mean for you?
5. Can you shortly describe the impact of the action on the transition of care for elderly people?
    a. Communication
    b. Shared-decision making/ patient involvement/ informal caregiver involvement
    c. Person-centered care
    d. Medication reconciliation
    e. Continuity of care at home (organization of follow-up care)
6. Can you shortly describe the impact of the action on the healthcare professionals?
7. Can you shortly describe the impact of the action on the healthcare system?
8. To what extent are those actions fully integrated? What stage are they at?
    a. Status of implementation
    b. Does the current state of implementation of those actions meet your expectations?
    c. Is the action still carried out as planned?
        i. How has the action been affected in the context of COVID-19
        ii. Sustainability of the project
9. Did you develop a project plan to implement and roll out those actions to the various healthcare providers? If yes, can you briefly describe the plan?
    a. Did you perform any activities or use specific strategies to implement those actions? (e.g.: education and training, champions, mandate change)
10. Did you already receive some feedback from primary and secondary healthcare providers? If yes, what did you learn about it?
11. Adoption (= intention to try to use the intervention)
    a. How would you assess (or what would you say) on the adoption level of these actions by healthcare professionals? This means the intention to use the intervention by the healthcare professionals.

   b. What are the barriers/obstacles/challenges in the implementation of those actions? And were there any facilitators to enable a better and successful implementation of those actions?
12. What is needed to continue these actions?
13. How can this action be expanded?
14. Which lessons could be learned from this action regarding the future?

Completing the interview

Would you like to add something to this interview?

Thank you for your participation.

Questions – Healthcare professional

1. Can you shortly describe the action and your role in those action?
   a. How do you experience this role?
2. Which other persons are involved?
   a. How did you experience the collaboration and the communication? Is everyone aware of his/her responsibilities?
3. Now we will focus on the aspect transition of care for elderly. What does transitional care mean for you?
4. Can you shortly describe the impact of the action on the transition of care for elderly people?
   a. Communication
   b. Shared-decision making/ patient involvement/ informal caregiver involvement
   c. Person-centered care
   d. Medication reconciliation
   e. Continuity of care at home (organization of follow-up care)
5. Can you shortly describe the impact of the action on the healthcare professionals?
6. Can you shortly describe the impact of the action on the healthcare system?
7. Acceptability (perceived views that an intervention is agreeable, satisfactory, credible, and comfortable): to what extent do you think those actions are satisfactory and advantageous to the older persons with chronic disease and requiring care transitions between hospital & home?
8. Appropriateness (perceived compatibility of the intervention with needs & practices of a setting or population): to what extent do you think these actions address/meet the care needs of older persons with chronic disease and requiring care transitions?
9. Is the action still performed as planned?
   a. Status of implementation
   b. How has the action been affected in the context of COVID-19?
10. Sustainability (extent to which an intervention is routinized or maintained within an organization): How would you ensure that these actions become a routine part (used

regularly) of the daily work of the healthcare professionals within your team/in your organization?

11. Experiences and expectations:
    a. How did you experience those actions?
    b. Is the action meeting your expectation? Can you explain the reasons as to why it is or isn't meeting your expectations?
    c. According to you, do you think the implementation of the action is successful? Can you explain the reasons as to why the implementation is or isn't successful?
12. What are the barriers/obstacles/challenges in the implementation of those actions? And were there any facilitators to enable a better and successful implementation of those actions?
13. Which lessons could be learned from this action regarding the future?

Completing the interview

Would you like to add something to this interview? Thank you for your participation.

Appendix 5B. Characteristics of interviewees

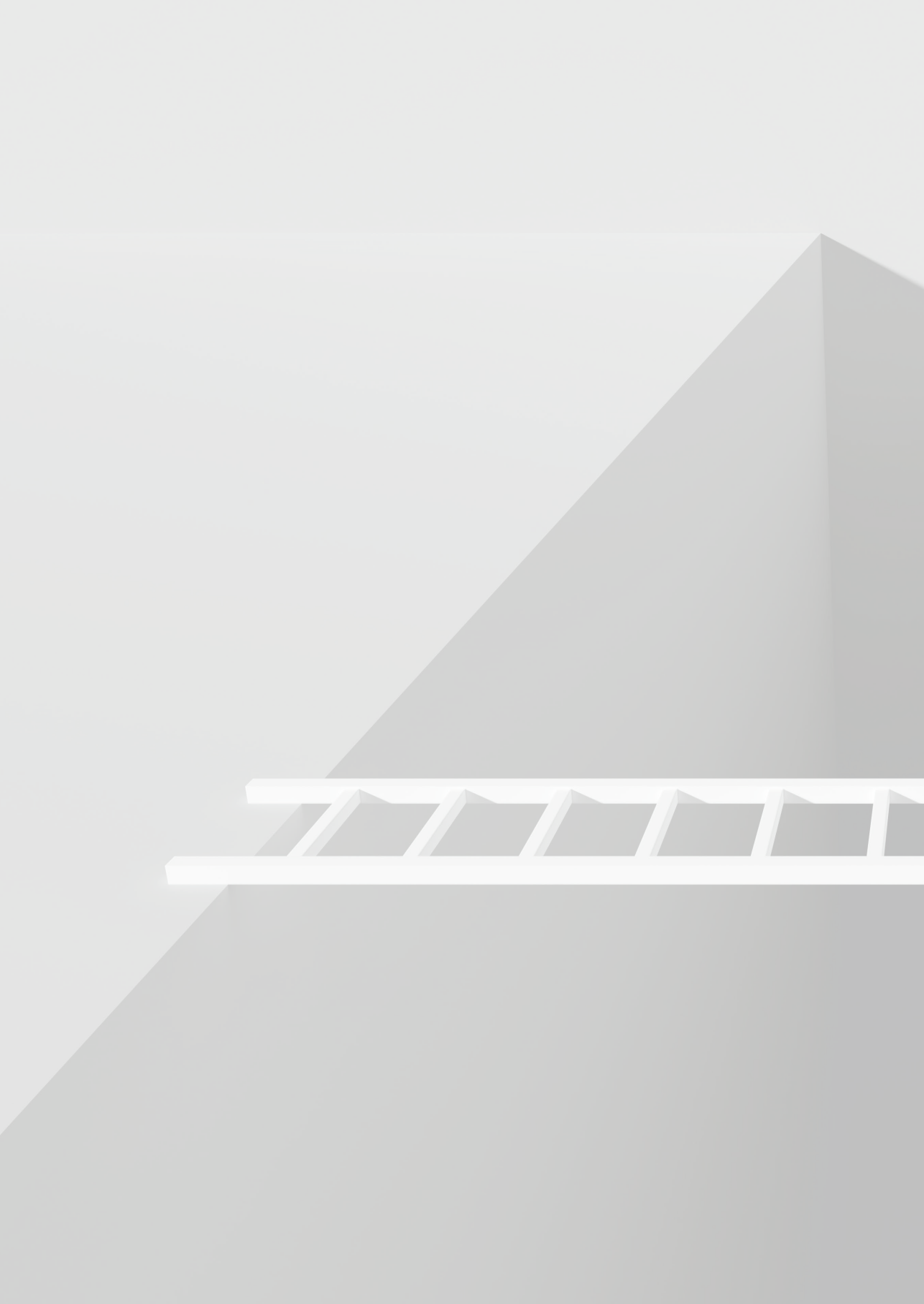
Table. Characteristics of interviewees per action

Number of interviewees	Coordinator or stakeholder	Profession of interviewees	Action number
1	Coordinator	Pharmacist	1
2	Coordinator	Pharmacist	1
3	Coordinator	Pharmacist	1
4	Stakeholder	Home nurse	1
5	Coordinator	Physiotherapist	2
6	Stakeholder	GP	2
7	Stakeholder	GP	2
8	Stakeholder	Physiotherapist	2
9	Stakeholder	Policy advisor	2
2	Coordinator	Pharmacist	3
10	Stakeholder	Pharmacist	3
11	Coordinator	GP	4
12	Stakeholder	Cardiologist	4
13	Stakeholder	Nurse	4

Appendix 5C. Action description item list

Table. Action description item list

Item description		
1.	Objective	Action purpose
2.	Transitional care focus	How actions improve transitional care for patients and across what care settings
3.	Patient target group	Patient groups that are targeted with the actions
4.	Main HCPs involved	List of all HCPs involved in delivering the actions
5.	Key components	Essential pillars that define the actions
6.	Synergies	Possible links with other actions or with existing care
7.	Implementation status	Implementation status at the moment of data collection: actions ongoing or stopped and locations of implementation
8.	Context information	Unique local aspects that need to be known to understand the actions



CHAPTER 6

Systematic Development of a Set of Implementation Strategies for Transitional Care Innovations in Long-Term Care

Fakha A, de Boer B, Hamers J, Verbeek H, van Achterberg T.
Systematic development of a set of implementation strategies for transitional care innovations in long-term care.
(submitted, under review).

CHAPTER 7

General Discussion

Transitional care innovations (TCIs) are emerging innovative solutions designed to enhance care continuity and coordination for older persons when transferring between multiple healthcare settings. However, the implementation of TCIs into practice settings is challenging. The aim of this dissertation was to explore what influences the implementation of TCIs and how to improve it. In this chapter, the main findings of this dissertation are discussed, and a reflection on methodological and theoretical considerations is presented. Furthermore, recommendations for practice and future research are provided.

MAIN FINDINGS

In performing a scoping review of the literature, we identified numerous types of TCIs that were developed and implemented to enhance care transitions for older persons, the majority of which focused on improving transitions from hospital to home settings. In addition, the review determined several factors (barriers, facilitators) that influenced the implementation of TCIs at multiple domains. Notable barriers were linked to the overall organizational readiness to implement TCIs, and key facilitators were related to the innovation's characteristics and the implementation process. Furthermore, in our Delphi study, experts conceded that organizational leadership, engaged key stakeholders, continuous information exchange across care settings, and financing of TCIs' implementation are top priority factors and have the most important influence on the implementation of TCIs. Moreover, there was a consensus on the presence of interrelationships among these factors.

A real-life case, studying the implementation of four TCIs in Belgium showed the intuitive manner commonly present in implementing transitional care innovations in practice. Here, findings similar to those of the previous studies were found on the main hindering influence of organizational factors. On the other hand, the presence of highly committed individuals played a key facilitating role in the implementation of the four TCIs. The engagement of key persons was seen as a significant strategy in the implementation of the four TCIs. Moreover, positive experiences of stakeholders involved in implementing the four TCIs were captured. Autonomous work motivation and the ability to develop multidisciplinary care partnerships helped stakeholders to communicate better and facilitated the implementation of the TCIs. Thus, the studies in this dissertation showed that the implementation of multiple TCIs is influenced by many factors. Nevertheless, these factors are not always considered. Therefore, forty implementation strategies were selected to improve the prospective implementation of TCIs. These strategies aim to address key influencing factors at the organizational, individual, policy, and innovation levels.

METHODOLOGICAL CONSIDERATIONS

The methodological considerations regarding individual studies in this dissertation have been discussed in the previous chapters. This chapter presents general considerations regarding the use of qualitative methods, the implementation framework - Consolidated Framework for Implementation Research (CFIR) - throughout the studies, and the involvement of healthcare professionals and older persons in implementation research.

QUALITATIVE METHODS

The studies in this dissertation comprised a combination of diverse qualitative research methods and followed specific tools and frameworks selected from implementation science, defined as the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice to improve the quality and effectiveness of health services and care (1). Our choice in using qualitative methods coincides with the high relevance and importance of such methods in conducting implementation research specifically (2). Qualitative methods are integral in describing what happens in implementation, uncovering contextual elements, and capturing the individuals' perceptions that can affect implementation (3). Hence, it helped to explain the complexity of implementing TCIs as well as to explore how and why implementation succeeds or fails (4). Furthermore, while each of the various studies conducted, (chapters 2 to 6) served a certain function in meeting the overall objectives of this dissertation; a key strength was the sequential use of findings from each study into the next one. The buildup of findings led to a solid and well-rounded understanding of the implementation of TCIs.

IMPLEMENTATION FRAMEWORK

A common methodological element across all the studies was the use of the CFIR framework. This implementation science framework provides a comprehensive listing of constructs (i.e. factors) thought to influence implementation and assists to streamline the research process (5). Hence, its use constituted a strength and provided an efficient way to clarify the larger context surrounding the TCIs, helped identify key factors that may hinder or facilitate the implementation, and indicated potential relationships among the factors (6). Moreover, CFIR tools were instrumental in the data collection, analysis, and reporting of results for all studies performed (7).

However, a few limitations of the CFIR pertaining to some constructs and domains must be acknowledged. Overall, the CFIR constructs touch minimally on the patients/older persons and their informal/family caregivers (i.e. who are the key target group of an innovation) and are less centered around reflecting their perspectives and experiences (8). Moreover, it combines all constructs related to characteristics of individuals in one domain and without a clear distinction of roles of individuals as being for example either a patient, informal

caregiver, healthcare professional, implementation leader, or implementation team member. Hence, the construct 'knowledge and beliefs about the intervention' can for instance be about the knowledge and beliefs of the healthcare professional or that of the patient. This might have impacted our results by capturing less of the perspectives of the patients/older persons and their informal/family caregivers, which could have informed us more about their priorities, preferences, and needs to guide a better implementation of TCIs. However, this limitation was minimized by dividing the two constructs 'knowledge and beliefs about the intervention', and 'other personal attributes' into that of a) healthcare professionals or b) patient/older persons, and then mapping the collected data accordingly (chapters 3, 4). Alternatively, tools such as the Tailored Implementation for Chronic Diseases (TICD) checklist of determinants of practice could have identified more specifically these factors with its separate domains on individual health professional factors and patient factors (9).

Furthermore, the CFIR presents the two domains outer and inner settings more as silos featuring little constructs to highlight the interactions between one organization and its external environment (e.g., another care organization, health authority, policymakers, funding agencies, patient advocacy groups, community and social services). Particularly, these interconnections such as partnerships and collaborations among organizations are common and crucial in delivering transitional care and specifically in implementing TCIs across multiple settings (10). Accordingly, this dissertation selected and combined constructs from the Care Transitions Framework (CTF) to the CFIR such as 'information continuity' across different care settings, and 'transition roles' of frontline staff (11). This provided further understanding of barriers and facilitators to the implementation of TCIs through a robust consideration of transitional care and inter-organizational interactions. Nevertheless, other frameworks exist that might have better captured these interactions such as the Exploration, Preparatory, Implementation, and Sustainment (EPIS) framework. This focuses more on the nature of interconnections between inner-outer contexts with its domain on interconnections (10). However, similar interconnections were captured under the CFIR/CTF constructs of cosmopolitanism, and engaging organizations and external context.

INVOLVEMENT OF HEALTHCARE PROFESSIONALS AND OLDER PERSONS IN IMPLEMENTATION RESEARCH

In this dissertation, the involvement of healthcare professionals as to obtain their perspectives on implementing TCIs had its limitations. The retrospective collective case study (chapter 4) was the only study conducted with healthcare professionals exclusively as participants. Given the complex and dominant theoretical aspects of conducting implementation science research, there was an inclination throughout the studies to include more scientific experts and researchers from this area to explore the implementation of TCIs. Specifically, in the Delphi study (chapter 3), the panel of experts' task was to assimilate the meanings, judge,

and prioritize the factors that influence the implementation of TCIs, and this required strong scientific knowledge about implementation. This presented a difficulty regarding the inclusion of more healthcare professionals as participants (12). Hence, while this added to the study's strength of obtaining high-quality consensus, we potentially gave more voice to scientific experts than to the professionals. Therefore, capturing further the point of view of healthcare professionals, who are often at the frontline of delivering transitional care, might have added further insights on implementing TCIs.

Another challenge regarding the involvement of healthcare professionals relates to the development of a set of implementation strategies selected for implementing TCIs (chapter 6). Although our application of Implementation Mapping and including a group of experts (some of which had direct experience in patient care) was a form of participatory design approach (13), it would have been valuable to learn more from the perspectives of healthcare professionals who will ultimately use the TCIs (14). Conducting interviews or focus group discussions with healthcare professionals to obtain reflective feedback on the set of selected implementation strategies might have added to our participatory approach (15). Furthermore, it could have helped to shift our dependency on the theoretical effects of the implementation strategies and could have added more insights on their compatibility, feasibility, and/or affordability in practice settings (16). However, while the importance of practice involvement is acknowledged, the implementation strategies were intended to be used for different types of TCIs and care settings. Hence, we did not focus on one specific setting or TCI, nor had a defined group of healthcare professionals to co-develop the strategies with them. Instead, we opted for experts knowledgeable about the Implementation Mapping technique and with experience in implementing healthcare innovations.

The involvement of older persons and their informal/family caregivers to obtain their viewpoints on the implementation of TCIs was limited in this dissertation. Though patient involvement is important and recommended in health research (17), it is challenging and unclear how to do so specifically in implementation research, which aims to comprehend and modify healthcare professionals' and organizations' behaviors rather than the patients' behaviors (18). Hence, there is little guidance on acquiring the reflections of patients on implementation efforts. In this regard, our studies focused on investigating the overall implementation scope of TCIs mainly from the perspectives of scientific experts, organizations, and healthcare professionals as they could provide input on various aspects of TCIs' implementation. Nonetheless, in the scoping review (chapter 2) we tried to retrieve the perception of older persons and/or their families and informal caregivers regarding the implementation of TCIs. However, we saw that capturing the older persons' perspectives on the implementation of TCIs (i.e. challenges, factors, and process) is limited in literature (only 6 out of 21 studies included the patient perspective), and if present, it focused on their overall satisfaction and experiences with the innovation. Moreover, in the retrospective collective case study (chapter 4) we considered

the importance of involving the older persons and hearing their perspectives on the implementation of the four TCIs in Belgium. However, this was not feasible due to challenges in data collection during Covid-19 pandemic restrictions as well as constraints in locating and sampling older persons with a retrospective case study design. This corresponds to similar difficulties indicated in the literature on involving older persons (19).

THEORETICAL CONSIDERATIONS

In this dissertation, organizational factors belonging to the inner context were found to influence significantly the implementation of TCIs. Moreover, due to the nature of transitional care, our findings highlighted key influencing factors that described the interconnections between the organizational (inner) and external (outer) contexts. Accounting for these linking factors helped explain the complexity of implementing TCIs involving various entities (i.e. organizations, service systems, and regulatory agencies) as well as offered avenues for improving the implementation process. This section provides theoretical considerations regarding first, the interconnections between inner-outer contexts in implementing TCIs, and second, alternative strategies to improve the implementation of TCIs.

INTERCONNECTIONS BETWEEN INNER-OUTER CONTEXTS IN IMPLEMENTING TCIs

Our findings depicted the inevitable dynamics that occur between the inner-outer contexts in implementing TCIs. Hence, some of the identified factors gave the opportunity to understand the implementation of TCIs from an open systems perspective by looking beyond the borders of one organization (20). The open systems concept denotes that organizations are permeable, and have bi-directional interactions with their external context. Along this line of thought, participants in our studies considered the existing financing structures, reimbursement systems of healthcare services, and governmental healthcare policies in the external context of an organization as very important factors and powerful enough to hinder or enable the organization's ability to implement a TCI. Similarly, the presence of staff with a designated transition role in an organization was determined as a key facilitator to implementing a TCI. Individuals with transition roles behave as intermediaries and can implement the core components of the innovation by linking the organization with the external context (21).

Moreover, our results feed into the concept of bridging factors as critical to the implementation of innovations (22). Bridging factors are defined as "factors that cross or link the outer system and inner organizational context" (21). Traditionally, there has been more focus on examining the inner context and outer contexts as separate entities, and less on investigating bridging factors in implementation. Therefore, our work coincides with the evolving need in implementation science to identify bridging factors as they reveal how organizations interact with the external context and its impact on implementing innovations (22, 23).

Specifically, our results showed the influence of interactions between two or more organizations on the implementation of TCIs. These captured interactions, which match with the concept of bridging factors, included inter-organizational collaborations, pre-existing partnerships (e.g. between hospital and homecare organizations), sharing of practices among various healthcare organizations, promoting external collaborations with resourceful organizations (e.g., community services agencies), and information continuity (e.g., exchanging patient information between organizations). Similar types of interactions were also indicated in the literature on delineating the functions and forms that bridging factors could take such as relational ties, formal arrangements, or data-sharing processes between organizations (23).

Finally, inter-organizational interactions can also be reflected on from an organizational theory perspective. In general, organizations develop external relationships to achieve goals, improve performance, create powerful allies and diverse networks, and gain access to resources (24). Across this dissertation, the lack of organizational resources was frequently reported as a main barrier to implement TCIs, and simultaneously, engagement between organizations was described as a key factor. However, with our results, we can only assume a potential association between the lack of organizational resources and an organization's tendency to engage with other external organizations to implement a TCI. This could be explained also by the relevance of resource dependency theory to transitional care, which denotes that organizations establish relationships with other organizations to secure resources needed to implement innovations, such as TCIs (25).

ALTERNATIVE STRATEGIES - SMART CONNECTIONS OR CHOICES TO IMPLEMENT TCIs?

The use of implementation strategies selected to address the specific factors that influence the implementation of TCIs is critical. Particularly, in transitional care, strategies to address factors related to inter-organizational interactions are needed. The set of implementation strategies developed in chapter 6 included various strategies for spanning the boundaries of one organizational context and collaborating with multiple organizations in the implementation of TCIs (e.g., building a coalition, enhancing network linkages, developing resource-sharing agreements, and creating learning collaboratives). These strategies suggest the creation of inter-organizational alliances, which is supported by literature on the advantages of creating strategic alliances and cooperative partnerships between organizations to improve the organization's operations and innovativeness (26, 27). Thus, there is a large potential for strategic alliances, but also there is less insight into the key elements of such alliances and their value in the context of transitional care.

Therefore, the proposed implementation strategies can be reflected on from the relational view theory perspective to illustrate how alliances and value-creating relationships between

organizations are formed. According to this theory, superior advantages are created when organizations in an alliance combine and exchange their peculiar assets, knowledge, and complementary resources/capabilities, and employ effective governance (28). This implies that if a hospital is implementing a TCI to improve care transitions from hospital to home settings within a certain region, forming an alliance with physically proximate homecare organizations is an asset. Over time, the two organizations can develop experience in working together and accumulate a specific 'know-how' on coordinating care transitions for older persons in that region. Hence, this permits a more effective and efficient inter-organizational communication that further promotes the TCI's implementation. Likewise, creating inter-organizational knowledge-sharing routines to transfer or combine specialized knowledge is a valuable element of alliances. For example, an alliance between multiple nursing home facilities can promote information sharing and collaborative learning on transitional care and help implement a TCI to avoid unnecessary transitions of older persons to hospital. Moreover, organizations in an alliance can boost their ability to implement a TCI by combining their distinctive resources in a complementary way. Distinctive resources relevant to TCIs can include a care transition nurse or community resources.

Another important aspect to consider is that alliances are dynamic and affected by factors, such as a decrease in resource complementarity among organizations, which can lead to a decline in their value over time (29). Therefore, organizations involved in implementing TCIs need to be diligent in their choice of partners. They should form an alliance with a strategic partner that has the specific capabilities needed to enable the TCIs' implementation and assess the value of the alliance continuously (30). In conclusion, relational exchanges between organizations are instrumental in implementing TCIs. Thus crossing the boundaries of one organizational context is at the core of these innovations, making them unique and challenging.

On the other hand, in this dissertation, additional implementation strategies were selected to address factors at the individual level. Yet, most of the strategies we proposed to change the individuals' behavior focused on the conscious cognitive processing. Indeed, our results indicate that implementing TCIs is determined more by the individuals' underlying attitudes, beliefs, motivation, skills, and knowledge. Likewise, studies on developing implementation strategies have mostly presumed that healthcare professionals behave in a rational way (31, 32). However, we could have missed the individuals' automatically enacted habits, as important factors, and this could be a limitation. Recent literature indicates that implementation strategies should consider whether the behavior that needs to be changed to implement a new intervention is perhaps more automatic than deliberate (33). Yet, this is still less explored in implementation science (32). In this dissertation, not capturing the influence of the individuals' habitual behavior on implementing TCIs can be explained in several ways. First, the scoping review did not reveal implementation factors pointing

at habits or automated behaviors, which could be due to the data collection methods of the included studies. Second, the views of the Delphi experts, self-reports of healthcare professionals, and the use of a rhetoric focused on innovation and implementation concepts across our studies might have exposed more cognitive-related influences. Third, throughout this research, there was no active exploration for such 'non-rational' or habitual determinants. Nevertheless, it cannot be completely ruled out that the individuals' habitual behaviors were not addressed in this dissertation. Few of the selected implementation strategies were based on theories of behavioral change including theories of automatic, impulsive, and habitual behavior (34).

Furthermore, given the issue of overlooking automatic behaviors and habits in implementation, current research suggests nudge strategies to modify the context in which individuals behave and make their decisions (31). Nudge strategies alter the choice architecture in a context, and reshape the different ways in which choices are presented to individuals (35). Moreover, these strategies were shown to be effective in changing behavior across a wide range of contexts (36). Hence, this may be relevant to improve the implementation of TCIs in care settings if habits and automated behavior hinder or enable implementation. Possible applications can include automated computer reminders used for a care transition nurse to perform a telephone call to follow-up with an older person 24 hours post-hospital discharge. Alternatively, a brightly colored notice can be placed in the hospital medical record of an older person indicating the need for a care transition nurse to arrange and send medication information to the community pharmacist. Another suggestion is to prohibit proceeding with documenting patient care procedures in a medical record if the older person's priorities for care transitions are not noted. Thus, accounting for the habit concept implies a potential positive role in improving the implementation of TCIs (37).

FUTURE DIRECTIONS

The findings of this dissertation highlighted the incessant gap existing between the TCIs' ability to improve transitional care for older persons and their implementation in real-world care settings. This dissertation provides several implications for practice and research, discussed in this section.

PRACTICE

First, this dissertation showed that organizations involved in implementing TCIs tend to have little awareness of their context. Moreover, organizations tend to be enthusiastic and fast-forward the implementation of TCIs without a prior thorough assessment and understanding of the contextual factors. To ensure the successful implementation of TCIs, it is crucial to study the context carefully and identify the barriers and facilitators in it before any

implementation effort. Hence, the list of priority factors provided in this dissertation could be used as a starting point. By exploring these factors locally, organizations can obtain an early and essential knowledge of what will most likely hinder or enable the implementation of TCIs, as well as explore new or unique factors in their context. Second, we recommend that organizations use implementation strategies for TCIs to address the relevant influencing factors identified within their context. Therefore, our selection of implementation strategies can be used by organizations as a guide to implement TCIs in a better way.

Third, this dissertation highlighted the critical role of inter-organizational interactions in implementing TCIs. Thus, we advise organizations involved in implementing TCIs to foster their inter-organizational links to promote their readiness to innovate (38), as well as form alliances to share resources and knowledge.

Fourth, this dissertation pointed out that the field of transitional care requires more implementation science expertise. Thus, practice settings and organizations can align with the emerging concept of implementation support practitioners. Instituting such practitioners in daily practice can help build the frontline implementation capability of healthcare providers and improve their ability to use implementation frameworks, strategies, or other tools to implement TCIs more successfully (39).

RESEARCH

In general, researchers in transitional care and long-term care should incorporate and use more of the wide range of available implementation research theories, frameworks, and models. This will increase the rigor of trials or pilots on implementing TCIs. In addition, it will enhance clarity and consistency across various studies as well as allow for comparisons or compiling common elements/lessons learned on the implementation of TCIs (40).

Furthermore, it is a necessary and foundational step to conduct a contextual analysis (i.e. exploring implementation factors) prior to any research study (e.g., trial, pilot, feasibility, effectiveness) aiming to implement a TCI (41, 42). Results in this dissertation highlighted that there is often a lack of considering the context before implementing TCIs and instead reporting on factors (barriers, facilitators) after the implementation had occurred. Hence, researchers should shift their approach and consider the overall context and TCI early on (43). Examining prospectively the context (e.g., factors, wider healthcare system, long-term care policies, care delivery patterns) in which a TCI will be implemented can inform researchers beforehand on the various implementation challenges, guide their choices of implementation strategies, and help interpret implementation and effectiveness outcomes (41). In addition, we stress the importance of considering the bridging factors in the context of transitional care to highlight the interconnections between two or more care settings and their influence on implementing TCIs (21). Similarly, more research is needed to examine the

role of inter-organizational networks and links across multiple settings in particular while investigating the context of transitional care as well as guidance on how to develop them.

Furthermore, evidence supporting the effectiveness of implementation strategies in implementing innovations specifically in the context of transitional care and long-term care is needed. Therefore, our selection of implementation strategies should be used as a first step toward assessing the effectiveness of these strategies to implement TCIs in different care settings. This will help identify the prevalent components of effective implementation strategies for TCIs as well as build a repository of evidence for these strategies (16). Besides, future studies on the implementation of TCIs should more often involve older persons and their families/informal caregivers as participants. However, there is also a need to explore how to involve them and more guidance on how to do so specifically in implementation research studies.

CONCLUSIONS

The studies in this dissertation explored the implementation of TCIs, which are promising solutions to enhance the care continuity for older persons during transitions between healthcare settings. TCIs operate at the juncture of various care organizations and services, which makes their implementation complex and ambiguous. An interplay of multiple factors challenges the implementation of TCIs, and these at the organizational level were found to be highly important as well as factors depicting interactions with other organizations and the external context. Careful consideration of these factors and usage of specific implementation strategies to address them provide a huge opportunity to implement TCIs successfully and improve transitional care for older persons.

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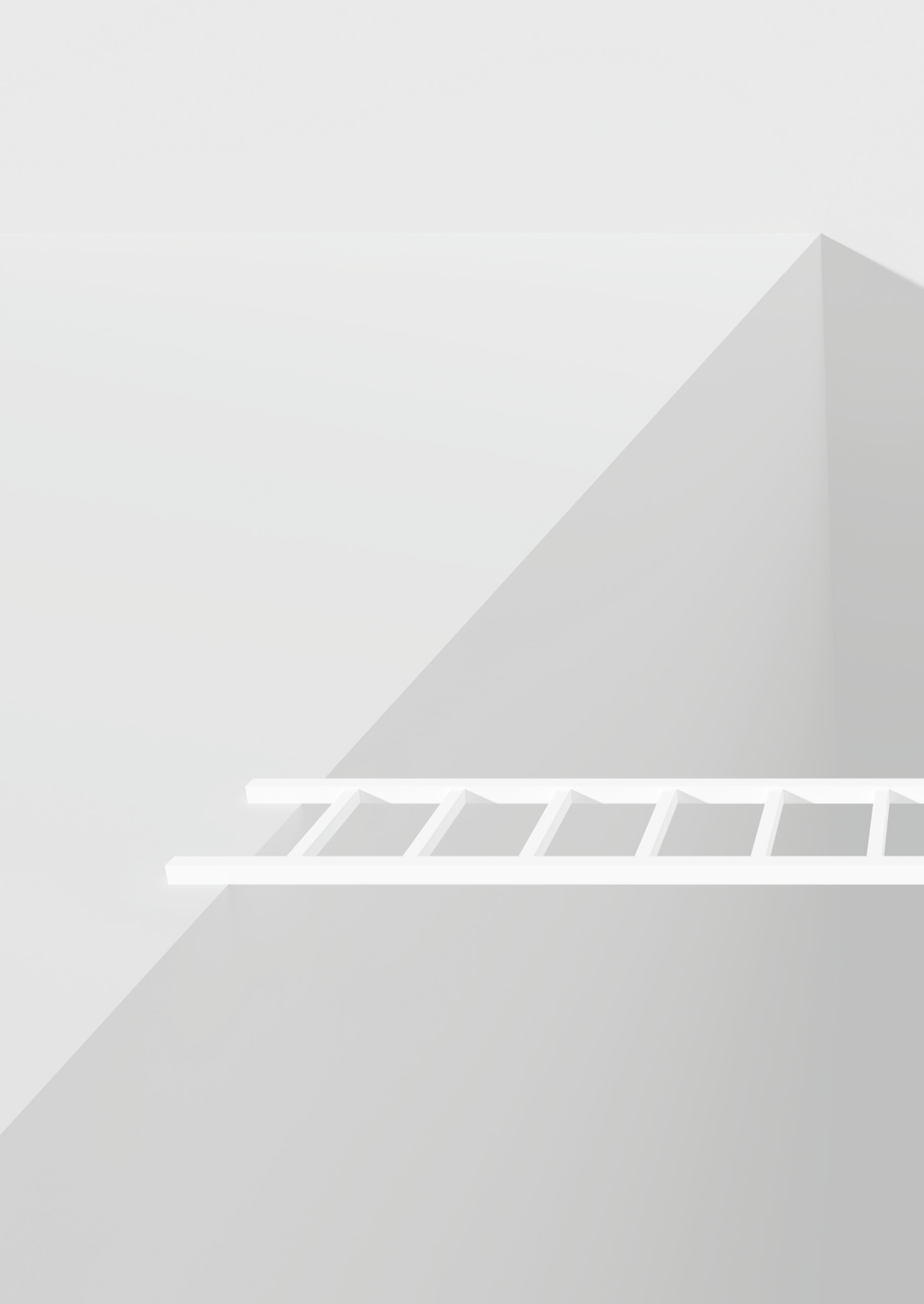


CHAPTER 8

Summary
Samenvatting

SUMMARY

Care transitions between multiple care settings and providers are common among older persons with chronic diseases and multimorbidity. Yet, these transitions are frequently hampered by various issues such as fragmented care, medication errors, or poor communication among healthcare providers leading to adverse events for older persons. Therefore, Transitional care innovations (TCIs) are novel solutions designed to enhance care continuity and coordination for older persons when transferring between multiple care settings.

While the development of TCIs has flourished in the recent past, their implementation into "real-world practice settings" is difficult and complex. The aim of this dissertation was to explore the factors that influence the implementation of TCIs, and to develop a set of implementation strategies to address them and enhance the process. The current chapter summarizes all the studies performed in this dissertation.

Starting with a scoping literature review **(chapter 2)**, four overarching different types of TCIs were reported to have been implemented. The majority of these TCIs aimed to improve care transitions and mostly focused on transitions from hospital to home settings, other pathways were from hospital to intermediary care places then to a final destination, and hospital or home to a nursing/residential care facility. Few TCIs were aimed at preventing care transitions, specifically from a nursing facility or home to a hospital. Twenty-five common and prominent factors were found to influence the implementation of these diverse TCIs. Notable hindering factors included the low organization's readiness for implementation, the innovation's complexity and mismatch between its components and the intended profile of the recipients (i.e. older persons), lack of clear implementation plans, and misconceptions or insufficient knowledge about the innovation by healthcare professionals or older persons. While key enabling factors comprised a high perceived advantage of the innovation by healthcare professionals, presence of frontline healthcare professionals with designated transition roles, and continuous monitoring and evaluation of the innovation's implementation process. Moreover, other factors such as leadership engagement, engaging of key stakeholders, external policy and incentives, and skills, competencies, and other personal attributes of healthcare professionals were identified, yet had an almost equivalent influence as both impeding and facilitating the implementation of TCIs.

Furthermore, in a Delphi study **(chapter 3)** conducted with a panel of international experts in the fields of implementation of innovations, transitional care, and long-term care, 11 factors were conceded upon and prioritized as the most important (consensus level ≥ 85%) in the implementation of TCIs. The majority of these factors were at the organizational level and

included leadership engagement, availability of resources, information continuity, sense of urgency, and relative priority. In addition, the engagement of stakeholders and reflecting / evaluating of the TCIs' implementation were also priority factors. The experts also concluded certain interrelationships among the priority factors, whereby some factors are catalysts (e.g., sense of urgency, relative priority) to induce the implementation of TCIs. Otherwise, there was a prevalent agreement among experts on the difficulty to address these priority factors with implementation strategies, indicating the perceived struggle to change factors at the organizational level.

In **chapter 4,** a retrospective collective case study on the implementation of four TCIs in Belgium aiming to improve care transitions between hospital and home/community settings for older persons highlighted the intuitive manner commonly present in implementation. A lack of understanding about the influencing factors prior to implementation as well as the absence of a deliberate selection of implementation strategies to be used were found across four different cases of transitional care innovations. Similar to the findings from the previous studies, organizational factors constituted once again the key barriers to implementing the four innovations. While, the presence of highly committed, motivated, and enthusiastic individuals played a key role to facilitate the implementation. Engagement of key persons, actors, and partners was the most significant implementation strategy used to implement the four innovations. Concerning the implementation outcomes of the four innovations, high adoption was a key outcome as well as acceptability and benefit to the older persons. While the appropriateness of the interventions' components to match the needs of the older persons was reported as not always achieved. In another qualitative study **(chapter 5)**, the stakeholders' experiences with the same four TCIs implemented in Belgium were further explored. Stakeholders indicated that their active involvement and taking their suggestions to develop the TCIs was empowering. Moreover, they valued their work autonomy, which reinforced their decision-making process and increased their motivation to implement the TCIs. In addition, they could build multidisciplinary care partnerships and collaborations, which supported them to improve transitional care delivery for older persons.

The compilation of the cumulative findings of all the studies led to meeting the final objective of this dissertation. By following the Implementation Mapping methodology, a set of forty implementation strategies for TCIs was systematically developed **(chapter 6)**. These strategies addressed the priority factors at the organizational, individual, policy, and innovation levels that influence the implementation of TCIs. Moreover, the selected strategies were supported by theories on either behavioral change or organizational change, and empirical evidence on their effectiveness in implementing change in healthcare settings. The larger number of strategies were at the organizational level (e.g., structural redesign, changes in staffing models, organizational diagnosis and feedback) and followed

by strategies at the individual level (e.g., active learning, belief selection, guided practice). Fewer strategies were at the policy (e.g., advocacy and lobbying) and innovation levels (e.g., tailoring). Suggestions for practical applications of the strategies (e.g., bring experts on innovations in transitional care to model tasks and skills required and to provide ongoing implementation support on-site) as well as who would be the target person/entity (e.g., care transition nurse) were provided to facilitate their use by future implementers of TCIs.

Chapter 7 summarizes the main findings of all studies included in this dissertation, followed by methodological and theoretical considerations. Furthermore, it presents several implications for the practice setting and future research. First, it provides knowledge on priority factors that influence the implementation of TCIs and a selection of theory and evidence-based strategies to address these factors and improve the implementation. Second, it provides directions for future research in the field of transitional care and implementation of TCIs by indicating the need to utilize more implementation science concepts, conduct contextual analysis prior to implementation, and build further evidence on the effectiveness of implementation strategies for TCIs.

SAMENVATTING

Bij ouderen met chronische ziekten en multimorbiditeit zijn zorgtransities tussen verschillende zorginstellingen en zorgverleners een veel voorkomend verschijnsel. Toch worden deze transities vaak belemmerd door verschillende oorzaken, zoals gefragmenteerde zorg, medicatiefouten of slechte communicatie tussen zorgverleners, wat leidt tot ongewenste uitkomsten voor ouderen. Transitional care innovations (TCI's) zijn daarom nieuwe oplossingen om de zorgcontinuïteit en -coördinatie voor ouderen bij de transitie tussen verschillende zorg instellingen te verbeteren.

Hoewel de ontwikkeling van TCI's in het recente verleden snel is gegaan, is de implementatie ervan in "echte praktijksituaties" moeilijk en complex. Het doel van dit proefschrift is de factoren te onderzoeken die van invloed zijn op de implementatie van TCI's, en implementatiestrategieën te ontwikkelen om deze factoren aan te pakken en het proces te verbeteren. Het huidige hoofdstuk geeft een samenvatting van alle studies die in dit proefschrift zijn uitgevoerd.

Uit een verkennend literatuuronderzoek **(hoofdstuk 2)** bleek dat er vier verschillende soorten TCI's waren geïmplementeerd. De meeste van deze TCI's waren gericht op het verbeteren van zorgtransities en richtten zich meestal op transities van het ziekenhuis naar de thuissituatie, andere trajecten waren van het ziekenhuis naar intermediaire zorgplaatsen en vervolgens naar een eindbestemming en van ziekenhuis of thuis naar een verpleeg-/verzorgingsinstelling. Weinig TCI's waren gericht op het voorkomen van transities, specifiek van een verpleeghuis of thuis naar het ziekenhuis. Er werden vijfentwintig gemeenschappelijke en prominente factoren gevonden die de implementatie van deze diverse TCI's beïnvloeden. Opvallende belemmerende factoren waren de geringe bereidheid van de organisatie tot implementatie, de complexiteit van de innovatie en de mismatch tussen de onderdelen ervan en de beoogde doelgroep (d.w.z. ouderen), het ontbreken van duidelijke implementatieplannen, en misvattingen of onvoldoende kennis over de innovatie bij zorgverleners of ouderen. Belangrijke faciliterende factoren waren daarentegen een verwachting van een groot voordeel van de innovatie door medewerkers, de aanwezigheid van 'frontline' medewerkers met een aangewezen transitierol en voortdurende monitoring en evaluatie van het implementatieproces van de innovatie. Bovendien werden andere factoren, zoals betrokkenheid van het leiderschap, betrokkenheid van de voornaamste belanghebbenden, extern beleid en beloningen, en vaardigheden, competenties en andere persoonlijke eigenschappen van medewerkers, geïdentificeerd, maar deze werden zowel als belemmerend en bevorderend bevonden voor de implementatie van TCI's.

Vervolgens werden in een Delphi-studie **(hoofdstuk 3)** met een panel van internationale deskundigen op het gebied van implementatie van innovaties, transitie-zorg en langdurige

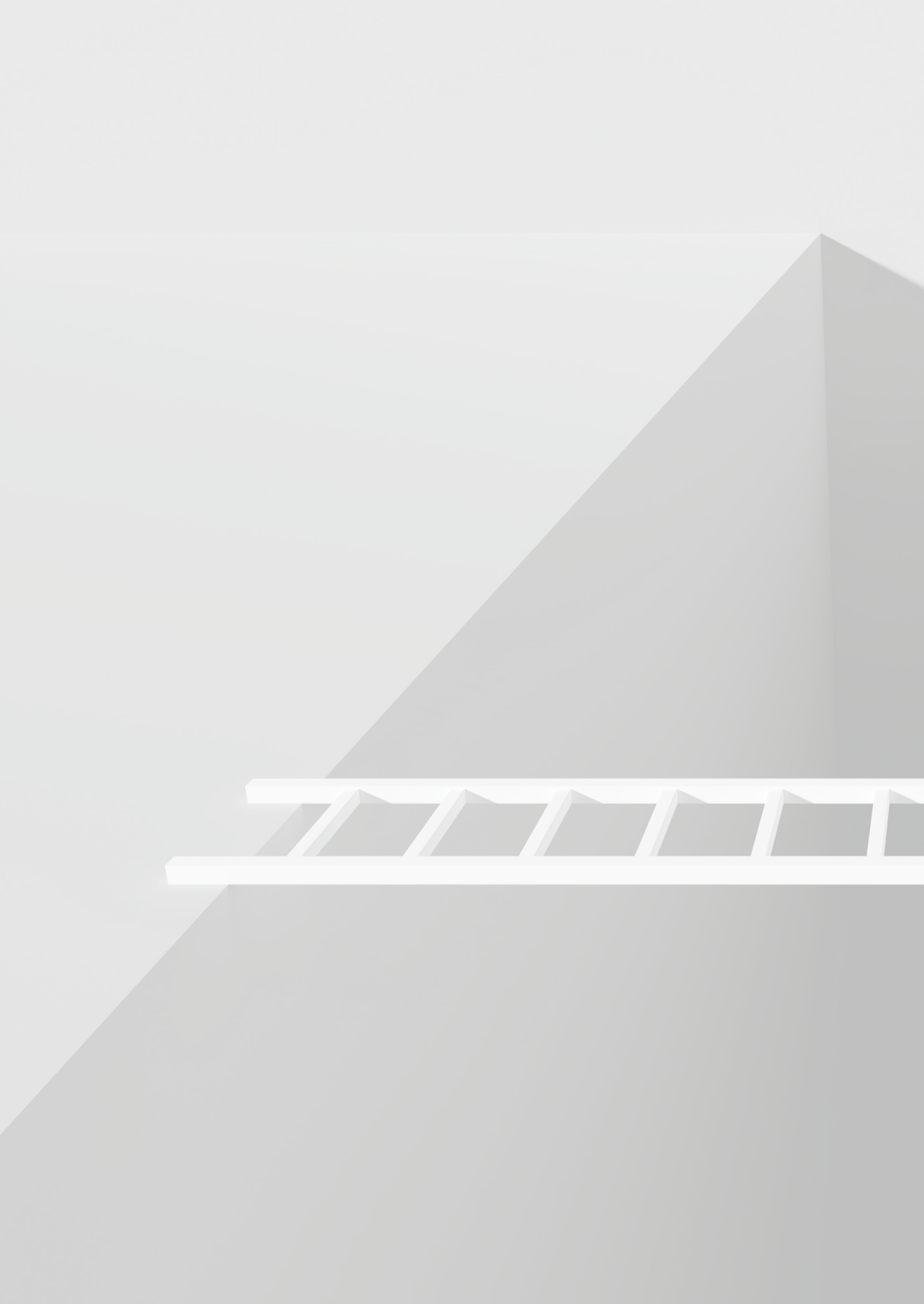
zorg, 11 factoren gevonden en geprioriteerd als de belangrijkste (consensusniveau ≥ 85%) bij de implementatie van TCI's. De meeste van deze factoren lagen op het niveau van de organisatie, waaronder leiderschapsbetrokkenheid, beschikbaarheid van middelen, informatiecontinuïteit, gevoel van urgentie en relatieve prioriteit. Daarnaast waren ook de betrokkenheid van de belanghebbenden en de reflectie/evaluatie van de uitvoering van de TCI's belangrijke factoren. De deskundigen concludeerden ook bepaalde onderlinge verbanden tussen de factoren, waarbij sommige factoren als katalysator fungeren (bijv. gevoel van urgentie, relatieve prioriteit) om de uitvoering van de TCI's te stimuleren. Tot slot waren de deskundigen het overwegend eens over de moeilijkheid om deze factoren met implementatiestrategieën aan te pakken, hetgeen wijst op de complexiteit om factoren op organisatieniveau te veranderen.

In **hoofdstuk 4** werden retrospectieve collectieve casestudie uitgevoerd over de implementatie van vier TCI's in België ter verbetering van zorgtransities tussen ziekenhuis en de thuissetting. Hier werd de intuïtieve manier die vaak aanwezig is bij de implementatie benadrukt. Een gebrek aan inzicht in de beïnvloedende factoren voorafgaand aan de implementatie en het ontbreken van een weloverwogen selectie van te gebruiken implementatiestrategieën werden aangetroffen in vier verschillende gevallen van TCI's. Vergelijkbaar met de bevindingen van de vorige studies, vormden organisatorische factoren opnieuw de belangrijkste belemmeringen voor de implementatie van de vier innovaties. De aanwezigheid van zeer betrokken, gemotiveerde en enthousiaste personen speelde een sleutelrol bij het vergemakkelijken van de implementatie. De betrokkenheid van sleutelpersonen, actoren en partners was de belangrijkste implementatiestrategie die gebruikt werd om de vier innovaties te implementeren. Met betrekking tot de resultaten van de implementatie van de vier innovaties was een hoge adoptie een belangrijk resultaat, evenals de aanvaardbaarheid en de voordelen voor de ouderen. De geschiktheid van de onderdelen van de interventies voor de behoeften van de ouderen werd echter niet altijd bereikt. In een andere kwalitatieve studie **(hoofdstuk 5)** werden de ervaringen van de belanghebbenden met dezelfde vier in België uitgevoerde TCI's verder onderzocht. De stakeholders gaven aan dat hun actieve betrokkenheid en het meenemen van hun suggesties bij de ontwikkeling van de TCI's een stimulans was. Bovendien waardeerden zij hun werkautonomie, wat hun besluitvormingsproces versterkte en hun motivatie om de TCI's te implementeren verhoogde. Bovendien konden zij multidisciplinaire zorgpartnerschappen en samenwerkingsverbanden opzetten, wat hen ondersteunde bij het verbeteren van de transities voor ouderen.

De compilatie van de cumulatieve bevindingen van alle studies leidde tot de uiteindelijke doelstelling van dit proefschrift. Door de methode van Implementation Mapping te volgen, werd systematisch een reeks van veertig implementatiestrategieën voor TCI's ontwikkeld **(hoofdstuk 6)**. Deze strategieën hadden betrekking op de belangrijkste factoren op

organisatorisch, individueel, beleids- en innovatieniveau die de implementatie van TCI's beïnvloeden. De geselecteerde strategieën werden ondersteund door theorieën over gedrags- of organisatieverandering, en door empirisch bewijs van hun effectiviteit bij het doorvoeren van veranderingen in zorgomgevingen. Het grootste aantal strategieën lag op organisatorisch niveau (bijv. structureel herontwerp, veranderingen in personeelsmodellen, organisatorische diagnose en feedback), gevolgd door strategieën op individueel niveau (bijv. actief leren, selectie van overtuigingen). Er waren minder strategieën op beleidsniveau (bv. belangenbehartiging en lobbyen) en op innovatieniveau (bv. maatwerk). Er werden suggesties gedaan voor praktische toepassingen van de strategieën (bv. deskundigen op het gebied van innovaties bij transities inschakelen om als model te dienen en de vereiste taken en vaardigheden te illustreren en ter plaatse voortdurende ondersteuning bij de implementatie te bieden). Tevens werden suggesties gedaan over wie de doelgroep zou zijn van de implementatie strategieën (bv. de verpleegkundige in de transitie-zorg) om het gebruik ervan door toekomstige uitvoerders van TCI's te vergemakkelijken.

Hoofdstuk 7 vat de belangrijkste bevindingen van alle in dit proefschrift opgenomen studies samen, gevolgd door methodologische en theoretische overwegingen. Verder worden verschillende implicaties voor de praktijk en toekomstig onderzoek gepresenteerd. Ten eerste biedt het kennis over de belangrijkste factoren die de implementatie van TCI's beïnvloeden en geeft het een selectie van theorie en evidence-based strategieën om deze factoren aan te pakken en de implementatie te verbeteren. Ten tweede geeft het suggesties voor toekomstig onderzoek op het gebied van transitie-zorg en implementatie van TCI's door aan te geven dat het nodig is meer concepten van implementatiewetenschap te gebruiken, contextuele analyse uit te voeren voorafgaand aan implementatie, en meer bewijs op te bouwen over de effectiviteit van implementatiestrategieën voor TCI's.



CHAPTER 9

Impact

Successful implementation of Transitional Care Innovations (TCIs) should not be taken for granted. Consideration of contextual factors and usage of implementation strategies are fundamental for any prospective initiative to implement TCIs in long-term care (LTC).

The outputs of this dissertation contribute to the key objectives of the European TRANS-SENIOR research consortium (1) to improve the implementation of TCIs and hence enhance the delivery of transitional care for older persons.

PROMOTING SOLUTIONS FOR AN AGEING SOCIETY

As global societies age, older persons demand more LTC services and face frequent care transitions between multiple care settings (2). Care transitions come with a high risk of negative health consequences and poor quality of care (3, 4). Therefore, innovations to deliver better transitional care for older persons are needed. TCIs are desirable solutions to enhance transitional care for older persons (at the individual level) and to relieve the increased pressure on LTC service demands and social care systems (at the societal level) (5). Worldwide, the development and implementation of TCIs have gained momentum and been applied more recently. Thus, the findings of this dissertation can have a large societal impact. Primarily, it will inform governments, policymaking entities, organizations, and innovators in LTC on the existing challenges in implementing TCIs and provide evidence-based practical methods to improve the process. Furthermore, it will offer guidance on the proper implementation of TCIs to help translate these innovations into the real world, increase their reach/use, and improve their sustainability. This will contribute to strengthening LTC delivery systems, reversing the negative effect of care transitions in societies, and thus achieving better population health.

GUIDANCE FOR LTC ORGANIZATIONS (PRACTICE)

Guidance on how to implement successfully available TCIs is needed in practice. LTC organizations can benefit greatly from first, knowing the existing types of TCIs and their key components; second, knowing what factors predominantly influence the implementation of TCIs in different care settings; and third practical methods to use in implementing TCIs. Key guiding tools developed in this dissertation can be valuable for practical use. The established compilation of 20 different TCIs (chapter 2) can increase the knowledge and awareness of healthcare professionals on a wide range of available innovations implemented previously in multiple care settings. Moreover, the thorough description of these TCIs (i.e. care transition pathways, target population, aims, and key components) is informative and helps limit re-creating similar innovations in practice. Instead, practice can select an existing TCI and focus

more on its implementation rather than development. This can help save time and effort, often scarce in LTC organizations, to develop TCIs from scratch.

Furthermore, the list of priority factors that influence the implementation of TCIs is another guiding tool for practice (chapter 3). Insight into the critical barriers and facilitators is instrumental in helping LTC organizations assess their readiness and capabilities to implement a TCI. This can serve as a checklist to support innovators and implementers in practice to understand early on their specific implementation context and judge whether a new TCI has a chance to be implemented.

Additionally, the set of selected implementation strategies for TCIs (chapter 6) provides an extensive list of strategies to guide implementers in practice. This set provides multiple suggestions on how to use each strategy in a practical way to implement TCIs. Therefore, future projects on implementing a TCI in practice can start with a clear guidance on implementation by utilizing the three complimentary outputs of this research – the list of available TCIs, important factors to consider, and the relevant implementation strategies and their practical applications. Moreover, this work will be shared with various LTC partner organizations within the TRANS-SENIOR consortium. Specifically, the Living Lab in Ageing and Long-term care in the Netherlands will use the set of implementation strategies (chapter 6) in future studies on implementing innovations for care transitions from home to nursing home settings.

INFORMING FUTURE TRANSITIONAL CARE POLICY

This dissertation can help inform future LTC policy at a European level. Findings on priority factors that influence the implementation of TCIs can provide input for the development of future policies to support the implementation of TCIs (6). For example, financing of TCIs' implementation is an important barrier and thus can be used as a key issue to address in a policy brief presented to policymakers at national/European levels. In addition, having frontline staff with a transition role is an important facilitator and can be used as a key recommendation in a policy brief created for LTC organizations. Similarly, the selection of implementation strategies for TCIs can guide organizational policies on implementing innovations. For instance, the strategy 'perform organizational diagnosis and feedback' can be developed into a policy that demands LTC organizations to assess their context and prepare before any prospective project to implement a TCI.

Furthermore, partner organizations within the TRANS-SENIOR consortium - AGE Platform Europe and the World Health Organization - are prominent parties in shaping future LTC policies. Hence, they can use the findings of this dissertation as insights for their advocacy

and policy development work at the European level. Moreover, based on the findings of this dissertation, a set of policy briefs will be created and dialogues with national stakeholder groups on LTC in Europe will be held. These dialogues will highlight the existing issues in implementing TCIs, the research findings, options for consideration, and recommendations to promote successful implementation.

DISSEMINATION OF FINDINGS

The findings of this dissertation were disseminated through various channels. Studies conducted were published in peer-reviewed, international, and high-impact open-access scientific journals such as Implementation Science and The Gerontologist. Moreover, findings were presented at multiple international conferences such as the European Implementation Event, and the Gerontological Society of America Annual Scientific Meeting. Furthermore, findings were shared among the TRANS-SENIOR consortium network, other researchers, and partners through regular webinars and training events.

The TRANS-SENIOR consortium website hosts all the published articles of this dissertation and a YouTube video summarizing this research (1). An online toolbox of implementation strategies will be developed based on the outputs of this dissertation and will be made available in English on the websites of the Living Lab in Ageing and Long-term care (Academische Werkplaats Ouderenzorg Limburg) (7) and TRANS-SENIOR (1). This toolbox will be freely accessible for use by healthcare professionals planning to implement TCIs and will help to widespread innovation in LTC practices.

BECOMING A HEALTHCARE INNOVATOR

On a professional level, performing this research within TRANS-SENIOR has equipped me with the necessary knowledge, research expertise, and transferable skills needed to become both a healthcare innovator and an independent researcher. Being part of a multidisciplinary and multi-sectoral consortium as well as working with proficient research groups on LTC and innovation has built my capabilities to create solutions to improve transitional care. Moreover, I gained a large network of fellow researchers, innovators, implementers, and experts across Europe.

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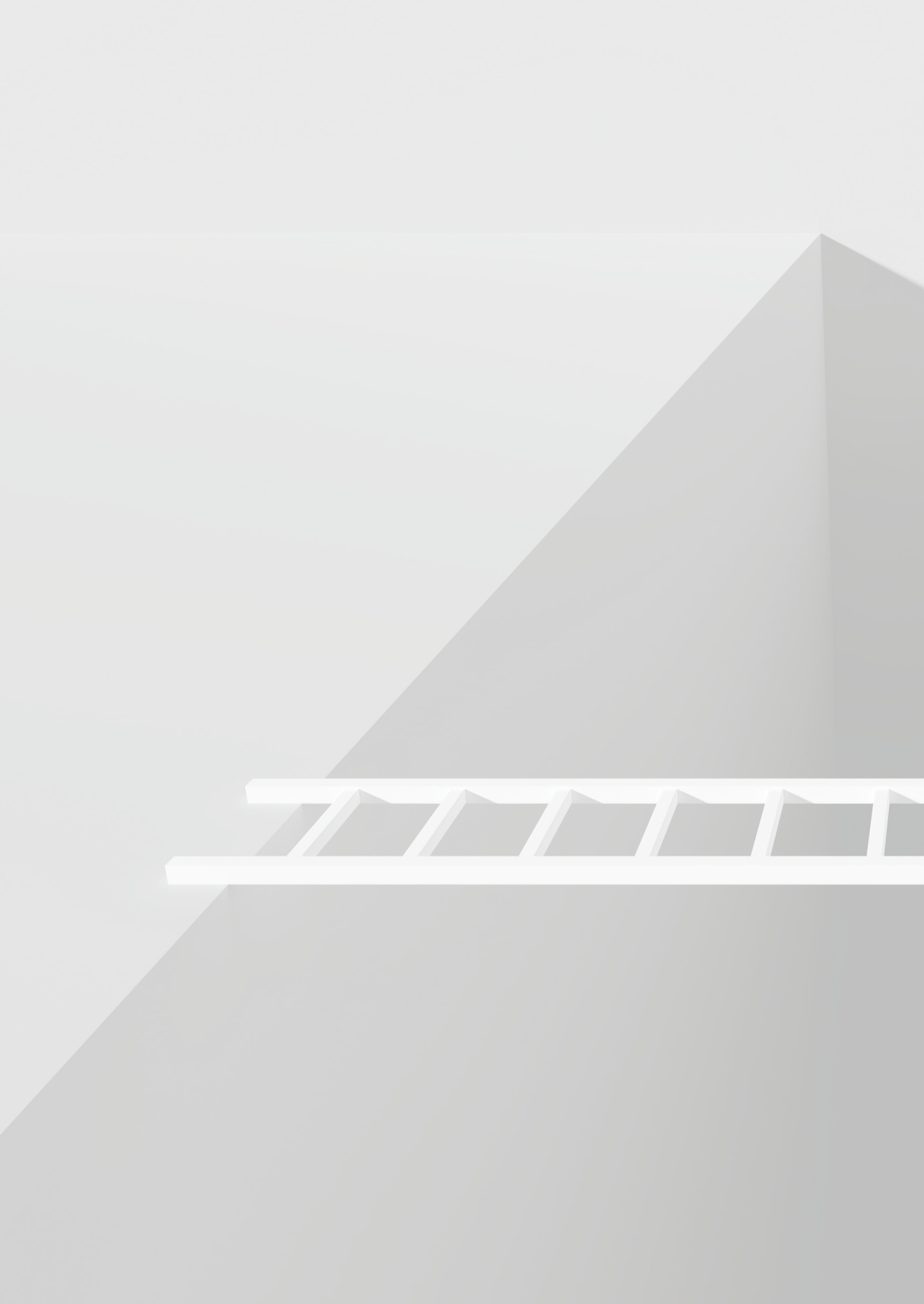

ADDENDA &

Publications
Acknowledgments
About the Author
Living Lab in Ageing and Long-Term Care

PUBLICATIONS

INTERNATIONAL SCIENTIFIC JOURNALS:

Fakha A, Groenvynck L, de Boer B, van Achterberg T, Hamers J, Verbeek H. A myriad of factors influencing the implementation of transitional care innovations: a scoping review. Implement Sci. 2021; 16(1):21. https://doi.org/10.1186/s13012-021-01087-2

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CONFERENCE ABSTRACTS:

Fakha A, de Boer B, van Achterberg T, Hamers J.P., Verbeek H. Fostering the implementation of innovations to improve care transitions for older persons: an expert consensus. Evidence and Implementation Summit (EIS), March 30-31, 2021; Australia.

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Fakha A, Leithaus M, de Boer B, van Achterberg T, Hamers J.P., Verbeek H. Exploring the implementation of four transitional care interventions for older adults: a collective case study. The Gerontological Society of America (GSA) Annual Scientific Meeting, November 2-6, 2022; Indianapolis, IN, USA.

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ABOUT THE AUTHOR

Amal Fakha was born on March 4, 1984, in Beirut, Lebanon. She obtained her Bachelor of Sciences in Nutrition and Dietetics in 2005 from the American University of Beirut, Lebanon. Amal is a licensed dietitian by the Ministry of Public Health in Lebanon and had worked previously as a Clinical Nutrition Therapist specializing in pediatrics and surgery care units at a governmental university hospital in Lebanon.

In 2009, she moved to Paris, France, and completed her Master's degree in International Public Health (concentration in Management & Health Policy) at the École des Hautes Etudes en Santé Publique (EHESP). Following her master's studies, Amal returned to the Middle East (Qatar, United Arab Emirates) where she worked as a Healthcare Consultant with national (Qatar Foundation) and international companies (Munich Re). Notably, she was a key planning consultant for a green-field project to develop a health informatics-driven hospital facility. Moreover, she worked on the business development of multiple strategic health insurance companies in the Middle East and North Africa region. Before starting her doctoral studies, Amal led a national health promotion project funded by the European Union in Lebanon and lectured in the global public health program at EHESP as an alumni contributor.

In 2019, Amal was awarded to pursue her joint-doctoral degree as a Marie Skłodowska-Curie early-stage researcher within the TRANS-SENIOR research consortium, a European Union's Horizon 2020 research and innovation program. Since then, Amal has been living in the Netherlands and have performed jointly her PhD research project at Maastricht University (Care and Public Health Research Institute), and Katholieke Universiteit Leuven (KU Leuven). Amal's PhD research focused on improving the implementation of innovations in long-term care.

In between her major career steps, Amal took a sabbatical and traveled solo to Vietnam, Thailand, and Sri Lanka, where she enjoyed beautiful yoga retreats, nature, and cultural adventures.

Currently, Amal is an Assistant Professor of Innovation Management and Strategy at the Faculty of Economics and Business, University of Groningen.

LIVING LAB IN AGEING AND LONG-TERM CARE

This dissertation is part of the Living Lab in Ageing and Long-Term Care, a formal and structural multidisciplinary network consisting of Maastricht University, nine long-term care organizations (MeanderGroep Zuid-Limburg, Sevagram, Envida, Cicero Zorggroep, Zuyderland, Vivantes, De Zorggroep, Land van Horne & Proteion), Intermediate Vocational Training Institutes Gilde and VISTA college and Zuyd University of Applied Sciences, all located in the southern part of the Netherlands. In the Living lab, we aim to improve quality of care and life for older people and quality of work for staff employed in long-term care via a structural multidisciplinary collaboration between research, policy, education and practice. Practitioners (such as nurses, physicians, psychologists, physio- and occupational therapists), work together with managers, researchers, students, teachers and older people themselves to develop and test innovations in long-term care.

ACADEMISCHE WERKPLAATS OUDERENZORG LIMBURG

Dit proefschrift is onderdeel van de Academische Werkplaats Ouderenzorg Limburg, een structureel, multidisciplinair samenwerkingsverband tussen de Universiteit Maastricht, negen zorgorganisaties (MeanderGroep Zuid-Limburg, Sevagram, Envida, Cicero Zorggroep, Zuyderland, Vivantes, De Zorggroep, Land van Horne & Proteion), Gilde Zorgcollege, VISTA college en Zuyd Hogeschool. In de werkplaats, draait het om het verbeteren van de kwaliteit van leven en zorg voor ouderen en de kwaliteit van werk voor iedereen die in de ouderenzorg werkt. Zorgverleners (zoals verpleegkundigen, verzorgenden, artsen, psychologen, fysio- en ergotherapeuten), beleidsmakers, onderzoekers, studenten en ouderen zelf wisselen kennis en ervaring uit. Daarnaast evalueren we vernieuwingen in de dagelijkse zorg. Praktijk, beleid, onderzoek en onderwijs gaan hierbij hand in hand.

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